

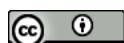
Digital Financial Reporting

Using an XBRL-based Model

A resource for accountants, internal auditors, external auditors, financial analysts, regulators, and other business professionals when creating, reviewing, auditing, using, or analysing XBRL-based digital financial reports

by Charles Hoffman, CPA and Raynier van Egmond

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Charles Hoffman, CPA, is credited as being the *Father of XBRL*. He started his public accounting career as an auditor with the international firm then called Price Waterhouse, served various roles in industry and public accounting for over 25 years, and has worked with XBRL since its introduction by the AICPA in 1998. In 2006, he received the AICPA Special Recognition Award for his pioneering role in developing XBRL. He has authored numerous publications including *XBRL for Dummies*, a number of *Journal of Accountancy* articles, writes a blog relating to XBRL, and contributed to a number of XBRL related technical specification and best practices documents. Currently, Charlie works as a consultant to CPAs and software vendors who want to better understand the subtle details of this new digital medium.

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1. Introduction

Digital financial reporting, using global standard technical specifications such as the Extensible Business Reporting Language (XBRL), is fast becoming the new paradigm for financial reporting. Digital financial reporting is part of a broader trend, digital business reporting in general. While this new digital paradigm has not overtaken the current financial reporting paradigm, chances are that it will. Now one knows for sure exactly when, no one knows everything about what this change might mean.

To remain relevant, CPAs and other accountants need to adjust their thinking about how to appropriately modify financial reporting to keep up with the digital revolution. These and other business professionals need to figure out the best ways to employ this new digital medium, where, and the impact of any change.

This document helps CPA, other accountants, financial analysts, regulators, and other business professionals understand the moving pieces of the new digital financial reporting paradigm.

1.1. About this document

This resource helps accountants, internal and external auditors, financial analysts, regulators, and other business professionals work with financial information which is expressed using digital financial reports. This resource helps these business users cut through all the noise and misunderstandings; allowing them to focus on what is truly important and not be distracted by the underlying technology which there is no need for business users to ever deal with.

This resource also helps software vendors understand what business users truly need from software applications in support of digital financial reporting.

While this resource uses XBRL to explain digital financial reporting, XBRL is really only one of many technical tools which will be employed for digital financial reporting. While XBRL is a widely technical tool, it is not the only tool and there is more to digital financial reporting than the XBRL technical tools. XBRL is simply one of many enabling technologies.

Information in this document was accumulated over a period of about twelve years. It represents, arguably, the best resource available today to understanding digital financial reporting. The information and knowledge has been accumulated, synthesized, organized, and explained as best as possible given the current point in time of the evolution of XBRL, digital financial reporting, software available to business users, etc.

1.2. Assumptions about reader

We make the following assumptions about the reader of this resource:

- We assume that you are not the average user but rather somewhat of an early adopter or someone who will be helping the average business user understand digital financial reports. As software improves, the complexity of digital financial reports will be absorbed by software. However, at this stage of the evolution of digital financial reports we have not reached the ease of use required for the average accountant to make use of digital financial reports.



- We assume that you understand the basics of the XBRL technical syntax. If this is not the case we would encourage the reader to become familiar with the XBRL technical syntax to get the most from this document. A good resource for the understanding of the XBRL technical syntax which the reader needs is chapter 4 An XBRL Primer in the book *XBRL for Dummies*.
- We assume that you understand financial reporting and will not explain fundamental financial reporting concepts and terminology.
- We assume that you will dig into the details of examples provided using good software. This will help you grasp important details. This is not a resource for understanding how to use any specific software application for the purpose of digital financial reporting.

1.3. *Organization of this document*

We have organized this resource into sections. Each section serves a specific purpose and fulfills a specific need for any business user endeavoring to understand digital financial reporting.

Digitizing Financial Reports explains how we get from paper-based financial reports to digital financial reports. It also provides necessary background for understanding the differences between paper-based or electronic financial reports and digital financial reports.

Overview of Accountants Perspective helps bring into focus things accountants should be thinking about as they endeavor to understand digital financial reporting.

Foundation for Understanding provides necessary background information which will allow business users to understand the technology they are working with. It is key to have a sound understanding of the difference between syntax and semantics as well as the difference between unstructured and structured information, as an example.

Resources for Getting Started point you to resources which will be useful as to undertake your journey.

Identifying and Defining Financial Report Semantics sets the foundation for understanding digital financial reports. This section brings into consciousness things that accountants understand, but don't really think about. These things need to be put into a form so that computers can work with them in order for a computer to help accountants derive value from a digital approach to financial reporting.

Understanding Financial Reporting Domain Semantics explains the next layer of semantics about the financial report itself, semantics which relates to the financial reporting domain, the industry/activity, and semantics unique to the reporting entity. Very high level but specific examples are provided in order to help accountants grasp these critical ideas.

Financial Report Model Elements reconciles the model we will be using to the financial report semantics brought into consciousness in the previous section.

The **Relations Between Financial Report Model Elements** further explains the model by explaining the relations between the report elements described in the prior section.



Verification of Digital Financial Reports dives into helping you understand if a digital financial report is a true and fair representation and the representation which you intended.

One highly desirable result of expressing financial reports digitally is so the information can be more easily used by analysts. The section **Analysis and Comparison of Digital Financial Reports** covers important aspects of using digital financial reports.

Special or Specific Modeling Considerations dives into a little more specific examples related to digital financial reports.

Metapattern Examples, Business Use Case Examples, Comprehensive Example, Financial Disclosure Template Examples, and Reference Implementation of Model sections provide a rich set of detailed examples you can use to further your understand this material.

1.4. Additional resources

Throughout this document sample files, examples, and other information is referenced. Each section will refer you to this additional information which is useful. All of this information is also summarized in one location which you can find here:

<http://xbrl.squarespace.com/digital-financial-reporting/>

We will also provide additional information, updated information, and otherwise provide additional resources you might need at this blog.

The following is other resources which you will likely find helpful:

- *Digital Financial Reporting Wiki* (<http://digitalfinancialreporting.wikispaces.com/home>) is where you can find updated information, downloads, examples, error corrections, etc.
- *Digital Financial Reporting Blog* (<http://xbrl.squarespace.com>) contains the most current information and other additional resources.
- *XBRL for Dummies* (<http://xbrl.squarespace.com/xbrl-for-dummies>) by Charles Hoffman and Liv Watson helps understand what XBRL is, what it is not, and provides good chapter, An XBRL Primer, which helps you understand the XBRL technical syntax should you want to delve into that. It also helps you understand how others are making use of XBRL and helps business readers understand the notion of a supply chain.
- *Everything is Miscellaneous* (<http://goo.gl/wvGZT>) by David Wenberger helps business readers understand the strategic implications of digital financial reports and how fundamental things will change about financial reporting.
- *Models Behaving Badly* (<http://goo.gl/HX3fY>) by Emanuel Derman helps business users understand the difference between a theory, a model, metaphor. The first section "Models" is crucial, the entire book is interesting.
- *Arelle* (<http://arelle.org>) is a high quality, free, open source XBRL processor. For those who are more technical, this is a great resource.



1.5. Where next

Digital financial reporting is just getting started. Many new opportunities will be created for accountants who learn to harness these new tools. Older tools will become less relevant.

Even though something like the SEC XBRL mandate does not affect you directly does not mean that you should not be proactive and that there is nothing that can be learned from the pioneers who are blazing the digital financial reporting trail.

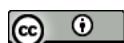
Get some software, try things out, maybe even dig deeper into the details provided by links in this document, additional details provided within the appendices of this document, or resources you discover elsewhere.

1.6. Acknowledgements

While I did physically create the information in this resource, I could have not done so without the gracious help of a number of people, directly and indirectly, over the years. I see myself as merely a custodian of this important information, nurturing it along for the benefit of all, condensing countless discussions into something hopefully useful for the common good.

I would like to specifically thank these contributors: Walter Hamscher, Geoff Shuetrim, David von Kannon, Rene van Egmond, Thomas Egan, Josef Macdonald, Jim Richards, Roger Debreceny, Jeff Naumann, David Prather, Alan Teixeira, Hugh Wallis, Allyson Ugarte, Colm O hAonghusa, Giancarlo Pellizzari, Yossef Newman, Rob Blake, Mark Creemers, Marc van Hilvoorde, Herman Fischer, Ignacio Hernandez-Ros, Dean Ritz, Timothy Randle, Cliff Binstock, David Scott Stokes, Masatomo Goto, Paul Warren, Mark Goodhand, Campbell Pryde, Michele Romanelli, Maciej Piechocki, Victor Morilla, Mike Rowling, Joe Ryba.

There are others which I probably left off and for this I apologize. I acknowledge and appreciate the thinking others contributed to this endeavor.



2. Digitizing Financial Reports

The dawn of the era of digital financial reporting has arrived.

Digital technology has become an integral part of society and culture. If you have a camera, it is likely to be digital. If you are into music, you probably listen to it on your digital music player. You probably record your television programs on your digital video recorder and watch them whenever you want. You are likely to read your digital book on your Kindle or iPad. You probably look up information more on Wikipedia than you do in Encyclopedia Britannica. Internet stores like Amazon.com are changing how we buy, consume and research products. Social networking like Facebook.com and LinkedIn.com are changing how we relate to customers and colleagues. Google changes what we know and how we learn. Blogs change where we get our news from. Groupon has changed the way we think about coupons.

Financial statements too are going digital.

2.1. Value proposition: actionable information

In 2008 both the global consultancy Gartner and leading benchmark research and advisory services firm Ventana Research released white papers which described inefficient corporate reporting process which they predicted would change. (See Gartner's *XBRL Will Enhance Corporate Disclosure and Corporate Performance Management* and Ventana's *Selecting the Right XBRL Solution: Addressing Compliance Requirements and Automating the External Reporting Process*.)

This is Ventana's description of the process:

"Thus, the current close-to-file process is structurally prone to error. It poses a risk that mistakes and misstatements will occur. Most companies deal with this potential for errors and the risks they pose with a brute-force approach, using well-paid professionals (who could be doing more productive things) to check and double-check the documents. This might be a workable approach today, but it becomes increasingly difficult and costly as the amount of required tagging increases."

While being productive tools, spreadsheets, word processor documents, and desktop databases are wreaking havoc on organizations. The large number of spreadsheets, word processing documents, and desktop databases make up the highly manual, time consuming and error prone process they require is the approach of today.

XBRL part of the change, a trend, a paradigm shift toward model-based semantic structured authoring of business reports.

2.1.1. Digital business reports

Business system to business system information exchange is no easy task. Yet achieving this interoperability will result in new cost effective, easy to use, robust, reliable, repeatable, predictable, scalable, secure, auditable, business information exchange across business systems. Some business systems might be internal to your organization, others might be external to your organization.

A business user who has a business information exchange problem could always go to the IT department and working with the IT department solve any business information exchange problem. But these solutions care costly.



What if a business user, independent of the IT department, could solve a business system to business system information exchange problem without having to trouble with the IT department? That is what digital financial reporting is all about.

2.1.2. Digital business reports ends “spread sheet hell”

An article published by Government Technology, *XBRL Ends Spreadsheet Hell*, explains how XBRL ended spreadsheet hell for a department within the state of Nevada. Kim Wallin, Nevada's controller says:

"The goals were timely and accurate data, stronger internal controls, reduced costs, a standardized system of seamless data exchange, business processes and data elements. XBRL met all of those goals."

The article discusses two projects where XBRL was used to supplement what had been done with spreadsheets alone. One project related to the tracking of grants and the other relating to debt collection.

2.1.3. Understanding the term actionable information

Actionable information is information from a trusted source about something that is important to you and once known to you will drive you to take some action.

The following is an example which helps explain what actionable information is by John Alber, *Delivering Actionable Information To Front-Line Lawyers*:

<http://www.llrx.com/features/actionableinfo.htm>

"If a friend tells you that you have something in your teeth, chances are you'll visit a mirror and attend to the problem. That's actionable information. It is information (1) from a trusted source, (2) about something that's important to you, and (3) that, once known to you, will impel you to take action."

While the article talks about law firms, it has general applicability.

Ask yourself this question. In your organization, how does the mass of information which you have available become actionable? Is that process as efficient and as effective as it could be? If your organization is like most others, chances are that the process involves lots of reports, spreadsheets, re-keying, etc.

2.1.4. Understanding the structured information and metadata opportunity (or threat)

The move to digital financial reporting will cause a number of very significant shifts. One of these shifts relates to how metadata can be employed. This shift is both an opportunity and a threat. Most accountants and CPAs don't have a good enough grasp as to what metadata is or the role it plays. Therefore, nor do they understand the side of the shift equation on which they will end up.

This is what we mean.

Let me use the external financial statement as an example. Most external financial statements today are created using Microsoft Word. I hear the number 85%. I am not talking about the balance sheet, income statement, and maybe cash flow statement which might be generated from an accounting or ERP system. I am talking about a complete financial statement.

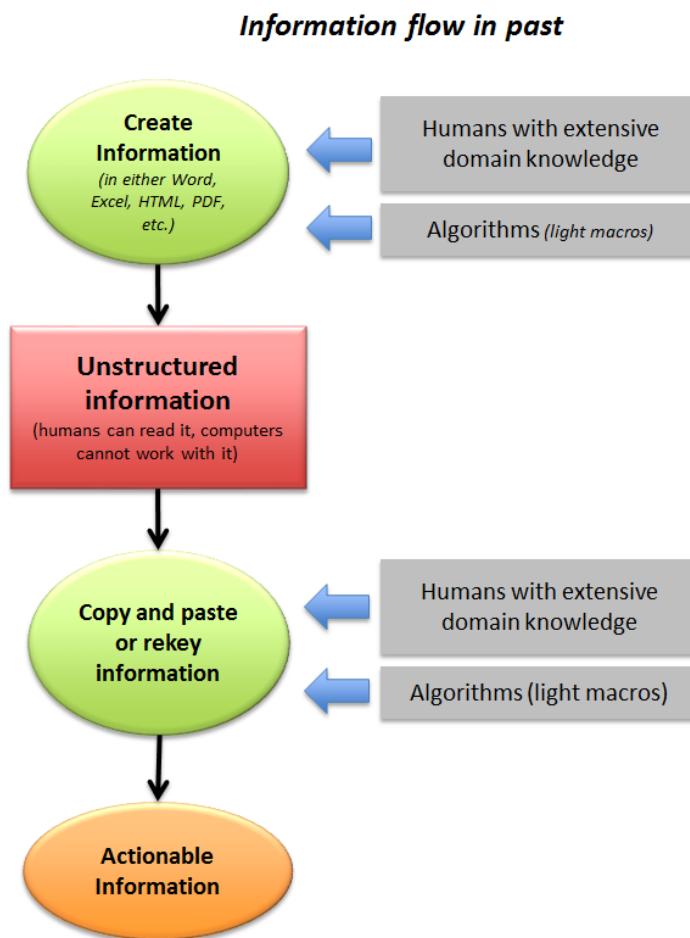
So, how much does Microsoft Word know about financial statements? You are probably thinking that this is a rather odd question, of course Word knows nothing



about financial statements. The person creating the financial statement is the one which knows about financial statements; they use their knowledge of financial reporting and US GAAP or IFRS to create a financial statement using Word.

That is exactly the problem. In fact, it is two problems. The first problem is that Word cannot help you create that financial statement and get it correct. The second problem is that once the information is put into Word, because Word does not have any knowledge of the financial information within the financial statement; reusing that information involves humans, usually with domain knowledge, rekeying that information in order to make the information actionable.

The graphic below shows this has worked in the past (and likely how most people do this today):

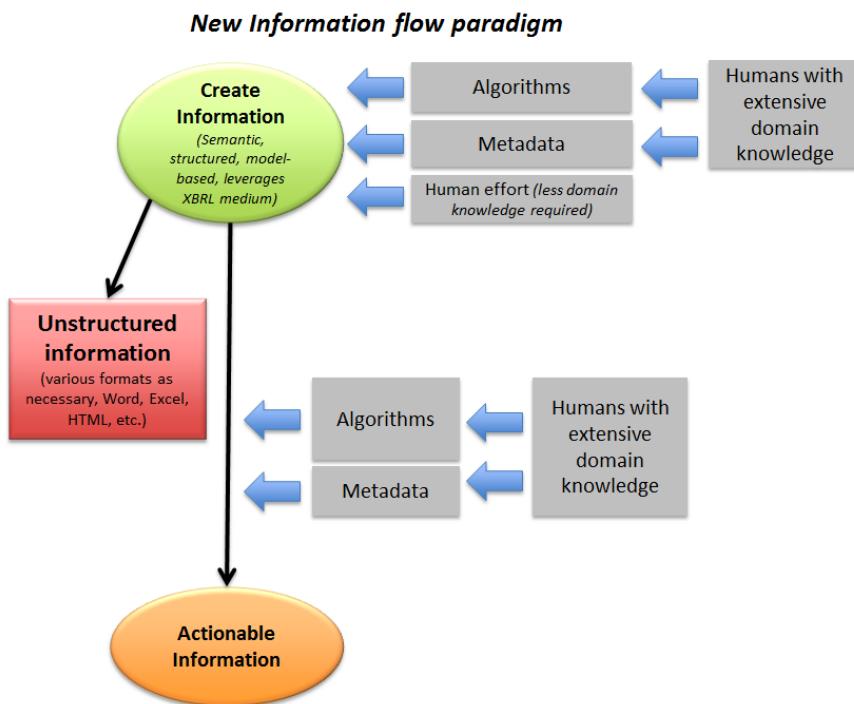


But what if Word did understand financial statements? Well, word my never understand external financial statements, but other applications will. You could get Word to understand financial statements by using its macro language, which is VBA and actually quite powerful, but more likely other applications will be created. And how might a software application understand a financial statement you might ask? Structured information and metadata. (To understand that statement is a journey, start here on that journey. This has the complete story. Once you see this in action, you will get it, get it.)



Basically information which you and other know about a domain such as financial reporting will be expressed in a form which a computer can understand. That is what the XBRL medium does, it expresses information in a structured form so a computer can understand it. Additional information, metadata, will be expressed which is helpful in working with that structured information.

Algorithms, or computer programs, will do stuff with that structured information and metadata. Lots of stuff. The graphic below shows this:



So two things will happen. First, who can create information and how they create that information will change dramatically. Because the computer can help the user, a less skilled person can do the work because the "human knowledge" is now expressed in the metadata. Second, automated reusing the information will become possible.

This will spiral, the possibilities widening and widening as more and more metadata and algorithms are created and employed.

What is the threat? If your skill is memorizing and regurgitating information, this is a threat. If your skill is rekeying information, this is a threat. Basically, think of what numerically controlled (NC) machines did to the manufacturing process. Robots build a lot of stuff today using algorithms and metadata which control the machines which churn out consistent, higher quality output than humans can generally create.

The opportunity? Creating algorithms, creating metadata, doing value-add analysis of all that structured, model-based information.

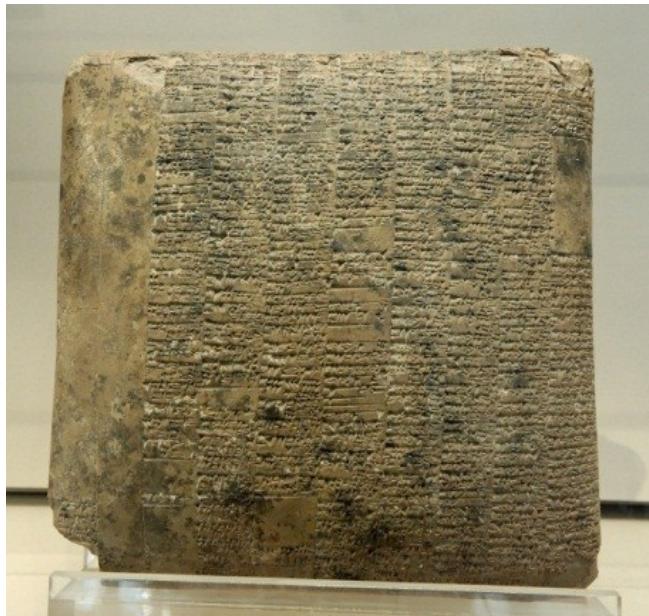
And these opportunities and threats are not limited to external financial reporting, or even financial reporting. These same ideas can be applied to many, many other domains.



2.2. Evolution of financial report mediums

Things change. Below is a summary of the evolution of the financial report. Each of these examples shows a balance sheet.

First we show the annual balance sheet of a State-owned farm in Mesopotamia, drawn-up by the scribe responsible for artisans: detailed account of raw materials and workdays for a basketry workshop. The medium is clay and this balance sheet was created in 2040 BC:



Here we show a 20th century balance sheet of Wachovia National Bank, 1906. The medium is paper.

STATEMENT —OF— WACHOVIA NATIONAL BANK, WINSTON, N. C.		
JANUARY 29TH, 1906.		
(CONDENSED FROM REPORT TO THE COMPTROLLER OF THE CURRENCY.)		
RESOURCES.		LIABILITIES.
Loans, including Overdrafts	\$ 511,789.61	Capital.....\$ 150,000.00
U. S. Bonds and Premiums	52,300.00	Surplus and Undivided Profits 171,167.89
Real Estate, Furniture and Fixtures,.....	4,500.00	Circulation..... 50,000.00
Redemption fund with U. S. Treasurer.....	2,500.00	
Cash and Due from Banks...	268,231.30	DEPOSITS,..... 468,153.02
	\$839,320.91	
		\$839,320.91
W. A. LEMLY, President.		JAS. A. GRAY, Cashier.

Next we see a Microsoft balance sheet (fragment), 1994, EDGAR system. (See <http://www.sec.gov/Archives/edgar/data/789019/0000950109/94-000252.txt>) This



is from the early years of the SEC EDGAR system. The medium of this financial report is Structured Generalized Markup Language (SGML):

<PAGE>		
MICROSOFT CORPORATION		
Balance Sheets (In millions)		
<TABLE>	December 31 1993(1)	June 30 1993
<CAPTION>	-----	-----
<S> Assets	<C>	<C>
Current assets:		
Cash and short-term investments	\$2,796	\$2,290
Accounts receivable - net	460	338
Inventories	130	127
Other	96	95
Total current assets	3,482	2,850
Property, plant, and equipment - net	913	867
Other assets	91	88
Total assets	\$4,486	\$3,805
Liabilities and stockholders' equity	=====	=====

Next we see a Microsoft balance sheet from an SEC filing in 2008 (see <http://www.sec.gov/Archives/edgar/data/789019/000119312508089362/d10q.htm>) which uses an HTML format:

MICROSOFT CORPORATION		
BALANCE SHEETS (In millions)		
	March 31, 2008 (Unaudited)	June 30, 2007(1)
Assets		
Current assets:		
Cash and cash equivalents	\$ 11,820	\$ 6,111
Short-term investments (including securities pledged as collateral of \$2,318 and \$2,356)	14,521	17,300
Total cash, cash equivalents, and short-term investments	26,341	23,411
Accounts receivable, net of allowance for doubtful accounts of \$147 and \$117	9,871	11,338
Inventories	774	1,127
Deferred income taxes	1,721	1,899
Other	2,782	2,393
Total current assets	41,489	40,168
Property and equipment, net	5,516	4,350
Equity and other investments	8,659	10,117
Goodwill	10,346	4,760
Intangible assets, net	1,639	878
Deferred income taxes	1,367	1,389
Other long-term assets	1,731	1,509
Total assets	\$ 70,747	\$ 63,171
Liabilities and stockholders' equity	=====	=====



Finally we see a 21st century balance sheet from Microsoft generated by the SEC interactive information viewer, 2012. The medium used to express this financial information is XBRL. The XBRL technical syntax is rendered by the SEC viewer. (see <http://www.sec.gov/Archives/edgar/data/789019/000119312512316848/0001193125-12-316848-index.htm>)

MICROSOFT CORP (Filer) CIK: 0000789019			
Print Document View Excel Document			
Cover	Balance Sheets (USD \$) In Millions, unless otherwise specified		
Document and Entity Information	Current assets:		
	Cash and Cash Equivalents	\$ 6,938	\$ 9,610
	Short-term investments (including securities loaned of \$785 and \$1,181)	56,102	43,162
	Total cash, cash equivalents, and short-term investments	63,040	52,772
	Accounts receivable, net of allowance for doubtful accounts of \$389 and \$333	15,780	14,987
	Inventories	1,137	1,372
	Deferred income taxes	2,035	2,467
	Other	3,092	3,320
	Total current assets	85,084	74,918
	Property and equipment, net of accumulated depreciation of \$10,962 and \$9,829	8,269	8,162
	Equity and Other Investments	9,776	10,865
	Goodwill	13,452	12,581
	Intangible assets, net	3,170	744
	Other long-term assets	1,520	1,434
	Total assets	121,271	108,704
Notes to Financial Statements	Current Liabilities:		
Accounting Policies			
Notes Tables			
Notes Details			

There is a significant difference between the earlier financial reports and the new XBRL-based financial report. All versions prior to XBRL were only readable by humans. But the XBRL-based financial report is readable by humans when rendered as above, but also readable by computer software applications.

2.3. *Understanding semantic, model-based digital financial reporting*

Semantic, model-based digital financial reporting approaches to financial reporting which employ technology to both improve the functionality of the financial report while at the same time reduce the costs of creating financial reports. Further, semantic, model-based digital financial reporting reduces the costs and increases the functionality of analysis of financial and non-financial information contained in those reports.

Understanding what a model-based digital financial report is can best be seen by looking at the evolution of a financial report.

- **Paper and pencil.** When business information is communicated on paper, the nature of the paper medium means that the report can be used by one person at a time, it cannot be changed in any way as it exists in one form,



and the nature of the information on the report determines who needs to create that report in order to maintain quality of the information communicated. Photo static copies of paper can be made to improve information distribution.

- **Computer.** Computers and the electronic spreadsheet improve financial reports created using paper and pencil in a number of ways. Information is unstructured, or more correctly structured only for presentation of information within a computer spreadsheet or word processing document. The formats are not standard and therefore cannot be exchanged with others unless they have the same software application as the creator of the information.
- **Electronic.** Taking computer generated financial reports a step further, the output formats can be standardized to say HTML or PDF and, leveraging the internet, distribute that information to anyone on the planet for pennies. While there is significant benefit to electronic distribution of business information, because the information is still unstructured (or more correctly structured for presentation and not meaning), information contained within the reports cannot be reliably reused or analyzed without a human's involvement.
- **Digital.** By digital we mean that the unstructured information is structured for meaning, many times using a global standard format, in some format which gives the information meaning. Because the information has meaning associated with it three things are possible. First, when the information is created software applications can assist in the process because the computer can read the structure and assist those creating such reports. Second, when the information is analyzed humans are not needed to move the information from its creation form into the form used for analysis, computers can use the structure to do that also. Third, rather than locking the created information into one form like paper, computer or electronic formats do, the information can be rendered in any number of forms. Further, within a software application using the information the information becomes more interactive, much like a pivot table of an electronic spreadsheet.

Semantic, model-based digital financial reporting is leveraging the structured nature and semantics of the information in order to help business users create, reuse, and/or analyze financial information. Order of magnitude improvements in quality and functionality are achieved and significant reductions in cost are experienced. These improvements in quality and functionality and reductions in cost are even greater if all those in the "chain" or creation, use, and reuse each have tools which leverages the digital characteristics described.

But for digital financial reporting to work correctly, information must be interpreted correctly, information must be unambiguous, information about the information must be articulated digitally so that computers can read and therefore use the information and relations correctly. Basically, there is no magic involved in this process. How to achieve these results are in no way mysterious. But, there are certain challenges which must be overcome.



2.4. SEC primes the pump

About 12,000 companies submit their financial to the U.S. Securities and Exchange Commission (SEC) using the structured digital format XBRL (eXtensible Business Reporting Language). Over 5,000 mutual funds are submitting their financial reports to the SEC digitally. Approximately 9,000 banks submit their financial statements to the Federal Deposit Insurance Corporation (FDIC) digitally. This trend toward digital financial reporting is gaining momentum as the XBRL digital financial reporting format is being adopted by many different financial reporting channels around the world in Europe, India, China, Japan, Australia, South America, Canada, and many other locations around the world. While the number of digital filers is not known, it is in the millions and rapidly rising.

Yes, the undeniable reality is that financial reporting is going digital.

2.5. Ramifications and unexpected consequences of going digital

Changing to the digital medium has ramifications. Going digital will have expected positive ramifications and likely some unforeseen positive impacts. What needs to also be considered is undesirable negative impacts, particularly unforeseen negative impacts and unexpected consequences.

As pointed out earlier digital financial reporting and electronic financial reporting are not the same thing. Where electronic financial reporting is about transferring what amounts to an electronic version of a paper document from the creator of the document to the user of the document; the electronic document is created in pretty much the same manner as it had been for a hundred years. So, just creating electronic versions of the same documents have limited impact of information reported, more of the impact is distribution of reported information.

Digital financial reporting is different than a paper or electronic financial reporting. A digital financial report can be read and understood, to a degree, by a computer software application. While computers will never replace the judgment of CPAs, there are many things that computer software can do to assist CPAs. Processes for creating financial reports and many aspects of auditing will change significantly.

There is a fundamental change when the information is reported digitally. Just like when music is recorded on a CD or DVD or as an MP3, information is lost because something which is analog when converted to something digital tradeoffs are made. For music, the loss of fidelity is imperceptible to most. Some can tell a difference.

The question is, how will the move from paper or electronic to digital financial reports impact reported information and the ability of the consumer of that information to satisfy their needs. While the jury is still out and while all positive and negative impacts are not known; some impacts and related questions do exist.

2.5.1. Presented on the face of the financial statements

When financial reports were designed, they were designed with paper in mind. There are a number of drawbacks to communicating information using paper as the medium. Firstly, information on paper can only be organized one way, usually through the author's lens. Secondly, the information communicated is constrained by the physical limits of each page of paper. The information presented on paper is two dimensional because the medium has two physical dimensions and rigidly



structured in the same one way for all readers. It is only with great effort that authors can use the medium of paper to highlight exceptions, overlapping information, and make all meaning visible and explicit for the reader to absorb with a glance.

However, the world has changed. Not changed in the way that HTML, PDF or electronic paper have changed financial reporting, but changed in the way that we expect to consume music, movies, product ratings, coupons, and financial information. XBRL is referred to as "interactive data" by the SEC for a reason. The XBRL technical standard enables the ability to change the perspective of the information to be dynamic like a Microsoft Excel pivot table, and to have any number of organizations of the information contained within a financial statement.

Practices which were meaningful using the paper medium such as "presented on the face of the financial statements" are irrelevant if there is no face to the financial statements or if everything can be linked to other things and navigating from one spot in a financial statement, the "face", to another spot such as the disclosures or policies, is easy.

2.5.2. *Filling in a box*

One of the issues which the financial reporting community will need to address can be demonstrated by looking at the disclosure of significant accounting policies in SEC XBRL financial filings. The issue is a general issue, it relates to many areas of a financial report. There really is no "right" or "wrong" answer, there are just different approaches and each of those approaches has "functionality" which it delivers. You may, or may not, see this as a "change to financial reporting" or a "change in US GAAP". That is not the point of making this information available. The point is to help accountants to understand the issue.

The issue relates to the difference between unstructured information and structured information. With legacy approaches to creating a financial report the information disclosed is basically unstructured and therefore there is no "box" that information must fit into. You can understand "the box" by realizing that when you move from unstructured to structured information, you basically take the unstructured information, structure it in some way (thus creating the box), and you put the information into a box.

The "box" is not good or bad, it is just a box. It is not that unstructured is good and structured is bad; or that structured is good and unstructured is bad. They are just different.

So here is what I mean. If you understand financial reports, then you know that within a financial report, such as within an SEC financial filing, you have to disclose significant accounting policies. If you look at SEC XBRL financial filings (which I have, more info later) you will see that 100% of the 10-K filings disclose significant accounting policies. Reporting rules require this.

But, filers structure this disclosure using XBRL in different ways. Here are the primary ways I see this done (this is looking at only the [Text Block] or (Table) which every SEC filer provides in their SEC XBRL financial filing:

- Significant Accounting Policies (us-gaap:SignificantAccountingPoliciesTextBlock) is used most.



- Basis of Presentation and Significant Accounting Policies (us-gaap:BasisOfPresentationAndSignificantAccountingPoliciesTextBlock) is a distant second
- Business Description and Significant Accounting Policies us-gaap:BusinessDescriptionAndAccountingPoliciesTextBlock) is next
- Basis of Accounting (us-gaap:BasisOfAccounting)
- Organization, Consolidation, Basis of Presentation, Business Description and Accounting Policies (us-gaap:OrganizationConsolidationBasisOfPresentationBusinessDescriptionAndAccountingPoliciesTextBlock)
- Organization, Consolidation and Presentation of Financial Statements Disclosure and Significant Accounting Policies (us-gaap:OrganizationConsolidationAndPresentationOfFinancialStatementsDisclosureAndSignificantAccountingPoliciesTextBlock)

Now, some filers (very few) decide that none of those concepts work for them and decide to create extension concepts. Those are obviously errors and one of the existing concepts should have been used.

But, other filers combine different things together and do feel obliged to create an extension concept and it creating such a concept can be justified. For example, one filers created the concept Summary Of Significant Accounting Policies And Recent Accounting Pronouncements [Text Block]. They combined two things which both have concepts which exist in the US GAAP Taxonomy; but is this the right thing to do?

That is the issue. Basically, it is possible to come up with all sorts of permutations and combinations of information. Each permutation/combination needs to have a "box" or concept created so that the SEC filer can put the information inside that box. This is the way they have always reported.

But, the filer creating such a concept basically makes comparing information significantly more challenging. You can still do it, you just need to map the filer extension concept to some other concept which is defined to include significant accounting policies.

Or, alternatively, the filer could unbundled the information into the two concepts which exist; separating "Significant accounting policies" and "recent accounting pronouncements" into two separate boxes. This reduces the permutations and combinations.

So, it seems that the spectrum of options is as such:

- Provide lots and lots of permutations and combinations, and still allow a filer to create more permutations and combinations
- Provide lots and lots of permutations and combinations, but DON'T allow the filer to create other possible permutations/combinations
- Require SEC filers to unbundled their disclosures, and also their financial statement line items, into discrete disclosures/line items (i.e. get rid of the bundles)



Like I said, there is not necessarily a right or wrong answer here; it is just a choice which the financial reporting supply chain needs to figure out. What would be good is to understand the pros and cons of each alternative, all things considered.

And I point out again; this is not just an issue with significant accounting policies; it is a general issue for which I am pointing out with this significant accounting policies example.

2.5.3. Dance between *implicit* and *explicit*

Paper is a medium. XBRL is a medium. Each medium has different properties and features.

When you create an XBRL-based financial report you basically take all the information you want to report and you put it in what amounts to little boxes or structures. Many people erroneously refer to this process as "tagging" because software makes it seem like you are putting tags on information which exists within some document. But what you are actually doing is constructing a model.

When a human reads a paper financial report, there is a tremendous amount of implied message which gets communicated. Structuring information and expressing that information using a model, effectively digitizing the information, can have both positive and negative impacts. By explicitly structuring the content of a financial report, by having to put everything into some structure, and by articulating how that structure are related to other structures, that financial statement presents become more crystallized. In other words, the financial concepts disclosed in the financial statement become more explicit and the relationships between the financial concepts are made explicit. This results in greater precision in the story that is being told by the financial statement. Explicit information is more ridged.

On the other hand by having to put all the information of a financial report into structures, if not done correctly the desired flow of the report can be lost. Further, humans are quite good at implying important meaning which can be gleaned from a financial report. No computer will ever be able to imply what humans can imply.

Implicit context changes as culture changes. We as CPAs need to both understand and become masters of the "dance of implicit and explicit" as David Weinberger calls it in his book *Everything is Miscellaneous*. Computers can do a lot for us in terms of rearranging things, providing flexibility, changing the way we relate to a financial statement. Computers also only deal with exactly what they have been told. Computers are not as adept at all at dealing with what has been left unsaid.

Making complex, meaningful financial information explicit can lead to oversimplification and result in incomplete, inappropriate, and misleading financial information. CPAs should be conscious of this possibility, rather than unconscious. The optimal equilibrium in the implicit/explicit trade-off needs to be fleshed out by the accounting profession.

2.6. Mastering the digital medium

In order for digital financial reporting to be adopted accountants will need to master the digital medium. How the digital medium works, the fact that it does in fact work, how to get the digital medium to work appropriately all things considered, what appropriate means, are only some of the things which must be understood.



The move to digital financial reporting will be an evolution. Some financial reporting supply chains will move faster than others. But others will move:

- Private companies
- State and local governmental entities
- Not-for-profits

2.7. Digital financial reporting means change, but to what?

Yet not enough accountants are engaged in this conversion process, thinking through the many relevant issues and there is a risk the accounting profession will not get what it desires as a result. The question is, what should moving from paper or electronic paper to digital mean for the public accounting industry and the CPAs/auditors who make up that profession.

Just like the change from film to digital photography meant big changes to what type of cameras were made, the workflow of creating a photograph, and the skills needed to be a photographer; changing to digital financial reporting will mean change.

2.8. Road work ahead: last mile of finance

The trend toward digital financial reporting is an enabler and only part of an even bigger trend. The bigger trend is to use the standardization and other characteristics enabled by having everything in a digital form structured for meaning to make processes better, faster, and cheaper throughout financial reporting. Technologies such as cheap internet access, the free XBRL global standard, mobile/iPad-type information appliances, business process management, business intelligence applications, and many others are converging, enabling financial reporting processes to be overhauled. The digital financial statement is only one small part of this much larger inevitable change.

Information will flow from its point of entry into a system through that entire system and then out again into some other business system, be that system one of a business partner, a government regulator, a financial institution which is providing your business with a line of credit, or other user of your financial information.

It looks like there is road work ahead for the "last mile of finance". In an FSN article, *Tagetik goes head to head with Oracle and Clarity (now IBM) in the 'Last Mile' of Finance* the IBM acquisition of Clarity is hailed as a wakeup call:

"The IBM deal is a wakeup call to the market – expect to see much activity in this space over the coming year."

I am hearing terms that I have never heard before: Disclosure Management and Collaborative Disclosure Management (CDM). This seems to be a new class of software.

While business intelligence (BI) software was generally used for consuming information, this new class of software is for creating information. Enterprise Performance Management (EPM) seems to be the buzz word for consuming financial information.

Oracle Hyperion Disclosure Management and Oracle Hyperion Financial Close Management work in conjunction with other Oracle EPM applications such as Hyperion Financial Management or can be deployed directly with ERP General Ledger



systems. SAP has its offerings for reporting. IBM with their acquisition of Clarity means they are in the game.

Those names you have likely heard before. It seems like every day we get the name of another software product that either can be used to create financial information or consume financial information. Here are some: Information Builders, Tagetik, Quantrix, WebFilings, Trintech and Longview Solutions. There are likely many others.

In 2008 Gartner and Ventana Research white papers described inefficient corporate reporting process which they predicted would change. (See Gartner's *XBRL Will Enhance Corporate Disclosure and Corporate Performance Management* and Ventana's *Selecting the Right XBRL Solution: Addressing Compliance Requirements and Automating the External Reporting Process*.) This is Ventana's description of the process:

"Thus, the current close-to-file process is structurally prone to error. It poses a risk that mistakes and misstatements will occur. Most companies deal with this potential for errors and the risks they pose with a brute-force approach, using well-paid professionals (who could be doing more productive things) to check and double-check the documents. This might be a workable approach today, but it becomes increasingly difficult and costly as the amount of required tagging increases."

This large number of spreadsheets and word processing documents and the highly manual, time consuming and error prone process they require is the approach of today. It is like a dirt road. The tools of the future will be more like an interstate freeway.

While external financial reporting and regulatory reporting are paving the way, the change which will occur will impact all financial reporting, not just financial reporting.

XBRL is only part of the change or maybe even call it a trend. We are hearing the term "model based reporting" come up. This is a new way to think about financial reporting. The electronic spreadsheet was a significant improvement over the paper-based spreadsheet. These new tools will be an improvement to the electronic spreadsheet.

So get your hard hats: road work ahead.

2.9. Understand digital financial reporting to remain relevant

Digital financial reporting is here to stay. To remain relevant, CPAs and other accountants need to adjust their thinking about how to appropriately modify financial reporting to keep up with the digital revolution. The value standardization offers business is undeniable: lower costs, increased leverage, and improved quality. CPAs need to better embrace changes which are inevitable to products CPAs offer and processes CPAs use to deliver those products. In doing so, CPAs can continue to contribute to the market, their clients, and their enterprises.

For example, a Journal of Accountancy article *FASB sees flexibility, relevance as cures to disclosure overload* (<http://goo.gl/60ryI>) states that the FASB is asking for feedback on whether ordering and formatting should be:

- Flexible and based on relationships of particular items;
- Flexible and based on the importance of particular disclosures; or



- Fixed and uniform.

With technologies such as XBRL which allow financial information to be expressed digitally is there really a need to make a choice? Is this list of options a remnant of thinking using constraints of old paradigms which are no longer applicable in a digital world? Why can't the user of financial information have all three options available and the user can pick which approach is best for them given their preferences and their perceived needs?



3. Overview of Accountants Perspective

This section provides an overview of important information related to the perspective of an accountant creating a financial report, an internal auditor or third party auditor evaluating such a report, a CFO signing off on such a report, or an audit committee evaluating the information expressed within a financial report. This information is not a comprehensive summary of all considerations; rather it is a brief overview of considerations which would generally not be disputed.

HINT: It is very important to recognize that the historical mediums used to express financial information such as paper and electronic forms of paper such as HTML or PDF are not structured semantically. Rather, these historical mediums are structured only for presentation of information. Digital mediums such as XBRL are structured semantically. Understanding these differences helps accountants understand how to best employ these new mediums.

3.1. *Financial reports tell a story*

A financial report tells a story. The story which is communicated by a financial report does not change based on the medium used to tell that story. The meaning of the financial information articulated by the creator of the financial report and the meaning of the financial information derived by the users of the financial report should be the same. Both the creator and users should walk away with the same message or story. Creators of a financial report go to great lengths to tell the story which they believe best reflects the financial condition of the reporting entity providing the financial report.

Creators and users of a financial report are free to interpret the information communicated by the message/story of that financial report as they see fit. But, the information itself should be identical for both the creator and user. For example, if a fact is reported and the fact is deemed to relate to the consolidated entity, be as of December 31, 2012, for the US GAAP concept "Cash and cash equivalents", being expressed in US dollars; then the derived meaning and understanding should not be in dispute between two different parties who are using the same piece of financial information.

3.2. *Separating facts from opinions*

Senator Daniel Patrick Moynihan said: "Every man is entitled to his own opinion, but not to his own facts." Both **facts** and **opinions** exist within financial reports.

There are at least three separate questions which must be answered by an accountant creating a disclosure for, or presenting information within a financial report. Understanding these three questions and separating them in one's mind helps one express the financial information using XBRL appropriately.

The first question is, "Which disclosure(s) are appropriate?" This question requires professional judgment and can only be correctly answered by a qualified, trained accountant. The answer to the question tends to be part fact and part opinion. The second question, "How is the information best placed, shown and/or formatted within the financial report?" The answer to this question tends to be more based on personal preference and therefore is more subjective than based on fact. The third question, "Given a certain disclosure, what is the information being disclosed and



how does it relate to other information?" The answer to this question tends to be more objective than subjective.

In fact, the financial reporting conceptual framework explicitly tries to make financial report disclosure as objective as possible. You can see this in the goals articulated for the conceptual framework (per the FASB Special Report, *The Framework of Financial Accounting Concepts and Standards* (1998)):

- Providing a set of common premises as a basis for discussion
- Provide precise terminology
- Helping to ask the right questions
- Limiting areas of judgment and discretion and excluding from consideration potential solutions that are in conflict with it
- Imposing intellectual discipline on what traditionally has been a subjective and ad hoc reasoning process

To put these questions in more concrete terms we will use an example. Say a reporting entity must release a financial report. The accountant can pick between options such as providing a balance sheet or a statement of net assets. Industry practice, common practice, and rules and regulations all come into play with this choice between available options. Further, the accountant knows that he or she is required to provide a cash flow statement; but that accountant can pick between using the direct method or the indirect method to create that cash flow statement, that is subjective.

But if a balance sheet is chosen by the accountant, then assets must be provided, liabilities and equity must be provided, and assets must equal liabilities and equity on that balance sheet. The model of the balance sheet is known and an accountant has no latitude and gets no voice in saying what a balance sheet is; regulators and standards setters dictate those rules. Accountants and the financial information which exists can determine many of the line items which are appropriate for the balance sheet. These mechanics of a balance sheet are well understood by accountants, although they may not think of balance sheets in this way necessarily.

Other items are purely objective. For example, the accountant can choose to format zeros by showing a blank, showing a "0" or showing "-"; but the meaning is always the same, zero.

Understanding the distinction between what is a fact and what is an opinion helps accountants understand things that they can decide and where they simply need to follow the rules.

A *fact* is a statement that can be proven to be true or false using logic or evidence. A fact is something that exists and is objective. An *opinion* is a statement or expression of a person's feelings. Opinions indicate a belief. Opinions cannot really be proven, only expressed. Opinions are subjective. Opinions can be based on facts, preferences, beliefs, interpretations, emotions, and even desired outcomes. Opinions can be meant to deliberately mislead others. Including certain facts, excluding certain facts, or misrepresenting facts are tactics for expressing an opinion.

Sometimes there may be a fuzzy line between a fact and an opinion.

How the XBRL medium works is based on facts, and indeed must be based on only the facts. XBRL is a global technical specification, an agreement on how XBRL works. How accountants employ that technical specification can be objective and



based on preference. But it is important to articulate those preferences so that analysts understand how accountants have decided to use that technical specification.

Any unanswered questions can result in the need to infer meaning, which leads to ambiguity. Ambiguity opens the door to misinterpretation of the reported facts.

3.3. Facts are more important than organization or formatting

What is more important to report, the facts themselves including the “packaging” such as formatting, or just the facts?

For example, a Journal of Accountancy article *FASB sees flexibility, relevance as cures to disclosure overload* (<http://goo.gl/60ryI>) states that the FASB is asking for feedback on whether ordering and formatting should be:

- Flexible and based on relationships of particular items;
- Flexible and based on the importance of particular disclosures; or
- Fixed and uniform.

With technologies such as XBRL which allow financial information to be expressed digitally is there really a need to make a choice? All three options are possible at the same time. Is this list of options a remnant of the way of thinking constrained by old paradigms which are no longer applicable in a digital world? Why can't the user of financial information have all three options available and the user can pick which reported facts are appropriate for their use of the information and which approach is best for them given their preferences and their perceived needs?

3.4. True and fair representation of financial information

Clearly the financial information provided by a reporting entity should not be “untrue” or “unfair”. As such, by definition it should be “true” and “fair”. Based on the rules, regulations, and common practices which exist; based on the informed professional judgment of the accounting team expressing the financial information; and considering all the other factors which must be considered when a reporting entity expresses its financial information, tells its story; that story should obviously be a true and fair representation of such financial information.

The story itself and the medium used to tell the story are two different pieces of the same puzzle.

Accounting teams are responsible for creating and verifying for themselves that they have created a true and fair representation of their financial information, regardless of which medium is used to express that information. And, regardless of which medium is used, that information must be: complete, correct, consistent, accurate. Each reported fact must have fidelity. The set of all facts must fit together appropriately, the integrity must be sound. Considered holistically from all points of view, the multiple pieces of the system work together correctly, all things considered. If this is true and a report possesses these characteristics, and if it is true and fair, it is then considered to be a “valid” or desired result. The financial report can be considered a desired result, free from logical flaws, based on sound reasoning, in other words cogent.

Verification is the process of asserting truths and understanding for oneself that information is valid per those assertions. Verification can be internal, external, and/or independent third-party verification.



3.5. Quantitative and qualitative; objective and subjective

Reporting entities have flexibility to provide/present disclosures differently as long as all the required disclosures are met. The primary financial statements and notes to the financial statements are an organization or presentation of required disclosures.

Accountants creating financial reports use both **quantitative measures** and **qualitative measures** to provide such disclosures.

"*Quantitative measures*" means that you use an actual number to disclose an amount or to show a change. For example, "net income for the year was \$1,000,000" is a quantitative measure.

"*Qualitative measures*" means not showing an actual number, but rather providing information in other ways such as using relative terms. For example, disclosing an entity's objective for holding or issuing derivative instruments, background information necessary for understanding those instruments, strategies used to meet those objectives, and information helpful in understanding derivative activity is a qualitative measure.

Some disclosures tend to be rather **objective** in nature requiring little professional judgment. Other disclosures can be quite **subjective**, calling on an accountant to use their experience and judgment to provide the appropriate useful information.

"*Objective*" means that judgment is based on the facts of the situation and are not based on or influenced by personal feelings, preferences, tastes, or opinions. For example, the fact that balance sheets are included in financial reports and assets are part of a balance sheet is objective and there is no room for judgment.

"*Subjective*" means that judgment can be based on or influenced by personal feelings, preferences, tastes, or opinions. For example, whether a certain subsequent event is material and how to best disclose that event can be subjective, requiring significant professional judgment.

The overarching guidance to disclosing information is whether that information is useful in making **useful** decisions. To be useful, the information possesses the following characteristics: **relevance**, **reliability**, **comparability**, and **consistency**.

"*Relevance*" means that the financial information makes a difference when making a decision. The information matters.

"*Reliability*" means that the financial information is free from bias and errors.

"*Comparability*" means that a standard set of financial reporting principles are used. But given options, reporting entities are free to choose between alternatives. For example, one company might use FIFO for valuing inventories and another uses LIFO.

"*Consistency*" means that a reporting entity uses the same standard accounting principle and reporting approach/method from period to period. For example, a reporting entity cannot flip-flop between FIFO and LIFO.

A few specific aspects relating to comparability and consistency are worth pointing out because they are often confused. Users of financial information often expect that every aspect of every reporting entity's financial report be comparable to every other reporting entity's financial reports. This is simply not the case. Financial reports are not, and should not, be a 'form' which is filled in by an accountant. One strength of



US GAAP is its ability to let reporting entities report useful information specific to that entity.

Financial information reported by entities in the same industry sector tends to be more comparable than financial information reported by entities in different industry sectors.

A reporting entity's disclosures from period to period tend to be very comparable. While what disclosure information is considered useful by a given reporting entity for a given event or transaction; once the disclosure approach is selected then the company specific disclosure of that information from period to period tends to be very consistent and comparable for any given reporting entity.

Accountants creating a financial report use disclosure rules/requirements, guiding principles, and their judgment when weaving together an appropriate financial report.

Some financial report disclosures tend to take the shape of very specific and objective quantitative measures. For example, the disclosure of earnings per share is an example of such a specific quantitative measure. These sorts of disclosures are like an "on/off" switch; either the disclosure is required or it is not and if it is required, what must be presented or disclosed is crystal clear. There may be judgment involved in computing or measuring the amount disclosed, but the need for the disclosure itself tends to be objective.

Other disclosures take the shape of being more subjective in nature and use more qualitative measures. For example in the derivative instruments example used above, the meaning of a business acquisition or divestiture to the overall financial position of a reporting entity and/or which information about the acquisition or divestiture is the important information depends on many different criteria and it is the role of accountants to exercise their judgment and determine the appropriate disclosures, all things considered, using known guiding principles.

Understanding which disclosures tend to take which shape and otherwise understanding these moving pieces is critical for financial report taxonomy creation, financial report creation, and analysis of financial information expressed by these taxonomies and financial reports.

There are times when a certain specific financial disclosure in two different financial reports will be very different, each reporting different facts. Both financial disclosures being appropriate for the circumstances and both satisfy prescribed disclosure rules/requirements, both being useful, etc.

Other times facts disclosed should be identical for reporting entities.

3.6. *Identifiable, definitive, discrete set of pieces*

The information contained within any financial report is an identifiable, definitive, discrete set of reported facts. Those facts have an identifiable, definitive, discrete set of characteristics. Those facts and characteristics have an identifiable, definitive, discrete set of relations. Those facts and characteristics have an identifiable, definitive, discrete set of properties.

While determining what must be reported and how it is reported can at times be subjective in nature and require significant professional judgment; once that judgment has been exercised and once the information is provided the facts,



characteristics, relations, and properties of that reported information is in no way subjective and open to judgment.

All facts, characteristics, relations, and properties can be identified; they are physical objects which can be observed. As such, they are objective. The mechanics of the objects which comprise a financial report are not a mystery; rather, they tend to be well understood.

Below is a summary of the risks which could lead to a financial report being invalid and the risk mitigation assertion or verification task which would assure that the risk goes unrealized. Terminology of the *Financial Report Semantics and Dynamics Theory* is used to clearly state the report objects, relations, and properties which must be examined either using automated processes or manual processes to verify that object property. The risk and mitigation is independent of whether the verification task is performed by a party which is or is not independent.

Risk	Risk Mitigation Assertion (Verification task)
Full inclusion: All relevant facts, characteristics which describe facts, parenthetical explanations of facts, and relations between facts/characteristics are not included in the financial report.	Completeness: All relevant facts, characteristics of facts, parenthetical explanations of facts, and relations between facts/characteristics have been included.
False inclusion: No facts, characteristics which describe facts, parenthetical explanations of facts, or relations between facts/characteristics which should not be included have been included.	Existence: No facts, characteristics which describe facts, parenthetical explanations of facts, relations between facts/characteristics are included within financial report which should not be included.
Inaccuracy: Property of a fact, characteristic, component, or relation is inaccurate. (<i>For example, mathematical relations and model logical structure relations.</i>)	Accuracy: The properties of all facts, characteristics, components, parenthetical explanations, relations between facts/characteristics which are included in the financial report are accurate, correct, and complete.
Infidelity: All facts, characteristics, parenthetical explanations, and relations considered as a whole do not possess the required fidelity when considered as a whole.	Fidelity: Considered as a whole; the facts, characteristics, parenthetical explanations, and relations between facts/characteristics properly reproduces the financial and nonfinancial facts, characteristics, and relations of the reporting entity and provide a true and fair representation of such financial information.
Integrity not intact: Integrity between facts/characteristics is inappropriate.	Integrity: Considered as a whole, the facts and characteristics of those facts reflect the true and proper relations between such facts and characteristics.
Inconsistency: The facts, characteristics, parenthetical explanations, relations and their properties expressed are inconsistent with prior reporting periods or with peers of the reporting entity.	Consistency: The facts, characteristics, parenthetical explanations, relations between facts/characteristics, and their properties are consistent with prior periods and with the reporting entities peers, as is deemed appropriate.
Not presented fairly: The financial report is not presented fairly, in all material respects, and are not a true and fair representation in accordance with the financial reporting framework applied.	True and fair representation: The financial report is a true and fair representation of the information of the reporting entity. An auditor might say presented fairly, in all material respects, and provide a true and fair representation in accordance with the financial reporting framework applied (US GAAP, IFRS, etc.).



3.7. Many aspects of financial reporting are standardized

Financial statement disclosures, in some cases should be a hand-crafted work of art, but not in most cases. Most accountants do not desire to be artists, rather they endeavor to comply with financial reporting rules. There are some required disclosures. Other disclosures are required if a reporting entity reports certain specific financial statement line items. Other financial statement disclosures are required if the financial statement line item has certain specific characteristics. Other financial statement disclosures are common practice or purely optional. This information can be organized in different ways. Financial statement disclosures are not random.

As there are price differences between hand-crafted furniture and the furniture which you might purchase at, say, IKEA or at a high end furniture store; there are likewise different prices or costs incurred to taking different approaches to creating financial statement disclosures.

Generally disclosures for financial statement accounts are made if a line item of such account appears on a primary financial statement.

HINT: Jon Rowden and Mike Willis make the following statement in their white paper *Making Sense of XBRL In the US and the UK*, "The accountants' skill and expertise can then be applied to and focused on disclosures where there is a problem, rather than turning each disclosure note into something resembling the accounting equivalent of a hand-crafted work of art."

Not every part of a financial report needs to be a hand-crafted work of art. Some do. That is where accountants need to spend the majority of their focus.



4. Foundation for Understanding

This section provides information foundational to understanding digital financial information. If these ideas are not understood, then trying to understand why digital financial reporting will replace the current financial reporting paradigm could not possibly be understood.

The following is a summary of ideas, concepts, and terminology you will need to understand in order to undertake the important journey of understanding model-based digital financial reporting. This section is intended to help you fill in any gaps you might have in your ability to grasp the true nature of digital financial reporting. Not understanding this information will leave gaps in your ability to fully grasp what needs to be understood.

4.1. *Interactive data*

The SEC coined the term “interactive data”. Most business users have used or at least seen a Microsoft Excel pivot table. A pivot table is interactive, or dynamic, in that it can be pivoted to display information in different configurations.

Imagine a financial report, such as a financial statement, which is interactive or has the dynamic characteristics of an Excel pivot table. That is what a model-based digital financial report will be like. Digital financial reports can be made interactive, or dynamic, because of the nature of XBRL. You can jump from one place in a report to another because the report is really thousands of individual structures which are understood by software and the software can leverage that structure. You can reorganize the information to suit your preferences, desires, goals, and information needs. You can search, sort, filter, reconfigure the financial report.

How does this ability to reorganize a financial statement impact how a financial statement is, or should be, created and how does it impact how the reader of the financial statement interacts with the report? There is a connection between creation and use.

A model-based digital financial report or financial filing is much more like an Excel pivot table than a piece of paper or an electronic piece of paper such as PDF or HTML. As such, accountants creating such financial statements may need to look at what they are creating differently, adjusting for the characteristics of this new medium. With the positive characteristics offered by XBRL, potentially negative characteristics also show their face and if not properly managed can have undesired affects.

HINT: Take a look at the video on this web page titled “The Basics of Quantrix Modeler”: <http://goo.gl/qQ4Hx> This video will help you understand the difference between logical models and semantic models.

4.2. *Unstructured versus structured information*

Simply put, digital information comes in two forms:

- **Unstructured** which means the information contains no identifiable structure and therefore it is unrecognizable and therefore not usable by computer software. Further, no controlled navigation within the pieces of the unstructured information is possible due to its lack of structure.



- **Structured** which means the information has identifiable structure which can be recognized and utilized by computer software. Further, because of the structure navigation within the pieces of structured information is possible because of the structure.

Structuring information enables computer software applications to leverage that structure and work with the information.

Some people believe that there is another category “semi-structured” information. For more information this white paper is helpful:

<http://goo.gl/TwUbs>

Truth be known, everything that a computer works with has to be structured at some level and the level of structure determines what a computer can do with that digital information. The type of structure determines what you can, and cannot, do with that information.

4.3. Structured for presentation versus structured for meaning

There are basically two manners or methods or protocols to structuring information digitally:

- **Structured for presentation.** An example of that is a Word processor document which is structured using headings, sub headings, paragraphs, tables and lists. An Excel spreadsheet is also an example of structuring for presentation, it uses worksheets, columns, rows, and cells. Or an HTML document is structured for presentation.
- **Structured for meaning.** An example of that is database or a taxonomy or other type of classification system. A database structures the presentation into rows and columns, but the rows and columns are associated with defined names which are contained in the database schema which have specific meaning.

XBRL structures information for meaning. That structured meaning can be used to help a business user make use of that information.

4.4. Differentiating syntax and semantics

Often confused are the two parts of structured information. Both parts are important, but for different reasons:

- **Syntax** describes the form of the information and is generally not relevant to a business person. This is syntax: <Name>John Doe</Name>. Syntax is important to technical people.
- **Semantics** communicates the meaning of the information. For example, “the director’s name is John Doe” communicates meaning as does “the balance sheet balances”. Both are semantics of the information. Business meaning is key to the digital world.

Syntax can be thought of as “how you say something”. Semantics can be thought of as “the meaning behind what you said.” The following two videos explain and differentiate syntax and semantics:

How XBRL Works: <http://www.youtube.com/watch?v=nATJBPOiTxDM>



This video about semantics: <http://www.youtube.com/watch?v=OGq8A2zfWKg>

Business users need to work with the meaning of information, not the syntax. Software applications build to interact with something like the XBRL technical syntax effectively force business users, if they want to use that software, to work with the XBRL technical syntax. If a higher level semantic model is employed to effectively mask the technical syntax exposing business users to a higher level semantic model, complex things become easier for business users.

4.5. Interoperability

When trying to establish a formal system for exchanging information of any type, one needs to understand that there are three aspects to business system to business system interoperability (per this HL7 video, see <http://www.hl7.org/documentcenter/public/training/IntroToHL7/player.html>):

- **Technical interoperability:** Physically moving information from business system "A" to business system "B".
- **Semantic interoperability:** Insuring that business system "A" and business system "B" understand the information in the same way.
- **Workflow interoperability:** Enabling business processes at the organization housing business system "A" to effectively work with business processes at the organization housing business system "B".

Achieving interoperability will result in new cost effective, easy to use, robust, reliable, repeatable, predictable, scalable, secure, auditable, business information exchange across business systems. Some business systems might be internal to your organization, others might be external to your organization.

4.6. Metadata

How you divide up your information does matter. Providing the proper "handles" or ways of accessing the components within a set of information is important.

In the digital world, metadata is important. You probably don't understand what metadata is but metadata is going to change your life, it already has. Metadata is simply data about data, it is used when computers communicate with one another. Metadata is one of the things which makes XBRL work. You need to understand how to make use of this metadata to express and control financial information.

Many people like to have debates about what is data and what is metadata but the debate is pointless. Just think of metadata as data at another level.

Another way to think about metadata is this: Metadata is good; more metadata is better; standard metadata is even better! Basically, the more that a computer understands something the more that the computer can do for you. Metadata helps computers understand how you want to work with your data.

The bottom line is this. Metadata is data and metadata is important.

The book *Everything is Miscellaneous* explains "the third order of order":

- **First order of order.** Putting books on shelves is an example the first order of order.



- **Second order of order.** Creating a list of books on the shelves you have is an example of second order of order. This can be done on paper or it can be done in a database.
- **Third order of order.** Adding even more information to information is an example of third order of order. Using the book example, classifying books by genre, best sellers, featured books, bargain books, books which one of your friends has read; basically there are countless ways to organize something.

Third order removes the limitations which people seem to assume exist when it comes to organizing information. Weinberger (the author of *Everything is Miscellaneous*) says this about the third order of order:

"In fact, the third-order practices that make a company's existing assets more profitable, increase customer loyalty, and seriously reduce costs are the Trojan horse of the information age. As we all get used to them, third-order practices undermine some of our most deeply ingrained ways of thinking about the world and our knowledge of it."

Metadata has strategic implications.

Financial reporting has boatloads and boatloads of metadata, far more metadata than is included in the US GAAP Taxonomy. The following wiki contains example metadata expressed using RDF/OWL which relates to financial reporting:

<http://digitalfinancialreporting.wikispaces.com/home>

<http://www.xbrlsite.com/US-GAAP-2011/Exemplars/Viewer.html>

One would think that the FASB and IASB could prove that their conceptual framework by articulating it using RDF/OWL, UML or some other modeling language. Certainly some of that could and should be done using XBRL. Also, because financial reporting is becoming so complex, using a modeling language can help improve communications.

The only thing better than metadata is more metadata. David Wenberger's book *Everything is Miscellaneous* points out two important things about classification systems:

- That every classification scheme ever devised inherently reflects the biases of those that constructed the classification system.
- The role metadata plays in allowing you to create your own custom classification system so you can have the view of something that you want.

As we move from "atoms" to "bits", people drag along the rules which apply to atoms and try to apply those rules to solve problems in the world of bits. This, of course, does not work. *Everything is Miscellaneous* has countless examples contrasting the physical organization of atoms (such as books in a book store) and the organization of books digitally (like Amazon.com).

4.7. Notion of logical model

We have all worked with electronic spread sheets. They are easy to use because the software interface which you work with exposes you to familiar terms similar to paper spread sheets. Things like workbooks, spread sheets, rows, columns, and cells are recognizable and organized into a logical model which we understand.



XBRL is a technical syntax. The XBRL technical syntax is implemented by the US GAAP taxonomy using a specific architecture or application profile. This application profile is laid out in the US GAAP Taxonomy Architecture. That architecture exposes a logical model. You may not be able to see that logical model because the US GAAP taxonomy actually hides the model by being inconsistent. But the logical model is there.

4.8. Notion of semantic model

While logical models have their benefits, they still leave something missing: business meaning. Semantics is meaning as we pointed out above. Working with digital financial reports which relate do some specific business domain such as financial reporting and an SEC XBRL financial filings at the semantic level you deal with terms such as: balance sheet, income statement, assets, liabilities, equity, subsequent events, nonmonetary transactions, etc.

A semantic model provides an order of magnitude jump in usability over using a logical model. Eventually, this is how you will be working with XBRL; via a semantic model.

HINT: Take a look at the video on this web page titled "The Basics of Quantrix Modeler": <http://goo.gl/qQ4Hx> This video will help you understand the difference between logical models and semantic models.

4.9. Business information is inherently dimensional

Business information, and particularly financial information, is inherently multidimensional. To understand what dimensional or multidimensional means and to understand why this is important, consider the following brief explanation:

- A **value** such as the numeric value for π is a **scalar**. The value of π which is 3.14 is the same, no matter where it is used. Scalars have no dimensions or other characteristics, they stand alone.
- A **list** can be thought of as having one dimension. Dimensions are a model for expressing characteristics of information. Dimensions effectively contextualized for unambiguous interpretation. For example, the name of a company and its state of incorporation can be thought of as a list.
- A **table** can be thought of as having two dimensions; one dimension represented by the columns of the table, the other by the rows of a table. Other terms used for table are matrix and array.
- A **cube** can be thought of as a three dimensional matrix/array. For example, think of the "x", the "y" and the "z" axis of a three dimensional chart you may have worked with.
- A **hypercube** is an " n -dimensional" matrix/array, meaning that it can have from one to any number of dimensions. Hypercubes can be hard to articulate in two dimensions, such as paper. But computers are good at working with hypercubes. You can think of a pivot table data as a hypercube.

The fundamental building block of the multidimensional model is the hypercube. A hypercube is a set of dimensions used to represent information.

Walking thought this in another way, consider the number 1,000. What does that number mean? What if we told you that the number related to Cash and Cash



Equivalents for the current fiscal period of December 31, 2010, reported by the consolidated entity which has the SEC CIK number 0123456789 whose value is \$1,000,000 reported in thousands of US Dollars. Each of those descriptive characteristics of the number 1,000 is a different dimension of that number.

In order for financial information to be usable the information must be unambiguous to be interpreted appropriately.

The multidimensional model is simply a logical model for organizing information. The multidimensional model is flexible in that it does not specify presentation information related to the information expressed by the model. Presentation of that information is a different problem than unambiguously expressing the information. Users of the model are free to present the information as they deem appropriate, leveraging the dimensional information or other helpful information. What the multidimensional model does provide is enough agreement to express information so that it can be unambiguously understood by a computer software application, including applications which can render the financial information in a format appropriate for human consumption.

4.10. Role of software

Complexity can never be removed from a process but it can be moved. Software can assume the complexity of things like the XBRL technical syntax by leveraging things like a logical model or a semantic model. Software can leverage ideas such as the multidimensional model in pursuit of that task.

Software can turn the complex physical implementation of technology into a significantly easier to use logical model and/or semantic model; hiding and taking care of the complexity of the technology for the user in the background. Most software today which tries to help business users make use of XBRL is still maturing and does not leverage a logical model or semantic model; therefore they have to work at the level of the XBRL technical syntax. Software will mature and move to a more semantic approach, hiding the technical syntax from business users.

4.11. Semantic, structured authoring

The benefits of a model-based, digital, semantic, structured authoring approach over the unstructured approach used today to create financial reports such as financial statements, such as packing financial information into Microsoft Word which understands nothing about financial reporting, seem quite clear and obvious; if you understand the technologies employed to achieve the goal.

Even if you are not required to create your financial reports or financial reports using this type of an approach by a regulator or someone else, a semantic, structure authoring is beneficial. Model-based digital financial reporting is a semantic, structured authoring approach.

Structured authoring of documents has been around for quite a long time. Pharmaceutical companies and airplane manufactures have used the structured general mark-up language (SGML) for quite some time. The appearance of XML based authoring tools made structured authoring even more used. Structured authoring is maturing, becoming more cost effective for smaller companies, and becoming more broadly used.



There are others taking a structured authoring approach to creating financial statements. SAP, Oracle, and IBM to name three. All of these companies are working to change the "last mile of finance" as are others. Many of these companies started down this path long before XBRL even existed. Disclosure management software is replacing Microsoft Word for creating financial reports.

There are lots of different terms for structured authoring: model based reporting, digital financial reporting, 21st Century financial reporting.

Semantic, structured authoring is defined:

"to compose information content semantically structured according to some ontology"

The paper *Semantic Authoring and Learning Thereof* by Kôiti Hasida talks about semantic structured authoring in more detail. It points out how this approach can be more productive and improve quality. This paper can be found here:

<http://kushmerick.org/nick/research/Dagstuhl-MLSW/proceedings/hasida.pdf>

Semantic structured authoring is a marriage between ideas of structured authoring and ideas of the semantic web. Add to this business intelligence, then you see financial reports such as financial statements and financial reporting practiced in new ways.



4.12. Understanding the multidimensional model

The multidimensional model is a model used to represent information. Other popular models for representing information include the relational model and hierarchical model. There are other models. Each models has its strengths and weaknesses, it pros and cons.

Multidimensional views of information provide what many people refer to as the ability to "slice and dice" information. Another way of stating this is that the multidimensional model provides flexible access to information.

People often confuse the multidimensional model with OLAP (online analytical processing), BI (business intelligence) and other such implementations of the multidimensional model.

Transaction processing systems such as accounting systems tend to use the relational model or a relational database management system (RDBMS).

Data warehouses or sometimes called data marts is an approach to creating an enterprise wide data store. A data warehouse basically helps tie transaction processing systems together so the data can be accessed as if it were one set. Business intelligence systems are used to report information to those who use that information. But data warehouses and business intelligence software tends to be focused on the internal use of information within one organization. Much information which one might use can be external to an organization.

As we said, each of these models has its pros (strengths) and cons (weaknesses); each has different needs. Business information comes from these different systems and goes into these different systems.

Yet there is no one standard multidimensional model used by all systems which use that model. The relational model has SQL (structured query language) and ODBC (open database connectivity). Connecting systems which use the multidimensional model can be more challenging. A white paper which discusses these issues can be found here:

[http://www.symcorp.com/downloads/ADAPT white paper.pdf](http://www.symcorp.com/downloads/ADAPT_white_paper.pdf)

This section helps sheds light on why the multidimensional model is used, it separates the multidimensional model, OLAP, BI, and XBRL Dimensions

4.12.1. Strength of the multidimensional model

The greatest strength of the multidimensional model is the flexibility it provides to slice and dice and otherwise reformat information to fit the preference of the consumer of the information. Relational databases can be made to express information using a multidimensional type of an approach using fact tables, star schemas to mimic the multidimensional model, but a multidimensional database is optimized for the multidimensional model.

4.12.2. Strength of the OLAP

OLAP (On-Line Analytical Processing) is an approach to swiftly answer a query.

OLAP and the multidimensional model are two different things. OLAP uses the multidimensional model to achieve its goals. OLAP tends to focus on numbers only, is optimized to enable the aggregation of information. Also, OLAP sometimes even pre-aggregates numbers to make queries faster. Further, OLAP is for providing



information, it is not generally “read-write”. OLAP tends to be less useful with reporting textual type information and in situations where you do not want aggregation.

OLAP tends to be internally focused within an entity and not that adept at working with information which is external to an entity.

You can think of OLAP as if it were a three dimensional spreadsheet (or more precisely an “N” dimensional spreadsheet meaning any number of dimensions). This is called an OLAP cube. An Excel pivot table is a very basic example of an OLAP cube.

For more information on OLAP see:

http://www.ischool.drexel.edu/faculty/song/courses/info607/tutorial_OLAP/index.htm

4.12.3. Business intelligence systems

Business intelligence (BI) is a type of decision support system which transforms and organized raw information and transforms that information so that it can be used to make business decisions. BI systems are organized to present information in such a way as to guide a business toward some desired goal.

BI systems tend to use OLAP and therefore likewise tend to use the multidimensional model. BI systems are implemented within software. The following link provides information about BI systems implemented by software vendors:

<http://biscorecard.com/>

BI systems have pros and cons:

- There is no one global standard BI system or one standard multidimensional model used by BI systems. As such, BI systems are not generally interoperable. They can be made to interoperate, but they are not inherently interoperable. BI systems tend to work well with the internal information of an enterprise, but less well with information external to an enterprise.
- BI systems generally use OLAP. And as such they have the strengths and limitations of OLAP. As such, BI systems tend to work best with numbers and tend to force you to aggregate numbers.
- BI systems tend to be read only, you can use information from a BI system but you cannot put information into a BI system. Generally, BI information is put into a transaction processing system which then goes into a data warehouse which the BI system then uses.
- BI systems focus on numbers and work with numbers extremely well; however they work less well with textual type information or narratives.
- BI systems don't tend to allow you to import schemas or other metadata which is used to work with the information, the tools tend to provide you mechanisms within the tools to create this metadata.

Two of these limitations are critically important when it comes to XBRL. The first is that BI applications tend to focus more on numbers, rather than text and numbers and therefore BI systems are limited in working with XBRL information which can contain both numbers and text. The second is that BI systems tend to focus on numbers and like to help you aggregate those numbers because that is what OLAP does and in XBRL reports you don't want aggregation many times.



For example, if you ever tried to use an Excel pivot table which is basically a simple BI-type tool, you can see how a pivot table cannot quite do what you want to do in terms of rendering financial reporting information which has been expressed in XBRL.

A third important thing to realize is that BI system don't tend to provide easy ways to import metadata such as the information which is contained within an XBRL taxonomy which provides the schema for information contained within an XBRL instance.

BI systems are quite useful, but they need to go to the next level. Currently, BI systems seem to be focused on internal analytics within an organization or many times within a department of an organization which cannot work with the internal analytics of systems within the same organization. BI needs to be more externally oriented, bringing in information from whatever source, from whatever entity, internal or external.

4.12.4. Model based reporting and the multidimensional model

Model-based reporting is catching on in the financial reporting space. Enterprise software vendors such as IBM (IBM Cognos Financial Statement Reporting (FSR) External Reporting), SAP (SAP BusinessObjects Disclosure Management), and Oracle (Oracle Hyperion Disclosure Management) have model-based reporting software applications which support the creation of financial statements. Financial reporting can be seen as leading the way in model-based reporting.

But many other software companies are jumping into the model-based financial reporting arena.

Two companies which I will mention here are Quantrix and A3 Modeling because they have great videos which help understand what model-based financial reporting looks like. Here are those videos:

Quantrix Modeler: <http://www.quantrix.com/tour/Concepts2.htm>

A3 Modeling: http://www.a3solutions.com/media/A3_SpreadsheetAutomation_preso.html

Although, many of these model-based financial reporting solutions are tied too tightly to OLAP which means they are focused on numbers and not both numbers and textual information such as narratives found in financial reports.

4.12.5. Reconciling multidimensional terminology

The multidimensional model terminology associate with it. Unfortunately, there is not one standard, precise set of terms that everyone agrees on. But most models are fairly close. Symmetry Corp, a business intelligence consulting firm, has created a common model that it uses to reconcile all the different multidimensional model terminology used by the major software vendors they support. You can see this reconciliation here:

http://www.symcorp.com/downloads/ADAPT_white_paper.pdf

XBRL Dimensions terminology is yet another variation of multidimensional terminology. The US GAAP Taxonomy uses yet another set of terms in an attempt to make the multidimensional model easier for business users to make use of. The table below provides a reconciliation between this terminology:

Common BI or Multidimensional Model Term	XBRL Dimensions Term	US GAAP Term	Description
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Common BI or Multidimensional Model Term	XBRL Dimensions Term	US GAAP Term	Description
Scalar			Data that has no dimensions. For example, the value for pi (3.14) has no dimensions.
Cube, data cube, hypercube, pivot table, array, matrix, info cube	Hypercube	[Table]	Connection between a set of dimensions.
Dimension, characteristic, measure, axis	Dimension	[Axis]	A characteristic of the information. For example, "Geographic Area" may be a characteristic of the information and therefore a dimension.
Domain	Domain	[Domain]	Set of members of a dimension.
Member	Member	[Member]	A possible values of a dimension. For example, "Asia", "Europe", "North America", "South America" might be members of the "Geographic Area" dimension.
Measure	Primary item	[Line Items], Concept	Generally, in XBRL terms, the XBRL taxonomy concept dimension of information. For example the taxonomy concept "Sales" may be a primary item. NOTE: In BI, concepts are simply another dimension.
	Network	[Network]	Hypercubes exist within XBRL networks. A network may have one or more hypercubes within it. Networks are a way of physically separating sets of relations.
Navigational attribute, Flow		Number and category of network	Order or sequence of hypercubes
Fact, key figure	Fact	Fact	A fact is reported piece of information which could be numeric, non-numeric (i.e. strings), or narrative (i.e. TextBlock).
Fact table			Set of facts associated with a hypercube
Slice			A portion of a hypercube, somewhat like a filter, which allows information with more than two dimensions to be presented on a two-dimensional surface.
Formatting information, display attributes		Presentation relations	Information related to formatting, presenting, and/or rendering information from a hypercube.

If you are confused as to what a term means, the table above can be helpful in figuring out the definition of the term.

4.13. XBRL is only one of many digital financial report technical syntaxes

There are numerous technical syntaxes which are being used today to express financial information digitally and there will likely be many others.

- XBRL (Extensible Business Reporting Language), <http://www.xbrl.org>
- W3C Government Linked Data, http://www.w3.org/2011/gld/wiki/Main_Page
- W3C Linked Data, <http://www.w3.org/standards/semanticweb/data>
- Various forms of RDF, <http://www.w3.org/RDF/> and OWL, <http://www.w3.org/OWL>
- Various forms of XML, <http://www.w3.org/XML>

One of the most popular technical syntaxes is XBRL.

This document describes how to leverage XBRL for a model-based, semantic, global standard approach to digital financial reporting.

Information provided in this document is based on over ten years of working with XBRL and the information is grounded in empirical evidence and provides practical information for creating cost-effective, scalable, secure, auditable, robust, reliable,



predictable, safe, easy to use systems which work correctly to meet the needs of business.

The bottom line is that digital financial reports need to be better, faster, and cheaper than existing approaches or business users will never use them.

Information in this document is not intended for the average business user who will make use of digital financial reports, although they would stand to benefit. The information is more for those upon with the average business user relies for advice and understanding who will help the average business user get what they need from digital financial reports. As software improves more and more information in this document will become obsolete, complexity being absorbed by software applications. However, many accountants and particularly auditors need to have a more in depth grasp of how digital financial reporting works.

Also, this information is useful for the accounting profession as a whole as it endeavours to understand how to best employ these digital mediums for financial reporting.

While the information in this document focuses specifically on XBRL, much of the information is applicable to using any technical syntax to express business information digitally.

In addition, this document helps your jumpstart your expertise by packing the result of thousands of hours of testing and experimentation into a concise package of knowledge useful to technical experts implementing XBRL within software applications for intended for business users, technical and business teams tasked with defining an architecture to implement a system for digital financial reporting using a modelling-based approach, or those trying to make use of XBRL based information, or those using other technical syntaxes such as those mentioned above.

Finally, while this document is focused on financial reporting these same ideas can be employed for any sort of digital financial reporting.

4.14. Business system to business system information exchange

When we think of financial reporting on usually thinks of word processor documents or electronic spreadsheets exchanged between business users. But financial reporting is actually much broader in scope than these work processor documents and electronic spreadsheets.

Many times the word processor documents or electronic spreadsheets end up being "cut and pasted" into other documents, spreadsheets, or systems. One case in point is how information from a financial statement is many times put into the system of a bank, regulator, or analyst to reuse that financial information in some manner many times over many years.

For contrast, look at the other end of the spectrum and what many people refer to as transactions. Be these accounting transactions or operating system transactions, transactions tend to be smaller in nature, while the information within the transaction may change, the form of the transaction generally does not change. While transactions are not considered model-based digital financial reports, the difference between these two offer an opportunity to understand the difference between the two.



Model-based digital financial reporting allows for formal agreement and therefore the opportunity to automate financial information exchanges of many types. While this approach is not generally appropriate for high volume, small, unchanging transactions; it does offer an opportunity to automate a number of information exchanges used within a business. The “sweet spot” of model-based digital financial reporting can be articulated as:

- **Larger transactions** which tend to change (i.e. such as a 50 or 100 page regulatory report with perhaps thousands of facts exchanged, as opposed to a small transaction with 10 data points)
- **Ad hoc exchanges** which seem to appear, all one needs to do is look at the electronic spreadsheets which you exchange today.
- **Business people changing the metadata**, no IT involvement required.
- **Information which needs to be reconfigured**, rather than a “form” (i.e. financial reports are not a form)
- **Zero tolerance for errors** in the information (i.e. everything must tick and tie and if things don't add up, bad things happen)



5. Additional Resources for Getting Started

The following is helpful background material which will help you during your process of getting up to speed with model-based digital financial reporting including its core component XBRL. None of this material is required in order to fully use the material in this document. However, in order to understand the reasoning behind many decisions, to understand the XBRL technical syntax which lies behind this model, this information can be helpful.

The point of this document is to keep XBRL behind the scenes as much as possible. Most of this will be achieved by implementing software applications which absorbed the complexity of the XBRL technical syntax, allowing the business user to achieve what they need to achieve safely, robustly, reliably, and consistently; never having to understand the details of XBRL.

That said, many people like to “dink” around with their cars in their garage. If you don’t know what you are doing, this can be dangerous. But, with good training, resources, or other help it can be useful to “get under the hood” so to speak. This is likewise true of XBRL.

5.1. XBRL, the big picture

A good source for background information about XBRL, what it is, what it does, what it means, problem it is trying to solve, how it is being used by others and other such background information read *XBRL for Dummies*. This is not a required step, but this step can be helpful if you want to get a complete picture of the landscape surrounding model-based digital financial reporting. The following URL points you to information on where to obtain this resource, details of what it contains, and other helpful information:

<http://xbrl.squarespace.com/xbrl-for-dummies/>

5.2. Hello world! example

If you don’t know what a hello world example is, you probably should not even bother with this. If you do know, here is a hello world example of XBRL:

<http://xbrl.squarespace.com/journal/2008/12/18/hello-world-xbrl-example.html>

Again, this level of understanding can be helpful, but it is optional.

5.3. An XBRL technical syntax primer

Again, while not necessary, an understanding of the basics of the XBRL technical syntax can be helpful. Chapter 4 of *XBRL for Dummies* (see above) has a concise, but more importantly correct, primer of the XBRL technical syntax. Weighing in at a mere 28 pages, for those who desire or need this level of detail this is a great place to start. The XBRL technical specification is like reading the owner’s manual. Even if you want to wade through that 158 page document, the primer will help you grasp the bigger picture framework into which to fit the details you will collect about XBRL.

5.4. Putting the pieces together

Trying to understand calculus without knowing algebra is pointless. Often when you need to learn something it is important to breakdown what you want to learn into



steps. You learn what you need to in step one, then you go to step two. You learn step two, then go to step three. And so on. Trying to skip steps causes frustration and other problems.

Learning about XBRL requires you to progress through a series of steps. There are no short cuts. Master of model based digital financial reporting will take an investment in time and effort, particularly today when software is not at the maturity level that it needs to be. If you don't want to put in this time and effort, wait for software to mature.

If you do want to make this investment, this material is laid out the way it is precisely to help you through these necessary steps. They will not turn you into a master, but they will set you on the path to mastery. Mastery takes even more time and effort.

As such, progress through this material in the order provided, at least for the first time you work through it. After that, the material can be used as a reference.



6. Identifying and Defining Financial Report Semantics

In order to model a financial report digitally, the first step is to explicitly identify the pieces of a financial report. While most accountants who create financial reports don't think about financial reports in this way and while there is no global standard terminology which is agreed upon for these components, it does not mean that these pieces do not exist or that they cannot be defined.

In fact, that is precisely the purpose of the *Financial Report Semantics and Dynamics Theory*. This section summarizes this theory which provides an explicit, formal formulation which brings these financial report pieces into consciousness. The complete *Financial Report Semantics and Dynamics Theory* can be found here:

<http://xbrl.squarespace.com/fin-report-sem-dyn-theory>

6.1. Financial Report Semantics and Dynamics Theory

The *Financial Report Semantics and Dynamics Theory* provides a formal set of self-evident logical principles that no one would argue with (axioms) and deductions which can be proven by constructing a chain of reasoning by applying axioms (theorems) and then provides verification that these axioms and theorems hold up against a set of 8,098 SEC XBRL financial filings which show that these self-evident logical principles and deductions are true about financial reports.

The theory provides additional information such as an ethics or worldview of a financial report which helps tie other important information together.

The theory also explains the dynamics or "mechanics" or the mechanical nature of a financial report. While the information expressed by a financial report is far from mechanical, the mechanism by which the information is expressed, be that using printed paper or some digital technology, is in fact mechanical.

To obtain a thorough understanding of the theory you are encouraged to read through the entire theory.

The remainder of this section articulates information which helps to understand the pieces of a financial report. First we define the pieces of a financial report and relations between the pieces. We will then provide a narrative which helps the reader better understand the pieces and relations between the pieces of a financial report.

6.2. Pieces of a financial report

The following is a summary of the pieces which make up a financial report as identified by the *Financial Report Semantics and Dynamics Theory*.

- **Financial report:** Report which communicates financial and nonfinancial information to users of that report. Financial reports contain facts, characteristics which describe those facts, parenthetical explanations of facts, relations between facts/characteristics. Each of these report elements has properties.



- **Component:** A component is a set of facts which go together for some specific purpose within a financial report. A component can also be broken down into subcomponents.
- **Fact:** A fact defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. Numeric fact values must also provide the additional traits "units" and "rounding" to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.
- **Characteristic:** A characteristic provides information necessary to describe a fact. A fact may have any number of characteristics.
- **Parenthetical explanation:** Facts may have parenthetical explanations which provide additional descriptive information about the fact.
- **Relation:** Components can be related to other components. Facts can be related to other facts. Characteristics can be related to other characteristics. Model structure is a type of relation which describes how report elements relate to one another. Business rules are a type of relation which describes computation type and logic-based relations.
- **Property:** Financial reports have a known set of properties. Components have a known set of properties. Facts have a known set of properties. Characteristics have a known set of properties. The concept characteristic has additional properties: period type, data type, balance type. Relations have a known set of properties.

6.3. Relations between numeric facts

Facts can be related to one another numerically. The following is a summary of these numeric relations.

- **Roll up:** Fact A + Fact B + Fact C = Fact D (a total)
- **Roll forward:** Beginning balance + changes = Ending balance
- **Adjustment:** Originally stated balance + adjustments = restated balance
- **Variance:** Actual amount – Budgeted amount = variance
- **Complex computation:** Net income / Weighted average shares = earnings per share
- **Hierarchy:** Facts are related in some way, but not numerically.

6.4. Relations between characteristics

Characteristics which describe a financial fact may, or may not, be related to one another.

For example, the business segments of a reporting entity along with any consolidation eliminations can be identified, articulated, and aggregated to the consolidated entity. The spectrum of relations between characteristics is:



- **Partial set:** A partial sets are [Member]s of an [Axis] which do not comprise the full spectrum or universe of possible options. For example, "United States" and "Spain" is a partial set of countries.
- **Complete flat set:** A complete flat set is a "flat" (meaning no sub-relations) and complete list of [Member]s of an [Axis]. For example, a listing of all the business segments could be a complete flat set if it is (a) complete and (b) it is one flat list with no sub relations.
- **Complete hierarchical set:** A complete hierarchical set is like a complete flat set in that it is complete; however a complete hierarchical set does have sub relations making it hierarchical as compared to flat. For example, a list of the countries which make up the geographic areas of a reporting entity which is further grouped by regions into which each country fits is a complete hierarchical set.
- **Complete complex set:** A complete complex set is like a complete flat and complete hierarchical set in that it is complete; however the hierarchy of relations is not flat nor a simple hierarchy but rather the hierarchy is complex.

NOTE: Note that sets which are complete can be aggregated. A member aggregation is similar to a roll up in that it is an aggregation; however the aggregation is not across a set of [Line Items], rather there is only one [Line Items] concept which is used by multiple facts, the aggregation is of the [Member]s which differentiate that single concept. The formula for a member aggregation is: Concept(Member 1) + Concept(Member 2) + Concept(Member N) = Concept(Default Member). The default member is generally intersected with some other financial report component. (Note that semantically, a member aggregation and a roll forward are identical. Syntactically, a roll up is expressed using XBRL calculations and a member aggregation must be expressed using XBRL Formula.)

6.5. Relations between components

A financial report has a flow, or an ordering or sequencing of the components which make up the financial report. Financial report creators have flexibility as to this flow, for example an income statement could come before or after a balance sheet.

6.6. Narrative

The following narrative is intended to further drill into the meaning of the parts of a financial report and the relations between the parts of a financial report.

A financial report communicates facts. Facts have fact values. Here are two facts:

Fact Value
2000
1000

Facts reported in a financial report have characteristics. Characteristics explicitly contextualize facts for unambiguous interpretation or analysis. Here are two facts and their characteristic "Concept" and the values for each Concept characteristic, "Revenues" and "Net income (loss)", which explicitly describe the two facts:



Concept	Fact Value
Revenues	2000
Net income (loss)	1000

Facts generally have more than one characteristic. Here is a complete set of characteristics which provide further explicit description for these two facts:

Reporting entity	Legal entity	Period	Concept	Fact Value
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Revenues	2000
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Net income (loss)	1000

And so a fact is a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. A fact is the value plus the characteristics which contextualize the value. Above you see two facts.

A set of facts which go together for some specific purpose is called a component. Financial reports have many components. Below you see a set of facts which go together to make up an income statement component. (Note that only a portion of the complete set of facts which would make up the entire income statement are shown):

Reporting entity	Legal entity	Period	Concept	Fact Value
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Revenues	2000
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Revenues	2500
ABC Company	Consolidated entity	January 1, 2009 to December 31, 2009	Revenues	2300
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Cost of revenues	1800
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Cost of revenues	1700
ABC Company	Consolidated entity	January 1, 2009 to December 31, 2009	Cost of revenues	1600
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Gross profit	200
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Gross profit	800

If you look at the set of facts above you note that the facts and their values and characteristics are organized in the form of a matrix or table. A table of facts, or fact table, is easy for a computer to read and understand but harder for a human to understand.

A fact table can also be better organized for human use by creating a rendering. A rendering is simply a fact table reorganized for presentation to a human. For example, below you see a fact table of an income statement which has been reorganized into a rendering:



Component → **Google Inc.**
CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)

Characteristic →

	Three Months Ended June 30,		Six Months Ended June 30,	
	2011	2012	2011	2012
Revenues:				
Google (advertising and other)	\$ 9,026	\$ 10,964	\$ 17,602	\$ 21,609
Motorola (hardware and other)	0	1,250	0	1,250
Costs and expenses:				
Cost of revenues – Google (advertising and other) ⁽¹⁾	3,172	3,984	6,107	7,773
Cost of revenues – Motorola (hardware and other) ⁽¹⁾	0	1,029	0	1,029
Research and development ⁽¹⁾	1,234	1,585	2,456	3,026
Sales and marketing ⁽¹⁾	1,091	1,433	2,117	2,702
General and administrative ⁽¹⁾	648	980	1,244	1,737
Charge related to the resolution of Department of Justice investigation	0	0	500	0
Total costs and expenses	6,145	9,011	12,424	16,267
Income from operations	2,881	3,203	5,178	6,592
Interest and other income, net	204	254	300	410
Income before income taxes	3,085	3,457	5,478	7,002
Provision for income taxes	580	672	1,174	1,327
Net income	\$ 2,505	\$ 2,785	\$ 4,304	\$ 5,675
Net income per share of Class A and Class B common stock:				
Basic	\$ 7.77	\$ 8.54	\$ 13.37	\$ 17.42
Diluted	\$ 7.68	\$ 8.42	\$ 13.19	\$ 17.17

⁽¹⁾ Includes stock-based compensation expense as follows:

Cost of revenues – Google (advertising and other)	\$ 51	\$ 82	\$ 100	\$ 156
Cost of revenues – Motorola (hardware and other)	0	5	0	5
Research and development	247	291	484	590
Sales and marketing	74	120	152	217
General and administrative	63	160	130	246

See accompanying notes.

Within the rendering you can better see the relations between the facts. For example "Income before income taxes" of 5,853 less the "Provision for income taxes" of 1,626 equals "Net income" of 4,227 for the period 2008. This relation between facts is called a "roll up". Relations between facts are expressed using business rules.

Different industries/activities and different reporting entities organize their facts in different ways.

Common characteristics of financial facts exist such as "reporting entity", "legal entity", "report date", "reporting scenario", "concept", and "period". Other characteristics exist which may, or may not, be appropriate for a specific reported fact.

Facts may have parenthetical explanations associated with them.

Financial reports, the components which make up a financial report, the facts within a financial report, the characteristics which describe facts, the relations between facts, and parenthetical explanations which further describe facts each has a specific set of properties. For example, a component has a label which might be "Income statement". A concept characteristic "Net Income" has a balance type property of "credit".



While we have only shown one component above, a financial report is generally made up of numerous components. Components are ordered or sequenced into a particular order by the financial report creator.

But if you break down the different components, they are always made up of the pieces described above and definable relations exist between the pieces.



7. Understanding Financial Reporting Domain Semantics

The previous section *Identifying and Defining Financial Report Semantics* discusses the semantics of the *financial report*. However, there is another layer of semantics which needs to be considered: financial reporting itself.

Financial reporting domain semantics are also identified and articulated within the Financial Report Semantics and Dynamics Theory. This section explains these domain level financial reporting semantics.

7.1. Difference between report level model semantics and financial reporting domain level semantics

The report level model describes the financial report itself and uses terms such as network, table, axis, member, line items, concept, fact, and parenthetical explanation. Report level model semantics relates to the report itself, the pieces of the financial report and how that report mechanically operates.

A semantic model is basically a set of business rules specific to the domain to which the semantic model relates. As such, a semantic model is more specific and the terminology used within the model is likewise more specific. A semantic model for external financial reporting might use terms such as balance sheet, income statement, accounting policies, disclosures and assets, net income, and net cash flows.

Financial reporting semantics describes financial reporting. Not all of financial reporting is described, in fact only the beginnings of the financial reporting semantics are described here. What is described here is only the tip of the iceberg but it helps accountants understand what financial reporting semantics are and it articulates base or core financial reporting semantics which are impossible to dispute.

This foundation will undoubtedly be built upon. It is with these financial reporting domain level semantics where the real value of digital financial reports becomes clear.

In this section the example used will be for US GAAP financial reporting by public companies to the Securities and Exchange Commission (SEC). This example is used for the following reasons:

- There are lots of publicly available digital financial reports which can be worked with to prove or disprove these semantics. Far fewer IFRS based financial reports are available today.
- Trying to explain both US GAAP and IFRS semantics would become confusing as they are not totally aligned yet. The financial reporting semantics at the level which we are working at here are fairly consistent, but not identical.
- IFRS semantics can be explained as a variation of US GAAP financial reporting semantics at some later time.



7.2. Financial reporting conceptual framework

Financial reporting has a conceptual framework. The FASB outlines this conceptual framework in CON 1 – 7.

Per the FASB, the conceptual framework for financial reporting has two primary purposes. First, it serves as a foundation upon which the FASB constructs financial reporting standards that are internally sound and consistent. Second, the conceptual framework is intended to be used by the business community reporting or consuming financial information to help them better understand and apply financial reporting standards.

The conceptual framework does this by (per the FASB Special Report, *The Framework of Financial Accounting Concepts and Standards* (1998)):

- Providing a set of common premises as a basis for discussion
- Provide precise terminology
- Helping to ask the right questions
- Limiting areas of judgment and discretion and excluding from consideration potential solutions that are in conflict with it
- Imposing intellectual discipline on what traditionally has been a subjective and ad hoc reasoning process

As we shall see, the financial reporting conceptual framework breaks financial reporting into elements and financial statement components.

NOTE: The FASB and IASB are creating a common framework for financial reporting (see <http://goo.gl/4fSqO>). The framework is not complete, but it does offer insight into the pieces of a financial report.

7.3. Financial report elements

The financial report elements articulated by the FASB are:

- Assets
- Liabilities
- Equity
- Investments by owners
- Distributions to owners
- Revenues
- Expenses
- Gains
- Losses
- Comprehensive income

While this is not a complete set of financial report elements, it is useful for identifying and organizing concepts which characterize a financial fact.

Other financial report elements which are not outlined by the FASB and which could exist within a financial report include:



- Policy
- Disclosure
- Document information
- Reporting entity information

7.4. Financial statement components

Financial statement components are defined by the FASB as:

- Balance sheet
- Income statement
- Comprehensive income
- Statement of changes in equity
- Cash flow statement
- Related disclosures

"Related disclosures", because the category can be quite large, can be further broken down into categories. These categorizations are used by the FASB Accounting Standards Codification (ASC). For more information see: <https://asc.fasb.org> (note that a free basic subscription is available):

- Organization
- Consolidation related disclosures
- Basis of reporting and presentation of financial statements
- Significant accounting policies
- Financial statement accounts related disclosures
- Broad transactions categories disclosures

7.5. Industries and reporting entities with certain activities have different reporting practices and therefore use the financial reporting conceptual framework differently

Reporting entities that belong to different industries and that have different activities may have different financial reporting practices. However, all reporting entities and all types of activities fit within the financial reporting conceptual framework under which they are reporting.

It is practice that a corporation reports "Stockholders' equity" and partnerships report "Partner capital" and that sole proprietors report "Owner's equity"; however, all three are "Equity" as defined by the financial reporting conceptual framework.

In practice a financial institution creates an unclassified balance sheet and general commercial and industrial companies create a classified balance sheet; but both types of reporting entities provide balance sheets.



While different industries and activities use components of the financial reporting framework differently, that does not change the financial reporting framework or change the fact that a financial reporting conceptual framework exists.

7.6. Common characteristics of financial facts exist

Some common characteristics that describe financial facts include:

- **Reporting entity** (which entity issued the reported fact; for example Microsoft or Google)
- **Legal entity** (to which legal entity does the reported fact relate; for example consolidated entity or parent holding company)
- **Report date** (what is the date on which the report was issued which contains the reported fact; for example the audit report date or the filing date)
- **Reporting scenario** (under which scenario was a fact reported; for example actual, budgeted, etc.)
- **Concept** or line item (what financial reporting concept describes the reported fact; for example Cash and cash equivalents, Assets, Net Income, etc.)
- **Period** (to which period does the fact relate; for example which year or, current period, prior period, etc.)
- **Business segment** (to which business segment does the fact relate; for example the consolidated entity, consolidation eliminations, subsidiaries or other business components)
- **Geographic area** (to which geographic area does the fact relate; for example all geographic areas combined, Europe, Asia)
- **Operating activities** (which type of operating activity describes the fact; continuing operations, discontinued operations)

Not all financial facts have all of these characteristics, but these are common characteristics. Other characteristics may also exist. Not all reporting entities which report financial information use these precise terms, however they use some term which basically means in essence what is outlined on the list above.

7.7. Financial report components may have core facts and relations common to all reporting entities

While not all financial reports have all facts in common, and different industries can have more or less in common, there are some core components which all entities have. These facts can be thought of as "key stones" or "corner stones" which hold a financial report together.

For example, these are financial reporting facts common to many financial reports issued by many type of reporting entity in many industries:

- Balance sheets always have "Assets", "Liabilities and Equity" and "Equity" reported
- On the balance sheet, assets foots
- On the balance sheet, liabilities and equity foots



- On the balance sheet, equity foots
- Balance sheets balance
- Income statements always report net income (loss)
- On the income statement, net income (loss) foots
- Cash flow statements report net cash flow
- On the cash flow statement, net cash flow foots
- Net cash flow per the cash flow statement reconciles beginning and ending cash and cash equivalents
- Cash and cash equivalents per the cash flow statement and cash and cash equivalents per the balance sheet are the same fact
- Beginning and ending balances of equity per the statement of changes in equity agree with equity balances per the balance sheet

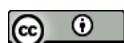
There could be other core components and relations, but the above are certainly true, if someone reports the statements. It is possible for a reporting entity not to have a cash flow statement or income statement. It is less likely for a company to not have a balance sheet.

To test the notion of these core financial report semantics, the *Financial Report Semantics and Dynamics Theory* tested 8,098 SEC XBRL financial filings. The following is an overview of the results obtained. Note that total results for all 8,098 filings were provided with additional breakdowns for the 30 Dow industrial companies, top 100 companies by total assets and top 1,000 companies by total assets.

#	Test	All 8,098 Companies	30 Dow Industrial Companies	Top 100 Companies	Top 1,000 Companies
1	Balance sheet reports assets	100%	100%	100%	100%
2	Balance sheet reports liabilities and equity	97%	96%	99%	99%
3	Balance sheet reports equity	97%	100%	100%	99%
4	Balance sheet balances	98%	96%	99%	99%
5	Cash flow statement reports net cash flow	98%	100%	93%	98%
6	Income statement reports net income (loss)	98%	100%	98%	99%
7	Income statement reports income (loss) from continuing operations	72%	73%	76%	78%
8	Entity name reported	100%	100%	100%	100%

The importance of these cornerstone facts and relations is that they may form a foundation for a comparability framework. The presence of this category of facts might provide us with information about the specific types of components that are reported and the relations between components that must hold true if they are reported. They are the links in the integrity foundations for financial reports.

Different industries may have different core financial report facts common within certain components.



7.8. Reporting entities which created financial reports can be categorized into industries/activities

Industries and activities have unique financial reporting and accounting practices. The following is a summary of some reporting industries and the activities which a reporting entity may have:

- Commercial and Industrial (general, not classified into some other industry or activity)
- Agriculture
- Airlines
- Banking and Thrift
- Broadcasting
- Broker and Dealers of Securities
- Cable Television
- Casinos
- Contractors
- Development Stage Enterprises
- Extractive Activities
- Financial Services Title Plant
- Franchisor
- Health Care
- Insurance
- Investment Companies
- Motion Pictures
- Mortgage Banking
- Not for Profit
- Real Estate
- Records and Music
- Regulated Entities
- Retailers
- Software

Other industries and activities exist.

7.9. Financial analysts use certain common key financial ratios when analyzing financial report information

The following is a summary of some common key ratios used:

- Return on Investment
- Return on Equity
- Return on Total Assets
- Operating Profit
- Sales to Accounts Receivable
- Sales to Inventories
- Sales to Fixed Assets
- Inventory Days
- Debtor Days
- Corporate Liquidity
- Working Capital
- Current Ratio
- Quick Ratio



- Working Capital to Sales
- Interest Cover
- Debt to Equity
- Market Capitalization
- Dividends Per Share
- Dividends Cover Payout Ratio
- Earnings Yield
- Dividends Yield
- Price to Earnings Ratio
- Market to Book Ratio
- Capital Employed
- Working Capital Days
- Assets Employed
- Profit Margin
- Asset Turn
- Sales Margin
- Sales Turn

Other common key ratios exist.

7.10. Financial reports are a true and fair representation of the reporting entity's financial information

Stating this in the opposite makes the statement above clear, "Financial reports are untrue and unfair representations of a reporting entity's financial information." Of course that statement is incorrect.

A financial report can be said to be a verifiably true and fair representation of the reporting entity's financial information if it possesses certain traits which can be defined in general terms and for clarity are listed below:

- **Completeness:** Having all necessary or normal parts, components, elements, or steps; entire.
- **Correctness:** Free from error; in accordance with fact or truth; right, proper, accurate, just, true, exact, precise.
- **Consistency:** Compatible or in agreement with itself or with some group; coherent, uniform, steady. Holding true in a group, compatible, not contradictory.
- **Accuracy:** Correctness in all details; conformity or correspondence to fact or given quality, condition; precise, exact; deviating only slightly or within acceptable limits from a standard.

While these four notions which relate to the "trueness" and "fairness" must exist for every fact reported by a financial report, they also need to exist when considering the financial report in its entirety.

Two other notions help bring the notion of trueness and fairness of information at the fact and at the report level into focus:

- **Fidelity:** Fidelity relates to the loyal adherence to fact or detail; exactness. The representation of the facts and circumstances represented within a financial report properly reflect, without distortion, reality. High fidelity is when the reproduction (a financial report) with little distortion, provides a result very similar to the original (reality of company and environment in which company operates).



- **Integrity:** Integrity is holistic fidelity. Integrity relates to the fidelity of the report in its entirety, of all parts of a financial report, from all points of view. Integrity is holistic accuracy, accurate as a whole. Integrity is the quality or condition of being whole or undivided; completeness, entireness, unbroken state, uncorrupt. Integrity means that not only is each component of a financial report is correct but all the pieces of the financial report fit together correctly, all things considered.

7.11. Financial reports have traits which impact their quality

The following list expresses the traits of a quality financial report.

- **All financial report formats convey the same message:** A financial statement can be articulated using paper and pencil, Microsoft Word, PDF, HTML, XBRL, or other format. But while the format may change, the message communicated, the story you tell, should not change. Each format should communicate the same message, regardless of the medium used to convey that message.
- **Information fidelity and integrity:** A financial statement foots, cross casts, and otherwise "ticks and ties". The accountant community understands this and many times this fact disappears into unconsciousness because it is so ingrained. Of course things foot and cross cast; of course the pieces tie together. Said another way, a financial statement must be correct, complete, consistent, and accurate. Only trained accounting professionals who understand how the XBRL medium works can tell if all financial statement computations are properly articulated and verified to be correct.
- **Justifiable/defensible report characteristics:** Facts reported and the characteristics which describe those reported facts should be both justifiable and defensible.
- **Consistency between periods:** Generally financial information expressed within one period should be consistent with the financial information expressed within subsequent periods, where appropriate. Clearly new information will be added and information which becomes irrelevant will be removed from a financial report. Changes between report elements which existed in both periods should be justifiable/defensible as opposed to arbitrary and random.
- **Consistency with peer group:** If your company chooses one approach and a peer chooses another report element selection choice; clearly some good reason should probably exist. This is not to say differences would not or should not occur. Rather, why the differences exist should make sense. Generally financial information between two peers should be more consistent as compared to inconsistent.
- **Information renderings make logical sense:** Renderings of facts and characteristics which make up the components of a financial report should make logical sense. The financial report rendering should make logical sense without regard to the format of the financial report.
- **Clear business meaning:** A financial report should be unambiguous. The business meaning of a financial report should be clear to the creator of the financial report and likewise clear to the users of that financial report. Both



the creator and users should walk away with the same message or story. A financial report should be usable by regulators, financial institutions, analysts, investors, economists, researchers, and others to desire to make use of the information the report contains.

7.12. Financial reports are used individually, compared across periods, and compared across reporting entities

Financial reports are used in different ways by users including:

- **Analysis of a single financial report:** Analysis of one financial report of one reporting entity.
- **Time series analysis of reporting entity:** Two or more financial reports of the same reporting entity are compared.
- **Comparative analysis across reporting entities:** Two or more financial reports of different reporting entities are used.
- **Ratio analysis:** An analysis of a single financial report, a time series analysis, or a comparative analysis using ratios computed from facts within a report.

7.13. Reporting entity segment definitions are inconsistent in financial reporting literature

The segments into which a reporting entity can be broken down are defined inconsistently in the financial reporting literature. From FASB Accounting Standards Codifications, ASC 280 relates to the classification of assets and sometimes liabilities uses the terms operating segments and reportable segments of the business. ASC 350 which relates to impairment uses the term reporting unit. ASC 860 which relates to special-purpose entities and the master glossary uses the term business. ASC 360 which relates to long-lived assets uses the term asset groups and disposal groups.

As such, the following terminology is proposed:

- Consolidated entity
- Parent holding company
- Operating segment (ASC 280)
- Reportable segment (ASC 280)
- Reporting unit (ASC 350)
- Business (ASC 805)
- Asset group (ASC 360)
- Disposal group (ASC 360)



8. Financial Report Model Elements

In this section we describe the financial report model elements which are used to implement a digital financial report. See the appendix, Report Element Properties, which provides a reconciliation between the *Financial Report Semantics and Dynamics Theory* to this model.

This model is based on the model used by the US GAAP Taxonomy Architecture and SEC XBRL financial filings. Rather than reinventing another set of terminology, that terminology was used. Further, while strictly following this model is not required (i.e. there are other allowed approaches); we do strictly follow one explicit, logical, allowed approach. For more information relating to this model and the US GAAP Taxonomy architecture and SEC XBRL financial filing logical model upon which this model is based, please see this wiki for the most detailed and most current information:

<http://secxbrlglossary.wikispaces.com/>

This is only one of many digital financial report profiles which may ultimately exist. The *SEC XBRL Financial Filing Profile* is documented on the wiki above. This profile is an implementation model for working with XBRL-based digital financial reports.

8.1. Differentiating XBRL technical syntax and model

This section provides a high level overview of XBRL technical syntax terminology and reconciles that terminology to the financial report model. This section is useful to those more familiar with the XBRL technical syntax than with this model.

From a technical point of view, a digital financial report consists of two primary physical components using the XBRL technical syntax: an XBRL instance and an XBRL taxonomy.

An **XBRL instance** is a physical document just like your HTML document or Word document which contains the financial information you report. While the information is the same, the format of the information is different, it is XBRL. An XBRL instance contains things such as:

- The financial and nonfinancial **facts** which you report. An example of a fact is Cash and Cash Equivalents for the current fiscal period of December 31, 2010, reported by the consolidated entity which has the SEC CIK number 0123456789 whose value is \$1,000,000 reported in thousands of US Dollars.
- The **values** of those financial and nonfinancial facts. The value \$1,000,000 is an example of a value.
- **Characteristics** which describe those facts. The CIK number 0123456789, the consolidated entity, the period December 21, 2010 are examples of characteristics.
- **Other traits** which help you understand values of facts which are numeric in nature. Stating that the value is in US Dollars and expressed in thousands are examples of other attributes.
- Any other **parenthetical explanations or footnotes** which help describe those facts. You may want to provide some kind of notation which appears as a footnote within your report. These are provided using XBRL footnotes.



Not that you would ever need to look at this XBRL instance, it is really meant for computers to understand and process for the user of the information; but if you are curious, this is what XBRL looks like this:

```
<us-gaap:CashAndCashEquivalentsAtCarryingValue contextRef="I-2010" unitRef="U-Monetary" decimals="-3">11000000</us-gaap:CashAndCashEquivalentsAtCarryingValue>
<us-gaap:RestrictedCashAndInvestmentsCurrent contextRef="I-2010" unitRef="U-Monetary" decimals="-3">1000000</us-gaap:RestrictedCashAndInvestmentsCurrent>
<us-gaap:ShortTermInvestments contextRef="I-2010" unitRef="U-Monetary" decimals="-3">1000000</us-gaap:ShortTermInvestments>
```

It may seem odd to express all the details described above, but remember; computers are not very smart. Things that humans can generally figure out by reading a report have to be expressed explicitly so that a computer can understand what to do with them.

The second major piece of a digital financial report is the XBRL taxonomy. An **XBRL taxonomy** can be thought of as a dictionary. The taxonomy provides the definitions of the concepts used in your report, definitions of many of the characteristics which help explain your financial report, relations between the concepts and characteristics, and the business rules which exist between concepts. All this information is used by the XBRL instance.

Some of the concepts, characteristics, relations, and business rules are pre-defined for you by the FASB in the US GAAP Taxonomy. But each SEC filer can also create the concepts, characteristics, relations and business rules that uniquely define their organization.

Part of the art and science of using XBRL is to figure out when you use the predefined concepts and characteristics and when to define your own.

As pointed out previously, many times a logical or conceptual model is created to work with complex technical things. We have all worked with electronic spread sheets. They are easy to use because the software interface which you work with exposes you to familiar terms similar to paper spread sheets. Things like workbooks, spread sheets, rows, columns, and cells are recognizable and organized into a logical model which we understand.

XBRL is a technical syntax. The XBRL technical syntax is implemented by the US GAAP taxonomy using a specific architecture or application profile. This application profile is laid out in the US GAAP Taxonomy Architecture. That architecture exposes a logical model.

An SEC XBRL financial filing can be summarized into a concise set of logical components, a logical model: networks, tables, axis, line items, facts, etc. These terms are easier to work with and understand than the XBRL technical syntax.

The US GAAP Taxonomy which is used for SEC XBRL financial filings is also used for this digital financial reporting model. Further, this same model can be applied to more general digital financial reporting.

8.2. Report elements overview

The following is an overview of the report element categories into which all report elements fit which make up this model. Each of these report element categories will be explained in further detail within this section.

- **Network:** A network is one approach to break a digital financial report into smaller pieces. There are two reasons why you might need to break a



financial filing into pieces: because you want to or because you have to. Specific semantics of networks are undefined.

- **Table:** A table is used to combine facts which go together for some specific reason. Tables are comprised of axis and line items. The line items of a table share the axis defined within a table. There are two types of tables: explicit tables and implicit tables. Implicit tables only have the axis reporting entity and period. An explicit table always has at least one defined [Axis], it could have more than one. An explicit [Table] always has one set of [Line Items]. Specific semantics of tables are undefined.
- **Axis:** An axis is a means of providing information about the characteristics of a fact reported within a financial report.
- **Member:** A member is a possible value of an [Axis]. A [Member] is always part of a domain of an [Axis], thus the term "member" (i.e. of the domain or set; a domain is simply a set of [Member]s which relates to a specific [Axis]). Members of an [Axis] tend to be cohesive and share a certain common nature.
- **Line Items:** [Line items] are a set of concepts which can be reported by an entity, they can contain values. [Line Items] may also contain [Abstract] concepts which can never report values but rather are used to help organize the [Line Items].
- **Concept:** A concept refers to a financial reporting concept or a non-financial concept which can be reported as a fact within an SEC XBRL financial filing. A concept is sometimes referred to as a concrete concept, as compared to an abstract concept. [Line Items] contain concepts organized within a component which have the same information model. Concepts can be concrete (meaning they can be reported) or abstract (meaning that they are never reported; they are only used to organize the concepts contained within a set of line items).
- **Fact:** A fact defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. Numeric fact values must also provide the additional traits "units" and "rounding" to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.

Information expressed by a digital financial report are called **facts**. Facts are expressed within **tables** which connect a set of **axis** which express the characteristics of the facts and a set of **line items** which connect the facts to some financial reporting **concept**. Tables can be organized within **networks**. The characteristics of the fact, expressed as an axis are organized into a domain of **members**. In addition, **footnotes** can be used to elaborate on facts.

For example, Net Income (Loss) [a concept] of \$1000 [the value of a fact] for the period ended December 31, 2010 [a characteristic of the fact] for the consolidated entity [another characteristic of the fact] of the reporting entity with the CIK number 1080224 [yet another characteristic of the fact] may be a fact reported within an SEC XBRL filing.



8.3. Network

A **network** is a one approach to break a digital financial report into smaller pieces. There are two reasons why you might need to break a financial filing into pieces: because you want to or because you have to.

Networks you create have a direct impact on what is seen within a rendering engine such as the SEC XBRL Interactive Data Viewer and other software that produce renderings of SEC XBRL financial filings or other digital financial reports.

Consider the following screen shot of the SEC Interactive Data Viewer:

Document and Entity Information			
	6 Months Ended	Jun. 30, 2012	Jul. 19, 2012 Class A Common Stock
	Jul. 19, 2012 Class B Common Stock		
Document Type	10-Q		
Amendment Flag	false		
Document Fiscal Period Focus	Jun. 30, 2012		
Trading Symbol	GOOG		
Entity Registrant Name	Google Inc.		
Entity Central Index Key	0001288776		
Current Fiscal Year End Date	-12-31		
Entity Filer Category	Large Accelerated Filer		
Entity Common Stock, Shares Outstanding	261,972,044	65,061,281	

And now consider this screen shot of the XBRL taxonomy which supports the XBRL instance being viewed within the SEC XBRL Interactive Data Viewer:

- [-] Network (101 - Document - Document and Entity Information)
- [-] Network (103 - Statement - CONDENSED CONSOLIDATED BALANCE SHEETS)
- [-] Network (104 - Statement - CONDENSED CONSOLIDATED BALANCE SHEETS (Parenthetical))
- [-] Network (105 - Statement - CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS)
- [-] Network (106 - Statement - CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN COMMON STOCKHOLDERS' EQUITY)
- [-] Network (107 - Statement - CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS)
- [-] Network (108 - Disclosure - BASIS OF PRESENTATION)
- [-] Network (109 - Disclosure - REVENUE RECOGNITION)
- [-] Network (110 - Disclosure - INCOME (LOSS) PER SHARE)
- [-] Network (111 - Disclosure - SOFTWARE DEVELOPMENT COSTS)
- [-] Network (112 - Disclosure - LONG-TERM DEBT)
- [-] Network (113 - Disclosure - STOCK-BASED COMPENSATION)
- [-] Network (114 - Disclosure - CONCENTRATION OF RISK AND FAIR VALUE OF FINANCIAL INSTRUMENTS)
- [-] Network (115 - Disclosure - SEVERANCE COSTS)
- [-] Network (116 - Disclosure - REDEEMABLE PREFERRED STOCK)
- [-] Network (117 - Disclosure - RELATED PARTY TRANSACTIONS)
- [-] Network (118 - Disclosure - INCOME TAXES)
- [-] Network (119 - Disclosure - RECENT ACCOUNTING PRONOUNCEMENTS)
- [-] Network (120 - Disclosure - MERGER AGREEMENT AND STOCK SALE AGREEMENT)



Creating a network causes a section to appear within the left hand navigation pane of the SEC XBRL Interactive Data Viewer application. You can create these networks as you desire to organize how this information would appear within a software application.

These networks have three parts: a *number*, a *category*, and a *label*. The number determines the order of the network in the rendering. The category determines which section the network appears in the SEC XBRL Interactive Data Viewer. The categories are: Document, Statement, and Disclosure. The label provides specific information about what the network contains.

The second reason you would create a network is because you have to. Suppose, for example, that you wanted to articulate the breakdown of trade receivables in multiple ways:

	2010	2009
TRADE AND OTHER RECEIVABLES		
Trade and Other Receivables, Net, by Component		
Trade Receivables, Net	8,790	6,431
Financing Lease Receivables, Net	2,498	1,263
Other Receivables, Net	<u>1,305</u>	<u>1,096</u>
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>
Trade and Other Receivables, Net, by Net/Gross		
Trade and Other Receivables, Gross	18,280	13,472
Allowance for Doubtfull Accounts	<u>-5,687</u>	<u>-4,682</u>
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>
Trade and Other Receivables, Net, by Current/Noncurrent		
Trade Receivables, Net, Current	6,340	5,701
Trade Receivables, Net, Noncurrent	<u>6,253</u>	<u>3,089</u>
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>

A network separates things which would otherwise collide. To avoid these three breakdowns of the same concept "Trade and Other Receivables, Net" from colliding; a network must be created for each to separate them. As such, you may need to create networks sometimes when you would prefer not to.

HINT: The term "network" may seem odd. But this is actually just like how different radio or television frequencies are separated, thus the term network.

8.3.1. Number

A network is assigned a number. The number is used to order or provide a sequence for the networks.



8.3.2. Category

A network has a category. The categories are: Document, Statement, Schedule, and Disclosure. The category impacts which section of the SEC interactive viewer the network shows up.

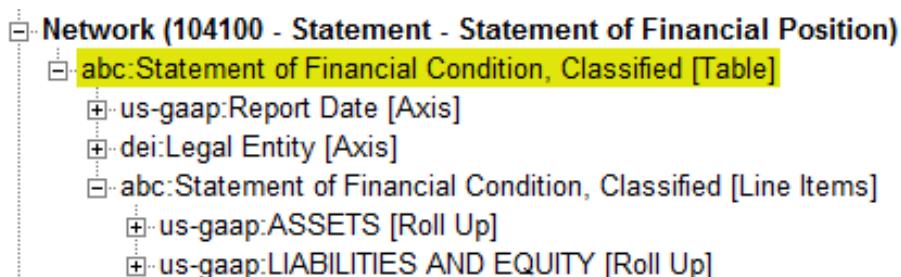
8.3.3. Label

A network has a label. The label describes what the network contains.

8.4. Table

A **table** is used to combine facts which go together for some specific reason. Tables are comprised of axis and line items. The line items of a table share the axis defined within a table.

There are two types of tables: explicit tables and implicit tables. Implicit tables only have the axis reporting entity and period. An explicit table always has at least one explicit axis, it could have more than one. An explicit table always has one set of line items.



Note the table above which has two **axis** "Report Date [Axis]" and "Legal Entity [Axis]" and one set of **line items** "Statement of Financial Condition, Classified [Line Items]".

HINT: Defining unique, smaller, explicit tables is superior to using the implicit tables, repeating table names, and larger tables. Further, you get better control over the SEC Interactive Data Viewer and other rendering software with smaller explicit tables.

HINT: Generally today it is better to have a one-to-one correlation between a network and a table. This approach is generally more reliable, more predictable, and therefore safer. However, it is appropriate and acceptable for a network to contain more than one table.

8.4.1. Explicit tables

You can use a table from the US GAAP taxonomy or you can define your own tables. For example, you might create the table "Debt Instruments [Table]" if you needed it but it did not exist within the US GAAP taxonomy.



8.4.2. Implicit tables

There is another way you can create a table which is to use what amounts to a default table. If you define concepts in your taxonomy and you do not explicitly put them into an existing US GAAP taxonomy table or a table which you define, you are putting that concept into an implicit table.

8.5. Axis

An **axis** is a means of providing information about the characteristics of the concepts for the line items within a table regardless of whether that table is explicitly or implicitly defined.

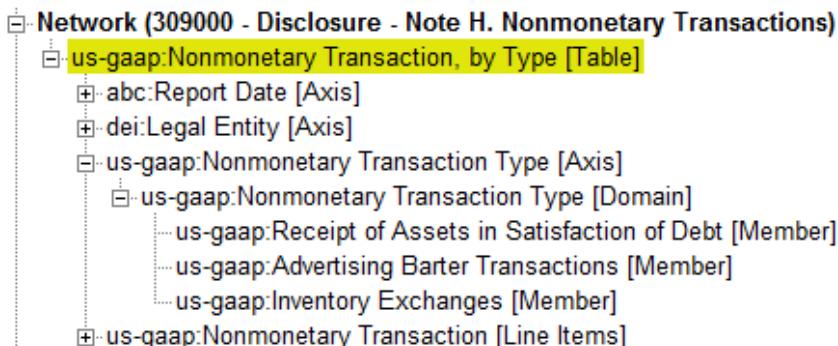
Explicitly defined [Table]s are the only tables to which you can add axes. All tables, be they explicitly defined or implicitly defined, have two axis which will always be there: entity and period.

- **Entity:** The entity, or "Reporting Entity" axis, always exists for an explicit or implicit table and the entity axis is always the SEC filer CIK number.
- **Period:** The period axis, or reporting period, always exists for an explicit or implicit table.

Using axis defined by the US GAAP taxonomy is preferred and would commonly be available; but if an axis which you need does not exist, you can create an axis to articulate the characteristics you need communicated. Other explicit axis which might be defined could include things such as:

- Class of common stock [Axis]
- Subsequent event type [Axis].

Here is an example of a [Table], its three [Axis], and its [Line Items]:



Note the **axis** "Nonmonetary Transaction Type [Axis]" above, its **domain** and its **members**.

8.6. Member

A **member** is a possible value of an axis. A member is always part of a domain of an axis, thus the term "member" (i.e. of the domain or set). Members of an [Axis] tend to be cohesive and share a certain common nature. A member expresses the value of the axis or characteristic being described. For example, the "Consolidated Entity [Member]" might be the value of the characteristic "Legal Entity [Axis]".

Here is an example of an axis, its domain and its members:





A domain is a cohesive set of members. The set of members which comprise a domain share a certain common nature. Domains have partitions. A partition is collectively exhaustive and mutually exclusive set of members within a domain. Partitions do not overlap. Given a set X , a partition is a division of X into non-overlapping and non-empty "parts" or "blocks" or "cells" that cover all of X . More formally, these "cells" are both collectively exhaustive and mutually exclusive with respect to the set being partitioned. Domains always have at least one partition and may have many partitions.

A domain could have subdomains.

For example, say you have the axis "Business Segments [Axis]". That axis might have the domain "Business Segments, All [Member]" which represents the total of all business segments, the sum of all the members. That is a usable domain. Whereas, suppose you had the axis "Subsequent Event Types [Axis]". Subsequent events are never aggregated, so you would never use that domain. But you would still need to provide a domain such as "Subsequent Event Types, all types [Member]", even though that domain would never actually be used within a report.

8.7. Member or domain partition aggregation models

The **members** of a **domain** have relations to one another. These relations are referred to as **domain partition aggregation models**. There are two dynamics which impact domain aggregation. The first is whether you have a **partial set** or a **complete set** represented by the domain members. The second dynamic is whether the set aggregates or adds up. An axis which express partial sets and describe the characteristics of non-numeric concepts cannot aggregate.

8.8. Line items

Line items contain a set of concepts which can be reported by an entity, they can contain values.

Line items are what amounts to a special type of axis or characteristic. Because the concepts within a set of line items can report fact values, they have data types such as string, monetary, etc. They may also have a balance type (debit or credit), a period type (as of a point in time, for some period, etc.), and a few other attributes.

8.9. Component

A **component** is a combination of a network and a table. A component is a set of facts which go together for some specific purpose. Because a network and table have undefined semantics, likewise a component must have undefined semantics.

HINT: Taxonomies such as the US GAAP Taxonomy SHOULD define specific semantics for networks and tables. If such semantics were known, then the semantics of a component would be clear. Each reporting entity can, and generally does, have their scheme or approach to how they create the many



pieces which make up their financial report. That is their scheme. Each scheme could be different. There are exactly three approaches to defining components: use only networks (and make all tables the same), use only tables (and make networks meaningless) or use both networks and tables. If an approach where tables are used, each table should be unique (have a unique name). Having one table have multiple meanings (i.e. polymorphic) causes issues with using financial report information.

8.10. Sub component

A **sub component** is a sub set of line items which have the same information model and go together for some specific purpose. A sub component is an abstract report element in that it is more of an idea for convenience than a necessary report element.

For example, the balance sheet has two sub components: "Assets [Roll Up]" and "Liabilities and Equity [Roll Up]".

HINT: A table always has at least one sub component and may have any number of sub components.

8.11. Concept

A **concept** refers to a financial reporting concept or a non-financial concept which can be reported as a fact within a digital financial report. A concept is sometimes referred to as a concrete concept, as compared to an abstract concept (see next section).

Line items contain concepts organized within a component which have the same information model. Concepts can be concrete (meaning they can be reported) or abstract (meaning that they are never reported; they are only used to organize the concepts contained within a set of line items).

8.12. Abstract

An **abstract** refers to a concept which is used only for organizational purposes and can never be actually reported.

HINT: The term abstract as it is being used here is NOT the same as the XML Schema abstract attribute.

8.13. Concept relation metapatterns

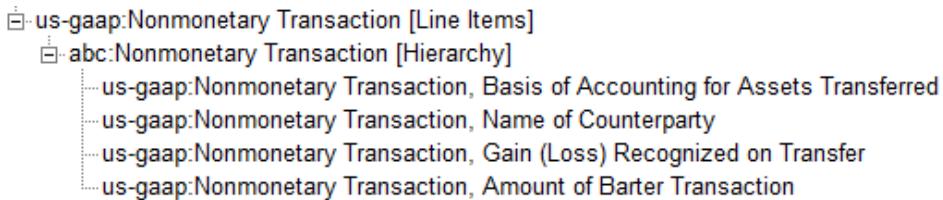
A **concept relation metapattern** (or information model) describes the organization or relation between concepts within a sub component.

Concepts are not interspersed randomly within a table; they have patterns. Said another way, concepts are organized into different information models. A component is a set of concepts which have the same information model pattern or metapattern which are organized and used together for some specific purpose.

The common concept relation metapatterns or information models include: hierarchy, roll up, roll forward, compound fact, adjustment, variance, complex computation, text block, and grid (a pseudo information model).



Here is an example of line items which contain abstract and concrete concepts organized into a concept relation metapattern or information model:



The above screen shot shows the [Line Items] of a nonmonetary transaction. These [Line Items] are organized within the component "Nonmonetary Transaction [Hierarchy]". The component has four concepts. The [Table] and [Axis] are not shown.

8.14. Business rules

A **business rule** is a relation between reported facts. Business rules can be used to validate the values of facts contained within a report.

Taking the notion that concepts are not randomly placed within a set of line items further than just the concept relation model or information model; certain information models have financial integrity. A balance sheet always has "Assets" and "Liabilities and Equity". A balance sheet always balances. The line items of Assets will always foot. The line items of "Liabilities and Equity" will always foot. These characteristics, or the balance sheets financial integrity, are expressed using business rules.

HINT: Financial integrity exists within a table and also between tables.

8.15. Fact

A **fact** defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. Numeric fact values must also provide the additional traits "units" and "rounding" to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact. Facts are sometimes referred to as a metric.

A fact could be numeric, non-numeric (i.e. strings), or narrative (i.e. Text Block).

Facts are an intersection of **axis**, **line items** (remember that line items are a special type of axis which express a concepts), and a **value**. The value of a reported fact is referred to as a fact value. A fact value has fact attributes if it is numeric. A fact may also have a **footnote**.

The characteristics of a fact are described by the **axis** collection. The concept is one characteristic of the fact. So, facts have values, they have an axis which describes its characteristics, and they have fact attributes which further describe the value. Numeric facts have an amount and non-numeric facts are made up of textual information. Narratives are basically XHTML (technically narratives are escaped XHTML which is converted by software to HTML).

Facts exist within a **fact table**. A **fact table** is simply a set of one or more facts.



8.15.1. Intersection with line items (concepts)

A **fact** is associated with a concept, they reference a concept within the set of **line items**.

8.15.2. Intersection with axis

Facts are associated with axis which articulate characteristics, they reference a set of axis within an implicit or explicit table.

HINT: A fact will always have a “Reporting Entity [Axis]” and a “Period [Axis]” as they are required by the XBRL technical syntax. Because of this undesired calculation inconsistencies can exist in an SEC XBRL financial filing. See the appendix on the causes of calculation inconsistencies in the appendix.

8.15.3. Value

Facts have a value which can be numeric or non-numeric. An important non-numeric value type is a narrative or [Text Block] which is a fragment of escaped XHTML.

8.15.4. Fact traits

If the **fact** is numeric, it has two traits which describe additional information needed by numeric facts: **units** and **decimals** (rounding). **Units** provides information about this units of the numeric fact such as monetary, shares, or some other units. The **decimals** (rounding) provides information as to the number of decimal places to which the number is accurate, such as to the thousands, millions, billions, hundredths, etc.

8.16. Footnote (parenthetical explanation)

Facts may also have **footnotes** (parenthetical explanations, don’t confuse this with notes to the financial statements) which provide addition information about the fact.

8.17. Integrity models

Relations exist within a [Table], for example a set of concepts can roll up into some total, concept relations models or information models describe these types of relationships within one [Table]. But relations can also exist between [Table]s.

Integrity models express the semantic relations between the components of on [Table] and the components of another [Table].

8.18. Flow models

Flow is the notion of relations between components (networks/[Table]s) for the purpose of ordering or sequencing information contained in a digital financial report.

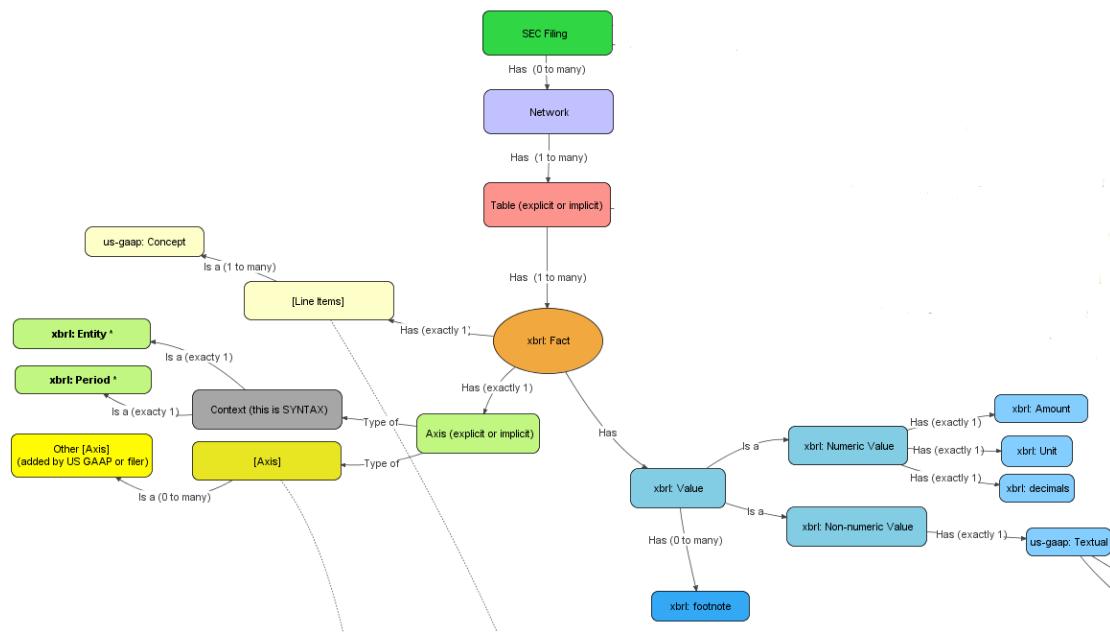
8.19. Semantic models

Semantic models add an additional layer of integrity to an integrity model specific to the domain for which information is expressed.



8.20. Summary visualization of report model

This graphic depicts what we have discussed thus far, showing the report elements for the model we have discussed and also showing the relationships between these report elements expressed as a mind map. Each of these report elements is represented as a box. The lines show the relationships between the report elements. The text on the line provides information about the relationship:



The relations between report elements will be expanded upon in the next section of this document.

You can find a complete version of this mind map of the logical model at this URL:

http://www.xbrlsite.com/2012/Library/TheoryPlusImplementation_v3.pdf

HINT: There are many different ways to depict this information, the most formal being UML (Uniform Modeling Language). UML is a standard way of depicting this information. However, we are using a less formal approach to articulating this information to make it easier for business readers to understand the relations. UML provides additional details, but is harder for business readers to understand.

8.21. Summary narrative of financial report model

A **digital financial report**, such as an SEC XBRL financial filing can be logically broken down into categories of pieces or **report elements**. These report elements can be categorized.

A **fact** defines a single, observable, reportable piece of information contained within a digital financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics.

Information, or facts reported, can be grouped. Groups or sets of information reported which go together for some specific purpose are called a **component**. Components can have one or many sub components.



A component is expressed using networks and tables. A table can be organized within a network. **Networks** organize where **tables** show up in software applications which render information such as the SEC Interactive Data viewer application. Networks have numbers, a category, and a label. There are categories of networks: Document, Statement, Schedule, and Disclosure. The numbers within the network names determine the ordering of the networks within rendering software applications.

Tables are groupings of **facts** which appear in a financial report for some specific purpose. Facts within a table have similar characteristics. **Axes** articulate these characteristics. **Line items** are a special type of axis. Line items contain concepts. These **concepts** can describe **fact values** in a digital financial report.

The value of an axis is a **member**. Axis always has one or more domains which is its set of members. A domain may be broken down into one or more partitions. There are two axis which must always exist: reporting entity and period. (Actually, if you count the concept there are three axis which must exist.)

Numeric values have two additional traits: units and decimals (or rounding). **Units** explain the units of a numeric value and **decimals** explain the rounding of a numeric value. Fact values may also have **footnotes** which provide additional descriptive information about a specific value or a set of values. **Traits** play no role in processing axis, they are traits of the fact and not characteristics.

Facts reported do not have random relationships, the relationships between facts have patterns, this is referred to as a **concept relation metapattern** or an information model. A table may contain numeric concepts within **sub components** which have information models such as **roll up, roll forward, adjustment, variance, complex computations**, etc. If the numeric information has no relationship or only textual information is reported, the information model is simply a **hierarchy**. The **text block** information model is that of a narrative or prose and is reported as a block of HTML.

Likewise the members which make up the domain do not have random relations, the relations of an axis have patterns referred to as the **member aggregation model** or the domain partition aggregation model. Complete flat sets of members describe the characteristic of numeric concepts which can aggregate. Partial sets or domains whose members describe non-numeric concepts can never aggregate. Complete hierarchical sets are nested complete flat sets. Complex sets are other more complicated axis aggregation models.

Integrity models describe how the components of one table and the components of another table relate. **Semantic models** add domain specific integrity beyond a general integrity model. **Flow models** articulate an ordering or sequencing of the networks/tables within a digital financial report.

8.22. Digital financial report examples

The following are a number of examples which will provide additional explanation of how the report elements work together.



8.22.1. Simple example

Consider this example below which shows the “Document and Entity Information” network which contains the “Document and Entity Information” table, its axis, and its line items within the SEC XBRL Interactive Data viewer:

EDGAR ONLINE INC (Filer) CIK: 0001080224				
Print Document View Excel Document				
Cover Document and Entity Information Financial Statements Notes to Financial Statements Notes Tables Notes Details All Reports	Document and Entity Information		9 Months Ended Sep. 30, 2010	Nov. 12, 2010
	Document Type	10-Q		
	Amendment Flag	false		
	Document Period End Date	2010-09-30		
	Document Fiscal Year Focus	2010		
	Document Fiscal Period Focus	Q3		
	Trading Symbol	EDGR		
	Entity Registrant Name	EDGAR ONLINE INC		
	Entity Central Index Key	0001080224		
	Current Fiscal Year End Date	-12-31		
Entity Filer Category		Smaller Reporting Company		
Entity Common Stock, Shares Outstanding			26,984,829	

Note the last line of the report screenshot above, the right most column. The fact values “26,984,829” is associated with the concept which has the label “Entity Common Stock, Shares Outstanding” which is part of the line items of the Document and Entity Information [Table] which is contained in the “Document and Entity information” network. The fact is also associated with the axis period which has the value “Sep. 30, 2010” and the axis entity which has the value of 0001080224. The fact value is rounded to the nearest share and has the units of shares.

8.22.2. More complex example

This is another example with more complexity.





View Filing Data

Characteristic (Axis)

(Filer) CIK: 000123456789

Attributes

Characteristic (Axis)

A Fact is the intersection of a concept, characteristics, value, and fact attributes

Fact Value

Concept

Network

Print Document View Excel Document

CONSOLIDATED STATEMENTS OF INCOME (USD \$) In Millions, except Per Share data			
	12 Months Ended Dec. 31, 2010	Dec. 31, 2009	Dec. 31, 2008
Revenues	\$ 29,321	\$ 23,651	\$ 21,796
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of \$41, \$47, \$67)	10,417	8,844	8,622
Research and development (including stock-based compensation expense of \$732, \$725, \$861)	3,762	2,843	2,793
Sales and marketing (including stock-based compensation expense of \$206, \$231, \$261)	2,799	1,984	1,946
General and administrative (including stock-based compensation expense of \$141, \$161, \$187)	1,962	1,668	1,803
Total costs and expenses	18,940	15,339	15,164
Income from operations	10,381	8,312	6,632
Impairment of equity investments	0	0	(1,095)
Interest and other income, net	415	69	316
Income before income taxes	10,796	8,381	5,853
Provision for income taxes	2,291	1,861	1,626
Net income	\$ 8,505	\$ 6,520	\$ 4,227
Net income per share of Class A and Class B common stock:			
Basic	\$ 26.69	\$ 20.62	\$ 13.46
Diluted	\$ 26.31	\$ 20.41	\$ 13.31

A [Table] is a set of [Line Items] which contain Concepts and [Axis] which express Characteristics for a set of Facts which go together in some way. This example is an "Income Statement [Table]".

The more complex example shows most of the major terms used. Other terms are left out of here as to not overwhelm you. The visualization of the logical model which is next shows how every piece of the model is related to other pieces within the model.

Compare that to the HTML rendering of that table:



CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)

	Year Ended December 31,		
	2008	2009	2010
Revenues	<u>\$21,796</u>	<u>\$23,651</u>	<u>\$29,321</u>
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of \$41, \$47, \$67)	8,622	8,844	10,417
Research and development (including stock-based compensation expense of \$732, \$725, \$861)	2,793	2,843	3,762
Sales and marketing (including stock-based compensation expense of \$206, \$231, \$261)	1,946	1,984	2,799
General and administrative (including stock-based compensation expense of \$141, \$161, \$187)	1,803	1,668	1,962
Total costs and expenses	<u>15,164</u>	<u>15,339</u>	<u>18,940</u>
Income from operations	6,632	8,312	10,381
Impairment of equity investments	(1,095)	0	0
Interest and other income, net	316	69	415
Income before income taxes	<u>5,853</u>	<u>8,381</u>	<u>10,796</u>
Provision for income taxes	1,626	1,861	2,291
Net income	<u><u>\$ 4,227</u></u>	<u><u>\$ 6,520</u></u>	<u><u>\$ 8,505</u></u>
Net income per share of Class A and Class B common stock:			
Basic	<u>\$ 13.46</u>	<u>\$ 20.62</u>	<u>\$ 26.69</u>
Diluted	<u>\$ 13.31</u>	<u>\$ 20.41</u>	<u>\$ 26.31</u>

And here is another view of the same information in a third party rendering tool, the Firefox browser add in for viewing XBRL based information:

105 - Statement - CONSOLIDATED STATEMENTS OF INCOME

IDENTIFIER:		0001288776 - HTTP://WWW.SEC.GOV/C		
LEGAL ENTITY [AXIS]:		ENTITY [DOMAIN]	0	
(IN THOUSANDS)		DATE	12 MONTHS ENDED 2008-12-31	12 MONTHS ENDED 2009-12-31
USD	UNIT	ITEM	NOTES	
		REVENUES		21,796,000
		COST OF REVENUES (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF \$41, \$47, \$67)		8,622,000
		RESEARCH AND DEVELOPMENT (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF \$732, \$725, \$861)		2,793,000
		SALES AND MARKETING (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF \$206, \$231, \$261)		1,946,000
		GENERAL AND ADMINISTRATIVE (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF \$141, \$161, \$187)		1,803,000
		TOTAL COSTS AND EXPENSES		<u>15,164,000</u>
		INCOME FROM OPERATIONS		6,632,000
		IMPAIRMENT OF EQUITY INVESTMENTS		(1,095,000)
		INTEREST AND OTHER INCOME, NET		316,000
		INCOME BEFORE INCOME TAXES		<u>5,853,000</u>
		PROVISION FOR INCOME TAXES		1,626,000
		NET INCOME		<u>4,227,000</u>
USD/SHARES		BASIC		0.01346
		DILUTED		0.01331

Here is another rendering of the same information using the XBRL Cloud free XBRL viewer browser application which likewise lets you pivot the information:



The screenshot shows a software application window titled "DIGITAL FINANCIAL REPORTING (DRAFT VERSION .8)". The menu bar includes "File", "View", "Options", and "About". Below the menu is a toolbar with icons for "Interactive", "Save", "Print", "Copy", and "Exit".

The left sidebar is a "Contents" panel listing various financial statement sections:

- Document and Entity Information
- CONSOLIDATED BALANCE SHEETS
- CONSOLIDATED BALANCE SHEETS (Parenthetical)
- CONSOLIDATED STATEMENTS OF INCOME
- CONSOLIDATED STATEMENTS OF INCOME (Parenthetical)
- CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
- CONSOLIDATED STATEMENTS OF CASH FLOWS
- Google Inc. and Summary of Significant Accounting Policies
- Net Income Per Share of Class A and Class B Common Stock
- Cash and Investments
- Short-Term Debt
- Derivative Financial Instruments
- Fair Value Measurements
- Property and Equipment
- Acquisitions
- Goodwill and Other Intangible Assets

The main area is titled "Statement [Table]" and contains a table with three columns for "Entity", "Legal Entity", and "Entity". The table has four rows of headers and 17 data rows. The data rows include various financial metrics like Revenues, Costs and expenses, and Net income, comparing three years: 2010-12-31, 2009-12-31, and 2008-12-31.

Concept	Year ended 2010-12-31	Year ended 2009-12-31	Year ended 2008-12-31
Revenues	\$29,321,000,000	\$23,651,000,000	\$21,796,000,000
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of \$41, \$47, \$67)	\$10,417,000,000	\$8,844,000,000	\$8,622,000,000
Research and development (including stock-based compensation expense of \$732, \$725, \$861)	\$3,762,000,000	\$2,843,000,000	\$2,793,000,000
Sales and marketing (including stock-based compensation expense of \$206, \$231, \$261)	\$2,799,000,000	\$1,984,000,000	\$1,946,000,000
General and administrative (including stock-based compensation expense of \$141, \$161, \$187)	\$1,962,000,000	\$1,668,000,000	\$1,803,000,000
Total costs and expenses	\$18,940,000,000	\$15,339,000,000	\$15,164,000,000
Income from operations	\$10,381,000,000	\$8,312,000,000	\$6,632,000,000
Impairment of equity investments	\$0	\$0	(\$1,095,000,000)
Interest and other income, net	\$415,000,000	\$69,000,000	\$316,000,000
Income before income taxes	\$10,796,000,000	\$8,381,000,000	\$5,853,000,000
Provision for income taxes	\$2,291,000,000	\$1,861,000,000	\$1,626,000,000
Net income	\$8,505,000,000	\$6,520,000,000	\$4,227,000,000
Net income per share of Class A and Class B common stock:			
Basic	26.69	20.62	13.46
Diluted	26.31	20.41	13.31

Here is a rendering of the same information using Edgar Online I-Metrix which uses Microsoft Excel as its rendering output format:



	A	B	C	D
1	 by EDGAROnline [®]			
2	Name			
3	Symbol			
4	Form			
5	Period Dates	1/1/2010 - 12/31/2010	1/1/2009 - 12/31/2009	1/1/2008 - 12/31/2008
6	CONSOLIDATED STATEMENTS OF INCOME			
7	Revenues	\$29,321,000,000	\$23,651,000,000	\$21,796,000,000
8	Costs and expenses:			
9	Cost of revenues (including stock-based compensation expense of \$41, \$47, \$67)	\$10,417,000,000	\$8,844,000,000	\$8,622,000,000
10	Research and development (including stock-based compensation expense of \$732, \$725, \$861)	\$3,762,000,000	\$2,843,000,000	\$2,793,000,000
11	Sales and marketing (including stock-based compensation expense of \$206, \$231, \$261)	\$2,799,000,000	\$1,984,000,000	\$1,946,000,000
12	General and administrative (including stock-based compensation expense of \$141, \$161, \$187)	\$1,962,000,000	\$1,668,000,000	\$1,803,000,000
13	Total costs and expenses	\$18,940,000,000	\$15,339,000,000	\$15,164,000,000
14	Income from operations	\$10,381,000,000	\$8,312,000,000	\$6,632,000,000
15	Impairment of equity investments	\$0	\$0	-\$1,095,000,000
16	Interest and other income, net	\$415,000,000	\$69,000,000	\$316,000,000
17	Income before income taxes	\$10,796,000,000	\$8,381,000,000	\$5,853,000,000
18	Provision for income taxes	\$2,291,000,000	\$1,861,000,000	\$1,626,000,000
19	Net income	\$8,505,000,000	\$6,520,000,000	\$4,227,000,000
20	Net income per share of Class A and Class B common stock:			
21	Basic	\$26.69	\$20.62	\$13.46
22	Diluted	\$26.31	\$20.41	\$13.31

Notice the similarities and differences between the SEC, Firefox, and XBRL Cloud XBRL viewer and Edgar Online I-Metrix applications.



9. Relations between Financial Report Model Elements

A list of report elements, by itself, is not sufficient to describe a model for a digital financial report. A digital financial report contains both things that exist within that model (things that exist, report elements) and relationships between those report elements (how they interact with one another).

In the prior section, Financial Report Model Elements, we discussed the elements which make up the digital financial report model. In this section we discuss the relations between those report elements in additional detail.

9.1. Overview or relations between report elements

As pointed out in the previous section, digital financial reports are made up of the following report elements: networks, tables, axes, members, line items, concepts, facts.

These report elements can be related:

- **Concept relations:** relations between concepts
- **Member aggregations:** relations between the members of a domain
- **Business rules:** relations between facts
- **Flow or sequence:** relations between financial report components
- **Integrity:** relations between concepts which exist within numerous components
- **Intersections:** general relation between report elements which may exist in more than one component and therefore can be leveraged for navigating between components of the digital financial report

All of these types of relations are important and we cover each in this section.

9.2. Concept relation metapatterns

The world is full of patterns and information technology engineers and architects leverage these patterns when trying to get a computer to do something effectively and efficiently for humans. Understanding the patterns which exist can help make both building and using software easier.

Business reports, including financial reports, have patterns. Another way of saying this is that financial reports are not random. There are not an infinite number of patterns in financial reporting.

The next section, *Business Reporting Use Cases*, introduces a set of approximately 30 financial reporting use cases collected over a number of years. That set of 30 business use cases was condensed from many, many different financial reporting use cases examined in order to understand how to model financial information using XBRL. These business use cases were also used within the USFRTF Patterns Guide which was created in order to help understand how to construct the US GAAP Taxonomy.



These 30 business use cases were distilled down further, basically to their essence. This distilled version is referred to here as a metapattern. Basically, every financial reporting use case follows one or a combination of these metapatterns. While it is hard to say if these metapatterns will cover 100% of all financial reporting use cases, it is hard to dispute that any of these 9 metapatterns.

The US GAAP Taxonomy Architecture refers to these metapatterns as *compact pattern definitions* and documents a number of these metapatterns in what it refers to as style guides. These style guides were never released publicly but they are referred to in the US GAAP Taxonomy Architecture. Everything within the US GAAP Taxonomy fits into one or a combination of these metapatterns.

Metapatterns explain the business semantics within a modelling of information expressed as an XBRL taxonomy. As such, these metapatterns can be said to express information models.

The following is a summary of the identified financial reporting metapatterns.

9.2.1.Hierarchy

A **hierarchy** information model denotes a hierarchy of concepts with no numeric relations. If no numeric relations exist, then the information model of the component is a hierarchy. Basically, anything can be modelled as a hierarchy. It is the addition of additional relations, typically mathematical computations, which turns a hierarchy into some other metapattern.

Sample Company
December 31, 2010

Basis of Reporting

Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.

Trade receivables

Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.

Inventories

Inventory valuation method
Cost

Description of components

Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, iacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.

Cost method
FIFO

Investments in securities

Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.

Bank borrowings

Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.

Provisions

Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.



9.2.2. Roll up

A **roll up** information model computes a total from a set of other concepts. This information model is commonly referred to a “roll up”, or the equation $A + B = C$. All concepts involved in this information model have the same set of characteristics and all must be numeric.

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	295,183	413,441

9.2.3. Roll forward

A **roll forward** information model reconciles the balance of a concept between two points in time. This information model is commonly referred to a “roll forward” or “movement analysis” or the equation: beginning balance + changes = ending balance. In this equation period [Axis] is as of two different points in time and the changes occur during the period between those two points in time.

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Roll Forward of Land		
Land, Beginning Balance	1,147	1,147
Additions	1,992	400
Disposals	-193	-200
Translation difference	2,401	-200
Land, Ending Balance	5,347	1,147

9.2.4. Adjustment

An **adjustment** information model reconciles an originally stated balance to a restated balance, the adjustment being the total change, between two different report dates. An adjustment is similar to a roll forward in that it is a reconciliation,



however rather than the period [Axis] changing; it is the *Report Date [Axis]* which changes: originally reported balance + adjustment = restated balance.

**Sample Company
December 31,
(thousands of dollars)**

	2010	2009
<i>Prior Period Adjustment</i>		
Retained Earnings (Accumulated Losses), Originally Stated 2009	4,000	
Change in Accounting Policy	3,000	
Correction of an Error	<u>-1,000</u>	
Retained Earnings (Accumulated Losses), Restated 2009 Beginning Balance	<u>6,000</u>	

9.2.5. Variance

A **variance** information model reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes. For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation is: actual - budget = variance.

**Sample Company
For Period Ending December 31, 2010**

Concept	Actual	Budgeted	Variance
Sales	6,000	5,000	1,000
Cost of Goods Sold	4,000	3,000	1,000
Contribution Margin	1,000	2,000	-1,000
Distribution Costs	1,000	1,000	0

9.2.6. Complex computation

A **complex computation** information model can be thought of as a hierarchy plus a set of commutations between different concepts within that hierarchy which are challenging to model as the parent/child relations of a graph. The type of computations can vary significantly, thus the challenging in modelling. For example, the computation of earnings per share is a complex computation.



Sample Company
For Period Ended December 31,

2010

2009

OTHER INFORMATION

Earnings Per Share Components

Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	0.10	0.20

9.2.7. Text block

A **text block** information model is an information model which contains, by definition, only one concept and that concept expresses what amounts to a narrative or prose as escaped HTML within that one concept. For example, the narrative associated with a set of accounting policies expressed as a list or a table presentation format is a text block. As there is only one concept, there can be no relations within the information model.

Duis fermentum

Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.

- Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis.
- Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.
- Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede.

DONEC PULVINAR NONUMMY ERAT

Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.

9.2.8. Grid (not really a metapattern)

A **grid** information model is a pseudo metapattern which uses the presentation characteristics of the columns and rows of a table to model information. Because the grid models presentation information and not business semantics, it cannot be considered a metapattern. However, the grid is included in this list because the US GAAP Taxonomy uses a grid information model to model the statement of changes in equity.

Sample Company
December 31,
(thousands of dollars)

	Common Stock	Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Equity
Balance at December 31, 2009	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			-100,000	-100,000
Common Stock Issued	25,000	25,000		50,000
Balance at December 31, 2010	175,000	75,000	300,000	550,000



9.2.9. Compound fact (not really a metapattern)

A **compound fact** information model is characterized by the fact that some set of other concepts or some other information model exists for a set of characteristics expressed by one or more [Axis]. For example, the salary information for the directors of an entity is a compound fact. The salary information is made up of salary, bonuses, director fees which roll up into total salary and this set of compound facts can be expressed for any number of directors, the director being the characteristic or axis of the compound fact.

Sample Company For Period Ending December 31, 2010

Director	Salary	Bonus	Director Fee	Options Granted, at Fair Value
pattern:JohnDoeMember	1,000	1,000	1,000	1,000
pattern:JaneDoeMember	1,000	1,000	1,000	1,000
frm:DirectorsAllMember	2,000	2,000	2,000	2,000

9.3. Member aggregation models

Domain partition aggregation models or member aggregation models explain how the members which make up a domain partition aggregate or how one member relates to another member. This section explains the different types of aggregation models. First we will help you understand exactly what we mean by a domain partition aggregation model.

9.3.1. Recall that Domains are Sets of Members

A **domain** is a cohesive set of members. For example, consider the screen shot below:

Sample Company For Period Ending December 31, (thousands of dollars)

	2010	2009	2008
Sales, all Business Segments, all Geographic Areas	32,038	35,805	32,465

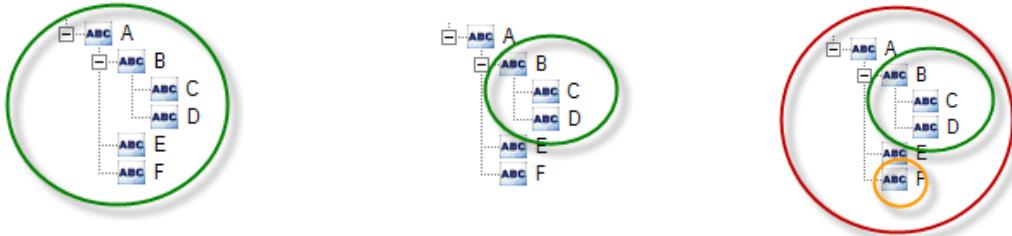
Breakdown by Business Segment:

Pharmaceuticals	20,181	18,150	15,275
Generics	2,433	1,973	1,823
Consumer Health	6,675	6,514	5,752
Other Segments	2,749	9,168	9,615

The screen shot shows a breakdown of sales by business segment and a total for sales for all business segments. This is an example of a domain partition aggregation. The concept "Sales" is part of a table which has the axis "Business Segments" with the member "All Business Segments" which represents a total of the other members Pharmaceuticals, Generics, Consumer Health, and Other Segments.



Consider the more general example:



Assume that the above trees are the [Member]s of an [Axis]. In the diagram, A is a domain with members A, B, E, F, C and D. Also, B is a domain with the members B, C and D. And I also believe that F is a domain with the only member being itself.

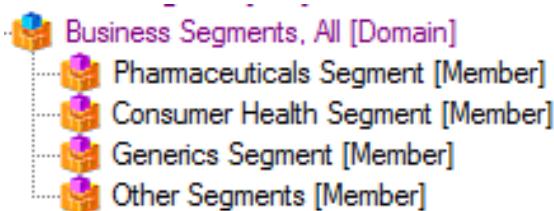
9.3.2. Recall that Domains have Partitions

Domains have partitions. A partition is collectively exhaustive and mutually exclusive set of members within a domain. Partitions do not overlap. Given a set X, a partition is a division of X into non-overlapping and non-empty "parts" or "blocks" or "cells" that cover all of X. More formally, these "cells" are both collectively exhaustive and mutually exclusive with respect to the set being partitioned. Domains always has at least one partition and may have many partitions.

Referring back to the business segment breakdown example, the table might be modelled something like the following:



Looking specifically at the Business Segment [Axis] you see the following:



The Business Segment [Axis] has one partition or one breakdown of its set of members. It could have other breakdowns which would be expressed as another domain partition.



9.3.3. Aggregation

Intuitively, it is not a huge jump to believe that the sum of the [Member]s should add up to the total of all business segments, modelled above as the "Business Segments, All [Domain]." However, the breakdown is modelled in an XBRL taxonomy using business rules expressed as XBRL Formulas to articulate this aggregation to a software application.

The XBRL Dimensions specification does not address dimensional aggregation. As you can see by looking at the specification, there is no section in the XBRL Dimensions specification (<http://www.xbrl.org/Specification/XDT-REC-2006-09-18+Corrected-Errata-2009-09-07.htm>) which addresses dimensional aggregation.

9.3.4. Domain Partition Aggregation Models

While above we provided a very basic example to help you become familiar with the ideas which we want to discuss, aggregation is a bit more complex. Here is the spectrum of domain partition or member aggregation models:

Model	Description	Example
Partial set (or no aggregation)	A partial set is a set which is incomplete so it can never aggregate or a set which describes non-numeric concepts which could never aggregate. A set of numeric concepts which could be aggregated but the aggregated value is illogical or never used is considered a partial set.	A partial set of the classes of cash, a set which describes the accounting policies such as the depreciation method of useful lives of each class. Subsequent events (which are never aggregated) are a partial set. The aggregate value of the useful lives of PPE (a numeric value) is a partial set as the value is illogical.
Complete flat set	A complete flat set is a set which is both complete and characterizes a numeric concept which can be mathematically aggregated. A complete flat set is similar to a [Roll Up] information model. The aggregation scheme is that the members of the list aggregate to the parent of those members. A complete flat set has no subdomains.	A value of all classes of property, plant and equipment and the value of each class of property, plant and equipment is a complete flat set.
Complete hierarchical set	A complete hierarchical set is a set comprised of a collection of complete flat sets, basically a domain which has one or more subdomains. A business rule will always describe the aggregation scheme.	A breakdown of revenues by geographic area whereby the domain of geographic areas has a hierarchy of geographic regions such as "North America" which makes up one hierarchy and countries such as "United States" and "Canada" which comprise a second hierarchy nested within the first hierarchy.
Complex set	A complex set is a set which has some other set of complex relations or set of subdomains expressed within a business rule.	Some complex disclosure.

There is no "standard" XBRL terminology at this time for these types of relations, all the terminology is taxonomy specific. This is because XBRL Dimensions does not address aggregation of domain members.

However, although XBRL Dimensions does not define how members of a domain aggregate or if they aggregate at all, you can use XBRL Formulas to clearly define such aggregation if they exist. This XBRL Formulas definition both articulates the

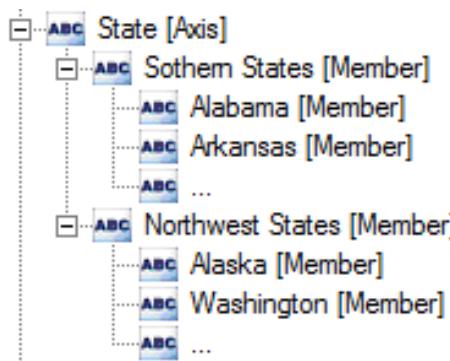


aggregation scheme and can also be used to validate XBRL instances against that scheme. XBRL Formulas can handle quite complex models.

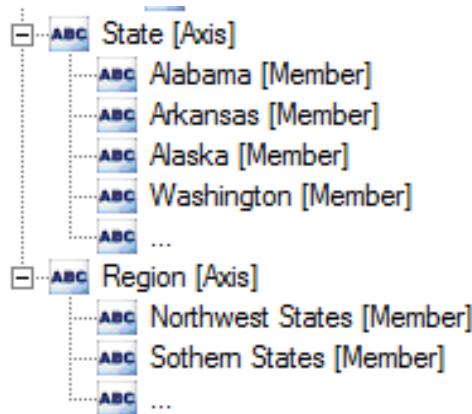
But, since the SEC does not allow XBRL Formulas to be submitted with an SEC XBRL filing, these filings can have aggregation schemes which are inconsistent with aggregation schemes you may come up with or different than how you might interpret the XBRL taxonomy. SEC XBRL filers can still create a valid scheme of aggregation, test any XBRL instances created against it in their SEC XBRL filing but not submit that XBRL Formula set with their SEC XBRL filing. One way or another, SEC XBRL filers should prove that their XBRL instances do in fact follow their defined scheme by validating their XBRL instance.

9.3.5. Modelling Options Impact Aggregation Models

How things are modelled impacts the aggregation models. An example will help your understanding. Consider how one might model the domain of US states:



An alternate approach to modelling this information is to not use one axis as was done above, but rather to use two [Axis], one for the state and another for the region:



There is not necessarily one right or wrong answer here; how you would model your business use case depends on the dynamics of what it is you are modelling. The primary point I am making here is that if there are multiple ways to model the same information; then what criteria do you use to determine the most appropriate modelling approach?



Generally at this point it is wise to try and stay away of nested or complex hierarchies like the first example, unless you provide an XBRL Formula which explains the aggregation model. The second example results in flat hierarchies.

9.4. Component flow models

Flow is the notion of relations between networks and/or [Table]s for the purpose of ordering or sequencing information contained in a digital financial report. Creating schemes for generating the desired flow of information contained by a digital financial report can be impacted by metadata available.

While there are many possible approaches for articulating flow metadata, the approaches considered are those which do not add new approaches to articulating required metadata; rather only approaches which use existing metadata or standard forms of expressing metadata are considered.

Also “pixel perfect” formatting of information is not the target. The target is the organization of groups or fact tables of information.

9.4.1. Metadata Constraints Impacting Ordering

Certain metadata is required by the XBRL technical syntax. Other metadata is determined by how a taxonomy is expressed. The following is a summary of the constraints imposed by approaches used to express metadata within a taxonomy and how those constraints impact ordering.

- **Networks** – Networks are always required to be unique so as such, networks can always be used to order a taxonomy. However, if networks alone are used many times not enough granularity is achievable. Also networks cannot be articulated within a hierarchy.
- **Networks plus Non-unique Tables** – Tables can be used with networks to order information. However, depending on whether the tables are expressed are unique governs the role a network must play in allowing a table to be specifically identified.
- **Unique Tables** – If every table within a taxonomy is unique, then networks no longer need to be relied upon to uniquely identify and locate a table, the table alone will allow such identification.

9.4.2. Ordering/sequencing Examples

The following are a number of ordering/sequencing examples which provide details about available options.

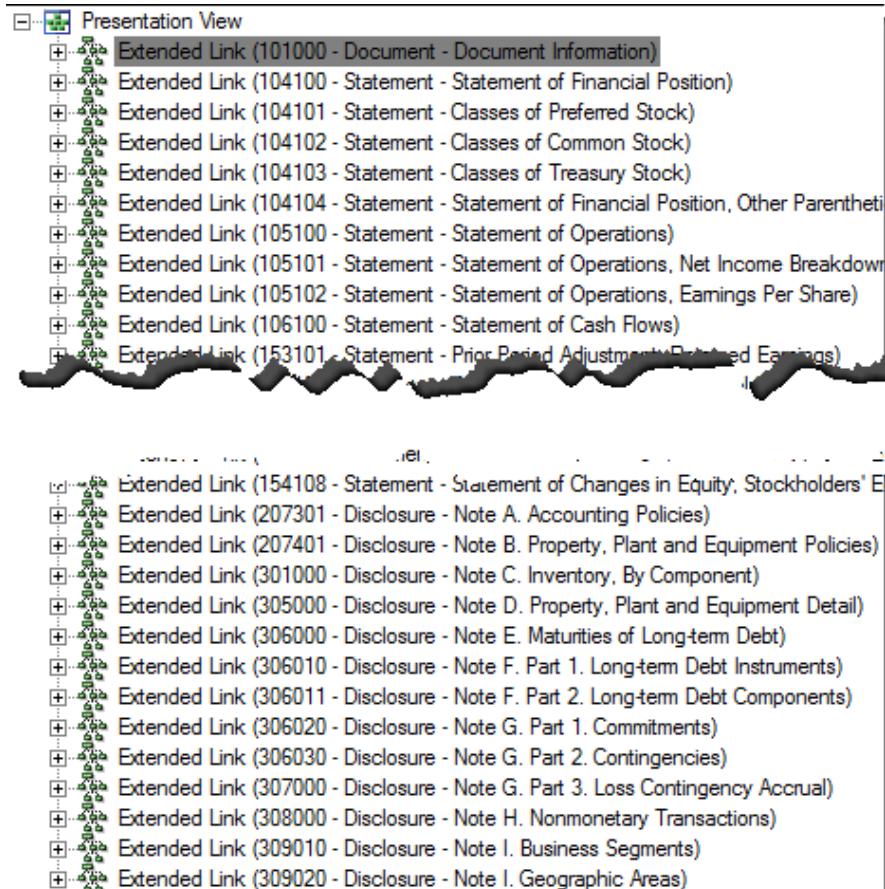
9.4.3. Networks with numbers and categories

One example of using networks to order or sequence the contents of a digital financial report can be seen in how the SEC achieves sequencing. Consider the following example:



	Dec. 31, 2010	Dec. 31, 2009
Note C. Inventory, By Component (As Reported February 12, 2011 [Member], Parent Company [Member], USD \$) In Thousands		
Inventory, by Component [Roll Up]		
Inventory, Finished Goods	\$ 1,000	\$ 1,000
Inventory, Work in Process	1,000	1,000
Inventory, Raw Materials	1,000	1,000
Other Inventory, Supplies	1,000	1,000
Inventory, Net, Total	\$ 4,000	\$ 4,000

The above is a fragment of a model financial report rendered within the SEC interactive data previewer. This is the taxonomy which drives that view will each network collapsed so that you are looking at a list of the networks in the taxonomy:



Each network can be broken into three components which drive the sequencing of the rendering framework:

- **Number** such as "101000" within the first network.



- **Category** such as “Document”, “Statement” or “Disclosure”
- **Description** or other part of the networks definition.

The category is used to put the different networks into one of the yellow categories in the SEC example, the number determines the order within the category, and the balance of the description is the label that a user sees.

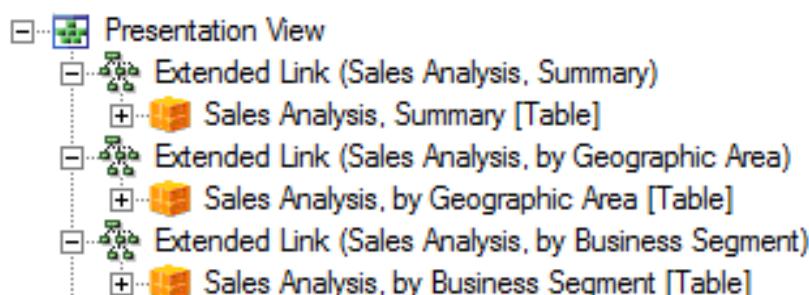
This approach is workable, but it means that all information must be broken out by network and anything smaller than the network itself cannot be broken out any further. For example, table information is not used for rendering information at all.

You can examine this in more detail by examining the reference or model implementation of an SEC XBRL financial filing.

9.4.4. Tables organized into a list

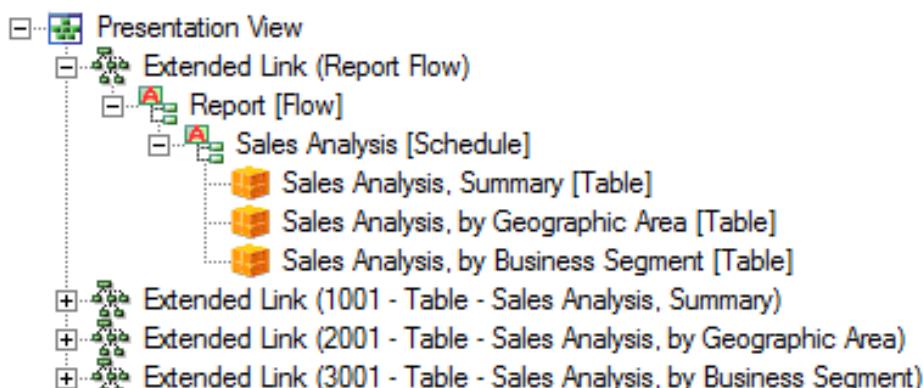
Another approach to articulating sequencing information can be seen by comparing the *Pivot Table* business use case with the *Flow* business use case.

Consider the screen shot below of the Pivot Table business use case:



There are three networks with three tables. Each network and table is unique. Suppose you wanted to articulate the ordering you would prefer for working with this information, how would you do that? You could request the information in the physical order in which it exists within the XBRL taxonomy or you could request the information in alphabetical order, that is about all the options you might have.

Now consider the *Flow* business use case below. The this taxonomy has a network called “Report Flow”. Within that network, a hierarchy of the [Table]s which exist in the taxonomy for this financial report is provided.



As such, a software application can read that hierarchy and use it within the application to show the summary first, the geographic table second, and the business segment third.

Alternatively, the numbering of the network could be used to achieve the same goal as with the SEC example.

The [Table]s alone can be used, and the networks totally ignored, because each table is unique. By contrast, if each table were called "Sales Analysis, Summary [Table]", then to identify which [Table] you were looking for, you would also need to rely on the network.

9.4.5. Notion of the "Implied [Table]"

In the section which discusses the report elements which make up a digital financial report we explain that everything within a digital financial report exists within a [Table], be that [Table] explicitly articulated using the "[Table]" report element, or the table is implied.

Basically, everything expressed within a network which is not contained within some explicit [Table] can be thought of existing within a pseudo or implicit table called "No Table [Table]". Because you might have more than one "No Table [Table]", you must rely on the network to uniquely identify which "No Table [Table]" you would like to work with. As such, using implicit tables requires you to work with tables just as though you created non-unique tables.

9.4.6. The "Statement [Table]"

Another approach to defining [Table]s can be seen by examining the "Statement [Table]" within the US GAAP Taxonomy or even better, the "Hypercube [Table]" of the FINREP taxonomy.

The FINREP taxonomy took the most extreme route using one [Table] and one [Table] only throughout their entire taxonomy. They did this to specifically push all semantics of the meaning of a group of information onto the network which contains the hypercube. One can be sure that the network describes the information 100% of the time because (a) each [Table] is called exactly the same thing and (b) because each network could only possibly contain one [Table] because using the same [Table] name within a network would cause modelling conflicts (and remember, all [Table]s have the same name). The bottom line here is that the network carries all semantics for describing the information, there is no confusion.

By contrast, the US GAAP Taxonomy has the "Statement [Table]" which is used on the balance sheet, the income statement, the cash flow statement, and the statement of changes in equity. As such, one can only know which "Statement [Table]" you are working with by using the network.

Further, most but not all other [Table]s in the US GAAP Taxonomy are unique. What is more, not everything is modelled as an explicit [Table] and therefore there are many "No Table [Table]s" (see the preceding section).

9.4.7. Which Approach is Best?

All this distils down into three possible options:

- **Use explicit unique [Tables].** This option works well, and in fact it is the option which I believe is the most reasonable. By taking this approach you



can ignore networks altogether, relegating networks to the role of syntax needed only for avoiding modelling conflicts. And because you can ignore the network, you can be sure the [Table] describes the information set and each [Table] being unique, each information set is unique.

- **Use explicit but only one [Table] for everything.** This option works well also because it is clear that the network carries all semantics for describing a set of information. The down side is that you have to create metadata such as the “number” and “category” used by the SEC to help organize those networks.
- **Mixed model.** If [Tables] are not unique and if [Table]s are not explicit (i.e. you have “No Table [Table]”s), you have to rely on both networks and tables to identify which information you need to work with. This can be both cumbersome for software and for users. A mixed model such as this does not appear to make much sense and should be avoided, all things considered.

There are no real benefits of having [Table]s names which can be used in more than one place, yet there are significant benefits of unique [Table] names.



9.5. Integrity models

Relations exist *within* a [Table], for example a set of concepts can roll up into some total, information models describe these types of relationships within one [Table]. But relations can also exist *between* [Table]s.

Integrity models express the semantic relations between the components of one [Table] and the components of another [Table]. [Table]s within an information set, be that information set within one financial report or across many financial reports you are comparing have relations. Proper relations makes things easier, improper relations make things harder. Modeling business information with these relations intact give your financial report the proper integrity.

Many times when modelers think they have modeling choices, you actually don't have as many choices as you might believe you have. The way a modeler thinks that XBRL might work has no bearing in the process of modeling business information. XBRL works as XBRL works, no one can change that. If you could, then what good what that type of standard be? Decisions on how to model information must be based on the model which already surrounds the information you are modeling, the other model components the information you are modeling must relate to, the business rules (XBRL Formulas) which prove the model works, and other such considerations. Not providing the business rules and then believing the model works is a far too common mistake.

While the metapatterns and business use cases are helpful in that they are small, focused examples of specific modeling situations, it is also necessary to understand how one [Table] relates to another [Table]. The purpose of the comprehensive example is to do just that. See the next section.

Note that this discussion is *not* about where information needs to be presented from a financial reporting perspective, that is not relevant to this discussion. This discussion is about how information is related.

9.5.1. Facts only exist in fact tables

A fact table is simply defined as a set of facts which go together. A fact can only exist within the framework of a fact table, facts never exist in isolation. There are two mechanisms for grouping facts into a fact table: networks and [Table]s.

The XBRL technical syntax defines the notion of a fact. An XBRL instance is "a bag of facts". All facts have a context. The XBRL technical syntax allows facts to be filtered using the mechanism of a network. The XBRL Dimensions technical specification defines another method of establishing a set of facts, the hypercube which we are referring to as a [Table].

There are never conflicts between networks and hypercubes. Hypercubes filter facts using dimensions. The entity and period dimensions are not filtered by hypercubes.

9.5.2. Notion of relations between [Table]s

The following is a list of the spectrum of how one [Table] can be related to another [Table] within a digital financial report:

- **[Table]s which are unrelated** – a [Table] has no relation to any other [Table].



- **[Table]s related by [Line Items]** – a [Table] shares one or more [Line Items] concept with another [Table].
- **[Table]s related by [Axis]** – a [Table] shares one or more [Axis] with another [Table].
- **[Table]s related by both [Line Items] an and by [Axis]** – a [Table] shares both [Line Items] and [Axis] with another [Table].

Examples which will be provided in a moment will make the differences between the categories on the list easier to see.

9.5.3. Notion of summary and detail related [Table]

[Table]s which are related could fall into one of the following categories:

- **Summary [Table]s** – concepts within summary [Table]s are aggregates of information or totals.
- **Detail [Table]s** – concepts within detail [Table]s provide a number of the same concepts, differentiated using either concepts or by using [Member]s of an [Axis].

9.5.4. Domain partition aggregation models

Recall from the prior section which discussed domain partition aggregation models which explains how information aggregates across an [Axis]. How things aggregate is not necessarily relevant in this discussion which is more about the general ways information relates.

9.5.5. Pulling relations and summary/detail together using examples

Examples help show the differences between the different permutations and combinations of relationships between [Table]s. Here we show such examples.

9.5.5.1. No relations

An example of no relations is the document information of the comprehensive example. The relations can be seen here:

1041	VA, Part 1: Document Information	[Network]		
1042	Document Information [Table]	[Table]		
1043	Legal Entity [Axis]	[Axis]		
1044	Consolidated Entity [Member]	[Member]		
1045	Report Date [Axis]	[Axis]		
1046	Reported as of March 18, 2011 [Member]	[Member]		
1047	Document Information [Line Items]	[Line Items]		
1048	Document Information [Hierarchy]	[Abstract]		
1049	Document Title	[Concept] Text/String	For Period	
1050	Document Date	[Concept] Date	For Period	
1051	Document Identifier	[Concept] Text/String	For Period	
1052	Document Description	[Concept] Text/String	For Period	
1053	Document Creator	[Concept] Text/String	For Period	
1054	Document Language	[Concept] Text/String	For Period	

While the Document Information [Table] is related to other [Table]s via the Legal Entity [Axis] and the Report Date [Axis] it does point out the notion of no relations. The [Line Items] of the Document Information [Table] are found in no other place in the comprehensive example digital financial report.



The Document Information [Table] has two other [Axis] where it is related to other tables: the Reporting Entity [Axis] and the Period [Axis], both of which are required on all [Table]s. Going further with this is an advanced discussion which we will not get into here. Just realize that this relation exists.

9.5.5.2. Detail/summary related using [Line Items]

Consider the following balance sheet fragment followed by the disclosure of the details of Cash and Cash Equivalents in the notes to the financial statement:

	As of December 31,	
	2010	2009
ASSETS		
Current Assets		
Cash and Cash Equivalents	1,000	1,000
Receivables, Net of allowance of 1,000 and 1,000 in 2010 and 2009, respectively	1,000	1,000
Inventory	1,000	1,000
Prepaid Expenses	500	500
Investments, at Cost	500	500
Other Assets, Current	1,000	1,000
Details of Cash and Cash Equivalents		
As of December 31,		
	2010	2009
Cash, Unrestricted	250	250
Cash, Restricted	250	250
Petty Cash	250	250
Other Cash and Cash Equivalents	250	250
Total	1,000	1,000

The balance sheet can be seen as the summary table which contains the aggregate of Cash and Cash Equivalents. The disclosure which provides a breakdown of the components of Cash and Cash Equivalents is the detail. The intersection between these two items is the total of Cash and Cash Equivalents which appears on both the summary and in the detailed breakdown.

Here is a modelling of Cash and Cash Equivalents on the balance sheet followed by a modelling of the detailed breakdown from the disclosures:



16	BA, Part 1: Balance Sheet	[Network]		
17	Balance Sheet [Table]	[Table]		
18	↳ Legal Entity [Axis]	[Axis]		
19	↳ Consolidated Entity [Member]	[Member]		
20	↳ Report Date [Axis]	[Axis]		
21	↳ Reported as of March 18, 2011 [Member]	[Member]		
22	↳ Reporting Scenario [Axis]	[Axis]		
23	↳ Actual [Member]	[Member]		
24	↳ Balance Sheet [Line Items]	[Line Items]		
25	↳ Assets [Roll Up]	[Abstract]		
26	↳ Assets, Current [Roll Up]	[Abstract]		
27	↳ Cash and Cash Equivalents	[Concept] Monetary	As Of	Debit
28	↳ Receivables, Net, Current	[Concept] Monetary	As Of	Debit
29	↳ Inventory	[Concept] Monetary	As Of	Debit
30	↳ Prepaid Expenses	[Concept] Monetary	As Of	Debit
31	↳ Investments, at Cost	[Concept] Monetary	As Of	Debit
32	↳ Other Assets, Current	[Concept] Monetary	As Of	Debit
33	↳ Documentation for Shares	[Concept] Monetary	As Of	Debit
34	↳ Assets- Noncurrent [Roll Up]	[Abstract]		

1	JB, Part 2: Cash and Cash Equivalents, Details	[Network]		
2	Cash and Cash Equivalents, Details [Table]	[Table]		
3	↳ Legal Entity [Axis]	[Axis]		
4	↳ Consolidated Entity [Member]	[Member]		
5	↳ Report Date [Axis]	[Axis]		
6	↳ Reported as of March 18, 2011 [Member]	[Member]		
7	↳ Reporting Scenario [Axis]	[Axis]		
8	↳ Actual [Member]	[Member]		
9	↳ Cash and Cash Equivalents, Details [Line Items]	[Line Items]		
10	↳ Cash and Cash Equivalents [Roll Up]	[Abstract]		
11	↳ Cash, Unrestricted	[Concept] Monetary	As Of	Debit
12	↳ Cash, Restricted	[Concept] Monetary	As Of	Debit
13	↳ Petty Cash	[Concept] Monetary	As Of	Debit
14	↳ Other Cash and Cash Equivalents	[Concept] Monetary	As Of	Debit
15	↳ Cash and Cash Equivalents, Total	[Concept] Monetary	As Of	Debit

Note that Cash and Cash Equivalents is not only a concept in both locations, but it is actually the same concept which shows up in both [Table]s. Note that the [Axis] of both tables are the same.

You can get more information about this modelling approach by examining the *Simple Roll Up* business use case.

What is going on in this example may not yet seem obvious. However, when it is compared to the next approach what we are trying to explain will become more clear.

9.5.5.3. Detail/summary related using [Member]s of an [Axis]

Consider the following balance sheet fragment which shows Property, Plant and Equipment, Net:

Noncurrent Assets			
Property, Plant and Equipment, Net			
Land	1,000	1,000	
Buildings, Net	1,000	1,000	
Furniture and Fixtures, Net	1,000	1,000	
Other Property, Plant, and Equipment, Net	1,000	1,000	
	4,000	4,000	
Investment in Affiliates	0	0	
Other Assets- Noncurrent	3,000	1,000	



One approach to modelling this information is to follow the approach used in the section above, modelling each class of Property, Plant and Equipment, Net as a concept as shown below:

19	Assets, Non Current [Roll Up]	[Abstract]		
20	Property, Plant, and Equipment, Net [Roll Up]	[Abstract]		
21	Land	[Concept] Monetary	As Of	Debit
22	Buildings, Net	[Concept] Monetary	As Of	Debit
23	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
24	Other Property, Plant, and Equipment, Net	[Concept] Monetary	As Of	Debit
25	Property, Plant, and Equipment, Net, Total	[Concept] Monetary	As Of	Debit
26	Investment in Affiliates	[Concept] Monetary	As Of	Debit

However, an alternative approach is to model each class of Property, Plant, and Equipment as a [Member] of an [Axis] which can be seen below:

1	Property, Plant, and Equipment, by Component	[Network]		
2	Property, Plant and Equipment, by Component [Table]	[Table]		
3	Legal Entity [Axis]	[Axis]		
4	Consolidated Entity [Member]	[Member]		
5	Class of Property, Plant and Equipment [Axis]	[Axis]		
6	All Classes of Property, Plant and Equipment [Member]	[Member]		
7	Land [Member]	[Member]	For Period	
8	Buildings [Member]	[Member]	For Period	
9	Furniture and Fixtures [Member]	[Member]	For Period	
10	Computer Equipment [Member]	[Member]	For Period	
11	Other Property, Plant and Equipment [Member]	[Member]	For Period	
12	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
13	Property, Plant and Equipment, Net [Hierarchy]	[Abstract]		
14	Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit

Above you can see that each class of Property, Plant and Equipment is modelled as a [Member] of the [Axis] Class of Property, Plant and Equipment [Axis].

You can examine this model more closely by taking a look at the business use case *Classes*. Contrast that to the business use case *Simple Roll Up*.

Continuing on with the examples will further reveal the pros and cons of different alternative modelling options.

9.5.5.4. Related by [Axis] and [Members]

The following two fragments of policies and disclosures will help understand one very significant difference between modelling details using [Line Items] and concepts as contrast to modelling details leveraging an [Axis] and [Member]s. Consider these policies and disclosures of Property, Plant and Equipment:



Property, Plant and Equipment Policies

Class	Valuation Basis	Depreciation Method	Estimated Useful Life
Land	Mauris tincidunt cursus est	NA	NA
Buildings	Sed dapibus venenatis ipsum	Etiam porttitor	20 years
Furniture and Fixtures	Nunc congue	Maecenas tincidunt	10 years
Computer Equipment	Suspendisse potenti	Maecenas tincidunt	5 years
Other	Phasellus eleifend	Maecenas tincidunt	5 years

Property, Plant, and Equipment, Net, Components

	2010	2009
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
 Property, Plant and Equipment, Net, Total	 295,183	 413,441

Here you can see two things. First, Property, Plant and Equipment has multiple sets of information expressed in different areas of a financial report and second, that the presentation of the information looks different.

Here is the modelling of both the policies and breakdown of Property, Plant and Equipment:

1	Property, Plant, and Equipment, Policies	[Network]		
2	Property, Plant and Equipment, Policies [Table]	[Table]		
3	Legal Entity [Axis]	[Axis]		
4	Consolidated Entity [Member]	[Member]		
5	Class of Property, Plant and Equipment [Axis]	[Axis]		
6	All Classes of Property, Plant and Equipment [Member]	[Member]		
7	Land [Member]	[Member]		
8	Buildings [Member]	[Member]		
9	Furniture and Fixtures [Member]	[Member]		
10	Computer Equipment [Member]	[Member]		
11	Other Property, Plant and Equipment [Member]	[Member]		
12	Property, Plant and Equipment, Policies [Line Items]	[Line Items]		
13	Property, Plant and Equipment, Policies [Hierarchy]	[Abstract]		
14	Valuation Basis	[Concept] Text/String	For Period	
15	Depreciation Method	[Concept] Text/String	For Period	
16	Estimated Useful Life	[Concept] Text/String	For Period	

1	Property, Plant, and Equipment, by Component	[Network]		
2	Property, Plant and Equipment, by Component [Table]	[Table]		
3	Legal Entity [Axis]	[Axis]		
4	Consolidated Entity [Member]	[Member]		
5	Class of Property, Plant and Equipment [Axis]	[Axis]		
6	All Classes of Property, Plant and Equipment [Member]	[Member]		
7	Land [Member]	[Member]		
8	Buildings [Member]	[Member]		
9	Furniture and Fixtures [Member]	[Member]		
10	Computer Equipment [Member]	[Member]		
11	Other Property, Plant and Equipment [Member]	[Member]		
12	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
13	Property, Plant and Equipment, Net [Hierarchy]	[Abstract]		
14	Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit



Common between the two models is the Class of Property, Plant and Equipment [Axis]. That [Axis] can be used to "glue" the two [Table]s together, using both the disclosure of the balances of each class of Property, Plant and Equipment and the policies.

If only [Line Items] were used to model both the balances and disclosures, basically not using the [Axis], one would simply repeat the [Line Item] for each class; for example creating "Land, Valuation Basis", "Buildings, Valuation Basis", and so on. Two things would result. First, a much larger taxonomy and second, no connection between for example, "Buildings, Valuation Basis", "Buildings, Depreciation Method", "Buildings, Estimated Useful Life", and "Buildings, Net". They may seem connected to a human due to the common term "Buildings"; but a computer could not formally make this connection. Hacks could be employed to attempt to create a connection using the common term "Buildings", but it would be exactly that, a hack.

To examine the detailed taxonomies and instances in more detail, see the *Class Properties* business use case.

9.5.5.5. Detail/summary related using [Members] of an [Axis] with properties

We want to now bring the concept of "properties" into clearer focus. Consider this example of information about the classes of common stock:

Class	Par Value	Share Subscriptions	Shares Authorized	Shares Issued	Shares Outstanding	Amount 2010	Amount 2009
company:ClassAClassCommonStockMember	1	10000	10000	10000	3000	500	500
company:ClassBCommonStockMember	1	10000	10000	10000	3000	500	500
					Total all Classes	6000	1,000
							1,000

A number of important points can be made by looking at the set of information above. First, information is not commonly presented to the user in this way. Commonly this information is presented on the balance sheet as shown below:

Class A Preferred Stock; \$1 par value, authorized 20,000 shares; 20,000 shares issued; 6,000 shares outstanding; liquidation preference	2,000	1,000
Class A Common Stock; \$1 par value, authorized 10,000 shares; 10,000 shares issued; 3,000 shares outstanding	500	500
Class B Common Stock; \$1 par value, authorized 10,000 shares; 10,000 shares issued; 3,000 shares outstanding	500	500
Additional Paid in Capital	2,000	1,000
Retained Earnings (Accumulated Losses)	1,000	1,000

The information for each class is presented as part of the balance sheet line item as compared to the tabular format. Second, the total is not presented on the balance sheet. Further, if the shares outstanding were different between the current and prior period, that fact would need to be presented in the line item description. Finally, as pointed out in the prior examples, which say Cash and Cash Equivalents has no additional "properties" associated with them, Property, Plant and Equipment can as can the disclosures for a class of stock.



9.5.5.6. Detail/summary with only one detailed item

This example focuses on one specific point. As you can see in the screenshot below of information about classes of preferred stock and common stock; the common stock has two classes whereas the preferred stock has only one:

<u>Classes of Preferred Stock</u>								
Class	Par Value	Share Subscriptions	Shares Authorized	Shares Issued	Shares Outstanding	Amount 2010	Amount 2009	
company:ClassAPreferredStockMember	1	20000	20000	20000	6000	2,000	1,000	
				Total all Classes	6000	2,000	1,000	

<u>Classes of Common Stock</u>								
Class	Par Value	Share Subscriptions	Shares Authorized	Shares Issued	Shares Outstanding	Amount 2010	Amount 2009	
company:ClassACommonStockMember	1	10000	10000	10000	3000	500	500	
company:ClassBCommonStockMember	1	10000	10000	10000	3000	500	500	
				Total all Classes	6000	1,000	1,000	

How would or should having only one [Member] in a breakdown impact the modelling of information? The question should not really be about whether one specific company has one class of two or more classes of something; but rather modelling should be driven by the possibility of ever having either only one or one-to-many [Member]s of some class of information.

The point here is that an entity could have more than one class of preferred stock and a class of preferred stock can have a number of properties. Both the details of the class and the total of all classes, in the case shown above the total and the class are the same because there is only one member within the class; however, the total and the amount for each class are two different pieces of information.

9.5.5.7. Master/detail by [Axis] and [Member]

The notion of “master/detail” is commonly communicated using the example of an invoice which has information applicable to the entire invoice such as the invoice number and date; and detail information which is associated with the line items of the invoice such as the product number, the quantity and the amount. An invoice always has one number and date, but it can have one or many line items.

A similar pattern occurs within a financial report as shown by the related party and related party transactions disclosure below:



NOTE 16. RELATED PARTY TRANSACTIONS

The following is a summary of related party of the company and transactions with those related parties:

Related Parties

Name of Related Party	Type of Relationship	Nature of Relationship
company:RelatedParty1Member	Parent	This is other descriptive information about the relationship.
company:RelatedParty2Member	JointVenture	This is other descriptive information about the relationship.

Transactions with Related Parties

Party	Transaction Description	Pricing Policy	Amount
company:RelatedParty1Member	Transaction 1 description	Cost	1000
company:RelatedParty1Member	Transaction 2 description	Cost	1000
company:RelatedParty2Member	Transaction 1 description	Cost	1000
company:RelatedParty2Member	Transaction 2 description	Cost	1000

This disclosure shows two related parties and a total of four related party transactions, two each for the two related parties.

This information can be modelled as shown below in first the modelling of the related parties and then the modelling of the related party transactions.

1 Related Parties	[Network]		
2 Related Parties [Table]	[Table]		
3 Legal Entity [Axis]	[Axis]		
4 Consolidated Entity [Member]	[Member]		
5 Related Party Name [Axis]	[Axis]		
6 Related Party 1 [Member]	[Member]	For Period	
7 Related Party 2 [Member]	[Member]	For Period	
8 Related Parties [Line Items]	[Line Items]		
9 Related Party [Hierarchy]	[Abstract]		
10 Related Party, Type of Relationship	[Concept]	For Period	
11 Related Party, Nature of Relationship	[Concept] Text/String	For Period	
1 Related Party Transactions	[Network]		
2 Related Party Transactions [Table]	[Table]		
3 Legal Entity [Axis]	[Axis]		
4 Consolidated Entity [Member]	[Member]		
5 Related Party Name [Axis]	[Axis]		
6 Related Party 1 [Member]	[Member]	For Period	
7 Related Party 2 [Member]	[Member]	For Period	
8 Related Party Transaction Type [Axis]	[Axis]		
9 Related Party Transaction Type, All [Member]	[Member]	For Period	
10 Agency Arrangements with Related Party [Member]	[Member]	For Period	
11 Leasing Arrangements with Related Party [Member]	[Member]	For Period	
12 Purchase or Sale of Goods with Related Party [Member]	[Member]	For Period	
13 Purchase or Sale of Property or Other Assets with Related Party [Member]	[Member]	For Period	
14 Related Party Transaction [Line Items]	[Line Items]		
15 Related Party Transaction [Hierarchy]	[Abstract]		
16 Related Party Transaction, Description	[Concept] Text/String	For Period	
17 Related Party Transaction, Pricing Policy	[Concept] Text/String	For Period	
18 Related Party Transaction, Amount	[Concept] Monetary	For Period	Debit

Common between the two tables is the Related Party Name [Axis]. It is that [Axis] which connects the related party disclosure with the transactions for each related party.



While in this case there is no aggregation which connects the two [Table]s, the two [Table]s are connected. The related party transactions [Table] has another [Axis] used to differentiate the different transactions associated with a related party.

For more detailed information, see the *Nested Compound Fact* business use case.

9.5.6. Don't mix modelling approaches

If one is not conscious of what they are modelling, there is a good probability that you switch between alternative modelling approaches within the same [Table] and don't even realize it. Arbitrarily shifting from one modelling approach to another modelling approach in the same [Table] simply will not work.

For example, if a balance sheet is modelled using concepts throughout the entire balance sheet, and then you choose to add detail which is supposed to show up on the balance sheet but express that detail using [Member]s of an [Axis] the balance sheet will likely not work correctly in some area; either the calculation relations expressed will not foot, the business rules will not work or will seem inconsistent with other similar types of rules, it will not render correctly or some other problem may occur.

As such, be conscious, create all components, and if all the components work correctly all things considered, your modelling is fine.

9.5.7. Choosing between alternative modelling approaches

Many times a modeller has no choice as to which approach to use to break down details. For example, if the Property, Plant and Equipment details were shown on the face of the balance sheet, then the [Line Items] approach must be used because otherwise the details would not render on the balance sheet and the balance sheet would not foot. As such, the details must be modelled as additional [Line Items].

Whereas, if a modeller needs to connect additional properties to a concept to communicate relationships between concepts, creating an [Axis] and articulating the a breakdown using [Member]s of that [Axis] has advantages.

Modelling information can involve trade-offs. Establishing and following a set of principles and communicating those principles followed to users of a taxonomy can be helpful to users of that taxonomy.

9.5.8. US GAAP taxonomy examples

To better understand the different types of relations the US GAAP Taxonomy can be of help. The following are a few examples which help you understand the differences between the different categories of [Table] relations:

- Nonmonetary Transactions [Table] is not related to any other [Table] in the entire US GAAP taxonomy nor in any SEC XBRL financial filing; it ties to nothing. It is stand alone.
- Subsequent Events [Table]. Likewise unrelated.
- Balance Sheet [Table] and the Property, Plant and Equipment Components [Table] are related in that the total of PPE is on the balance sheet and that total PPE also serves as the intersection to the detailed breakdown, whether these concepts are expressed using [Member]s of an [Axis] or if they are expressed as concepts (XBRL items) within [Line Items].



- Property, Plant and Equipment Components [Table] and the Property, Plant and Equipment Estimated Useful Lives [Table] are related by the Class of Property, Plant and Equipment [Axis].
- Income statement [Table] is related to the Business Segment Breakdown [Table] and the Geographic Areas Breakdown [Table].

9.6. *Intersections*

Intersections are general relations between report elements which may exist in more than one component and therefore can be leveraged for navigating between components of the digital financial report. For example,

- A characteristic such as “Legal Entity [Axis]” might be shared by every component within a digital financial report
- A characteristic such as “Property, Plant and Equipment Type [Axis]” might exist on a component which describes the accounting policies of property, plant and equipment and another which describes the amounts of property, plant and equipment and so someone using that digital financial report can reconfigure the report in order to work with this information together. Basically, users of information are not constrained by how the creator modeled the information, only by the available intersections available within the digital financial report
- An analyst can easily search on any concept and quickly locate that fact within the digital financial report without having to manually scour through the entire document; basically software does the work for you



10. Verification of Digital Financial Reports

How do you know that your digital financial report is created properly? What evidence do you have which proves to yourself and others that your digital financial report is verifiably correct?

HINT: This is the complete Guide to Verification of an SEC XBRL Financial Report. The original version can be found here:

<http://xbrl.squarespace.com/digital-financial-reporting>

10.1. Defining verification

Verification is the process of research, examination, and other tasks and steps required to prove or establish validity; evidence that establishes or confirms the accuracy or truth of something. Verification is a formal assertion of validity.

Validity can be defined as being well grounded; producing the desired result; free from logical flaw; based on sound reasoning; cogent. (i.e. complete, correct, consistent, accurate, has fidelity, has integrity)

Validity when it comes to an SEC XBRL financial report is, arguably, that such a financial report is a true and fair representation of a reporting entities financial and nonfinancial information articulated by such a financial report.

A financial report can be said to be valid if it possesses certain traits which can be defined in general terms and for clarity are listed below to bring them into the reader's mind:

- **Completeness:** Having all necessary or normal parts, components, elements, or steps; entire.
- **Correctness:** Free from error; in accordance with fact or truth; right, proper, accurate, just, true, exact, precise.
- **Consistency:** Compatible or in agreement with itself or with some group; coherent, uniform, steady. Holding true in a group, compatible, not contradictory.
- **Accuracy:** Correctness in all details; conformity or correspondence to fact or given quality, condition; precise, exact; deviating only slightly or within acceptable limits from a standard.

While these four notions which relate to the "trueness" and "fairness" must exist for every fact reported by a financial report, they also need to exist when considering the financial report in its entirety.

Two other notions help bring the notion of trueness and fairness of information at the fact and at the report level into focus:

- **Fidelity:** Fidelity relates to the loyal adherence to fact or detail; exactness. The representation of the facts and circumstances represented within a financial report properly reflect, without distortion, reality. High fidelity is when the reproduction (a financial report) with little distortion, provides a result very similar to the original (reality of company and environment in which company operates).
- **Integrity:** Integrity is holistic fidelity. Integrity relates to the fidelity of the report in its entirety, of all parts of a financial report, from all points of view. Integrity is holistic accuracy, accurate as a whole. Integrity is the quality or



condition of being whole or undivided; completeness, entireness, unbroken state, uncorrupt. Integrity means that not only is each component of a financial report is correct but all the pieces of the financial report fit together correctly, all things considered.

To an accountant the notions of verification and validity and that a financial report must be complete, correct, consistent, and accurate as defined above are a statement of the obvious. We know this. Accountants have performed these tasks for hundreds of years and have a reputation for performing this task well. This is not new to accountants. Further, these traits which a financial report must possess are the obligations of those creating these reports; they are not options. Accountants don't pick and choose whether a financial report is to be true and fair; those traits must be true by definition.

HINT: To understand integrity correctly, it is important to understand the notion of an “**intersection**”. An intersection is a physical connection between two pieces of a financial report, some report element. For example, “Inventories” as a line item on the balance sheet and “Total inventories” as shown within the detailed breakdown of inventory is the same thing, the same physical fact. But, if this is not expressed correctly, such as if they were modeled as two different concepts, errors could be introduced into the digital financial report and the error can be masked by the improper modeling. Part of integrity is that there are no such modeling mistakes and therefore no mathematical errors which could possibly be masked by a modelling mistake.

10.2. True and fair representation is the goal

So what is a true and fair representation of financial information? We stated above in general terms that a true and fair representation is: complete, correct, consistent, accurate, is identified as having fidelity, and is identified as having integrity. If all these exist we can distinguish the financial report as being “valid”.

But these terms are rather general. Looking at verification at a slightly more detailed level we might see the following traits as being important to distinguishing a financial report as a true and fair representation of a reporting entity's financial information:

- **Comply with US GAAP:** Clearly a financial report must comply with the rules of US GAAP including SEC rules, industry/activity practices, other common practices, and reporting entity choices where they have such choices.
- **Full inclusion/false inclusion:** Everything which should be disclosed has been disclosed as deemed appropriate by US GAAP, SEC, industry/activity practices, common practices, and reporting entity choices.
- **Foots, cross casts, ticks and ties:** A financial report foots, cross casts, and otherwise “ticks and ties”. All mathematical relations must be intact. As accountants we understand this and many times this fact disappears into our unconsciousness because it is so ingrained into what we do and how we do it. Of course things foot and cross cast; of course the pieces tie together.
- **All financial report formats convey the same message:** A financial report can be articulated using paper and pencil, Microsoft Word, PDF, HTML, XBRL, RDF/OWL, or some other computer readable or computer readable formats. While the format may change, the message communicated, the story you tell, should not change. Each format should communicate the same message, regardless of the medium used to convey your message.



- **Justifiable/defensible report characteristics:** Facts reported and the characteristics which describe those reported facts should be both justifiable and defensible by the reporting entity.
- **Consistency between periods:** Financial information expressed within one reporting period should be consistent with the financial information expressed within subsequent reporting periods, where appropriate. Clearly new information will be added and information which becomes irrelevant will be removed from a financial report. Changes between report elements which existed in both periods should be justifiable and defensible as opposed to arbitrary and random.
- **Consistency with peer group:** If a reporting entity chooses one approach/report element and a peer chooses a different approach/report element; clearly some good, explainable reason should exist for such difference. The judgment of an accountant can determine if the difference is appropriate or not. Differences of opinion can also exist. However, some sort of rational will likely exist for differences or similarities. Because of ambiguity, different conclusions can be reached and each be reasonable and appropriate.
- **Logical renderings:** Renderings of facts; characteristics describe facts; parenthetical explanations which further describe such facts; and other such model structures should make sense and be both consistent with other similar logical structures and logical from the perspective of the technical syntax used to articulate that information. While there may be differences of opinion as to how to format or present such information; there should be significantly less or no dispute about the logic. Disclosures are informational, they relate to information without regard to formatting or other presentational artifacts. Notes relate to organizing disclosures and are presentational in nature. Someone creating a financial report has far more latitude and discretion as to how to organize disclosures into notes than they do as to what must be disclosed.
- **Unambiguous business meaning:** A financial report should be unambiguous to an informed reader. The business meaning of a financial report should be clear/unambiguous to the creator of the financial report and likewise clear/unambiguous to the users of that financial report. Both the creator and users should walk away with the same message or story. A financial report should be usable by regulators, financial institutions, analysts, investors, economists, researchers, and others who desire to make use of the information the report contains.

Again, we don't think we are enlightening any accountants with this information. What we are doing is bringing this information into the fore front of your consciousness for a particular reason. There is something which is new.

What is new, and what must occur for these new digital mediums such as XBRL and financial reports expressed using XBRL to be successful, is for accountants to be able to perform these same tasks using these new digital mediums. And because computers can read these new mediums and understand what it is reading, computers can both help accountants with these verification tasks and point out situations where financial reports do not possess these distinguishing features. It is not hard to imagine that a computer can help understand if a financial report "ticks and ties", "cross casts and foots" according to the rules of the medium used to express that information.



But, to achieve this how to use such a digital medium must be well understood, the semantics or meaning of the medium must be well defined, and the mechanics of such a medium must be understood and the same for all parties involved in the creation or use of a financial report expressed using such medium.

10.3. Properly differentiating semantics and syntax

Critical to obtaining a proper understanding of verification is properly differentiating the terms semantics and syntax.

An SEC XBRL financial report is a definitive, discrete, finite set of objects. Obviously this has to be true, it is a physical thing. The truth is that a paper-based financial report is likewise a definitive, discrete, finite set of objects. The only difference between the two is the medium used to express the information.

No accountant really looks at a paper report in this manner, as a set of objects. But to create a digital expression of a financial report this is exactly what must occur: these specific objects must be identified and described. This is how the unstructured paper-based financial report becomes "digitized" and articulated as a digital financial report.

And these objects can be described and they have been described. We will get to this in a moment. There are two ways these objects which make up a financial report can be described: syntactically and semantically.

Syntax relates to how you say something, *semantics* relates to the meaning of what you say.

HINT: Explaining the difference between **syntax** and **semantics** is (a) critically important to what this document is trying to communicate and (b) beyond the scope of this document to explain in detail. We will assume that the reader understands this distinction. If you do not understand the difference between syntax and semantics, please stop reading now and be sure to understand this distinction clearly before you continue with this document because if you do not understand this distinction, this document will make little sense to you. Two good resources for understanding this distinction are the following:

The video How XBRL Works: <http://www.youtube.com/watch?v=nATJBPOiTxD>

This video about semantics: <http://www.youtube.com/watch?v=OGg8A2zfWKg>

When it comes to creating an SEC XBRL financial filing it is of critical importance to understand the following key points:

- Like was said, an SEC XBRL financial report, just like any other financial report expressed using any other medium, is a definitive, discrete, finite set of objects.
- Those objects can be looked at through the lenses of a technical syntax, such as the XBRL technical syntax, which describes how something is said.
- Those same objects can be looked at through the lens of semantics, which describes what you mean.
- Forcing business users to relate to those objects using the XBRL technical syntax is one way to working with an SEC XBRL financial report. But doing so



has the ramification of requiring the business user to understand the XBRL technical syntax.

- Creating software which hides the XBRL technical syntax behind a layer of semantics is another way of working with an SEC XBRL financial report. Doing this has ramifications also. Doing this allows business users to relate to the SEC XBRL financial report in terms which they tend to already understand.
- Business users are far more comfortable working with business semantics than with XBRL technical syntax. Nor should business users be forced to work with XBRL technical syntax.
- Technical people do not understand how to create financial reports. Nor should they.

If you think about it, how could someone create a an SEC XBRL financial report and do so correctly without being able to formally verify that the SEC XBRL financial report is a true and fair representation of the reporting entity if the process they are using is a black box or a process which they don't understand?

10.4. Realizing what accountants and other business users need to be successful

Who needs to verify an SEC XBRL financial report to be sure that the financial report is a true and fair representation of the reporting entity and that it communicates what management chooses to communicate, given the requirements imposed by the SEC and US GAAP and using the choices desired by the reporting entity?

- An **accountant** or team of accountants can perform a specific set of steps which will allow them to be sure that the financial report which they created is a true and fair representation of the financial information of the reporting entity for which the financial report has been created.
- **Management** of the reporting entity (CEO, CFO, members of the audit committee, investor relations, legal counsel) for which the financial report has been created can ask the team of accountants "are you sure these are correct" and the accountant or team of accountants can reasonably reply, "yes, we are sure". Or, management can verify for themselves by performing specific tasks/steps.
- A **third party accountant** can state that a financial report "presents fairly" the financial information of the reporting entity because they have performed a specific set of tasks/steps which allow them to be sure that the financial report "presents fairly" such information.
- **Investors, regulators and analysts** who consume information need to be sure what they are consuming is correct.

Two key points about the list above are important to understand. First, note that the information technology department is not included in the list. The IT department does not generally sign off on a financial report. Second, how could anyone sign off or use an SEC XBRL financial report without being sure that the information is correctly expressed without understanding the XBRL technical syntax if an alternative approach to understanding the technical syntax does not exist?

Well, you don't need to understand the XBRL technical syntax if software makes sure that what you have said is always compliant to the XBRL technical syntax and provides you with transparency into what you have said and help you understand if it is what you meant to have said.



The key to verification of an SEC XBRL financial report which empowers business users to be sure they are saying what they mean to say and which follow the XBRL technical syntax without the business user needing to understand that technical syntax.

Focusing on semantics enables the business user to achieve exactly that.

10.5. Definition of semantic objects, relations, and properties

It was stated earlier in this document that a financial report is comprised of a definitive, discrete, finite set of objects, relations between those objects. Each of these objects and relations has a definitive, discrete, finite, set of properties.

This section defines these objects, relations, and properties.

Clear, concise definitions are important for two reasons. First, if terminology is not precise then communication cannot occur because parties to the communication cannot be sure they are talking about the same thing. Secondly, these objects need to be implemented within software applications and clear/unambiguous communication of these objects is necessary to enable such software to be implemented.

This document uses terminology defined by the Financial Report Semantics and Dynamics Theory and the US GAAP taxonomy Architecture. The Financial Report Semantics and Dynamics Theory provides a medium independent definition of a set of semantics and dynamics which have been proven to work with SEC XBRL financial filings. The US GAAP Taxonomy Architecture is a set of technical rules which must be followed by SEC filers who create XBRL financial reports.

HINT: We provide only a summary of information from the two documents mentioned above. For a better understanding of these two documents, please refer to the documents themselves.

10.6. Financial report level semantics

[CSH: This is a duplicate]

In order to "digitize" a financial report you need to break that financial report into pieces that a computer software application can interact with. Each of these pieces has to be referred to so some term needs to be created and used to discuss each of these financial report pieces. The following is a summary of these fundamental and important definitions of financial report semantics from the Financial Report Semantics and Dynamics Theory:

- **Financial report:** Report which communicates financial and nonfinancial information to users of that report. Financial reports contain facts, characteristics which describe those facts, parenthetical explanations of facts, relations between facts/characteristics. Each of these report elements has properties.
- **Component:** A component is a set of facts which go together for some specific purpose within a financial report. A component can also be broken down into subcomponents.
- **Fact:** A fact defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. Numeric fact values must also provide the additional traits "units" and



“rounding” to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.

- **Characteristic:** A characteristic provides information necessary to describe a fact. A fact may have any number of characteristics.
- **Parenthetical explanation:** Facts may have parenthetical explanations which provide additional descriptive information about the fact.
- **Relation:** Components can be related to other components. Facts can be related to other facts. Characteristics can be related to other characteristics. Model structure is a type of relation which describes how report elements relate to one another. Business rules are a type of relation which describes computation type relations.
- **Property:** Financial reports have a known set of properties. Components have a known set of properties. Facts have a known set of properties. Characteristics have a known set of properties. The concept characteristic has additional properties: period type, data type, balance type. Relations have a known set of properties.

For more details we encourage you to read the *Financial Report Semantics and Dynamics Theory*.

HINT: This video walks you through these terms: http://www.youtube.com/watch?v=uC-hrpPJ_fA

10.7. US GAAP taxonomy implementation model of financial report semantics

[CSH: This is a duplicate]

A digital financial report must at some point be implemented. That implementation takes the form of some sort of model. A report element or model element is a piece of a digital financial report, a part of the implementation model. The types of report element or model elements can be grouped or categorized.

An SEC XBRL financial report is an implementation of a financial report as defined by the Financial Report Semantics and Dynamics Theory. The US GAAP Taxonomy Architecture defines important pieces of how an SEC XBRL financial report must be created, its model. The following is a summary of the US GAAP taxonomy implementation model of these financial report semantics as used in SEC XBRL financial filings:

- **Network:** A network is a one approach to break a digital financial report into smaller pieces. There are two reasons why you might need to break a financial filing into pieces: because you want to or because you have to. Specific semantics of networks are not defined by the SEC or by the US GAAP Taxonomy.
- **Table:** A table is used to combine facts which go together for some specific reason. Tables are comprised of axis and line items. The line items of a table share the axis defined within a table. There are two types of tables: explicit tables and implicit tables. Implicit tables only have the axis reporting entity and period. An explicit table always has at least one defined [Axis], it could have more than one. An explicit [Table] always has one set of [Line Items]. Specific semantics of tables are undefined.



- **Axis:** An axis is a means of providing information about the characteristics of a fact reported within a financial report.
- **Member:** A member is a possible value of an [Axis]. A [Member] is always part of a domain of an [Axis], thus the term "member" (i.e. of the domain or set; a domain is simply a set of [Member]s which relates to a specific [Axis]).
- **Line Items:** [Line items] are a set of concepts which can be reported by an entity, they can contain values. [Line Items] may also contain [Abstract] concepts which can never report values but rather are used to help organize the [Line Items].
- **Concept:** A concept refers to a financial reporting concept or a non-financial concept which can be reported as a fact within an SEC XBRL financial filing. A concept is sometimes referred to as a concrete concept, as compared to an abstract concept. [Line Items] contain concepts organized within a component which have the same information model. Concepts can be concrete (meaning they can be reported) or abstract (meaning that they are never reported; they are only used to organize the concepts contained within a set of line items).
- **Fact:** A fact is a single, observable, reportable piece of information contained within a financial report. Facts have values which could be textual, numeric, or prose. Numeric facts have two additional traits: units and rounding. Facts may have one or more additional parenthetical explanations. Facts are characterized by a set of [Axis] which provide additional important information necessary to understand the fact.

HINT: For more information about these report level semantic objects please see: <http://secxbrlglossary.wikispaces.com/Report+Element> and the US GAAP Taxonomy Architecture section 4.5 Implementation of Tables.

10.8. Connecting the report level model to its implementation model

The following table pulls the semantics of the *Financial Report Semantics and Dynamics Theory* together into its implementation model as an SEC XBRL financial filing which follows the US GAAP Taxonomy Architecture, effectively reconciling the two:

Financial Report Semantics and Dynamics Theory Term	US GAAP Taxonomy Architecture /SEC Model Term
Financial Report	SEC XBRL financial report (XBRL instance + XBRL taxonomy)
Component	Network + Table (explicit or implied)
Characteristic	Many different technical approaches including: [Axis] , [Member] , [Line Items] , Concept , Entity identifier (semantically is an [Axis]), Period (semantically is an [Axis])
Fact	Fact
Parenthetical Explanation	XBRL Footnote (which is not the same as a financial statement footnote)



Financial Report Semantics and Dynamics Theory Term	US GAAP Taxonomy Architecture /SEC Model Term
Relation (structural, business rules, flow)	Information Model (Roll up, roll forward, adjustment, variance, hierarchy, etc.); Member aggregation model (partial set, complete flat set, complete hierarchical set, etc.); Business rules (Roll up implemented as XBRL calculations syntax, roll forward, member aggregation, adjustment, variance, complex computation); Number, Category, Title which expresses sort order of networks
Property	XML element or XML attribute which could be implemented as XML, XBRL, XML Schema, or XLink technical syntax

HINT: It is not critical for business users to understand the details of how these two models are combined to enable the creation of an SEC XBRL financial report. What is important is that the scheme works and that they understand how to use software which implements this scheme. This informational summary is provided to more help technical people understand this connection and to provide both an overview of this connection and point to the additional details necessary to truly understand this connection.

More detailed information which connects and reconciles this terminology including an additional reconciliation to the XBRL technical syntax can be found in APPENDIX C which also reconciles the semantic objects to the XBRL technical syntax. Further, this diagram provides additional helpful information:

http://www.xbrlsite.com/2012/FinancialReportSemanticsAndDynamicsTheory/TheoryPlusImplementation_v2.pdf

Additional details on the *Financial Report Semantics and Dynamics Theory* can be found here:

<http://xbrl.squarespace.com/fin-report-sem-dyn-theory/>

Additional details on the implementation model of an SEC XBRL financial report can be found here:

<http://xbrl.squarespace.com/digital-financial-reporting/>

HINT: XBRL International has created a global standard report-level model, the XBRL Abstract Model 2.0. For more information please see:

<http://xbrl.squarespace.com/journal/2012/6/27/mapping-from-sec-xbrl-model-semantics-to-xbrl-abstract-model.html>



It is easy to validate a financial report which is created on paper. All you need to do is give the report to a competent accountant, hand them a 10-key and green eye shades, give them a paper disclosure checklist and your worries are over; the accountant will make sure it is correct. The problem is that this process is labor intensive, the knowledge of accountants can vary widely, it is time consuming because it is labor intensive and it is costly because it is labor intensive. Further, because accountants are human they can make mistakes.

SEC XBRL financial filings changes this equation. The XBRL format can be read by software applications and many of the verification processes can be automated as a result. You will never be able to do away with all human involvement. In fact, because the mindless work of making sure everything foots and cross casts and otherwise ticks and ties; the knowledge of an accountant can be applied to other important areas of verification which were never performed because the analysis budget was used up on the mindless tasks and these more important tasks can never be automated, they take human judgment.

Further, even this “automated verification” will be rendered obsolete when software applications perform these tests as you create your financial report within a software application which understands the semantics of a financial statement.

10.9. Visualizations of semantic objects, relations, and properties

The following are visualizations which provide examples for the objects into which a financial report can be broken down. The visualizations are organized in a top-down approach beginning with a dashboard which organizes verification information into logical groupings.

This set of semantic objects, relations, and properties is shown using the XBRL Cloud Evidence Package which is a product which can be used by accountants in the verification process. Other products have similar reports. XBRL Cloud’s reports are provided with permission from XBRL Cloud.

HINT: These visualizations are taken from HTML pages generated from a working prototype of a verification application. You can see the entire prototype at this URL:

<http://www.xbrlsite.com/US-GAAP-2012/ReferenceImplementation/2012-08-01/business-report-package>

The reference/model implementation of an SEC XBRL financial report was used to create this particular Evidence Package and the related screen shots. For more information, please see Appendix D: Reference/Model Implementation.

10.9.1. Verification dashboard

The verification dashboard is an aggregation and organization of all verification information into an easy to understand “dashboard” for a particular digital financial report.

The verification dashboard has three sections. The first section provides a summary of all automated verification testing results. The second section provides a summary of manual verification tasks. The third section provides details of verification results



by component of the digital financial report. This screen shot is an example of a verification dashboard:

Verification Dashboard												
Automated Verification Summary												
The goal is to create a verifiably correct true and fair representation of a reporting entity's financial information. The report should be complete, correct, consistent, accurate. The report should have fidelity and integrity.												
	Status	Count of Relations	List XBRL Technical Syntax	List Automatable EFM Rules	List XBRL-US Consistency Suite Rules	List Structure Rules(US GAAP Taxonomy Architecture)	List US GAAP Domain Level Rules	List Industry / Activity Specific Rules	List Reporting Entity Specific Rules	List Reportability Rules		
Summary of all components (networks/tables)	Incomplete	451	OK	726	1	OK	OK	OK	OK	119		
Automated rules defined			0	0	0	0	0	0	119	0		
Automated rules PASSED			0	0	0	0	0	0	200	0		
Automated rules FAILED			0	726	1	0	0	0	0	119		
Manual Verification Summary												
	Status	Count of Relations	List EFM Review Tasks	List Other Manual Review Tasks								
Summary of all components (networks/tables)	Completed	451	OK	OK								
Manual rules defined			0	0								
Manual rules PASSED			0	0								
Manual rules FAILED			0	0								
Component Perspective												
This matrix provides detail about the verification status of the individual components which make up the financial report.												
Component (Network/Table)	Status	Count of Relations	Manual Review Tasks	XBRL Technical Syntax	EFM Rules	Model Logical Structure(US GAAP Taxonomy Architecture Rules)	US GAAP Core Financial Report Semantics	US GAAP Consistency Rules	Industry / Activity Specific Rules	Reporting Entity Specific Rules	US GAAP/SEC Disclosure Rules	Other Rules and Best Practices
1100 - Document - Document Information Document Information [Table]	Incomplete	10	OK	OK	726	OK	OK	1	OK	OK	OK	119
1200 - Document - Entity Information Entity Information [Table]	Completed	13	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
1300 - Document - Entity Listings Information Entity Listings [Table]	Completed	11	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2001 - Statement - Balance Sheet Balance Sheet [Table]	Completed	44	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
2002 - Statement - Balance Sheet Profit & Loss General Balance Sheet	Completed	6	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

10.9.2. Report properties

The report properties visualization shows the properties of the financial report itself.

Report Properties

Summary/General Information

The following is a summary of general information about the report.

Entity registrant name	ABC Company, Inc.
Report identifier (target namespace)	http://www.abc.com/20121231
Prefix	abc
US GAAP taxonomy version	2012 US GAAP Taxonomy (http://fasb.org/us-gaap/2012-01-31)
Document type	10-K
Document period end date	2012-12-31
Document fiscal period focus	FY
Document fiscal year focus	2012
Report file name	https://demo.xbrlcloud.com/user/charles.hoffman@xbrlcloud.com/share/public/xbrlsite/Templates/000000-002-ModelReferenceImplementation-2012-08-01/abc-20121231.xml

10.9.3. Report objects summary

The report objects summary provides a summary of the objects contained within the financial report.



Report Objects Summary

Components	31
Networks	31
Tables	28
Axes	15
Members	45
Line Items	28
Abstracts	61
Concepts	152
Facts	524
Parenthetical explanations	2
Structural relations	451
Business rules	131

10.9.4. Report component summary

The component summary shows a list of the components contained within the financial report. Recall that a component is the combination of a network and a table.

Component Summary

A component is a combination of a network and a table. All facts exist within one or more networks. All facts also exist within one or more tables, be that table an explicitly defined [Table] or an implied table.

#	Sort Code	Type	Title	URI	Table (Explicit or Implied)
1	1100	Document	Document Information	http://www.abc.com/role/DocumentInformation	Document Information [Table]
2	1200	Document	Entity Information	http://www.abc.com/role/EntityInformation	Entity Information [Table]
3	1300	Document	Entity Listings Information	http://www.abc.com/role/EntityListingsInformation	Entity Listings [Table]
4	2001	Statement	Balance Sheet	http://www.abc.com/role/BalanceSheet	Balance Sheet [Table]
5	2002	Statement	Balance Sheet Parenthetical, General	http://www.abc.com/role/BalanceSheetParentheticalGeneral	Balance Sheet Parenthetical, General [Table]
6	2003	Statement	Balance Sheet Parenthetical, Preferred Stock	http://www.abc.com/role/BalanceSheetParentheticalPreferredStock	Stock by Class [Table]
7	2004	Statement	Balance Sheet Parenthetical, Common Stock	http://www.abc.com/role/BalanceSheetParentheticalCommonStock	Stock by Class [Table]
8	2005	Statement	Balance Sheet Parenthetical, Treasury Stock	http://www.abc.com/role/BalanceSheetParentheticalTreasuryStock	Class of Treasury Stock [Table]
9	2006	Statement	Income Statement	http://www.abc.com/role/IncomeStatement	Income Statement [Table]
10	2007	Statement	Comprehensive Income	http://www.abc.com/role/ComprehensiveIncome	Comprehensive Income [Table]
11	2008	Statement	Cash Flow Statement	http://www.abc.com/role/CashFlowStatement	Cash Flow Statement [Table]
12	2009	Statement	Prior Period Adjustment	http://www.abc.com/role/PriorPeriodAdjustment	Changes in Stockholders' Equity [Table]
13	2010	Statement	Changes in Total Stockholders' Equity	http://www.abc.com/role/ChangesInTotalStockholdersEquity	Changes in Stockholders' Equity [Table]
14	4010	Disclosure	Nature of Business	http://www.abc.com/role/NatureOfBusiness	Nature of Business [Table]
15	4020	Disclosure	Significant Accounting Policies	http://www.abc.com/role/SignificantAccountingPolicies	Significant Accounting Policies [Table]
16	4030	Disclosure	Property, Plant and Equipment Policies	http://www.abc.com/role/PropertyPlantAndEquipmentPolicies	Property, Plant and Equipment Components [Table]
17	5010	Disclosure	Cash, Cash Equivalents, and Marketable Securities	http://www.abc.com/role/CashCashEquivalentsAndMarketableSecurities	Cash, Cash Equivalents, and Marketable Securities [Table]
18	5020	Disclosure	Cash and Cash Equivalents Components	http://www.abc.com/role/CashAndCashEquivalentsComponents	Cash and Cash Equivalents Components [Table]
19	5030	Disclosure	Marketable Securities Components	http://www.abc.com/role/MarketableSecuritiesComponents	Marketable Securities [Table]
20	5040	Disclosure	Inventory Components	http://www.abc.com/role/InventoryComponents	Inventory Components [Table]
21	5050	Disclosure	Property, Plant and Equipment Components	http://www.abc.com/role/PropertyPlantAndEquipmentComponents	Property, Plant and Equipment Components [Table]
22	5060	Disclosure	Deferred Costs	http://www.abc.com/role/DeferredCosts	Deferred Costs Components [Table]
23	5070	Disclosure	Product Warranty Accrual	http://www.abc.com/role/ProductWarrantyAccrual	Product Liability Contingency [Table]
24	5080	Disclosure	Long-term Debt Instruments	http://www.abc.com/role/LongTermDebtInstruments	Long-term Debt Instruments [Table]
25	5090	Disclosure	Maturities of Long-term Debt	http://www.abc.com/role/MaturitiesOfLongTermDebt	Maturities of Long-Term Debt [Table]
26	5110	Disclosure	Other Noncurrent Liabilities	http://www.abc.com/role/OtherNoncurrentLiabilities	Other Noncurrent Liabilities [Table]
27	5120	Disclosure	Business Segments	http://www.abc.com/role/BusinessSegments	Business Segment Information, by Segment [Table]
28	5130	Disclosure	Geographic Areas	http://www.abc.com/role/GeographicAreas	Revenues from External Customers and Long-lived Assets by Geographic Area [Table]
29	5140	Disclosure	Nonmonetary Transactions	http://www.abc.com/role/NonmonetaryTransactions	Nonmonetary Transaction, by Type [Table]
30	5150	Disclosure	Select Financial Information	http://www.abc.com/role/SelectFinancialInformation	Select Financial Information [Table]
31	5160	Disclosure	Subsequent Events	http://www.abc.com/role/SubsequentEvents	Subsequent Event [Table]

10.9.5. Report business rules

The report business rules provide all business rules relations which relate to no particular component; rather they tend to be cross-component type rules.



Business Rules Summary Information

Assertions

	Found and compiled	Fired	Satisfied	Unsatisfied
Existence assertions	58	58	58	0
Value assertions	61	142	142	0
Consistency assertions	0	0	0	0
Total all assertions	119	200	200	0

Formulas

	Found and compiled	Fired	Facts created
Formulas	0	0	0

Calculations

	Found and compiled	Fired	Satisfied	Unsatisfied
Calculations	12	26	26	0

XBRL Formulas

Existence Assertions

ID	Satisfied
ASSERTION_Exists_DocumentPeriodEndDate (evaluations 1)	Satisfied
CORE_1002_LiabilitiesAndEquity_Exists_ALT (evaluations 1)	Satisfied
IND_CI_1002_CurrentLiabilities_Exists_ALT (evaluations 1)	Satisfied
CORE_1003_Equity_Exists_ALT (evaluations 1)	Satisfied
CORE_1005_NetIncomeLoss_Exists_ALT (evaluations 1)	Satisfied
CORE_1006_NetCashFlow_Exists_ALT (evaluations 1)	Satisfied
ASSERTION_Exists_DocumentType (evaluations 1)	Satisfied
ASSERTION_Exists_DocumentFiscalPeriodFocus (evaluations 1)	Satisfied
CORE_1001_Assets_Exists_ALT (evaluations 1)	Satisfied

10.9.6. Report elements

The report element visualization provides a listing of the report elements contained within the financial report. A report element is a distinct category of report objects. A report element relates to the dictionary of the report, not the information which is being reported by the report. (i.e. report elements do not include facts or parenthetical explanations)



Report Elements			
	All	Added	
Networks	31	31	100%
Tables	28	15	54%
Axes	13	0	0%
Members	45	10	22%
Line items	28	15	54%
Abstracts	61	25	41%
Concepts	152	2	1%

10.9.7. Networks

The networks visualization provides a listing of all networks and all the properties of a network.

Networks

#	Sort Code	Type	Title	URI	Relations Count
1	1100	Document	Document Information	http://www.abc.com/role/DocumentInformation	10
2	1200	Document	Entity Information	http://www.abc.com/role/EntityInformation	13
3	1300	Document	Entity Listings Information	http://www.abc.com/role/EntityListingsInformation	11
4	2001	Statement	Balance Sheet	http://www.abc.com/role/BalanceSheet	44
5	2002	Statement	Balance Sheet Parenthetical, General	http://www.abc.com/role/BalanceSheetParentheticalGeneral	6
6	2003	Statement	Balance Sheet Parenthetical, Preferred Stock	http://www.abc.com/role/BalanceSheetParentheticalPreferredStock	13
7	2004	Statement	Balance Sheet Parenthetical, Common Stock	http://www.abc.com/role/BalanceSheetParentheticalCommonStock	14
8	2005	Statement	Balance Sheet Parenthetical, Treasury Stock	http://www.abc.com/role/BalanceSheetParentheticalTreasuryStock	10
9	2006	Statement	Income Statement	http://www.abc.com/role/IncomeStatement	35
10	2007	Statement	Comprehensive Income	http://www.abc.com/role/ComprehensiveIncome	13
11	2008	Statement	Cash Flow Statement	http://www.abc.com/role/CashFlowStatement	39
12	2009	Statement	Prior Period Adjustment	http://www.abc.com/role/PriorPeriodAdjustment	12
13	2010	Statement	Changes in Total Stockholders' Equity	http://www.abc.com/role/ChangesInTotalStockholdersEquity	10
14	4010	Disclosure	Nature of Business	http://www.abc.com/role/NatureOfBusiness	5
15	4020	Disclosure	Significant Accounting Policies	http://www.abc.com/role/SignificantAccountingPolicies	9
16	4030	Disclosure	Property, Plant and Equipment Policies	http://www.abc.com/role/PropertyPlantAndEquipmentPolicies	14
17	5010	Disclosure	Cash, Cash Equivalents, and Marketable Securities	http://www.abc.com/role/CashCashEquivalentsAndMarketableSecurities	8
18	5020	Disclosure	Cash and Cash Equivalents Components	http://www.abc.com/role/CashAndCashEquivalentsComponents	14
19	5030	Disclosure	Marketable Securities Components	http://www.abc.com/role/MarketableSecuritiesComponents	13
20	5040	Disclosure	Inventory Components	http://www.abc.com/role/InventoryComponents	10
21	5050	Disclosure	Property, Plant and Equipment Components	http://www.abc.com/role/PropertyPlantAndEquipmentComponents	15
22	5060	Disclosure	Deferred Costs	http://www.abc.com/role/DeferredCosts	9
23	5070	Disclosure	Product Warranty Accrual	http://www.abc.com/role/ProductWarrantyAccrual	14
24	5080	Disclosure	Long-term Debt Instruments	http://www.abc.com/role/LongTermDebtInstruments	21
25	5090	Disclosure	Maturities of Long-term Debt	http://www.abc.com/role/MaturitiesOfLongTermDebt	12
26	5110	Disclosure	Other Noncurrent Liabilities	http://www.abc.com/role/OtherNoncurrentLiabilities	8
27	5120	Disclosure	Business Segments	http://www.abc.com/role/BusinessSegments	18
28	5130	Disclosure	Geographic Areas	http://www.abc.com/role/GeographicAreas	12
29	5140	Disclosure	Nonmonetary Transactions	http://www.abc.com/role/NonmonetaryTransactions	14
30	5150	Disclosure	Select Financial Information	http://www.abc.com/role/SelectFinancialInformation	12
31	5160	Disclosure	Subsequent Events	http://www.abc.com/role/SubsequentEvents	13

10.9.8. Tables

The tables visualization provides a listing of all tables and the properties of a table.



Tables				
#	Label	Prefix	Standard label, Documentation, References, Concept name	Count
1	Balance Sheet [Table]	abc	Filer label:Balance Sheet [Table] Documentation:Balance sheet. References:NONE Name: abc:BalanceSheetTable	1
2	Balance Sheet Parenthetical, General [Table]	abc	Filer label:Balance Sheet Parenthetical, General [Table] Documentation:Balance Sheet Parenthetical, General [Table] References:NONE Name: abc:BalanceSheetParentheticalGeneralTable	1
3	Business Segment Information, by Segment [Table]	us-gaap	Standard label:Schedule of Segment Reporting Information, by Segment [Table] Documentation:A table disclosing the profit or loss and total assets for each reportable segment of the entity. An entity discloses certain information on each reportable segment if the amounts (a) are included in the measure of segment profit or loss reviewed by the chief operating decision maker or (b) are otherwise regularly provided to the chief operating decision maker, even if not included in that measure of segment profit or loss. References:NONE Name: us-gaap:ScheduleOfSegmentReportingInformationBySegmentTable	1
4	Cash and Cash Equivalents Components [Table]	us-gaap	Standard label:Schedule of Cash and Cash Equivalents [Table] Documentation:Schedule of cash and cash equivalent balances. This table excludes restricted cash balances. References:NONE Name: us-gaap:ScheduleOfCashAndCashEquivalentsTable	1
5	Cash Flow Statement [Table]	abc	Filer label:Cash Flow Statement [Table] Documentation:Cash Flow Statement [Table] References:NONE Name: abc:CashFlowStatementTable	1
6	Cash, Cash Equivalents, and Marketable Securities [Table]	abc	Filer label:Cash, Cash Equivalents, and Marketable Securities [Table] Documentation:Cash, Cash Equivalents, and Marketable Securities [Table] References:NONE Name: abc:CashEquivalentsAndMarketableSecuritiesTable	1
7	Changes in Stockholders' Equity [Table]	abc	Filer label:Changes in Stockholders' Equity [Table] Documentation:Changes in Stockholders' Equity [Table] References:NONE Name: abc:ChangesInStockholdersEquityTable	2
8	Class of Treasury Stock [Table]	us-gaap	Standard label:Class of Treasury Stock [Table] Documentation:Different classes of treasury stock along with the different attributes of the treasury stock. References:NONE	1

HINT: Note that a [Table] is implemented as an XML Schema element, just like an [Axis], [Member], [Line Items], and Concept. Each of these report element types must have properties (which are implemented as XML Schema attributes) of type, and period. Each [Table] must be abstract and have the substitutionGroup xbrldt:hypercubeItem. However, this information is syntax; not semantics. These required but meaningless properties can be automatically verified by software and can therefore be ignored by a business user who is using appropriately implemented software.

10.9.9. Table properties

The [Table] properties visualization provides a more detailed listing of [Table] properties.

Name: us-gaap:NonmonetaryTransactionByTypeTable

Report Element Properties

Report Standard Label	Nonmonetary Transaction, by Type [Table]
Base Taxonomy Standard Label	Nonmonetary Transaction, by Type [Table]
Documentation	Transactions involving exchanges with other entities that involve principally nonmonetary assets or liabilities or relate to a transfer of nonmonetary assets for which the Entity receives no assets in return.
Report Element Class	Table
Prefix (From Taxonomy)	us-gaap
Name	us-gaap:NonmonetaryTransactionByTypeTable
ID	us-gaap_NonmonetaryTransactionByTypeTable

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Nonmonetary Transaction, by Type [Table]	en-US
Base	Standard label	Nonmonetary Transaction, by Type [Table]	en-US

References of Report Element

Publisher	Reference Name	Reference Information

Name: abc:SelectFinancialInformationTable



10.9.10. Axes

The axes visualization provides a listing of all [Axis] and the properties of a [Axis].

Axes				
#	Label	Prefix	Standard label, Documentation, References, Concept name	Count
1	Business Segments [Axis]	us-gaap	Standard label:Business Segments [Axis] Documentation:Information by business segments. References:NONE Name: us-gaap:StatementBusinessSegmentsAxis	1
2	Cash and Cash Equivalents Type [Axis]	us-gaap	Standard label:Cash and Cash Equivalents [Axis] Documentation:Information by type of cash and cash equivalent balance. References:NONE Name: us-gaap:CashAndCashEquivalentsAxis	1
3	Class of Stock [Axis]	us-gaap	Standard label:Class of Stock [Axis] Documentation:Information by the different classes of stock of the entity. References:NONE Name: us-gaap:StatementClassOfStockAxis	4
4	Debt Instrument [Axis]	us-gaap	Standard label:Debt Instrument [Axis] Documentation:Information by type of debt instrument, including, but not limited to, draws against credit facilities. References:NONE Name: us-gaap:DebtInstrumentAxis	1
5	Geographic Area [Axis]	us-gaap	Standard label:Geographical [Axis] Documentation:Information by geographical segments. References:NONE Name: us-gaap:StatementGeographicalAxis	1
6	Instrument Type [Axis]	us-gaap	Standard label:Instrument [Axis] Documentation:Information categorized by legal agreement. References:NONE Name: us-gaap:InstrumentAxis	1
7	Legal Entity [Axis]	dei	Standard label:Legal Entity [Axis] Documentation:The set of legal entities associated with a report. References:NONE	31

HINT: Note that the reporting entity axis which is implemented as the XBRL instance context element identifier and the period axis also implemented as an XBRL instance are both semantically just like any other [Axis]. These two quasi-[Axis] are not shown in the above listing.

10.9.11. Axes properties

The [Axis] properties visualization provides a more detailed listing of [Axis] properties.

Report Element Properties

Report Standard Label	Legal Entity [Axis]
Base Taxonomy Standard Label	Legal Entity [Axis]
Documentation	The set of legal entities associated with a report.
Report Element Class	Axis
Prefix (From Taxonomy)	dei
Name	dei:LegalEntityAxis
ID	dei_LegalEntityAxis

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Legal Entity [Axis]	en-US
Base	Standard label	Legal Entity [Axis]	en-US

References of Report Element

Publisher	Reference Name	Reference Information
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10.9.12. Members

The members visualization provides a listing of all [Member]s and the properties of a [Member].

Members				
#	Label	Prefix	Standard label, Documentation, References, Concept name	Count
1	Actual [Domain]	us-gaap	Standard label:Scenario, Actual [Member] Documentation:Domain member used to indicate actual financial results. References:NONE Name: us-gaap:ScenarioActualMember	1
2	Advertising Barter Transactions [Member]	us-gaap	Standard label:Advertising Barter Transactions [Member] Documentation:Transactions in which there is a nonmonetary exchange of advertising, or the rights to place advertising, advertising is swapped for equal amounts of cash, or advertising is exchanged for other goods and services. References:NONE Name: us-gaap:AdvertisingBarterTransactionsMember	1
3	All Business Segments [Domain]	us-gaap	Standard label:Segment [Domain] Documentation:A component of an enterprise representing facts about an entire consolidated business entity disaggregated by business or economic activities. References:NONE Name: us-gaap:SegmentDomain	1
4	All geographic areas [Domain]	us-gaap	Standard label:Segment, Geographical [Domain] Documentation:The name of a geographic segment representing facts about a reporting entity disaggregated by the geographic area of the entities activities. This element may be used to identify operations in an individual country or group of countries depending on materiality. If a Geographical segment is an individual country use the countries defined in the Country Domain (Domain -2000) to identify the country segment. References:NONE Name: us-gaap:SegmentGeographicalDomain	1
5	Bank time deposits [Member]	us-gaap	Standard label:Bank Time Deposits [Member] Documentation:Certificates of deposit (CD) or savings accounts with a fixed term or understanding the customer can only withdraw by giving advanced notice with a bank or other financial institution. A CD is a short to medium-term investment available at banks and savings and loan institutions where a customer agrees to lend money to the institution for a certain amount of time and is paid a predetermined rate of interest. References:NONE Name: us-gaap:BankTimeDepositsMember	2
6	Business Segment Alpha [Member]	abc	Filer label:Business Segment Alpha [Member] Documentation:Business Segment Alpha [Member] References:NONE Name: abc:BusinessSegmentAlphaMember	1
7	Business Segment Bravo [Member]	abc	Filer label:Business Segment Bravo [Member] Documentation:Business Segment Bravo [Member] References:NONE Name: abc:BusinessSegmentBravoMember	1

HINT: Note that a [Domain] is a type of [Member].

10.9.13. Members properties

The [Member] properties visualization provides a more detailed listing of [Member] properties.

Report Element Properties

Report Standard Label	All geographic areas [Domain]
Base Taxonomy Standard Label	Segment, Geographical [Domain]
Documentation	
The name of a geographic segment representing facts about a reporting entity disaggregated by the geographic area of the entities activities. This element may be used to identify operations in an individual country or group of countries depending on materiality. If a Geographical segment is an individual country use the countries defined in the Country Domain (Domain -2000) to identify the country segment.	
Report Element Class	Domain
Prefix (From Taxonomy)	us-gaap
Name	us-gaap:SegmentGeographicalDomain
ID	us-gaap_SegmentGeographicalDomain

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	All geographic areas [Domain]	en-US
Base	Standard label	Segment, Geographical [Domain]	en-US

References of Report Element

Publisher	Reference Name	Reference Information
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10.9.14. Line items

The line items visualization provides a listing of all [Line Items] and the properties of the [Line Items].

Line Items				
#	Label	Prefix	Standard label, Documentation, References, Concept name	Count
1	Balance Sheet [Line Items]	abc	Filer label:Balance Sheet [Line Items] Documentation:Balance sheet line items. References:NONE Name: abc:BalanceSheetLineItems	1
2	Balance Sheet Parenthetical, General [Line Items]	abc	Filer label:Balance Sheet Parenthetical, General [Line Items] Documentation:Balance Sheet Parenthetical, General [Line Items] References:NONE Name: abc:BalanceSheetParentheticalGeneralLineItems	1
3	Cash and Cash Equivalents [Line Items]	us-gaap	Standard label:Cash and Cash Equivalents [Line Items] Documentation:Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table. References:NONE Name: us-gaap:CashAndCashEquivalentsLineItems	1
4	Cash Flow Statement [Line Items]	abc	Filer label:Cash Flow Statement [Line Items] Documentation:Cash Flow Statement [Line Items] References:NONE Name: abc:CashFlowStatementLineItems	1
5	Cash, Cash Equivalents, and Marketable Securities [Line Items]	abc	Filer label:Cash, Cash Equivalents, and Marketable Securities [Line Items] Documentation:Cash, Cash Equivalents, and Marketable Securities [Line Items] References:NONE Name: abc:CashCashEquivalentsAndMarketableSecuritiesLineItems	1
6	Changes in Stockholders' Equity [Line Items]	abc	Filer label:Changes in Stockholders' Equity [Line Items] Documentation:Changes in Stockholders' Equity [Line Items] References:NONE Name: abc:ChangesInStockholdersEquityLineItems	2
7	Class of Stock [Line Items]	us-gaap	Standard label:Class of Stock [Line Items] Documentation:Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table. References:NONE	2

HINT: Note that the [Line Items] is basically an axis for the concept which is basically the member for the line items axis.

10.9.15. Line items properties

The [Line Items] properties visualization provides a more detailed listing of the [Line Items] properties.

Report Element Properties	
Report Standard Label	Debt Instrument [Line Items]
Base Taxonomy Standard Label	Debt Instrument [Line Items]
Documentation	Line items represent financial concepts included in a table. These concepts are used to disclose reportable information associated with domain members defined in one or many axes to the table.
Report Element Class	Line Items
Prefix (From Taxonomy)	us-gaap
Name	us-gaap:DebtInstrumentLineItems
ID	us-gaap_DebtInstrumentLineItems

Labels of Report Element			
From	Role	Label	Lang
Filer	Standard label	Debt Instrument [Line Items]	en-US
Base	Standard label	Debt Instrument [Line Items]	en-US

References of Report Element		
Publisher	Reference Name	Reference Information



10.9.16. Abstract

The abstract visualization provides a listing of all report elements whose only purpose is to organize other report elements.

Abstracts				
#	Label	Prefix	Standard label, Documentation, References, Concept name	Count
1	Adjustments to reconcile to cash provided by operations [Roll Up]	us-gaap	Standard label:Adjustments to Reconcile Net Income (Loss) to Cash Provided by (Used in) Operating Activities [Abstract] Documentation:Adjustments to reconcile to cash provided by operations [Roll Up] References:NONE Name: us-gaap:AdjustmentsToReconcileNetIncomeLossToCashProvidedByUsedInOperatingActivitiesAbstract	1
2	Assets [Roll Up]	us-gaap	Standard label:Assets [Abstract] Documentation:Assets [Roll Up] References:NONE Name: us-gaap:AssetsAbstract	1
3	Balance Sheet Parenthetical General [Hierarchy]	abc	Filer label:Balance Sheet Parenthetical General [Hierarchy] Documentation:Balance Sheet Parenthetical General [Hierarchy] References:NONE Name: abc:BalanceSheetParentheticalGeneralHierarchy	1
4	Business Segment Information [Hierarchy]	abc	Filer label:Business Segment Information [Hierarchy] Documentation:Business Segment Information [Hierarchy] References:NONE Name: abc:BusinessSegmentInformationHierarchy	1
5	CANADA	country	Standard label:CANADA Documentation:CANADA References:NONE Name: country:CA	1
6	Cash and Cash Equivalents [Hierarchy]	abc	Filer label:Cash and Cash Equivalents [Hierarchy] Documentation:Cash and Cash Equivalents [Hierarchy] References:NONE Name: abc:CashCashEquivalentsHierarchy	1
7	Cash and Cash Equivalents [Roll Forward]	abc	Filer label:Cash and Cash Equivalents [Roll Forward] Documentation:Cash and Cash Equivalents [Roll Forward] References:NONE Name: abc:CashCashEquivalentsRollForward	1

HINT: Note that abstract report elements can never be reported and therefore the data type, period type, and balance are semantically meaningless properties. The term "abstract" as used here is not the same as the use of the XBRL technical syntax attribute "abstract".

10.9.17. Abstract properties

The abstract properties visualization provides a more detailed listing of the abstract report element properties.

Report Element Properties	
Report Standard Label	Changes in working capital items [Abstract]
Base Taxonomy Standard Label	Increase (Decrease) in Operating Capital [Abstract]
Documentation	Changes in working capital items [Abstract]
Report Element Class	Abstract
Prefix (From Taxonomy)	us-gaap
Name	us-gaap:IncreaseDecreaseInOperatingCapitalAbstract
ID	us-gaap_IncreaseDecreaseInOperatingCapitalAbstract

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Changes in working capital items [Abstract]	en-US
Base	Standard label	Increase (Decrease) in Operating Capital [Abstract]	en-US

References of Report Element

Publisher	Reference Name	Reference Information



10.9.18. Concepts

The concepts visualization provides a listing of all concepts and the properties of the concept.

Concepts						
#	Label	Data Type	Period Type	Balance Type	Prefix	Standard label, Documentation, References, Concept name
1	2014	Monetary	As Of (instant)	Credit	us-gaap	Standard label:Long-Term Debt, Maturities, Repayments of Principal in Year Two Documentation:Amount of long-term debt, sinking fund requirements, and other securities redeemable at fixed or determinable prices and dates maturing in the second fiscal year following the latest fiscal year. References:NONE Name: us-gaap:LongTermDebtMaturitiesRepaymentsOfPrincipalInYearTwo
2	2015	Monetary	As Of (instant)	Credit	us-gaap	Standard label:Long-Term Debt, Maturities, Repayments of Principal in Year Three Documentation:Amount of long-term debt, sinking fund requirements, and other securities redeemable at fixed or determinable prices and dates maturing in the third fiscal year following the latest fiscal year. References:NONE Name: us-gaap:LongTermDebtMaturitiesRepaymentsOfPrincipalInYearThree
3	2016	Monetary	As Of (instant)	Credit	us-gaap	Standard label:Long-Term Debt, Maturities, Repayment of Principal in Year Four Documentation:Amount of long-term debt, sinking fund requirements, and other securities redeemable at fixed or determinable prices and dates maturing in the fourth fiscal year following the latest fiscal year. References:NONE Name: us-gaap:LongTermDebtMaturitiesRepaymentsOfPrincipalInYearFour
4	2017	Monetary	As Of (instant)	Credit	us-gaap	Standard label:Long-Term Debt, Maturities, Repayments of Principal in Year Five Documentation:Amount of long-term debt, sinking fund requirements, and other securities redeemable at fixed or determinable prices and dates maturing in the fifth fiscal year following the latest fiscal year. References:NONE Name: us-gaap:LongTermDebtMaturitiesRepaymentsOfPrincipalInYearFive
5	Accounts payable	Monetary	As Of (instant)	Credit	us-gaap	Standard label:Accounts Payable, Current Documentation:Carrying value as of the balance sheet date of liabilities incurred (and for which invoices have typically been received) and payable to vendors for goods and services received that are used in an entity's business. Used to reflect the current portion of the liabilities (due within one year or within the normal operating cycle if longer). References:NONE Name: us-gaap:AccountsPayableCurrent
6	Accounts payable	Monetary	For Period (duration)	Debit	us-gaap	Standard label:Increase (Decrease) in Accounts Payable Documentation:The increase (decrease) during the reporting period in the aggregate amount of liabilities incurred (and for which invoices have typically been received) and payable to vendors for goods and services received that are used in an entity's business. References:NONE Name: us-gaap:IncreaseDecreaseInAccountsPayable
7	Accounts receivable	Monetary	For Period (duration)	Credit	us-gaap	Standard label:Increase (Decrease) in Accounts Receivable Documentation:The increase (decrease) during the reporting period in amount due within one year (or one business cycle) from customers for the credit sale of goods and services. References:NONE

HINT: Note that only concepts have balance type, period type, and data type which are meaningful semantically.

10.9.19. Concept properties

The concept properties visualization provides a more detailed listing of concept properties.

Report Element Properties

Report Standard Label	Inventories
Base Taxonomy Standard Label	Inventory, Net
Documentation	
Carrying amount (lower of cost or market) as of the balance sheet date of inventories less all valuation and other allowances. Excludes noncurrent inventory balances (expected to remain on hand past one year or one operating cycle, if longer).	
Report Element Class	
Concept	
Prefix (From Taxonomy)	
us-gaap	
Balance Type	
Debit	
Period Type	
As Of (instant)	
Data Type	
Monetary (xbrli:monetaryItemType)	
Name	
us-gaap:InventoryNet	
ID	
us-gaap_InventoryNet	

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Inventories	en-US
Base	Standard label	Inventory, Net	en-US
Filer	Total label	Total inventories, net	en-US
Base	Total label	Inventory, Net, Total	en-US

References of Report Element

Publisher	Reference Name	Reference Information
FASB	Accounting Standards Codification	Section: 35 Topic: 330 URI: http://asc.fasb.org/extlink&oid=6386567&loc=d3e3927-108312



10.9.20. Component model structure (for each component)

The component structural relations visualization provides a listing of the relations between the report elements which make up a component.

Component: (Network and Table)					
Network	4020 - Disclosure - Significant Accounting Policies (http://www.abc.com/role/SignificantAccountingPolicies)				
Table	Significant Accounting Policies [Table]				
#	Label	Report Element Class	Period Type	Balance	Name
1	Significant Accounting Policies [Table]	[Table]			abc:SignificantAccountingPoliciesTable
2	Legal Entity [Axis]	[Axis]			dei:LegalEntityAxis
3	Consolidated Entity [Domain]	[Domain]			dei:EntityDomain
4	Significant Accounting Policies [Line Items]	[Line Items]			abc:SignificantAccountingPoliciesLineItems
5	Cash and cash equivalents policy [Text Block]	[Concept] String	For Period		us-gaap:CashAndCashEquivalentsPolicyTextBlock
6	Receivables policy [Text Block]	[Concept] String	For Period		us-gaap:ReceivablesPolicyTextBlock
7	Inventories policy [Text Block]	[Concept] String	For Period		us-gaap:InventoryPolicyTextBlock
8	Debt policy [Text Block]	[Concept] String	For Period		us-gaap:DebtPolicyTextBlock
9	Revenue recognition policy [Text Block]	[Concept] String	For Period		us-gaap:RevenueRecognitionPolicyTextBlock

10.9.21. Component model structural relations report element properties

The component structural relations contain report elements. Key properties of each report element can be seen on the visualization. All report properties are provided by the report element properties. For example, this is the properties of the first report element:

Report Element Properties	
Report Standard Label	Cash and cash equivalents policy [Text Block]
Base Taxonomy Standard Label	Cash and Cash Equivalents, Policy [Policy Text Block]
Documentation	Disclosure of accounting policy for cash and cash equivalents, including the policy for determining which items are treated as cash equivalents. Other information that may be disclosed includes (1) the nature of any restrictions on the entity's use of its cash and cash equivalents, (2) whether the entity's cash and cash equivalents are insured or expose the entity to credit risk, (3) the classification of any negative balance accounts (overdrafts), and (4) the carrying basis of cash equivalents (for example, at cost) and whether the carrying amount of cash equivalents approximates fair value.
Report Element Class	Concept
Prefix (From Taxonomy)	us-gaap
Balance Type	
Period Type	For Period (duration)
Data Type	String (xbrli:stringItemType, nonnum:textBlockItemType)
Name	us-gaap:CashAndCashEquivalentsPolicyTextBlock
ID	us-gaap_CashAndCashEquivalentsPolicyTextBlock

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Cash and cash equivalents policy [Text Block]	en-US
Base	Standard label	Cash and Cash Equivalents, Policy [Policy Text Block]	en-US

References of Report Element

Publisher	Reference Name	Reference Information

HINT: This is a duplication, the report element properties were shown previously.



10.9.22. Component fact table (for each component)

The component fact table visualization provides a listing of the facts which make up the component.

Fact Table Summary

Components (Network and Table)								
Network	1100 - Document - Document Information (http://www.abc.com/role/DocumentInformation)							
Table	Document Information [Table]							
#	Reporting Entity	Period	Legal Entity [Axis]	Concept	Value	Unit	Rounding	Parenthetical Explanations
1	0000000001 (http://www.sec.gov/CIK)	2012-01-01 - 2012-12-31	Consolidated Entity [Domain]	Document period end date	2012-12-31			
2	0000000001 (http://www.sec.gov/CIK)	2012-01-01 - 2012-12-31	Consolidated Entity [Domain]	Amendment flag	false			
3	0000000001 (http://www.sec.gov/CIK)	2012-01-01 - 2012-12-31	Consolidated Entity [Domain]	Document fiscal period focus	FY			
4	0000000001 (http://www.sec.gov/CIK)	2012-01-01 - 2012-12-31	Consolidated Entity [Domain]	Document fiscal year focus	2012			
5	0000000001 (http://www.sec.gov/CIK)	2012-01-01 - 2012-12-31	Consolidated Entity [Domain]	Document type	10-K			1

HINT: The fact table is useful for quickly scanning a component for items which stand out when compared to other items in the same component.

10.9.23. Component fact table, fact characteristics and properties

The fact characteristics and properties visualization focuses on the characteristics and properties for one specific fact. Provided are the characteristics of the fact, the fact value, traits of the fact if the fact is numeric and parenthetical explanations for the fact.

Fact Properties	
Characteristic, trait or fact	Value of characteristic, trait, or fact
Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Period	2012-01-01 - 2012-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]
Concept	Document period end date
Fact value	2012-12-31
Units	
Decimals (rounding)	
Parenthetical explanation (i.e. footnote) (None)	

HINT: While not necessary because the component rendering provides all this information, it is helpful to sometimes have fact information provided in this manner.

10.9.24. Fact parenthetical explanations

The fact parenthetical explanations visualization shows the parenthetical explanations related to a particular fact.



Parenthetical Explanation

Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede. In eu erat et est feugiat fermentum. Praesent accumsan. Nulla convallis, lorem nec aliquet dapibus, libero felis sagittis augue, ut adipiscing nisl eros in quam. Fusce eleifend. Sed justo nibh, placerat a, malesuada nec, condimentum ac, magna.

HINT: Parenthetical explanations make more sense when viewed from the perspective of the component.

10.9.25. Component semantic rendering (for each component)

The component semantic rendering visualization provides information about the facts, characteristics of the facts, traits of the fact, and parenthetical explanations which further explain the facts of a component.

Component: (Network and Table)	
Network	5040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)
Table	Inventory Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Inventory Components [Line Items]	Period	
	2012-12-31	2011-12-31
Inventory, Net [Roll Up]		
Finished Goods	1,000,000	1,000,000
Work in progress	1,000,000	1,000,000
Raw materials	1,000,000	1,000,000
Other	1,000,000	1,000,000
Total inventories, net	4,000,000	4,000,000

HINT: The semantic rendering provides all the information of the structural relations and all the information of the fact table combined with other knowledge of how to properly render information models and member aggregation models into a properly formatted, human readable, semantic rendering.

10.9.26. Component fact or characteristic properties (for any fact or characteristic of component)

The component fact properties visualization shows the properties of a selected fact (when a fact is selected). The characteristic properties show the properties for the selected report element (when a report element is selected).



Here you see the fact which expresses total inventories for 2012 for the consolidated entity expressed in US dollars for the reporting entity shown:

Fact Properties	
Characteristic, trait or fact	Value of characteristic, trait, or fact
Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Period	2012-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]
Concept	Inventories
Fact value	4000000
Units	USD
Decimals (rounding)	-3
Parenthetical explanation (i.e. footnote) (None)	

Here you see the properties of the characteristic "Concept" which has the value of "Inventories":

Report Element Properties	
Report Standard Label	Inventories
Base Taxonomy Standard Label	Inventory, Net
Documentation	Carrying amount (lower of cost or market) as of the balance sheet date of inventories less all valuation and other allowances. Excludes noncurrent inventory balances (expected to remain on hand past one year or one operating cycle, if longer).
Report Element Class	Concept
Prefix (From Taxonomy)	us-gaap
Balance Type	Debit
Period Type	As Of (instant)
Data Type	Monetary (xbrli:monetaryItemType)
Name	us-gaap:InventoryNet
ID	us-gaap_InventoryNet

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Inventories	en-US
Base	Standard label	Inventory, Net	en-US
Filer	Total label	Total inventories, net	en-US
Base	Total label	Inventory, Net, Total	en-US

References of Report Element

Publisher	Reference Name	Reference Information

Another characteristic of fact, the legal entity:



Report Element Properties

Report Standard Label	Legal Entity [Axis]
Base Taxonomy Standard Label	Legal Entity [Axis]
Documentation	The set of legal entities associated with a report.
Report Element Class	Axis
Prefix (From Taxonomy)	dei
Name	dei:LegalEntityAxis
ID	dei_LegalEntityAxis

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Legal Entity [Axis]	en-US
Base	Standard label	Legal Entity [Axis]	en-US

References of Report Element

Publisher	Reference Name	Reference Information
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Characteristic value, member of legal entity characteristic, consolidated entity:

Report Element Properties

Report Standard Label	Consolidated Entity [Domain]
Base Taxonomy Standard Label	Entity [Domain]
Documentation	All the names of the entities being reported upon in a document. Any legal structure used to conduct activities or to hold assets. Some examples of such structures are corporations, partnerships, limited liability companies, grantor trusts, and other trusts. This item does not include business and geographical segments which are included in the geographical or business segments domains.
Report Element Class	Domain
Prefix (From Taxonomy)	dei
Name	dei:EntityDomain
ID	dei_EntityDomain

Labels of Report Element

From	Role	Label	Lang
Filer	Standard label	Consolidated Entity [Domain]	en-US
Base	Standard label	Entity [Domain]	en-US

References of Report Element

Publisher	Reference Name	Reference Information
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10.9.27. Component business rule relations (for each component)

The business rules relations visualization shows the business rules for a component.



Business Rules

Component: (Network and Table)	
Network	2001 - Statement - Balance Sheet (http://www.abc.com/role/BalanceSheet)
Table	Balance Sheet [Table]

Assertion Report

Existence Assertions

ID	Satisfied
ASSERTION_Exists_Assets2 (evaluations 1)	Satisfied
ASSERTION_Exists_LiabilitiesAndEquity (evaluations 1)	Satisfied
ASSERTION_Exists_CurrentAssets (evaluations 1)	Satisfied
ASSERTION_Exists_Equity (evaluations 1)	Satisfied
ASSERTION_Exists_CurrentLiabilities (evaluations 1)	Satisfied

Value Assertions

ID	Satisfied
ASSERTION_Balances_BalanceSheet (evaluations 2)	Satisfied

XBRL Calculations

Reporting Entity	000000001 (http://www.sec.gov/CIK)
Period	2012-12-31
Measure	USD
Legal Entity [Axis]	Consolidated Entity [Domain]

Label	Rendered	Reported	Calculated	Balance	Decimals	Message
Assets [Roll Up]						
Current assets [Roll Up]						
Cash, Cash Equivalents, and Short-term Investments [Roll Up]						
Cash and cash equivalents	11,000,000	+ 11,000,000	11,000,000 DR		-3	
Marketable securities	9,000,000	+ 9,000,000	9,000,000 DR		-3	
Cash, Cash Equivalents, and Short-term Investments	20,000,000	+ 20,000,000	20,000,000 DR		-3	OK
Accounts receivable, net of allowance for doubtful accounts of \$1,000 and \$1,000	29,000,000	+ 29,000,000	29,000,000 DR		-3	
Inventories	4,000,000	+ 4,000,000	4,000,000 DR		-3	
Prepaid expenses	3,000,000	+ 3,000,000	3,000,000 DR		-3	
Current assets	56,000,000	+ 56,000,000	56,000,000 DR		-3	OK
Noncurrent assets [Roll Up]						
Property, plant and equipment, net	82,000,000	+ 82,000,000	82,000,000 DR		-3	
Deferred costs	9,000,000	+ 9,000,000	9,000,000 DR		-3	
Noncurrent assets	91,000,000	+ 91,000,000	91,000,000 DR		-3	OK
Assets	147,000,000	147,000,000	147,000,000 DR		-3	OK

10.10. Business rule relations properties

The business rules relations have properties which depend on the class of business rule. This is the important information for determining the properties of business rule type relations for the different classes of business rules. Business rules can be broken down into the following categories:

- Roll up



- Roll forward
- Adjustment
- Variance
- Member aggregation
- Complex computation
- Existence of a fact
- Equality of two facts
- Fact greater than or less than another fact
- Dependency of a fact (if Fact A exists, then Fact B must exist)
- Free form (i.e. any other supported business rule)

The following is an example of the properties of a roll forward type business rule:

Business rule information:	
ID	Assertion_RollForward_PropertyPlantAndEquipmentNet
Type	Roll forward
Business rule label:	Property, plant and equipment roll forward must reconcile.
Formula/Function: (semantic, not syntax)	Beginning balance (Property, Plant and Equipment, Net) + Additions - Disposals - Depreciation + Other Changes = Ending balance (Property, plant and equipment, net)
Concept which rolls forward:	
Fact with this concept rolls forward: (beginning and ending)	Property, Plant and Equipment, Net (us-gaap:PropertyPlantAndEquipmentNet)
Set of changes to balance:	
Change 1 with this concept:	Additions (us-gaap:Additions)
Change 2 with this concept:	Disposals (us-gaap:Disposals)
Change 3 with this concept:	Depreciation (us-gaap:Depreciation)
Change 4 with this concept:	Other Changes (us-gaap:OtherChanges)

10.11. Verification risks and categories

The following is a summary of verification tasks and steps. We start first by identifying the risk which might cause a financial report to be invalid and ways to mitigate that risk.

10.11.1. Risks and risk mitigation

Below is a summary of the risks which could lead to a financial report being invalid and the risk mitigation assertion or verification task which would assure that the risk goes unrealized. Terminology of the *Financial Report Semantics and Dynamics Theory* (described above) is used to clearly state the report objects, relations, and properties which must be examined either using automated processes or manual processes to verify that object property. The risk and mitigation is independent of whether the verification task is performed by a party which is or is not independent.

Risk	Risk Mitigation Assertion (Verification task)
Full inclusion: All relevant facts, characteristics which describe facts, parenthetical explanations of facts, and relations between facts/characteristics are not included in the financial report.	Completeness: All relevant facts, characteristics of facts, parenthetical explanations of facts, and relations between facts/characteristics have been included.



Risk	Risk Mitigation Assertion (Verification task)
False inclusion: No facts, characteristics which describe facts, parenthetical explanations of facts, or relations between facts/characteristics which should not be included have been included.	Existence: No facts, characteristics which describe facts, parenthetical explanations of facts, relations between facts/characteristics are included within financial report which should not be included.
Inaccuracy: Property of a fact, characteristic, component, or relation is inaccurate. (<i>For example, mathematical relations and model logical structure relations.</i>)	Accuracy: The properties of all facts, characteristics, components, parenthetical explanations, relations between facts/characteristics which are included in the financial report are accurate, correct, and complete.
Infidelity: All facts, characteristics, parenthetical explanations, and relations considered as a whole do not possess the required fidelity when considered as a whole.	Fidelity: Considered as a whole; the facts, characteristics, parenthetical explanations, and relations between facts/characteristics properly reproduces the financial and nonfinancial facts, characteristics, and relations of the reporting entity and provide a true and fair representation of such financial information.
Integrity not intact: Integrity between facts/characteristics is inappropriate.	Integrity: Considered as a whole, the facts and characteristics of those facts reflect the true and proper relations between such facts and characteristics.
Inconsistency: The facts, characteristics, parenthetical explanations, relations and their properties expressed are inconsistent with prior reporting periods or with peers of the reporting entity.	Consistency: The facts, characteristics, parenthetical explanations, relations between facts/characteristics, and their properties are consistent with prior periods and with the reporting entities peers, as is deemed appropriate.
Not presented fairly: The financial report is not presented fairly, in all material respects, and are not a true and fair representation in accordance with the financial reporting framework applied.	True and fair representation: The financial report is a true and fair representation of the information of the reporting entity. An auditor might say presented fairly, in all material respects, and provide a true and fair representation in accordance with the financial reporting framework applied (US GAAP, IFRS, etc.).

10.11.2. Categories of Verification

Verification can be broken down in a number of different ways forming what might be seen as sets or groups of verification. These categories are important to understand as they determine how verification can be performed and who or how verification rules would be created.

The first important aspect of verification relates to how the process by which the risk mitigation task is carried out. There are two approaches:

- **Automated process:** Some verification can be automated using computer software applications.
- **Manual process:** Some verification must be carried out by humans manually. There are two reasons verification might need to be carried out manually by humans:
 - Verification step is not automatable.
 - Verification step is automatable; however the automatable verification rules necessary to achieve automated verification have not been created.



Basically, any verification task which is not or may not be automated must be verified manually.

Another aspect of verification is whether it relates to syntax or semantics. These are the categories for this aspect:

- **XBRL technical syntax:** SEC XBRL financial filings are of the XBRL technical syntax and thus XBRL technical validation would apply. XBRL technical syntax validation is 100% automatable because of the nature of the XBRL specification. XBRL technical syntax restrictions will generally be automatable, but it cannot be said at this time that syntax restrictions are 100% automated.
- **SEC EFM rules:** The SEC Edgar system defines certain rules digital financial reports must follow. These rules are broken down into two categories within the Edgar Filer Manual (EFM): syntax and semantics. For example, the EFM specifies how to identify the consolidated entity information within an SEC XBRL financial filing. SEC semantics rules are sometimes automatable and other times not automatable.
- **XBRL US consistency checks:** XBRL US provides a number of consistency checks to be sure information reported is correct. For example, certain facts should never be less than zero. Consistency checks automate the process of detecting these sorts of inconsistencies.
- **Report logical structure:** Report structure is defined by the US GAAP Taxonomy Architecture which expresses what a [Table] is, how a [Table] relates to an [Axis] and to a [Member], etc. These report elements can be organized logically or illogically and incorrectly. Any illogical, inconsistent, or ambiguous organization of these report elements is detected by automated report logical structure verification testing.
- **US GAAP Domain level rules:** US GAAP defines certain specific rules which are applicable to all reporting entities. For example, balance sheets report assets; balance sheets report liabilities and equity; balance sheets balance (assets = liabilities and equity); balance sheets foot; etc. These rules are the same for every reporting entity and therefore are considered domain level business rules.
- **Industry/Activity level rules:** All reporting entities for some specific industry or activity have the same business rules. For example, all commercial and industrial companies have classified balance sheets and therefore report current assets and current liabilities; whereas depository institutions report unclassified balance sheets.
- **Reporting entity specific rules:** All other US GAAP related business rules which are not the same for each reporting entity or are cannot be categorized into some specific industry/activity fall into the category of reporting entity specific rules. For example, aspects of how the cash flow statement foots is unique to a reporting entity.
- **Reportability rules:** A disclosure checklist is used by accountants to be sure all required disclosures are provided by a reporting entity and each disclosure provides the appropriate individual disclosure items. Many of these rules can be checked by a computer software application using "if-then" type reasoning. For example, if the line item property, plant, and equipment exists on the balance sheet one would expect certain specific policies and disclosures to be provided. Many reportability type rules must be manually checked as they are impossible to automate.



- **Other rules and best practices:** This category is simply a summary category for any other rules or best practices which a reporting entity chooses to follow. For example, checking the spelling of a report is a type of rule which can be automated using software. Other rules and best practices must be checked manually.



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10.12. ***Verification tasks and steps***

The following is a set of verification tasks which must be performed in order to verify that a digital financial report expresses information correctly and appropriately as determined by a reporting entity. A digital financial report is a distinct set of discrete pieces. Each of these pieces must be checked. All properties of these pieces must be checked. Relations between the pieces must be checked and verified to be appropriate. Properties of the relations must be checked and verified to be appropriate.

Given that a digital financial report is a definitive, discrete, finite set of objects and their relations and properties and therefore verification of those pieces is likewise a set of definitive, discrete, and finite set of verification tests and tasks. This provides 100% coverage of the report objects. Again, verification may be manual or automated.

Financial report object	Verification task/steps
Financial report properties	<ol style="list-style-type: none"> 1. Verify <i>financial report</i> object. <ol style="list-style-type: none"> a. Verify financial report object properties. <ol style="list-style-type: none"> i. Financial report document identifier property correct (target namespace). ii. Financial report dictionaries (taxonomies) correct. b. Verify full inclusion of financial report components. c. Verify false inclusion of financial report components.
Components	<ol style="list-style-type: none"> 2. Verify <i>financial report components</i>. (For each component) <ol style="list-style-type: none"> a. Verify component properties correct. <ol style="list-style-type: none"> i. Sort code. ii. Type. iii. Title. iv. Identifier b. Verify full inclusion of component facts. c. Verify false inclusion of component facts. d. Correctness of component facts. e. Correctness integrity between components.
Fact characteristics and fact characteristic properties	<ol style="list-style-type: none"> 3. Verify <i>fact characteristics</i>. (For each fact) <ol style="list-style-type: none"> a. Characteristics properties correct. <ol style="list-style-type: none"> i. Characteristic (i.e. [Axis], Reporting entity, Period, [Line Items], or other characteristic defined and added by reporting entity). ii. Characteristic value. iii. Characteristic properties (for Concepts only). <ol style="list-style-type: none"> 1. Data type. 2. Period type. 3. Balance type. b. Verify full inclusion of fact characteristics. c. Verify false inclusion of fact characteristics. d. Correctness of ordering of fact characteristics



Financial report object	Verification task/steps
Fact properties	4. Verify <i>fact</i> properties. (For each fact) <ul style="list-style-type: none"> a. Verify full inclusion of characteristics. b. Verify false inclusion of characteristics. c. Fact value accuracy. d. Fact value traits. <ul style="list-style-type: none"> i. Units. ii. Rounding (decimals). e. Verify full inclusion of parenthetical explanations. f. Verify false inclusion of parenthetical explanations.
Parenthetical explanations	5. Verify <i>parenthetical explanation</i> properties. (For each parenthetical explanation)
Model structural relations	6. Verify model structural <i>relations</i> . (For each model structural relationship) <ul style="list-style-type: none"> a. Correctness of report element model structural relationships. b. Verify full inclusion of model structural relations. c. Verify false inclusion of model structural relationship. d. Correctness or logic of model structural relationship properties. (For each property) e. Correctness or logic of report element properties. (For each report element involved in a model structural relationship)
Business rules relations	7. Verify business rules <i>relations</i> . (For each business rule type relationship) <ul style="list-style-type: none"> a. Correctness or logic of business rule relationship between report elements. (For each relationship) b. Verify full inclusion of business rule relationships. c. Verify false inclusion of business rule relationships.
Flow relations	8. Verify flow <i>relations</i> (ordering, sequence of components). <ul style="list-style-type: none"> a. Correctness or logic of component ordering, sequencing.
Report elements	9. Verify report element properties. (For each property) <ul style="list-style-type: none"> a. Report element properties are correct.

Note that the terms used above to describe financial report objects are from the *Financial Report Semantics and Dynamics Theory* which provides a precise definition of each object.

10.13. **Role of software in verification process**

Computer software will play a major role in the verification of the information expressed by a digital financial report, helping its creator know that the story they are telling with their financial report is verifiably a true and fair representation of the reporting entities information and the financial story the creator intended to tell.

The best software will be both invisible to the user of the software but assist the user understand exactly what they are responsible for. Creation of a digital financial report cannot be a "black box" or where a business user does his or her best and hopes it will fulfil their obligation and meet their legal responsibility. No paper-based financial report would ever have been released under those terms.



The best digital financial report creation software will both assist the creator of the report verify all aspects of the financial report during the creation process within the creation software used to create the financial report. The business user will have complete transparency into what the software is doing using automated processes and integrated processes for managing the manual verification tasks.

Other verification software will be stand-alone and be independent of the actual creation process. For example, it is likely that internal and external auditors will use software which is not integrated with the creation process.

The following is a summary of functionality which is necessary within software designed to assist a business user in the process of verification of a digital financial report such as an SEC XBRL-based financial filing:

- **Technical syntax validation.** Digital financial reports are ultimately expressed using some technical syntax. For example, SEC XBRL-based financial reports are formatted in the XBRL technical syntax which uses XBRL 2.1 and XBRL Dimensions. Filers might also choose to use XBRL Formula to express and test business rules. As such, verification software clearly needs to be able to provide feedback to the user that XBRL which has been created complies with the XBRL technical specifications. Such software should be shown to pass the XBRL 2.1, XBRL Dimensions 1.0, and the XBRL Formula conformance suite tests. As 100% of technical syntax verification can be automated, the business user really should never need to manually verify technical syntax. Creation software should simply create nothing other than proper XBRL.
- **SEC Edgar Filer Manual (EFM) rules validation.** The SEC EFM places specific additional technical syntax restrictions on how you are allowed to use XBRL. The EFM also has a number of semantic rules and restrictions. Business users will need to verify that their SEC XBRL-based financial report against these rules. Many EFM rules can be automatically verified but others need to be manually verified.
- **Report logical structure verification.** The US GAAP taxonomy specifies how to construct the model you use to represent your financial report. It uses report elements such as [Table]s, [Axis], [Member]s, [Line Items], networks, concepts, and abstracts in specific, logical ways. (See section 4.5 of the US GAAP Taxonomy Architecture.) Software must be able to help business user not create illogical, inconsistent, or ambiguous models which cause misinterpretation of their digital financial report. For example, inconsistencies between the XBRL definition relations, calculation relations, and presentation relations can cause illogical and misinterpret relations. Software can easily verify that you are creating logical, consistent, and unambiguous information using automated testing.
- **Business rules engine for processing business rules.** XBRL Formula is one type of global standard rules engine which can be used to express business rules which can be used to verify both mathematical type relations and other types of relations expressed in your digital financial reports. A business rules engine of some type is necessary because the relations expressed in digital financial reports go beyond the simplistic relations verified by XBRL calculations. As such, digital financial report creation and verification software needs to provide this functionality. Alternatively, creation software might take the approach of generating business rules from the actual model which is created.



- **US GAAP domain level and industry/activity level rules validation.** US GAAP had both domain level business rules which every digital financial report must follow, such as assets = liabilities and equity, and industry/activity level business rules, such as commercial and industrial companies must provide classified balance sheets which report current assets and current liabilities. Verification software and creation software should support these business rule groups.
- **Creation of business rules by business users.** Every digital financial report will have its own reporting entity specific business rules. As such, creation software and/or verification software must enable the business users creating these digital financial reports to create and otherwise manage their unique business rules. Alternatively, creation software could auto-generate these business rules. Complex and difficult to use technical tools will not meet the needs of business users.
- **Understandable and otherwise appropriate views of financial report semantic objects, relations, properties.** Software needs to provide views of report element and their properties in ways that are understandable to business users. XBRL technical syntax oriented views of report objects is not appropriate and unnecessary. Business meaning is what is important to business users, not technical syntax which they will never understand, nor should they need to understand. Semantic views, as outlined in this document, are what is necessary. The many views necessary must support both automated and manual verification of information within the SEC XBRL financial report.
- **Understandable and well organized navigation between financial report objects, relevant properties, and relevant relations.** Financial report objects are related to other objects and have properties which business users need to examine. As such, appropriate navigation between the sometimes thousands of report objects, their relations and their properties is necessary. Again, the report objects necessary are the ones which provide meaning to business users, not the technical syntax objects. Mixing semantic type objects and syntax type objects is likewise inappropriate. A well-organized interface both exposes and leverages the intersections between the many financial report objects.
- **Understandable semantic renderings.** For renderings of the information to be understandable, they must be shown correctly to the business user. There are exactly two reasons for bad renderings: (1) bad models, (2) bad rendering engines. If the rendering engine is good, then the only reason for a bad rendering is a bad model which can be both identified and then fixed. One thing most rendering engines do not do well at this time is leverage the information models of the information being modeled. Roll ups, roll forwards, adjustments, variances, hierarchies, and other information models have characteristics which software vendors could leverage in their rendering software to improve what business users see and have to therefore work with. Also, all information should be shown by software, not just some information. Appropriate semantic renderings are a basis for appropriate views of information, appropriate navigation between components, and the ability to effectively verify a digital financial report.
- **SEC interactive data rendering.** While it is much more likely that an SEC XBRL financial filing will be viewed within software other than the SEC interactive data viewer; business users still want to understand how their



- filing will look on the SEC web site. As such, verification software should include an SEC interactive data rendering within the verification software.
- **Support for tracking/managing both automated and manual validation tasks and steps.** Not all verification tasks or steps can be automated. As such, verification of a digital financial report, such as an SEC XBRL-based financial filing, will always be a combination of automated and manual tasks/steps. As such, software supporting a business user in the verification process needs to help the business user manage both automated and manual verification tasks/steps.
 - **Comprehensive and useful set of verification reports and appropriate verification evidence package.** Business users need to be able to print many of the same views provided by software applications used to visualize a digital financial report. Quantity of reports is not what is important, quality is what is important. Well thought out and well organized reports which can be used both for verification of digital financial reports and for providing a historical archive, or evidence package, for a financial filing.
 - **Transparency into what the software is automatically verifying so manual verification work can be properly planned.** Verification of a digital financial report such as an SEC XBRL-based financial report should not be a "black box". At the very least, business users need to understand exactly what automated verification steps software performs so that they can properly plan their manual tasks/steps required to supplement automated verification. As such, business users need to be able to see the specific automated verification rules software is performing. Today this is of particular importance as software may perform different sets of validation rules.
 - **Comparison between multiple versions of a report in order to understand differences.** A necessary feature of a digital financial report creation or verification application is to manage last minute changes safely. The ability to perform automated comparisons between different versions of an SEC XBRL financial report to understand changes between the two versions of the same report is crucial. For example, if you did extensive work in verifying your SEC XBRL financial report and then there are a few last minute changes which need to be made, how can you be sure some other change was not unintentionally or maliciously introduced?
 - **Managing workflow.** Creation of a financial report is a set of tasks which could involve a specific workflow. Managing the workflow of creating a financial report can be beneficial to users, but is not absolutely required from a software application.
 - **Collaborative, multi-user.** Creation of a financial report is a collaboration. Verification is likewise a collaboration. Although not required by everyone; the ability to effectively collaborate with others during the verification process can be a desirable feature to some, a required feature for others.

10.14. Unanswered verification related questions

The following is a summary of unanswered questions which exist relating to verification of digital financial reports which will eventually need to be addressed but which have yet to be adequately addressed:

- **Should software be certified and if so, then how:** Having software work consistently and predictably across the many different software vendors



implementing such software is crucial. Today it is extremely difficult to understand what a software application is doing and what it is not doing in terms of verification of an SEC XBRL financial filing. Further, different software applications work in different ways (i.e. there is no one standard way) and even worse, interoperability issue sometimes exist. Sometimes accountants feel XBRL is a like a "black box".

- **Software interoperability:** Having different software provide different results is less than optimal. For example, SEC EFM validation is different per the SEC, the XBRL Cloud EDGAR Dashboard, and other software vendors which obviously pass SEC EFM validation because their filings were accepted by the SEC; but XBRL Cloud reports what they believe is an error but clearly the people creating the filing do not agree is an error or they do agree that it is an error but they just missed that specific item.
- **SEC validation criteria:** Few people would dispute that the SEC is not specifying all that is needed to be specified for SEC XBRL financial filings. If they were, the software interoperability issues mentioned above would not exist. We are still in the early years of the SEC's use of XBRL, the SEC does not want to overwhelm filers in these early years; but they have sent messages that they would crack down eventually. Further, what is the scope of validation rules expected of the SEC? Is it appropriate or does the SEC have rules today that say "make sure your balance sheet balances"? Are rules of that level appropriate to be specified? What about other disclosure rules.
- **US GAAP taxonomy is incomplete:** The US GAAP taxonomy is obviously incomplete in the area of business rules and disclosure rules which exist in US GAAP. It should not be a guessing game to figure out information such as what XBRL US is publishing as their "consistency suite". It seems that this information should exist in the taxonomy. At the other end of the spectrum; what is necessary from the FASB is more like an ontology as opposed to a taxonomy. US GAAP is a far richer than what is being articulated in the current instantiation of the US GAAP taxonomy. Exactly how far should the US GAAP taxonomy go? Should a complete computer readable disclosure checklist be provided by the SEC or FASB? Or, should the market provide this useful resource? If different vendors in the market provide different rules, how will that impact interoperability?



11. Analysis and Comparison of Digital Financial Reports

The ultimate test as to whether a model-based digital financial report is properly created is its utility in terms of being analyzed and/or compared. This section uses the example of financial reports and more specifically SEC financial filings in order to discuss the use and analysis of model-based digital financial reports. This section places no judgments as to what *should* be comparable. What this section does is shows common types of uses of SEC XBRL financial filings and what is *necessary* for comparability to occur. Decisions as to where comparability should exist is a question which the reporting supply chain participants must answer.

Use of digital financial information should not be equated to the techniques used to gather and use information today. Consider the following is a video of one analysis software application which leverages XBRL as an example of the possibilities available:

<http://www.sqlpower.ca/consulting/page/xbrl-analytics>

11.1. Change in the analysis paradigm

Today, financial information is a general, pre-canned, static, one-size-fits-all, hard to use let alone reuse report where a reporting entity tells the reader what information is important. The story the financial report tells is from one perspective.

Today, each financial analyst pulls out the facts which that analyst believes are the relevant facts, makes adjustments to the facts reported by the company, and defines their own unique perspective of how that company provides economic value.

Today, the financial information supply chain is inefficient.

Digital financial reports make analysis easier. Digital financial reports changes the fundamental equation making a one-size-fits-all and single perspective unnecessary.

Eventually what digital financial reports offer will change what regulators and standards setters specify what a financial statement looks like and what a financial report contains.

The supply change will be reversed and users of the information will pull the relevant facts which they feel they need, rather than one perspective a broad set of hundreds if not thousands of different perspectives will be available. Analysts will compete at the level of their unique perspective as to the economic value provided by a company. Analysts and other consumers of digital financial information will assemble their own unique reports rather than rely on the pre-canned stories told by the companies themselves. Rather than having one view forced upon you, each consumer of information will find it easier to assimilate their own estimation/judgment as to the viability of a company and the economic value that company provides.

Digital financial reporting will make analysis more efficient, will make information easy to share, will, perhaps, arguably make financial analysis more effective. While all this has yet to be seen, the possibility seems to be within grasp.



11.2. Financial reporting analysis use cases

These are the general use cases for information reported in SEC XBRL financial filings:

- **Analysis of a single filing.** Analysis of one financial filing from one filing entity.
- **Time series analysis for a filer.** Two or more financial filings from the same filing entity.
- **Comparative analysis across filers.** Two or more financial filings from different filing entities using different subsets of information.
- **Ratio analysis.** An analysis of a single filing, a time series analysis, or a comparative analysis using ratios.

11.3. Two approaches to comparing information

There are two general approaches to enabling a comparison:

- **Top down.** Using a top down approach high level structures are used as the basis for comparison. For example, networks, [Table]s, or components could be used as the basis for comparison.
- **Bottom up.** Using a bottom up approach, the characteristics or concepts contained within a component are used to define the structure being compared. Another term for this approach is prototype theory.

11.4. Top down comparison

The following model SEC XBRL financial filing is constructed to be very comparable from both the top down and bottom up approaches:

<http://www.xbrlsite.com/US-GAAP/ReferenceImplementation/Comparison/Index.html>

Notice how the networks and tables can be leveraged in order to compare information across the three digital documents.

SEC XBRL financial filings cannot be compared top down because every network is unique for each filer, components are not consistently identified, [Table]s are not guaranteed unique so they could mean different things, and there are no other such "handles" which can be used to grab the pieces one desires to compare.

11.5. Bottom up comparison: fundamentals of Prototype Theory

HINT: This information is inspired by the book *Everything is Miscellaneous: the power of the new digital disorder*, by David Weinberger, chapter 9, pages 173 to 198. That chapter has detailed explanations and reasoning which supports prototype theory.

Fundamentally there are two perspectives to understanding what something is:

- Aristotle's definition view perspective was that "A thing is a member of a category if it satisfies the definition of the thing."
- The second perspective, prototype theory, is that we can know what something means even if it can't be clearly defined and even if its boundaries cannot be sharply drawn; concepts can be clear without having clear



definitions if they're organized around undisputed examples, or prototypes, as Eleanor Rosch the inventor of **prototype theory** calls them.

As an example, one can understand that something is a "chair" by understanding as many properties as possible about the thing you are looking at, looking at the properties of a chair as defined by a prototype (the undisputed example), and then predicting whether the thing you are looking at is a "chair" by comparing the properties you are looking at with the properties of a chair.

By contrast, the definitional view "draws sharp lines" whereas the prototype view works because "things can be sort of, kind of, in a category. Prototype theory relies on our implicit understanding and does not assume that we can even make that understanding explicitly.

11.5.1. Issues identifying components within SEC XBRL financial filings

SEC XBRL filings provide basically no top level foundation for comparability, no "handles" as they are sometimes referred to. Two candidates as a basis for comparison are networks and [Table]s.

However, each SEC XBRL filing defines its own networks and no two networks are the same per SEC XBRL filing rules. That rules out networks as a basis of comparison. Besides, networks are more presentation mechanisms within SEC XBRL filings, used to put pieces in order and get pieces to render in a specific section of the SEC interactive data viewer.

Within an SEC XBRL filer extension taxonomy, [Table]s could be used for expressing different sets of information. However these are ruled out because [Tables] are not guaranteed unique. For example the "Statement [Table]" is used on the balance sheet, income statement, statement of cash flows, and a number of other statements. Other [Table]s are used multiple times within the US GAAP taxonomy and define different sets of information. One could combine the network and the [Table] to create a unique handle, but then you run into the first problem, the networks cannot help you.

There are other problems with [Table]s. Many "tables" are implied (i.e. they don't physically exist as a [Table]). Another problem is that [Table]s are too big, they contain too many components. There are others, but you can probably get the point already.

11.5.2. Other issues

Looking at this situation from the bottom up, there are approximately 15,000 concepts within the US GAAP taxonomy, too detailed a perspective for any useful comparison at the individual concept level. There is no middle "level" between the 15,000 concepts which is too granular and too large and the [Table]s which are too few, most time not identifiable as they are implicit and have no explicit handle to grab onto.

To exacerbate this situation, SEC filers can extend the US GAAP taxonomy adding additional networks, explicit [Table]s, implicit tables (i.e. everything within a network which is not within an explicit table is within an unnamed implicit table), [Axis], [Line Items] or concepts, and so forth.

When an SEC XBRL filer expresses their information, they create new networks which are comparable to no other network, they define [Table]s which could be used to



express many different sets of information, tables could be defined implicitly or explicitly, and the [Axis] on each information set have no real pattern.

This problem seems unsolvable.

11.5.3. Looking deeper in to SEC XBRL financial filings

If you look deeper into financial filings you realize some things which are quite useful in grabbing handles to allow for meaningful comparisons of information. For example, consider this small fragment of the US GAAP Taxonomy which is used to disclose nonmonetary transactions. This is a the network 840000 - Disclosure - Nonmonetary Transactions which has been remolded:

Network: Nonmonetary Transactions (<http://fasb.org/us-gaap/role/disclosure/NonmonetaryTransactions>)

Line	Label	Object Class
1	Nonmonetary Transactions	[Network]
2	Nonmonetary Transactions [Abstract]	[Abstract]
3	Nonmonetary Transaction, by Type [Table]	[Table]
4	Legal Entity [Axis]	[Axis]
5	Consolidated Entity [Domain]	[Domain]
6	Nonmonetary Transaction Type [Axis]	[Axis]
7	Nonmonetary Transaction Type [Domain]	[Domain]
8	Receipt of Assets in Satisfaction of Debt [Member]	[Member]
9	Acquisition of Content Rights in Exchange for Future Services [Member]	[Member]
10	Contribution of Nonmonetary Assets to Not-for-Profit Charitable Organization [Member]	[Member]
20	InVENTORY ...	[Member]
21	Goods and Services Exchanged for Equity Instrument [Member]	[Member]
22	Nonmonetary Transaction [Line Items]	[Line Items]
23	Details of Nonmonetary Transactions [Table Text Block]	[Concept] Text Block (HTML)
24	Nonmonetary Transaction [Hierarchy]	[Abstract]
25	Nonmonetary Transaction, Basis of Accounting for Assets Transferred	[Concept] Text/String
26	Nonmonetary Transaction, Name of Counterparty	[Concept] Text/String
27	Nonmonetary Transaction, Gain (Loss) Recognized on Transfer	[Concept] Monetary
28	Nonmonetary Transaction, Amount of Barter Transaction	[Concept] Monetary
29	Nonmonetary Transaction, Fair Value Not Determinable	[Concept] Text/String
30	Nonmonetary Transaction, Gross Operating Revenue Recognized	[Concept] Monetary

Look at the fragment above and consider the following:

- A filer could report their nonmonetary transaction information at two levels: block tagged or detailed tagged. If the information is block tagged, the concept on line 23 would be used, "Details of Nonmonetary Transactions [Table Text Block]. If the information were detailed tagged a filer would use some combination of concepts in the component "Nonmonetary Transaction [Hierarchy]. But either way, the information is the same. The only difference is that one might be block tagged, the other would be detailed tagged.
- The concepts within the "Nonmonetary Transaction [Line Items]" are used nowhere else in the US GAAP Taxonomy. As such, if one sees one or more of these concepts on a fact within an SEC XBRL filing; then one can assume with a high level of confidence that the component which contains one or more of those concepts is highly likely to be a nonmonetary transaction. As such, you really don't need the "Nonmonetary Transactions [Table]" explicitly identified.
- The [Axis] "Nonmonetary Transaction Type [Axis]" is used in only one place and for one thing in the US GAAP taxonomy. As such, that too could be used to identify the disclosure of nonmonetary transactions. Combining both the [Axis] and the concepts increases probability even more.



- Financial reporting rules and logic demand that certain concepts be present. For example, this component would make little sense without the "Nonmonetary Transaction, Amount of Barter Transaction". In financial reporting rules certain information is always required to be disclosed, certain information is required to be disclosed if a certain event or circumstance occurs during a financial period, certain information is common practice, and certain information is reported at the option of the filer. Some base set of information will always exist, it will always be logical based on financial reporting disclosure requirements and logic. For example, an SEC filer would be highly unlikely to report "Nonmonetary Transaction, Fair Value Not Determined" as the only concept within a nonmonetary transaction.
- If additional required disclosures which expand the base disclosure is presented, if common practice disclosures are provided, or additional optional information is disclosed; it will always exist with that base, supplementing that base disclosure.
- Additional information in the form of XBRL calculations or other business rules enhances the relationships between information within a set of reported information and providing additional clues.

The point of all this is to say that the pieces of a disclosure provide a highly reliable mechanism for discovering the component you are looking for, whatever someone may have called that component. The only thing which is necessary to use this approach is a prototype of what you call the component you desire to work with.

11.5.4. Prototypes for creation and analysis are the same

These prototypes are useful for not only analysis but also for creation of SEC XBRL filings. The prototypes serve as examples or templates or stencils; whatever term you might like to call them. These prototypes can be hard to see within the US GAAP Taxonomy because that taxonomy tends to be inconsistent, not uniform, and the appropriate component layer is not clearly identified. However, by reorganizing the US GAAP taxonomy it is much easier to see the components and the prototypes. This URL takes you too such a reorganized version:

<http://www.xbrlsite.com/US-GAAP-2011/Exemplars/Viewer.html>

Look at the networks and tables with which you may be more familiar. But the most interesting pieces is the "Component". This is an example:

Components (ordered by Component label)	
470000	Accelerated Share Repurchases [Hierarchy]
470000	Accelerated Share Repurchases [Table Text Block]
250000	Accounting Changes and Error Corrections [Hierarchy]
400000	Accounts Payable and Accrued Liabilities [Roll Up]
400000	Accounts Payable and Accrued Liabilities Disclosure [Text Block]
400000	Accounts Payable and Accrued Liabilities, Current [Roll Up]
400000	Accounts Payable and Accrued Liabilities, Current [Roll Up]
400000	Accounts Payable and Accrued Liabilities, Noncurrent [Roll Up]
400000	Accounts Payable, Accrued Liabilities, and Other Liabilities Disclosure, Current [Text Block]
400000	Accounts Payable, Accrued Liabilities, and Other Liabilities Disclosure, Noncurrent [Text Block]



While a flat, alphabetized list may be useful for some things, what is more interesting is that you can reorganize the components any way you choose rather than being locked into one view. For example:

- **TOPIC> Postretirement Pension Costs**

- **Table> Postemployment Benefits [Table]**

- [Hierarchy] > Postemployment Benefits [Hierarchy]
- [Text Block] > Postemployment Benefits Disclosure [Text Block]
- [Roll Up] > Supplemental Unemployment Benefits [Roll Up]

- **TOPIC> Other Expenses**

- **Table> Other Income and Expenses Disclosures [Table]**

- [Roll Up] > Interest and Other Income [Roll Up]
- [Text Block] > Interest and Other Income [Table Text Block]
- [Text Block] > Interest and Other Income [Text Block]
- [Hierarchy] > Other Cost and Expense Disclosure, Operating [Hierarchy]
- [Hierarchy] > Other Expense Disclosure, Nonoperating [Hierarchy]
- [Roll Up] > Other Income [Roll Up]
- [Text Block] > Other Income and Other Expense Disclosure [Text Block]
- [Hierarchy] > Other Income Disclosure, Nonoperating [Hierarchy]
- [Roll Up] > Other Nonoperating Income (Expense) [Roll Up]
- [Text Block] > Schedule of Other Nonoperating Income (Expense) [Table Text Block]

- **Table> Component of Other Expense, Nonoperating [Table]**

- [Hierarchy] > Component of Other Expense, Nonoperating [Hierarchy]
- [Text Block] > Schedule of Other Nonoperating Expense, by Component [Table Text Block]

- **Table> Component of Other Income, Nonoperating [Table]**

- [Hierarchy] > Component of Other Income, Nonoperating [Hierarchy]
- [Text Block] > Schedule of Other Nonoperating Income, by Component [Table Text Block]

- **Table> Component of Other Operating Cost and Expense [Table]**

- [Hierarchy] > Component of Operating Other Cost and Expense [Hierarchy]
- [Text Block] > Schedule of Other Operating Cost and Expense, by Component [Table Text Block]

- **TOPIC> Research and Development Costs**

- **Table> Research, Development, and Computer Software [Table]**

- [Roll Up] > Capitalized Computer Software, Net [Roll Up]
- [Roll Forward] > Movement in Capitalized Computer Software, Net [Roll Forward]
- [Roll Up] > Research and Development Expense [Roll Up]
- [Hierarchy] > Research, Development, and Computer Software [Hierarchy]
- [Text Block] > Research, Development, and Computer Software Disclosure [Text Block]

For the section of the US GAAP Taxonomy which was remodeled, 1104 components were identified. This is the true level at which users interact with the taxonomy to create SEC XBRL financial filings. The network and table level is too high level, but helpful in getting close to what you are looking for and the concepts themselves of which there are about 15,000 is too many to work with.

11.5.5. Exemplar theory and prototype theory

Prototype theory is one way of identifying something by its components. Another approach is exemplar theory. With prototype theory you generally have one prototype. With exemplar theory you can have multiple prototypes for the same thing.

It is not the case that there is only one “undisputed example”, nor does their need to be. For example, there are many different types of balance sheets: classified, unclassified, deposit based operations, insurance based operations, securities based operations, and others for specific industries and financial reporting needs.



However, it is not the case that there are an infinite number of balance sheets. Financial information is not random or infinite in nature.

Specific undisputed examples can be created and even cross referenced with additional information. Another way of saying this is that there is no need to have only one undisputed example for any piece of a financial report. Further, this idea applies to each piece of a financial report and to the full set of pieces which an SEC XBRL filer might create.

It can be hard to understand how to model your SEC XBRL financial filing extension taxonomy by using the US GAAP Taxonomy. Having multiple specific examples can be better. For example, consider this sample of exemplars:

<http://www.xbrlsite.com/US-GAAP-2011/Exemplars/Viewer3.html>

This shows models for:

- A balance sheet with and without a noncontrolling interest.
- An income statement with each of the “steps” you might have including: income from equity method investments, income from discontinued operations, income from noncontrolling interest, extraordinary items, and preferred dividends or other adjustments
- A cash flow statement with or without discontinued options and different approaches for disclosing discontinued options.

Cognitive psychologists have begun to explore the idea that the prototype and exemplar models form two extremes.

11.5.6. For more information about prototype theory

The following are additional resources which provide information relating to prototype theory:

- http://en.wikipedia.org/wiki/Prototype_theory
- <http://courses.umass.edu/psy315/prototype.html>
- http://en.wikipedia.org/wiki/Concept_learning



12. Special or Specific Modelling Considerations

This section summarizes special and specific considerations when modelling an SEC XBRL financial filing. The key piece of information this section provides are subtleties which are often overlooked when working with specific types of structures of a financial report.

12.1. Notion of [Line Items] key concepts

Within a [Table]'s set of [Line Items], certain concepts are required or the set of [Line Items]s provided will simply make no sense. For example consider the following disclosure of nonmonetary transactions:

22	Nonmonetary Transaction [Line Items]	[Line Items]
23	Details of Nonmonetary Transactions [Table Text Block]	[Concept] Text Block (HTML) For Period
24	Nonmonetary Transaction [Hierarchy]	[Abstract]
25	Nonmonetary Transaction, Basis of Accounting for Assets Transferred	[Concept] Text/String For Period
26	Nonmonetary Transaction, Name of Counterparty	[Concept] Text/String For Period
27	Nonmonetary Transaction, Gain (Loss) Recognized on Transfer	[Concept] Monetary For Period Credit
28	Nonmonetary Transaction, Amount of Barter Transaction	[Concept] Monetary For Period Credit
29	Nonmonetary Transaction, Fair Value Not Determinable	[Concept] Text/String For Period
30	Nonmonetary Transaction, Gross Operating Revenue Recognized	[Concept] Monetary For Period Credit

The concept on line 28, the amount of the transaction, is clearly required as that is what is being disclosed. All other information provides additional descriptive information about that amount. This descriptive information may, or may not, be required to be disclosed depending on the financial reporting rules. Filers can add additional descriptive information. But in all cases the amount will exist because the fundamental information being communicated makes no sense without it.

These “required concepts” are not clearly indicated within the US GAAP taxonomy, however they are VERY clearly documented within US GAAP. A financial reporting disclosure checklist is used by accountants to make sure they don’t leave anything out. Many of these relations (if you have this, then you have to disclose this; if you disclose this then you likewise need to disclose this) used within a financial reporting disclosure checklist can be checked using software.

12.2. Deciding between isomorphic and polymorphic tables

There are three different ways [Table]s can be articulated in a taxonomy:

- Unique tables (i.e. all tables isomorphic or each table has a unique meaning)
- Only one table for everything (i.e. every [Table] has the same name)
- Mixture (i.e. some tables are unique, some are used to mean the same thing, for example how “Statement [Table]” is used in the US GAAP Taxonomy; polymorphic tables)

Isomorphic tables have some advantages, polymorphic tables have no advantage what-so-ever. For more information, see this analysis:

<http://www.xbrlsite.com/Examples/Dimensions/>



12.3. Modeling classes with only one member

This example focuses on one specific point. As you can see in the screenshot below of information about classes of preferred stock and common stock; the common stock has two classes whereas the preferred stock has only one:

<u>Classes of Preferred Stock</u>								
Class	Par Value	Share Subscriptions	Shares Authorized	Shares Issued	Shares Outstanding	Amount 2010	Amount 2009	
company:ClassAPreferredStockMember	1	20000	20000	20000	6000	2,000	1,000	
				Total all Classes	6000	2,000	1,000	

<u>Classes of Common Stock</u>								
Class	Par Value	Share Subscriptions	Shares Authorized	Shares Issued	Shares Outstanding	Amount 2010	Amount 2009	
company:ClassACommonStockMember	1	10000	10000	10000	3000	500	500	
company:ClassBCommonStockMember	1	10000	10000	10000	3000	500	500	
				Total all Classes	6000	1,000	1,000	

How would or should having only one [Member] in a breakdown impact the modelling of information? The question should not really be about whether one specific company has one class of two or more classes of something; but rather modelling should be driven by the possibility of ever having either only one or one-to-many [Member]s of some class of information.

The point here is that an entity could have more than one class of preferred stock and a class of preferred stock can have a number of properties. Both the details of the class and the total of all classes, in the case shown above the total and the class are the same because there is only one member within the class; however, the total and the amount for each class are two different pieces of information.

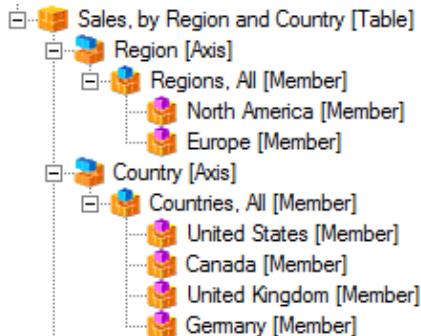
12.4. Modeling as nested domain members

Consider the example below which breaks down revenues by region and country:

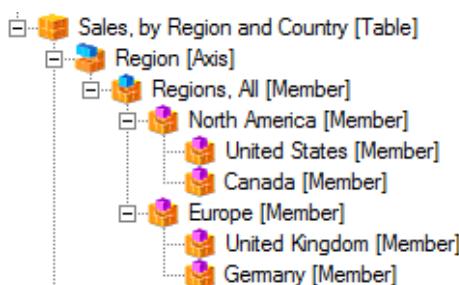
	2010	2009
NORTH AMERICA:		
United States	4,000	4,000
Canada	2,000	2,000
Total North America	6,000	6,000
EUROPE:		
United Kingdom	2,000	2,000
Germany	2,000	2,000
Total Europe	4,000	4,000
Total	10,000	10,000

There are two obvious options which might come to mind for modelling this information. The first option is to model a Region [Axis] and a Country [Axis]. That approach might look something like this:





Alternatively, one Region [Axis] with members for both the region and the country might be modelled. This approach might look as follows:



The question is, which is the more appropriate approach, one [Axis] with nested members or two [Axis]s?

Today, the best approach would be to avoid nested hierarchies of [Member]s as XBRL is silent on articulating how to aggregate such nested hierarchies of [Member]s.

If you find yourself repeating information within members your modelling is more than likely incorrect. For example, modelling “North America, United States” and then “North America, Canada” packs two meanings into one [Member] which should generally be avoided.

12.5. Choosing between modeling as concepts or member of axis

At times a choice needs to be made as to whether information should be modelled by modelling information as a concept and part of the set of [Line Items] or as a [Member] or an [Axis]. The *Roll Up*, *Class* and *Class Properties* business use cases help understand the dynamics at play and how they will impact your model.

In those business use cases the choices may not be so obvious. Let’s look at a more clear cut example. Consider this breakdown of revenues by geographic area.



Geographic Areas

Revenues by geographic areas were as follows for the years ended December 31 (thousands):

	2010	2009
NORTH AMERICA:		
United States	4,000	4,000
Canada	2,000	2,000
Total North America	6,000	6,000
EUROPE:		
United Kingdom	2,000	2,000
Germany	2,000	2,000
Total Europe	4,000	4,000
Total	10,000	10,000

This information could be modelled by creating 7 concepts such as:

- Revenues, North America
- Revenues, United States
- Revenues, Canada
- Revenues, Europe
- Revenues, United Kingdom
- Revenues, Germany
- Revenues

Looking at those concepts, you see that the concepts have two pieces of descriptive information: "revenues" which describes the type of concept and geographic type information.

This type of pattern tends to scream out for the use of an [Axis] for the geographic areas which could be used to characterize the one concept "Revenues".

Other factors which should be considered when trying to determine the best approach to model this information is:

- How the information aggregates to other information in your model.
- How the information ties to other information within your model.
- Other modelling decisions which you have already made which push you toward one specific option or another.

12.6. Understanding XBRL calculation inconsistencies

Generally you do not want calculation inconsistencies (they are really called inconsistencies, not errors) in your SEC XBRL filing. Many SEC filers can avoid all calculation inconsistencies. Sometimes though you cannot. The technical reason for this is that certain facts reported with certain periods sometimes get included in calculations which they should not actually be included in. This is a known situation in XBRL and is unavoidable. This is not the same thing as calculations which should add up but don't.



Some people think that using dimensions causes calculation errors. This is not the case. Using dimensions or not using dimensions does not cause calculation errors. Using dimensions incorrectly can lead to calculation errors.

These are the following reasons that a calculation linkbase error (actually the more correct term is calculation inconsistencies) might show up:

1. Because there truly are calculation inconsistencies.
2. Because of a taxonomy modelling error such as erroneously mixing two dimensional models together.
3. Due to SEC constraints imposed upon XBRL instance creation.
4. Due to "stray facts" being used by an XBRL processor in computations of a network where there is no intention that the fact value should be used. (This is a known issue with XBRL and caused by the lack of constraints on typically the period context, but it could also be caused by the entity identifier context.)

If "1" is the case, then the calculation inconsistency should clearly be fixed and this would resolve any issue of calculation inconsistencies showing up.

An example of "2" is on the balance sheet, modelling all balance sheet line items as concepts and then switching to model the classes of stock as [Axis] of a concept, for example if a company has two classes of stock, Class A common and Class B common. The way to avoid calculation inconsistencies is to create a concept for Class A common and a concept for Class B common; then there would be no calculation inconsistency. But see the discussion on point "3".

The SEC states that if information is not shown on the HTML financial statement then it should not be present in the XBRL instance. Using the classes of stock example where a company has two classes of stock, from a data modelling perspective, the class of stock breakdown would be something like:

Class A Common	100
Class B Common	200
Total Common	300

The value "300" is never really reported on a financial statement. However, from a data modelling perspective it is the true link between two [Table]s, the "Balance Sheet [Table]" and the "Classes of Common Stock [Table]". Class of stock information other than the value of each class of stock is shown such as par value, shares authorized, shares issued, shares outstanding, etc. That information does not fit into a balance sheet model, it fits into the class of stock model. If one thinks of all this from a "presentation" perspective, one reaches different conclusions as to how the information should be modelled. From a data modelling perspective, the conclusions reached would be different. If the information is modelled correctly from a data modelling perspective, it is a trivial task for a computer application to take the information needed from the Class of Stock [Table] and render it correctly on the Balance Sheet [Table]. However, if the information is modelled from a presentation perspective, the connection between the balance sheet and the class of stock information does not exist.

The bottom line for points "2" and "3" are that how people think about the information in an XBRL instance, from a presentation perspective or from a data



modelling perspective will highly likely mature when users realize that modelling information from a data modelling perspective really does not hurt their ability to present the information how they desire to present it; but modelling information from a presentation perspective hurts the ability to analyze the information.

There is a known issue with XBRL which point "4" shows. Say a company shows a balance sheet with two periods, December 31, 2010 and 2009. There are concepts relating to each balance sheet for those periods and the calculations for both of those periods work correctly. But, in another area of the financial statement, "Cash and cash equivalents", "Receivables", and "Current Assets" is disclosed for 2008. What an XBRL processor will try to do is put the concepts together and try and create a balance sheet and validate that balance sheet for the period 2008, but the calculations will not be consistent because there is no "Inventory" or "Prepaid expenses" disclosed which would be needed to actually confirm that the "Current Assets" value is correct. This is a known problem which occurs in XBRL which is due to the lack of a way to constrain the period (and also the entity identifier) from a network of concepts (i.e. an extended link of a specific role), and therefore calculation inconsistencies may occur which you cannot remove from your XBRL instance.

12.7. Restricting XBRL data types

XBRL can use XML Schema Part 2, Data types (see the specification at <http://www.w3.org/TR/xmlschema-2/>) to restrict what creators of financial reports can use as fact values. This can be quite useful in maintaining data quality.

For example, here are some types of restrictions which could be used:

- Setting a specific length, a minimum length, or a maximum length of a fact value, such as limiting the value to 10 characters
- Providing an enumerated lists of specific values which can be provided, such as the enumerated list: red, blue, green, orange.
- Providing a specific pattern for example the pattern of a phone number (XXX-XXX-XXXX) or of a social security number (XXX-XX-XXXX).

Going into details is beyond the scope of this document. However, we did want to mention this powerful features availability should you feel you need it.



13. Information Model Metapattern Examples

The world is full of patterns and information technology engineers and architects leverage these patterns when trying to get a computer to do something effectively and efficiently for humans. Understanding the patterns which exist can help make both building and using software easier.

Business reports, including financial reports, have patterns. Another way of saying this is that financial reports are not random. There are not an infinite number of patterns in financial reporting.

The metapattern examples in this section are distilled from the set of *Business Use Case Examples* which are provided in the next section. The metapatterns are the essence of each business use case.

Business Reporting Use Case Examples, introduces a set of approximately 30 financial reporting use cases collected over a number of years. That set of 30 business use cases was condensed from many, many different financial reporting use cases examined in order to understand how to model financial information.

HINT: The *US GAAP Taxonomy Architecture* refers to these metapatterns as compact pattern definitions and documents a number of these metapatterns in what it refers to as style guides. These style guides were never released publicly but they are referred to in the US GAAP Taxonomy Architecture. Everything within the US GAAP Taxonomy fits into one or a combination of these metapatterns.

Metapatterns explain the business semantics and mechanics within each of these business reporting situations or use cases. These smaller metapatterns are very helpful in understanding what is going on in a digital financial report. All digital financial report information from the business use cases, the comprehensive example, the financial disclosure templates, the reference implementation, or of the thousands of SEC XBRL financial filings can be distilled into this set of metapatterns.

Perhaps other metapatterns exist. If that is the case, the list of metapatterns can simply be expanded.

You can obtain example XBRL instances and XBRL taxonomies and other information for each of these metapatterns which is helpful in understanding these metapatterns at the following URL:

<http://www.xbrlsite.com/DigitalFinancialReporting/Metapatterns/2012-09-30>

It is important to examine the details of these metapatterns, that is where the clues lie which provide understanding of each metapattern and the differences between the metapatterns. We now provide key information which is helpful in gaining an understanding of these financial reporting metapatterns. Each uses a financial reporting oriented example as most business users understand financial reporting to a sufficient degree.



13.1. Hierarchy

A *hierarchy* information model denotes a hierarchy of concepts with no numeric relations. If no numeric relations exist, then the information model of the component is a hierarchy. Basically, anything can be modelled as a hierarchy. It is the addition of additional relations, typically mathematical computations, which turns a hierarchy into some other metapattern.

The *hierarchy* metapattern models a hierarchy or a tree of information. A hierarchy can contain business rules such as reportability rules which helps one understand when specific information must be reported.

13.1.1. Visual Example

Sample Company December 31, 2010	
Basis of Reporting	
Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.	
Trade receivables	
Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.	
Inventories	
Inventory valuation method Cost	
Description of components	
Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, iacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.	
Cost method	
FIFO	
Investments in securities	
Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.	
Bank borrowings	
Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.	
Provisions	
Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.	

13.1.2. Basic Automated Semantic Rendering

Component: (Network and Table)																											
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Hierarchy/AccountingPolicies)																										
Table	Accounting Policies [Table]																										
Slicers (applies to each fact value in each table cell)																											
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																										
Legal Entity [Axis]	Consolidated Entity [Member]																										
<table border="1"> <thead> <tr> <th colspan="2">Accounting Policies [Line Items]</th></tr> <tr> <th colspan="2">Period [Axis]</th></tr> <tr> <td colspan="2">2010-01-01 - 2010-12-31</td></tr> </thead> <tbody> <tr> <td colspan="2">Accounting Policies [Hierarchy]</td></tr> <tr> <td>Basis of Presentation</td><td>Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.</td></tr> <tr> <td>Trade Receivables Policy</td><td>Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.</td></tr> <tr> <td colspan="2">Inventory Policies [Abstract]</td></tr> <tr> <td>Inventory Valuation Method</td><td>Cost</td></tr> <tr> <td>Description of Inventory Components</td><td>Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, iacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.</td></tr> <tr> <td>Inventory Cost Method</td><td>FIFO</td></tr> <tr> <td>Investments in Securities Policy</td><td>Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.</td></tr> <tr> <td>Bank Borrowings Policy</td><td>Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.</td></tr> <tr> <td>Provisions Policy</td><td>Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.</td></tr> </tbody> </table>		Accounting Policies [Line Items]		Period [Axis]		2010-01-01 - 2010-12-31		Accounting Policies [Hierarchy]		Basis of Presentation	Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.	Trade Receivables Policy	Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.	Inventory Policies [Abstract]		Inventory Valuation Method	Cost	Description of Inventory Components	Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, iacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.	Inventory Cost Method	FIFO	Investments in Securities Policy	Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.	Bank Borrowings Policy	Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.	Provisions Policy	Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.
Accounting Policies [Line Items]																											
Period [Axis]																											
2010-01-01 - 2010-12-31																											
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Trade Receivables Policy	Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.																										
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Investments in Securities Policy	Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.																										
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Provisions Policy	Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.																										



13.1.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Hierarchy/AccountingPolicies)			
Table	Accounting Policies [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Accounting Policies [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Accounting Policies [Line Items]	[Line Items]		
5	Accounting Policies [Hierarchy]	[Abstract]		
6	Basis of Presentation	[Concept] String	For Period	
7	Trade Receivables Policy	[Concept] String	For Period	
8	Inventory Policies [Abstract]	[Abstract]		
9	Inventory Valuation Method	[Concept] String	For Period	
10	Description of Inventory Components	[Concept] String	For Period	
11	Inventory Cost Method	[Concept] String	For Period	
12	Investments in Securities Policy	[Concept] String	For Period	
13	Bank Borrowings Policy	[Concept] String	For Period	
14	Provisions Policy	[Concept] String	For Period	

13.1.4. Business Rules

A hierarchy has no mathematical computations, and therefore it has no mathematical business rules. However, each component might have business rules related to the existence of certain specific facts, dependency type relations such as "if Fact A is reported, then Fact B must also be reported".

13.1.5. Description

The example shows a *Hierarchy* of accounting policies. If you are familiar with something like the outline feature of Microsoft Word then you know what a hierarchy is. There are no explicit relationships between concepts within this type of information model because XBRL most taxonomies don't generally distinguish between the types of relations. They could, but they currently do not. As such, we make no distinction between types of relations. Again, by definition everything is a *Hierarchy* unless additional information is added which turns the hierarchy into some other metapattern.

A *Hierarchy* can always be identified by a software application by the fact that there are no XBRL calculations or other business rules expressing computations within the taxonomy.

13.1.6. Extension Points

The following are the logical extension points for a *Hierarchy* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to [Line Items] of *Hierarchy*



13.2. Roll up

A *roll up* information model computes a total from a set of other concepts. This information model is commonly referred to a “roll up”, or by the equation A + B = C. All facts involved in this information model have the same set of characteristics and all must be numeric.

The *roll Up* metapattern can be thought of as a hierarchy metapattern with additional constraints. One additional constraint is that the total and the components of the total must all be numeric and of the same data type. Another constraint is that a business rule for the relations between the total and the set of concept which make up that total is expressed.

13.2.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	295,183	413,441

13.2.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	30000 - Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollUp/PropertyPlantAndEquipmentByComponent)
Table	Property, Plant and Equipment, by Component [Table]

Slicers (applies to each fact value in each table cell)	
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Property, Plant and Equipment, by Component [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Property, Plant and Equipment, Net [Roll Up]		
Land	5,347,000	1,147,000
Buildings, Net	244,508,000	366,375,000
Furniture and Fixtures, Net	34,457,000	34,457,000
Computer Equipment, Net	4,169,000	5,313,000
Other Property, Plant and Equipment, Net	6,702,000	6,149,000
Property, Plant and Equipment, Net, Total	295,183,000	413,441,000



13.2.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	30000 - Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollUp/PropertyPlantAndEquipmentByComponent)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
5	Property, Plant and Equipment, Net [Roll Up]	[Abstract]		
6	Land	[Concept] Monetary	As Of	Debit
7	Buildings, Net	[Concept] Monetary	As Of	Debit
8	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
9	Computer Equipment, Net	[Concept] Monetary	As Of	Debit
10	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
11	Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit

13.2.4. Business Rules

Roll up total = sum of the concepts which make up the roll up.

13.2.5. Description

The *Roll Up* in the example above is a set of five concepts which add up to a sixth concept: Land + Buildings, Net + Furniture and Fixtures, Net + Computer Equipment, Net + Other Property, Plant and Equipment, Net = Property, Plant and Equipment, Net, Total. A *Roll Up* can have other Roll Ups within (i.e. nested), what amount to sub totals.

A *Roll Up* can always be identified by a software application by its set of XBRL calculations within the XBRL taxonomy.

13.2.6. Extension Points

The following are extension points for a *Roll Up* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to the concepts being rolled up (i.e. a new total concept cannot be added, that would require an entirely new roll up); for example, adding "Airplanes" to the roll up above would make sense but adding another concept "Property, Plant and Equipment" would not make sense



13.3. Roll forward

A *roll forward* information model reconciles the balance of a concept between two points in time. This information model is commonly referred to a "roll forward" or "movement analysis" or by the equation: beginning balance + changes = ending balance. In this equation, the Period [Axis] is as of two different points in time and the changes occur during the period between those two points in time.

The changes within a *roll forward* could take the form of one concept, a set of many change concepts, or one or more *roll ups* which aggregate to change concepts.

13.3.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Roll Forward of Land		
Land, Beginning Balance	1,147	1,147
Additions	1,992	400
Disposals	-193	-200
Translation difference	2,401	-200
Land, Ending Balance	<u>5,347</u>	1,147

13.3.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																		
Network	40000 - Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollForward/RollForwardOfLand)																																	
Table	Land Changes [Table]																																	
Slicers (applies to each fact value in each table cell)																																		
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																	
Legal Entity [Axis]	Consolidated Entity [Member]																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th colspan="2" style="text-align: center; background-color: #d9e1f2;">Period [Axis]</th> </tr> <tr> <th></th> <th style="text-align: center;">2010-01-01 - 2010-12-31</th> <th style="text-align: center;">2009-01-01 - 2009-12-31</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Land Changes [Line Items]</td> <td></td> <td></td></tr> <tr> <td>Roll Forward of Land [Roll Forward]</td> <td></td> <td></td></tr> <tr> <td>Land, Beginning Balance</td> <td style="text-align: right;">1,147,000</td> <td style="text-align: right;">1,147,000</td></tr> <tr> <td>Land, Period Increase (Decrease), Total [Roll Up]</td> <td></td> <td></td></tr> <tr> <td>Land, Additions</td> <td style="text-align: right;">1,992,000</td> <td style="text-align: right;">400,000</td></tr> <tr> <td>Land, Disposals</td> <td style="text-align: right;">(193,000)</td> <td style="text-align: right;">(200,000)</td></tr> <tr> <td>Land, Translation Difference</td> <td style="text-align: right;">2,401,000</td> <td style="text-align: right;">(200,000)</td></tr> <tr> <td style="text-align: right;">Land, Period Increase (Decrease), Total</td> <td style="text-align: right;"><u>4,200,000</u></td> <td style="text-align: right;"><u>0</u></td></tr> <tr> <td style="text-align: right;">Land, Ending Balance</td> <td style="text-align: right;"><u>5,347,000</u></td> <td style="text-align: right;"><u>1,147,000</u></td></tr> </tbody> </table>			Period [Axis]			2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	Land Changes [Line Items]			Roll Forward of Land [Roll Forward]			Land, Beginning Balance	1,147,000	1,147,000	Land, Period Increase (Decrease), Total [Roll Up]			Land, Additions	1,992,000	400,000	Land, Disposals	(193,000)	(200,000)	Land, Translation Difference	2,401,000	(200,000)	Land, Period Increase (Decrease), Total	<u>4,200,000</u>	<u>0</u>	Land, Ending Balance	<u>5,347,000</u>	<u>1,147,000</u>
	Period [Axis]																																	
	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31																																
Land Changes [Line Items]																																		
Roll Forward of Land [Roll Forward]																																		
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Land, Ending Balance	<u>5,347,000</u>	<u>1,147,000</u>																																



13.3.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	40000 - Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollForward/RollForwardOfLand)			
Table	Land Changes [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Land Changes [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Land Changes [Line Items]	[Line Items]		
5	<i>Roll Forward of Land [Roll Forward]</i>	[Abstract]		
6	Land, Beginning Balance	[Concept] Monetary	As Of	Debit
7	<i>Land, Period Increase (Decrease), Total [Roll Up]</i>	[Abstract]		
8	Land, Additions	[Concept] Monetary	For Period	Debit
9	Land, Disposals	[Concept] Monetary	For Period	Credit
10	Land, Translation Difference	[Concept] Monetary	For Period	Debit
11	Land, Period Increase (Decrease), Total	[Concept] Monetary	For Period	Debit
12	Land, Ending Balance	[Concept] Monetary	As Of	Debit

13.3.4. Business Rules

Ending balance = Beginning balance +/- each change

13.3.5. Description

The *Roll Forward* above reconciles the beginning balance of Land to the ending balance of Land. The XBRL instance provides Facts for two Roll Forwards, 2010 and 2009. Land, Beginning Balance + Additions - Disposals + Translation Difference = Land, Ending Balance. In the case above, the change concept is the total of a roll up.

A *Roll Forward* can be identified by the business rule which must be used to verify the computation of the reconciliation, beginning balance + changes = ending balance with a changing Period [Axis].

13.3.6. Extension Points

The following are extension points for a *Roll Forward* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to the *Roll Up* of changes; (a new balance concept would never be added)
- Add a new *Roll Up* of changes or one or more change concepts; (i.e. a roll forward can have one or many changes)

Note that there are two approaches to modelling a roll forward. The first is to create a roll up to summarize all changes and then model only one change concept. The second is to not use a roll up and model each change separately. Semantically, the two are equivalent.



13.4. Compound fact

A *compound fact* information model is characterized by the notion that for some set of concepts expressed within some information model; that information model can be expressed over some characteristic expressed as an [Axis]. Basically, it is the [Axis] which provides additional information which further contextualizes some fact or facts which makes each information model unique.

For example, the salary information for the directors of an entity is a compound fact. The salary information is made up of salary, bonuses, director fees and such information must be associated with a specific director to be meaningful and to distinguish, say, one salary from another salary.

13.4.1. Visual Example

Sample Company For Period Ending December 31, 2010

Director	Salary	Bonus	Director Fee	Options Granted, at Fair Value
pattern:JohnDoeMember	1,000	1,000	1,000	1,000
pattern:JaneDoeMember	1,000	1,000	1,000	1,000
frm:DirectorsAllMember	2,000	2,000	2,000	2,000

13.4.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	50000 - Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/CompoundFact/DirectorCompensation)
Table	Director Compensation [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Director Compensation [Line Items]	Director [Axis]		
	John Doe [Member]	Jane Doe [Member]	Directors, All [Member]
Director [Hierarchy]			
Director, Salary	1,000	1,000	2,000
Director, Bonuses	1,000	1,000	2,000
Director, Fees	1,000	1,000	2,000
Director, Options Granted, at Fair Value	1,000	1,000	2,000



13.4.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	50000 - Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/CompoundFact/DirectorCompensation)			
Table	Director Compensation [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Director Compensation [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Director [Axis]	[Axis]		
5	Directors, All [Member]	[Member]		
6	John Doe [Member]	[Member]		
7	Jane Doe [Member]	[Member]		
8	Director Compensation [Line Items]	[Line Items]		
9	Director [Hierarchy]	[Abstract]		
10	Director, Salary	[Concept] Monetary	For Period	Credit
11	Director, Bonuses	[Concept] Monetary	For Period	Credit
12	Director, Fees	[Concept] Monetary	For Period	Credit
13	Director, Options Granted, at Fair Value	[Concept] Monetary	For Period	Credit

13.4.4. Business rules

May have a business rule related to the metapattern expressed within the compound fact. May have a business rule related to the aggregation of the members of one or more axes.

13.4.5. Description

In the example above salary information is expressed for the directors of an entity. The salary information (salary, bonus, director fee, and options granted) are the concepts which make up the compound fact. The director is the axis along which the salary information is expressed, here for the members John Doe, Jane Doe, and the total salary information for all directors.

Any information model could be expressed as a compound fact. In the example above the information model is a hierarchy. This information model might have also been modelled as a roll up had a total of all salary information been provided.

13.4.6. Extension Points

The following are extension points for a *compound fact* metapattern:

- Add new [Member] to [Axis] (generally, a new [Axis] would not be added but might be to further detail the primary characteristic)
- Add new concepts to [Line Items]
- Basically, extension points are determined by the specific information model of the compound fact



13.5. Adjustment

An *adjustment* information model reconciles an originally stated balance to a restated balance, the adjustment being the total change, between two different report dates. An adjustment is similar to a *roll forward* in that it is a reconciliation, however rather than the Period [Axis] changing; it is the *Report Date [Axis]* which changes: originally reported balance + adjustment = restated balance.

The *Adjustment* metapattern shows how to model an adjustment to a prior period financial statement for a change in accounting policy or correction of an error as defined by financial reporting standards. This same approach can be used for making adjustments to other beginning balances.

13.5.1. Visual Example

Sample Company December 31, (thousands of dollars)		2010	2009
<i>Prior Period Adjustment</i>			
Retained Earnings (Accumulated Losses), Originally Stated 2009		4,000	
Change in Accounting Policy		3,000	
Correction of an Error		-1,000	
Retained Earnings (Accumulated Losses), Restated 2009 Beginning Balance		6,000	

13.5.2. Basic Automated Semantic Rendering

Component: (Network and Table)		
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Adjustment/PriorPeriodAdjustments)	
Table	Prior Period Adjustments [Table]	
Slicers (applies to each fact value in each table cell)		
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)	
Legal Entity [Axis]	Consolidated Entity [Member]	
Prior Period Adjustments [Line Items]		Report Date [Axis]
		2009-12-31
Retained Earnings (Accumulated Losses), Originally Stated	Reported March 21, 2010 [Member]	4,000
Changes in Accounting Policy	Reported March 18, 2011 [Member]	3,000
Correction of an Error	Reported March 18, 2011 [Member]	(1,000)
Prior Period Adjustments, Period Increase (Decrease), Total	Reported March 18, 2011 [Member]	2,000
Retained Earnings (Accumulated Losses), Restated	Reported March 18, 2011 [Member]	6,000



13.5.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Adjustment/PriorPeriodAdjustments)			
Table	Prior Period Adjustments [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Prior Period Adjustments [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Reported March 21, 2010 [Member]	[Member]		
6	Reported March 18, 2011 [Member]	[Member]		
7	Prior Period Adjustments [Line Items]	[Line Items]		
8	Prior Period Adjustments to Retained Earnings [Adjustment]	[Abstract]		
9	Retained Earnings (Accumulated Losses), Originally Stated	[Concept] Monetary	As Of	Credit
10	Prior Period Adjustments, Period Increase (Decrease), Total [Roll Up]	[Abstract]		
11	Changes in Accounting Policy	[Concept] Monetary	As Of	Credit
12	Correction of an Error	[Concept] Monetary	As Of	Credit
13	Prior Period Adjustments, Period Increase (Decrease), Total	[Concept] Monetary	As Of	Credit
14	Retained Earnings (Accumulated Losses), Restated	[Concept] Monetary	As Of	Credit

13.5.4. Business Rules

Restated balance = Originally stated balance +/- each adjusting concept.

13.5.5. Description

The example *Adjustment* above reconciles the Retained Earnings (Accumulated Losses), Originally Stated in 2009 to its Restated 2009 Beginning Balance via the Prior Period Adjustments which make up the change. Note that an *Adjustment* looks similar in presentation to a roll forward, however it is different in that a different [Axis] is changing.

An *Adjustment* can be identified by software applications by the business rule which computes the adjustment to verify that it is correctly articulated within the XBRL instance: originally stated + adjustment = restated balance over a changing *Report Date* [Axis].

13.5.6. Extension Points

The following are extension points for an *Adjustment* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new adjustment concepts to [Line Items] of the adjustment; (new balance concepts cannot be added)



13.6. Variance

A *variance* information model reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes between the two reporting scenarios. For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation in this case is: actual – budget = variance. But a variance could take other forms such as a variance from forecast, variance from plan, etc.

A *variance* is distinguished by a changing *Reporting Scenario [Axis]* and the information model of a variance could take the form of any information model such as a hierarchy, roll up, roll forward, etc.

13.6.1. Visual Example

Sample Company For Period Ending December 31, 2010

Concept	Actual	Budgeted	Variance
Sales	6,000	5,000	1,000
Cost of Goods Sold	4,000	3,000	1,000
Contribution Margin	1,000	2,000	-1,000
Distribution Costs	1,000	1,000	0

13.6.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Variance/VarianceAnalysis)
Table	Variance Analysis [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Variance Analysis [Line Items]	Reporting Scenario [Axis]		
	Actual [Member]	Budgeted [Member]	Reporting Scenarios, All [Member]
Variance Analysis [Hierarchy]			
Sales	6,000	5,000	1,000
Cost of Goods Sold	4,000	3,000	1,000
Contribution Margin	1,000	2,000	(1,000)
Distribution Costs	1,000	1,000	0



13.6.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Variance/VarianceAnalysis)			
Table	Variance Analysis [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Variance Analysis [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Reporting Scenario [Axis]	[Axis]		
5	Reporting Scenarios, All [Member]	[Member]		
6	Actual [Member]	[Member]		
7	Budgeted [Member]	[Member]		
8	Variance Analysis [Line Items]	[Line Items]		
9	<i>Variance Analysis [Hierarchy]</i>	[Abstract]		
10	Sales	[Concept] Monetary	For Period	Credit
11	Cost of Goods Sold	[Concept] Monetary	For Period	Debit
12	Contribution Margin	[Concept] Monetary	For Period	Credit
13	Distribution Costs	[Concept] Monetary	For Period	Debit

13.6.4. Business Rules

Variance = Actual amount – budgeted amount.

13.6.5. Description

A *Variance* reconciles two different reporting scenarios differentiated using the *Reporting Scenarios [Axis]*, in the case here *Actual [Member]* and *Budgeted [Member]*, the difference being the *Variance*, or *Reporting Scenarios, All [Member]*.

A *Variance* can be identified by software applications by the business rule which verifies and computes the variance, *Actual [Member]* + *Budgeted [Member]* = *Reporting Scenarios, All [Member]*, all within the *Reporting Scenario [Axis]*.

[CSH: The Reporting Scenarios, All [Member] as the variance seems odd to me; this should probably be Variance [Member].]

13.6.6. Extension Points

The following are extension points for a *Variance* metapattern:

- Add new [Axis]
- Add new [Member] to an [Axis]
- Add new concepts to [Line Items]

What can change is determined by the information model of the concepts for which a variance is being expressed.



13.7. Complex computation

A *complex computation* information model can be thought of as a hierarchy plus a set of mathematical commutations between different concepts within that hierarchy which are more challenging to model than a *roll up* or *roll forward*. The type of computations can vary significantly, thus the challenging in modelling. For example, the computation of earnings per share is a complex computation.

Basically, any *hierarchy* can be turned into a *complex computation* by adding business rules which express relations between the concepts within the [Line Items] of that *hierarchy*.

13.7.1. Visual Example

Sample Company For Period Ended December 31,

2010	2009
------	------

OTHER INFORMATION

Earnings Per Share Components

Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	0.10	0.20

13.7.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/ComplexComputation/EarningsPerShareComponents)
Table	Earnings Per Share Components [Table]

Slicers (applies to each fact value in each table cell)	
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Earnings Per Share Components [Line Items]	Period [Axis]	
	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31
Earnings Per Share Components [Hierarchy]		
Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	.10	.20



13.7.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/ComplexComputation/EarningsPerShareComponents)			
Table	Earnings Per Share Components [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Earnings Per Share Components [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Earnings Per Share Components [Line Items]	[Line Items]		
5	Earnings Per Share Components [Hierarchy]	[Abstract]		
6	Net Income (Loss)	[Concept] Monetary	For Period	Credit
7	Weighted Average Common Shares	[Concept] Shares	For Period	
8	Earnings Per Share	[Concept] Decimal	For Period	

13.7.4. Business Rules

A complex computation can be any mathematical relation expressed between the facts which make up the complex computation. In this example, earnings per share = net income (loss) / weighted average common shares.

13.7.5. Description

A *Complex Computation* metapattern is in essence a *Hierarchy* metapattern with *Business Rules* which express complex relations between numeric values contained in that hierarchy. In the example above, Earnings Per Share is expressed in relation to Net Income and Weighted Average Common Shares. The Weighted Average Common Shares computation is also expressed as a business rule.

An *Complex Computation* metapattern can always be identified by software as it does not fit into any other metapattern category. It will have some XBRL Formula, but it will not match any of the other XBRL Formulas for the other metapatterns.

13.7.6. Extension Points

The following are extension points for a *Complex Computation* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to [Line Items]
- Add new business rules to set of relations



13.8. Text block

A *text block* information model is an information model which contains, by definition, only one concept and that concept expresses what amounts to a narrative or prose as escaped XHTML within that one concept. For example, the narrative associated with a set of accounting policies expressed as a list or a table presentation format is a *text block*. As there is only one concept, there can be no relations within the information model.

13.8.1. Visual Example

Duis fermentum

Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.

- Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis.
- Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.
- Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede.

DONEC PULVINAR NONUMMY ERAT

Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.

13.8.2. Basic Automated Semantic Rendering

Component: (Network and Table)									
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/TextBlock/AccountingPolicies)								
Table	Accounting Policies [Table]								
Slicers (applies to each fact value in each table cell)									
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)								
Legal Entity [Axis]	Consolidated Entity [Member]								
<table border="1"> <thead> <tr> <th colspan="2">Accounting Policies [Line Items]</th></tr> <tr> <th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">Accounting Policies [Text Block]</td></tr> <tr> <td colspan="2"> Duis fermentum Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit. <ul style="list-style-type: none"> • Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. • Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. • Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium. 1. Etiam ut augue 2. Aliquam erat volutpat DONEC PULVINAR NONUMMY ERAT Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam. </td></tr> </tbody> </table>		Accounting Policies [Line Items]		Period [Axis]		Accounting Policies [Text Block]		Duis fermentum Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit. <ul style="list-style-type: none"> • Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. • Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. • Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium. 1. Etiam ut augue 2. Aliquam erat volutpat DONEC PULVINAR NONUMMY ERAT Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.	
Accounting Policies [Line Items]									
Period [Axis]									
Accounting Policies [Text Block]									
Duis fermentum Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit. <ul style="list-style-type: none"> • Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. • Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. • Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium. 1. Etiam ut augue 2. Aliquam erat volutpat DONEC PULVINAR NONUMMY ERAT Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.									



13.8.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/TextBlock/AccountingPolicies)			
Table	Accounting Policies [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Accounting Policies [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Accounting Policies [Line Items]	[Line Items]		
5	Accounting Policies [Text Block]	[Concept] String	For Period	

13.8.4. Business Rules

None

13.8.5. Description

Any portion of a financial report can be modelled as a [Text Block], referred to as "block tagged". Alternatively, any portion could also be "detailed tagged" using one of the other information model metapatterns.

13.8.6. Extension Points

The following are extension points for a *Text Block* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]



13.9. Grid

A *grid* information model is a pseudo metapattern which uses the presentation format of the columns and rows of a table to model information. Because the grid models presentation information and not business semantics, it cannot be considered a metapattern. However, the grid is included in this list because the US GAAP Taxonomy uses a grid information model to model the statement of changes in equity.

13.9.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	Common Stock	Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Equity
Balance at December 31, 2009	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			-100,000	-100,000
Common Stock Issued	25,000	25,000		50,000
Balance at December 31, 2010	175,000	75,000	300,000	550,000

HINT: In a grid, the axis are generally the columns of the grid and the concepts reported are the rows of the grid. Because the axis are unique to the grid and the rows repeat for every fact value reported, many portions of a grid cannot tie to other components of a financial report.

13.9.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																																							
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Grid/StatementOfChangesInEquity)																																																						
Table	Statement of Changes in Equity [Table]																																																						
Slicers (applies to each fact value in each table cell)																																																							
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																																						
Period [Axis]	2010-01-01 - 2010-12-31																																																						
Legal Entity [Axis]	Consolidated Entity [Member]																																																						
<table border="1"> <thead> <tr> <th colspan="2">Statement of Changes in Equity [Line Items]</th><th colspan="4">Equity Component [Axis]</th></tr> <tr> <th colspan="2"></th><th>Common Stock [Member]</th><th>Additional Paid-in Capital [Member]</th><th>Retained Earnings (Accumulated Deficit) [Member]</th><th>Equity [Member]</th></tr> </thead> <tbody> <tr> <td colspan="2">Statement of Changes in Equity [Grid]</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2">Equity, Beginning Balance</td><td>150,000</td><td>50,000</td><td>200,000</td><td>400,000</td></tr> <tr> <td colspan="2">Net Income (Loss)</td><td></td><td></td><td>200,000</td><td>200,000</td></tr> <tr> <td colspan="2">Dividends</td><td></td><td></td><td>(100,000)</td><td>(100,000)</td></tr> <tr> <td colspan="2">Common Stock Issued</td><td>25,000</td><td>25,000</td><td></td><td>50,000</td></tr> <tr> <td colspan="2"></td><td>Equity, Ending Balance</td><td>175,000</td><td>75,000</td><td>300,000</td></tr> <tr> <td colspan="2"></td><td></td><td></td><td></td><td>550,000</td></tr> </tbody> </table>		Statement of Changes in Equity [Line Items]		Equity Component [Axis]						Common Stock [Member]	Additional Paid-in Capital [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity [Member]	Statement of Changes in Equity [Grid]						Equity, Beginning Balance		150,000	50,000	200,000	400,000	Net Income (Loss)				200,000	200,000	Dividends				(100,000)	(100,000)	Common Stock Issued		25,000	25,000		50,000			Equity, Ending Balance	175,000	75,000	300,000						550,000
Statement of Changes in Equity [Line Items]		Equity Component [Axis]																																																					
		Common Stock [Member]	Additional Paid-in Capital [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity [Member]																																																		
Statement of Changes in Equity [Grid]																																																							
Equity, Beginning Balance		150,000	50,000	200,000	400,000																																																		
Net Income (Loss)				200,000	200,000																																																		
Dividends				(100,000)	(100,000)																																																		
Common Stock Issued		25,000	25,000		50,000																																																		
		Equity, Ending Balance	175,000	75,000	300,000																																																		
					550,000																																																		



13.9.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Grid/StatementOfChangesInEquity)			
Table	Statement of Changes in Equity [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Statement of Changes in Equity [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Equity Component [Axis]	[Axis]		
5	Equity [Member]	[Member]		
6	Common Stock [Member]	[Member]		
7	Additional Paid-in Capital [Member]	[Member]		
8	Retained Earnings (Accumulated Deficit) [Member]	[Member]		
9	Statement of Changes in Equity [Line Items]	[Line Items]		
10	<i>Statement of Changes in Equity [Grid]</i>	[Abstract]		
11	Equity, Beginning Balance	[Concept] Monetary	As Of	Credit
12	Net Income (Loss)	[Concept] Monetary	For Period	Credit
13	Dividends	[Concept] Monetary	For Period	Debit
14	Common Stock Issued	[Concept] Monetary	For Period	Credit
15	Equity, Ending Balance	[Concept] Monetary	As Of	Credit

13.9.4. Business Rules

None

13.9.5. Description

The grid is used to model the statement of changes in equity above. The axis Equity Component [Axis] assigned to a fact indicates which column the fact belongs in. The [Line Items] determines the rows of the table. The cells of the table are the intersections between the Equity Component [Axis] and the concept of the set of [Line Items] of the fact which should go into that cell.

13.9.6. Extension Points

The following are extension points for a *Grid* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add a new concept to [Line Items]



14. Business Use Case Examples

This section explores each of the business use cases summarized in the previous section. Please be sure to become familiar with the previous section and the additional background material pointed to in that section.

Keep the following thought in the back of your mind as you work through this material: Mathematics is used in accounting, engineering, medicine, architecture, science, and other domains. Yet mathematics is exactly the same in each domain, it is only applied solving different domain problems. This is likewise the case for the business use cases covered by this section; they are applicable to many types of financial or non-financial business reporting.

14.1. Overview of business use cases

The following provides an overview of the business use cases. This overview is intended to help the reader compare and contrast the different business use cases provided. The business use cases provided are hard to dispute. There are likely other business use cases which are not shown. Each business use case listed is provided for one or more specific reasons to highlight one or more unique characteristics which it possess.

The business use cases tend to be financial reporting related. This is true for two reasons. First, that is where the primary use of XBRL is right now and I am a CPA trying to show other CPAs how to work with XBRL within the domain of financial reporting. Second, most business users understand financial reporting enough to understand these examples. It should be quite easy for a business user to take the principles articulated in these financial reporting related business use cases and apply those principles to the practice of modelling other areas of financial reporting.

Here is a summary of the business use cases.

#	Title	Description
BUC01	Flat Hierarchy	Metapattern. One level flat hierarchy. No computations.
BUC02	Nested Hierarchy	Variation of hierarchy. Multi-level nested hierarchy. No computations.
BUC03	Simple Roll Up	Metapattern. Simple hierarchy of numeric facts with a roll up type of computation. Computation where $A + B + n = \text{Total}$.
BUC04	Nested Roll Up	Variation of roll up. Nesting one roll up inside another roll up.
BUC05	Inverted Roll Up	Variation of roll up. Multi-level nested roll up. Multiple levels of nested roll ups.
BUC06	Multiple Roll Ups	Variation of roll up. One total rolled up in more than one way forcing roll ups to be expressed within separate networks.
BUC07	Simple Roll Forward	Metapattern. Simple roll forward of one balance. Also known as movement analysis. Reconciles the changes between two balances, beginning balance + changes = ending balance.
BUC08	Complex Roll Forward	Variation of Roll Forward. Roll forward of multiple balances which roll up.
BUC09	Simple Compound Fact	Metapattern. Set of facts which go together to form a compound fact. Facts are held together by an axis.



#	Title	Description
BUC10	Repeating Fact	Variation of Compound Fact. Similar to simple compound fact, points out that fact can repeat.
BUC11	Multiple Periods Compound Fact	Variation of Compound Fact. Simple compound fact which has more than one period disclosed within the compound fact.
BUC12	Roll Forward in Compound Fact	Variation of Roll Forward. Roll forward within a compound fact.
BUC13	Nested Compound Fact	Variation of Compound Fact. Compound fact nested within another compound fact.
BUC14	Reconciliation of Balance	Variation of Roll Up. Reconciliation of a balance with another balance. (Note that this is not a roll forward.)
BUC15	Adjustment	Metapattern. Reconciles an originally stated balance to a restated balance, the adjustment being the total change, between two different report dates such as a prior period adjustment.
BUC16	Variance	Metapattern. Reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes such as the variance between actual and budget.
BUC17	Complex Computation	Metapattern. A complex computation information model can be thought of as a hierarchy plus a set of commutations between different concepts within that hierarchy which are challenging to model as the parent/child relations.
BUC24	Text Block	Metapattern. Modelling of what could be modelled as some other information model as one fact. By definition a text block is one fact.
BUC25	Prose	Variation of text block. Information which contains multiple paragraphs, schedules, lists etc. which should appear in a particular order or sequence to be meaningful.
BUC26	Escaped XHTML	Variation of text block. Same as prose or text block. Points out how escaped XHTML can be used to report a fact or set of facts.
BUC27	Using JSON	Variation of text block. Same information contained in the simple compound fact expressed using the JSON syntax.
BUC28	General Comment	A comment or footnote which expands on or provided additional information for some reported fact.
BUC30	Classes	Shows how concepts can be related to other concepts and points out the differences between modelling something as a concept and as the member of an axis.
BUC31	Class Properties	Shows how concepts related to other concepts can be expressed making the use of an [Axis].
BUC32	Grid	A grid information model is a pseudo metapattern which uses the presentation characteristics of the columns and rows of a table to model information. (Not recommended)
BUC34	Pivot Table	A set of facts comprised of a single concept which is characterized by one or more axis. Information set is similar to a pivot table.
BUC35	Grouped Report	Variation of Compound Fact. Table which contains multiple axis which are used to provide information for a complex information set.



#	Title	Description
BUC36	Flow	Shows the notion of flow or ordering/sequencing of different tables within a financial report and how the ordering or sequencing is important and can be achieved.
BUC41	Restatement	Financial reporting use case of a restatement of income resulting from prior period error or change in accounting policy.
BUC42	Reissue Report	Financial reporting use case of the reissuance of a report which has already been issued.
BUC43	Reclassification	Financial reporting use case of the reclassification of prior period line items of a report to conform to current period classifications.
BUC44	Reason Not Reported	A specific type of comment or footnote which explains why a fact has not been reported. Points out that footnotes can be differentiated using roles.
BUC99	Non-Financial Information	Shows that there is no difference between expressing financial and non-financial information.

14.1.1. Business Use Case Documentation

The following is an overview of what is provided for each business use case in the next section which covers each use case in detail.

- **Visual Example:** The visual example provides a common rendering of the information articulated by the use case. This is a rendering is what the business use case might look like on paper.
- **Basic Automated Semantic Rendering:** The automated semantic rendering is a human-readable rendering or presentation of the information provided for this business use case. This automated rendering should be as close to and as readable as the visual example.
- **Report Elements and Model Structure:** The model structure provides an overview visualization of the report elements and the relations between the report elements of the business use case.
- **Description:** The description provides a brief, concise narrative of the business use case and key points which we would like to bring to your attention.
- **Important distinguishing aspects and dynamics:** The important characteristics section provides a summary of the important characteristics and dynamics which you should be focused on when looking at the specific business use case. This section focuses on and points out subtle, intimate details of the business use case and how it is different from other use cases.

The documentation in this section is not intended to provide all the details of each business use case. For the details one must rely on the actual XBRL instance, XBRL taxonomy, and other supporting files. The information above is intended to provide the key information which is helpful in grasping the essential understanding from the documentation which will help you dig into the details within the actual files.

14.1.2. Business Use Case Files and Reports

All the additional details are provided in physical files which can be read in place on the web or downloaded and used locally. The following URL provides a summary of



all business use cases in a number of forms including a readable HTML page, an RSS feed for creating an automated process for reading the files and a ZIP archive for downloading all business use cases. This information can be found here:

<http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/2012-09-30/>

This is an explanation of the information for each business use case which can be found by clicking on each use case and following it to the index file for that use case which looks like the following (this shows the *Flat Hierarchy* business use case as an example of each use case):

Business Use Case: Flat Hierarchy

#	Item	Description				
A.	Business use case name	FlatHierarchy				
B.	Description	Metapattern. One level flat hierarchy. No computations.				
C.	Visual example	Sample Company For Period Ending December 31, (thousands of dollars, except number of employees)				
		2010	2009	2008	2007	2006
	Sales, Net	1,500	1,400	1,300	1,200	1,100
	Income (Loss) from Continuing Operations	500	400	300	200	100
	Net Income (Loss)	51	41	31	21	11
	Cash Flow Provided by (used in) Operating Activities, Net	5,000	4,000	3,000	2,000	1,000
	Capital Additions	1,000	650	550	450	350
	Average Number of Employees	300	290	280	270	260
D.	Visual example file	PDF JPEG				
E.	XBRL taxonomy	XSD				
F.	XBRL instance	XBRL				
G.	XBRL formulas	XBRL Formulas				
H.	Human readable viewer	Coming soon!				
I.	ZIP Archive with All Files	ZIP				



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This is an explanation of each item on the index page:

- A. **Business use case name:** Provides the unique name of the business use case.
- B. **Description:** Provides a concise description of the business use case. Also indicates if the use case is a metapattern, a variation of a metapattern, or other useful information.
- C. **Visual example:** Provides a JPEG image for the business use case.
- D. **Visual example file:** Provides links to PDF and JPEG versions of the visual example of the business use case.
- E. **XBRL taxonomy:** Provides a link to the XBRL taxonomy file.
- F. **XBRL instance:** Provides a link to the XBRL instance file.
- G. **XBRL formulas:** Provides a link to the business rules expressed using XBRL formula for the business use case.
- H. **Human readable viewer:** Provides a battery of reports which organize the information above into an easier to read HTML format.



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- I. **ZIP Archive with all files:** Provides a ZIP archive of all the files above for easy download.

14.1.3. Background Understanding Required

Trying to work with these business use cases without the proper background material would be like trying to learn about algebra or geometry without understanding the notion of what a number is, not understanding how to count, and not understanding the basics of mathematics. There are steps in the learning process and you cannot skip any steps. Another way to say this is that there are no short cuts.

To get the most out of these business use cases it is important to work through certain information as necessary background and foundational material. The following sections are important:

- *Understanding Important Key Terms* as it defines the terminology used throughout the use cases.
- *Overview of Logical Model* as it establishes the logical model used by each business use case.
- *Understanding the Multidimensional Model* as it establishes terminology used by the logical model and logical model report elements.
- *Information Model Metapatterns* is not necessarily required, however this section provides an understanding of the fundamental metapatterns which make up each business use case.
- *Domain Partition Aggregation Models* as this helps understand the relations between the members of a domain of an axis.

Lastly, it is important that the reader understand that there are two important pieces which are not covered by the business use cases. First, each business use case is a small example, consciously created as a standalone unit to make understanding of the use case as easy as possible. However, the different sections of a financial report can be related. These relations are covered in the Comprehensive Example section of this document. Second, there are some special or specific modelling considerations which are not addressed within the business use cases. These are all covered in the section *Special or Specific Modelling Considerations*, rather than complicating the business use cases with these ideas.



14.2. Flat hierarchy

The *Flat Hierarchy* business use case shows how to model information which has no computation type relations but does have some sort of relationship. In this case the hierarchy has only one level, it is flat. The metapattern of this business use case is the **hierarchy**.

14.2.1. Visual Example

Sample Company
For Period Ending December 31,
(thousands of dollars, except number of employees)

	2010	2009	2008	2007	2006
Sales, Net	1,500	1,400	1,300	1,200	1,100
Income (Loss) from Continuing Operations	500	400	300	200	100
Net Income (Loss)	51	41	31	21	11
Cash Flow Provided by (used in) Operating Activities, Net	5,000	4,000	3,000	2,000	1,000
Capital Additions	1,000	650	550	450	350
Average Number of Employees	300	290	280	270	260

14.2.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																																															
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/FlatHierarchy/FinancialHighlights)																																																														
Table	Financial Highlights [Table]																																																														
Slicers (applies to each fact value in each table cell)																																																															
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																																														
Legal Entity [Axis]	Consolidated Entity [Member]																																																														
<table border="1"> <thead> <tr> <th colspan="2">Financial Highlights [Line Items]</th><th colspan="4">Period [Axis]</th></tr> <tr> <th colspan="2"></th><th>2010-01-01 - 2010-12-31</th><th>2009-01-01 - 2009-12-31</th><th>2008-01-01 - 2008-12-31</th><th>2007-01-01 - 2007-12-31</th><th>2006-01-01 - 2006-12-31</th></tr> </thead> <tbody> <tr> <td colspan="2">Financial Highlights [Hierarchy]</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2">Sales, Net</td><td>1,500,000</td><td>1,400,000</td><td>1,300,000</td><td>1,200,000</td><td>1,100,000</td></tr> <tr> <td colspan="2">Income (Loss) from Continuing Operations</td><td>500,000</td><td>400,000</td><td>300,000</td><td>200,000</td><td>100,000</td></tr> <tr> <td colspan="2">Net Income (Loss)</td><td>51,000</td><td>41,000</td><td>31,000</td><td>21,000</td><td>11,000</td></tr> <tr> <td colspan="2">Cash Flow Provided by (Used in) Operating Activities, Net</td><td>5,000,000</td><td>4,000,000</td><td>3,000,000</td><td>2,000,000</td><td>1,000,000</td></tr> <tr> <td colspan="2">Capital Additions</td><td>1,000,000</td><td>650,000</td><td>550,000</td><td>450,000</td><td>350,000</td></tr> <tr> <td colspan="2">Average Number of Employees</td><td>300</td><td>290</td><td>280</td><td>270</td><td>260</td></tr> </tbody> </table>		Financial Highlights [Line Items]		Period [Axis]						2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	2008-01-01 - 2008-12-31	2007-01-01 - 2007-12-31	2006-01-01 - 2006-12-31	Financial Highlights [Hierarchy]							Sales, Net		1,500,000	1,400,000	1,300,000	1,200,000	1,100,000	Income (Loss) from Continuing Operations		500,000	400,000	300,000	200,000	100,000	Net Income (Loss)		51,000	41,000	31,000	21,000	11,000	Cash Flow Provided by (Used in) Operating Activities, Net		5,000,000	4,000,000	3,000,000	2,000,000	1,000,000	Capital Additions		1,000,000	650,000	550,000	450,000	350,000	Average Number of Employees		300	290	280	270	260
Financial Highlights [Line Items]		Period [Axis]																																																													
		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	2008-01-01 - 2008-12-31	2007-01-01 - 2007-12-31	2006-01-01 - 2006-12-31																																																									
Financial Highlights [Hierarchy]																																																															
Sales, Net		1,500,000	1,400,000	1,300,000	1,200,000	1,100,000																																																									
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Cash Flow Provided by (Used in) Operating Activities, Net		5,000,000	4,000,000	3,000,000	2,000,000	1,000,000																																																									
Capital Additions		1,000,000	650,000	550,000	450,000	350,000																																																									
Average Number of Employees		300	290	280	270	260																																																									



14.2.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/FlatHierarchy/FinancialHighlights)			
Table	Financial Highlights [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Financial Highlights [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Financial Highlights [Line Items]	[Line Items]		
5	Financial Highlights [Hierarchy]	[Abstract]		
6	Sales, Net	[Concept] Monetary	For Period	Credit
7	Income (Loss) from Continuing Operations	[Concept] Monetary	For Period	Credit
8	Net Income (Loss)	[Concept] Monetary	For Period	Credit
9	Cash Flow Provided by (Used in) Operating Activities, Net	[Concept] Monetary	For Period	Debit
10	Capital Additions	[Concept] Monetary	For Period	Debit
11	Average Number of Employees	[Concept] Decimal	For Period	

14.2.4. Description

Financial highlights reported by an organization are a good example of a flat hierarchy. The key idea here is to show that pieces of information have relationships, but those relationships can be quite basic in nature. In this case some set of numbers is articulated as a flat list of facts which make up the financial highlights an entity desires to disclose.

14.2.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- This use case reports six facts for five periods, a total of 30 pieces of information or facts.
- This use case shows all numeric information, although there are two types of numeric information: monetary and pure values.
- The concepts are for the most part unrelated, coming from different parts of a financial statement. By unrelated we mean no numeric relationship or computation and no deeper hierarchy, the information is simply one flat list of facts which are reported.
- The facts reported all relate to the consolidated entity, this is made explicit by the "Legal Entity [Axis]" which has a value of "Consolidated Entity [Member]" for each fact reported.
- The "Financial Highlights [Table]" pulls the one [Axis] and the six concepts which make up the [Line Items] together.
- Note that while not present on the [Table], the "Reporting Entity [Axis]" (i.e. Sample Company) and "Period [Axis]" (the five years shown) do in fact exist; they are required by the XBRL technical syntax.



14.3. Nested hierarchy

The *Nested Hierarchy* business use case is a variation of a hierarchy. It adds to the flat hierarchy in that it adds an additional layer of nesting or another level to the hierarchy. As you look at the visual example, think about how it looks similar to the outline view of a Microsoft Word document. The metapattern of this business use case is the **hierarchy**.

14.3.1. Visual Example

Sample Company
December 31, 2010

Accounting Policies

The financial statements have been prepared on the historical cost basis, except for the revaluation of land and buildings and certain financial instruments. The principal accounting policies adopted are set out below.

Inventories

Inventories are stated at the lower of cost and net realisable value. Cost comprises direct materials and, where applicable, direct labour costs and those overheads that have been incurred in bringing the inventories to their present location and condition. Cost is calculated using the weighted average method. Net realisable value represents the estimated selling price less all estimated costs to completion and costs to be incurred in marketing, selling and distribution. Inventories are comprised of raw materials and work in progress.

Financial Instruments

Financial assets and liabilities are recognised on the Group's balance sheet when the Group has become a party to the contractual provisions of the investment.

Trade receivables

Trade receivables are stated at their nominal value as reduced by appropriate allowances for estimated irrecoverable amounts.

Investments in securities

Investments in securities are recognised on a trade-date basis and are initially measured at cost.

Bank borrowings

Interest-bearing bank loans and overdrafts are recorded at the proceeds received, net of direct issue costs. Finance charges, including premiums payable on settlement or redemption, are accounted for on an accrual basis and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.

Provisions

Provisions are recognised when the Group has a present obligation as a result of a past event which it is probable will result in an outflow of economic benefits that can be reasonably estimated.



14.3.2. Basic Automated Semantic Rendering

Component: (Network and Table)							
Network	Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedHierarchy/AccountingPolicies)						
Table	Accounting Policies [Table]						
Slicers (applies to each fact value in each table cell)							
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)						
Legal Entity [Axis]	Consolidated Entity [Member]						
<table border="1"> <thead> <tr> <th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">Accounting Policies [Line Items]</td></tr> <tr> <td colspan="2">2010-01-01 - 2010-12-31</td></tr> </tbody> </table>		Period [Axis]		Accounting Policies [Line Items]		2010-01-01 - 2010-12-31	
Period [Axis]							
Accounting Policies [Line Items]							
2010-01-01 - 2010-12-31							
Accounting Policies [Hierarchy]							
Basis of Presentation [Text Block]	The financial statements have been prepared on the historical cost basis, except for the revaluation of land and buildings and certain financial instruments. The principal accounting policies adopted are set out below.						
Basis of Presentation	Historical Cost						
Inventory Policy [Text Block]	Inventories are stated at the lower of cost and net realisable value. Cost comprises direct materials and, where applicable, direct labour costs and those overheads that have been incurred in bringing the inventories to their present location and condition. Cost is calculated using the weighted average method. Net realisable value represents the estimated selling price less all estimated costs to completion and costs to be incurred in marketing, selling and distribution. Inventories are comprised of raw materials and work in progress.						
Inventory Valuation Method	Cost						
Description of Inventory Components	weighted average method						
Inventory Cost Method	FIFO						
Description of Net Realizable Value	This is the description of the net realizable value.						
Financial Instruments Policy [Text Block]	Financial assets and liabilities are recognised on the Group's balance sheet when the Group has become a party to the contractual provisions of the investment.						
Trade Receivables Policy	Trade receivables are stated at their nominal value as reduced by appropriate allowances for estimated irrecoverable amounts.						
Investments in Securities Policy	Investments in securities are recognised on a trade-date basis and are initially measured at cost.						
Bank Borrowings Policy	Interest-bearing bank loans and overdrafts are recorded at the proceeds received, net of direct issue costs. Finance charges, including premiums payable on settlement or redemption, are accounted for on an accrual basis and are added to the carrying amount of the instrument to the extent that they are not settled in the period in which they arise.						
Provisions Policy	Provisions are recognised when the Group has a present obligation as a result of a past event which it is probable will result in an outflow of economic benefits that can be reasonably estimated.						



14.3.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedHierarchy/AccountingPolicies)			
Table	Accounting Policies [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Accounting Policies [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Accounting Policies [Line Items]	[Line Items]		
5	Accounting Policies [Hierarchy]	[Abstract]		
6	Basis of Presentation [Text Block]	[Concept] String	For Period	
7	Basis of Presentation	[Concept] String	For Period	
8	Inventory Policy [Text Block]	[Concept] String	For Period	
9	Inventory Valuation Method	[Concept] String	For Period	
10	Description of Inventory Components	[Concept] String	For Period	
11	Inventory Cost Method	[Concept] String	For Period	
12	Description of Net Realizable Value	[Concept] String	For Period	
13	Financial Instruments Policy [Text Block]	[Concept] String	For Period	
14	Trade Receivables Policy	[Concept] String	For Period	
15	Investments in Securities Policy	[Concept] String	For Period	
16	Bank Borrowings Policy	[Concept] String	For Period	
17	Provisions Policy	[Concept] String	For Period	

14.3.4. Description

The *Nested Hierarchy* builds on the *Flat Hierarchy* business use case, introducing the notion that a hierarchy can have one or more sub-hierarchies. There is no way to differentiate the sub-hierarchies into any sort of category or meaning. Another way to say this is that the nesting really has no formal meaning. Many times meaning of the nesting is erroneously implied by model creators or model users.

14.3.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Flat Hierarchy* shows a flat hierarchy which contains all numbers. In contrast, *Nested Hierarchy* business use case shows a nested hierarchy of text. There is really very little difference between these two use cases other than the number of nesting levels.
- A hierarchy can be created to any depth, having any number of levels. There are pros and cons to adding or not adding levels.
- When modelling a hierarchy, ask yourself "Why am I making this a child of this concept rather than a sibling?" Some reason to make a concept a child or a sibling of another concept should exist.



14.4. Simple roll up

The *Simple Roll Up* business use case shows how to model what is commonly referred to as a roll up. A roll up is simply two or more concepts which add up to a third concept: Concept A + Concept B + "n concept" = Total concept. The metapattern of this business use case is the **roll up**.

14.4.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
ASSETS		
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	<u>295,183</u>	<u>413,441</u>

14.4.2. Basic Automated Semantic Rendering

Component: (Network and Table)																												
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleRollUp/PropertyPlantAndEquipmentByComponent)																											
Table	Property, Plant and Equipment, by Component [Table]																											
Slicers (applies to each fact value in each table cell)																												
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																											
Legal Entity [Axis]	Consolidated Entity [Member]																											
<table border="1"> <thead> <tr> <th rowspan="2">Property, Plant and Equipment, by Component [Line Items]</th> <th colspan="2">Period [Axis]</th> </tr> <tr> <th>2010-12-31</th> <th>2009-12-31</th> </tr> </thead> <tbody> <tr> <td>Property, Plant and Equipment, Net [Roll Up]</td><td></td><td></td></tr> <tr> <td>Land</td><td style="text-align: right;">5,347,000</td><td style="text-align: right;">1,147,000</td></tr> <tr> <td>Buildings, Net</td><td style="text-align: right;">244,508,000</td><td style="text-align: right;">366,375,000</td></tr> <tr> <td>Furniture and Fixtures, Net</td><td style="text-align: right;">34,457,000</td><td style="text-align: right;">34,457,000</td></tr> <tr> <td>Computer Equipment, Net</td><td style="text-align: right;">4,169,000</td><td style="text-align: right;">5,313,000</td></tr> <tr> <td>Other Property, Plant and Equipment, Net</td><td style="text-align: right;">6,702,000</td><td style="text-align: right;">6,149,000</td></tr> <tr> <td>Property, Plant and Equipment, Net, Total</td><td style="text-align: right;"><u>295,183,000</u></td><td style="text-align: right;"><u>413,441,000</u></td></tr> </tbody> </table>			Property, Plant and Equipment, by Component [Line Items]	Period [Axis]		2010-12-31	2009-12-31	Property, Plant and Equipment, Net [Roll Up]			Land	5,347,000	1,147,000	Buildings, Net	244,508,000	366,375,000	Furniture and Fixtures, Net	34,457,000	34,457,000	Computer Equipment, Net	4,169,000	5,313,000	Other Property, Plant and Equipment, Net	6,702,000	6,149,000	Property, Plant and Equipment, Net, Total	<u>295,183,000</u>	<u>413,441,000</u>
Property, Plant and Equipment, by Component [Line Items]	Period [Axis]																											
	2010-12-31	2009-12-31																										
Property, Plant and Equipment, Net [Roll Up]																												
Land	5,347,000	1,147,000																										
Buildings, Net	244,508,000	366,375,000																										
Furniture and Fixtures, Net	34,457,000	34,457,000																										
Computer Equipment, Net	4,169,000	5,313,000																										
Other Property, Plant and Equipment, Net	6,702,000	6,149,000																										
Property, Plant and Equipment, Net, Total	<u>295,183,000</u>	<u>413,441,000</u>																										



14.4.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleRollUp/PropertyPlantAndEquipmentByCom)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
5	<i>Property, Plant and Equipment, Net [Roll Up]</i>	[Abstract]		
6	Land	[Concept] Monetary	As Of	Debit
7	Buildings, Net	[Concept] Monetary	As Of	Debit
8	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
9	Computer Equipment, Net	[Concept] Monetary	As Of	Debit
10	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
11	Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit

14.4.4. Description

The *Roll Up* business use case introduces the notion of numeric relations between concepts. In the case of a *Roll Up* computation, several concepts add up to some total concept. Basically, a *Roll Up* builds on a *Hierarchy* in that it adds the business rules of the computation to the hierarchy of concepts. Roll ups can be expressed using XBRL calculations.

14.4.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- A Roll Up articulates the relations: $A + B + n = \text{Total}$, where n means any number of concepts.
- A Roll Up may have only one total concept.
- The relation may be + or - (plus or minus).
- Notice that all of the concepts in this *Roll Up* business use case have a balance type of DEBIT.
- The business rules for a roll up can also be expressed using XBRL formula. One advantage of using XBRL formula is that a tolerance can be added to the computation.



14.5. Nested roll up

The *Nested Roll Up* business use case is a variation of the *Roll Up* business use case where one or more additional roll ups are contained within another roll up, effectively nesting roll ups. The metapattern of this business use case is the **roll up**.

14.5.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	As of December 31,	
	2010	2009
CURRENT		
Foreign	200	250
Domestic	50	250
	Current	250
DEFERRED		
Foreign	200	250
Domestic	50	250
	Deferred	250
Income Tax Expense (Benefit)	500	1,000

14.5.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																									
Network	Income Tax Expense (Benefit) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedRollUp/IncomeTaxExpenseBenefit)																																								
Table	Income Tax Expense (Benefit), by Component [Table]																																								
Slicers (applies to each fact value in each table cell)																																									
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																								
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<table border="1"> <thead> <tr> <th colspan="2"></th><th>Period [Axis]</th></tr> <tr> <th colspan="2"></th><th>2010-01-01 - 2010-12-31 2009-01-01 - 2009-12-31</th></tr> </thead> <tbody> <tr> <td colspan="2">Income Tax Expense (Benefit) [Line Items]</td><td></td></tr> <tr> <td colspan="2">Income Tax Expense (Benefit) [Roll Up]</td><td></td></tr> <tr> <td colspan="2">Income Tax Expense (Benefit), Current [Roll Up]</td><td></td></tr> <tr> <td>Income Tax Expense (Benefit), Current, Foreign</td><td>200,000</td><td>250,000</td></tr> <tr> <td>Income Tax Expense (Benefit), Current, Domestic</td><td>50,000</td><td>250,000</td></tr> <tr> <td>Income Tax Expense (Benefit), Current</td><td>250,000</td><td>500,000</td></tr> <tr> <td colspan="2">Income Tax Expense (Benefit), Deferred [Roll Up]</td><td></td></tr> <tr> <td>Income Tax Expense (Benefit), Deferred, Foreign</td><td>200,000</td><td>250,000</td></tr> <tr> <td>Income Tax Expense (Benefit), Deferred, Domestic</td><td>50,000</td><td>250,000</td></tr> <tr> <td>Income Tax Expense (Benefit), Deferred</td><td>250,000</td><td>500,000</td></tr> <tr> <td>Income Tax Expense (Benefit), Total</td><td>500,000</td><td>1,000,000</td></tr> </tbody> </table>					Period [Axis]			2010-01-01 - 2010-12-31 2009-01-01 - 2009-12-31	Income Tax Expense (Benefit) [Line Items]			Income Tax Expense (Benefit) [Roll Up]			Income Tax Expense (Benefit), Current [Roll Up]			Income Tax Expense (Benefit), Current, Foreign	200,000	250,000	Income Tax Expense (Benefit), Current, Domestic	50,000	250,000	Income Tax Expense (Benefit), Current	250,000	500,000	Income Tax Expense (Benefit), Deferred [Roll Up]			Income Tax Expense (Benefit), Deferred, Foreign	200,000	250,000	Income Tax Expense (Benefit), Deferred, Domestic	50,000	250,000	Income Tax Expense (Benefit), Deferred	250,000	500,000	Income Tax Expense (Benefit), Total	500,000	1,000,000
		Period [Axis]																																							
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14.5.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Income Tax Expense (Benefit) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedRollUp/IncomeTaxExpenseBenefit)			
Table	Income Tax Expense (Benefit), by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Income Tax Expense (Benefit), by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Income Tax Expense (Benefit) [Line Items]	[Line Items]		
5	Income Tax Expense (Benefit) [Roll Up]	[Abstract]		
6	Income Tax Expense (Benefit), Current [Roll Up]	[Abstract]		
7	Income Tax Expense (Benefit), Current, Foreign	[Concept] Monetary	For Period	Debit
8	Income Tax Expense (Benefit), Current, Domestic	[Concept] Monetary	For Period	Debit
9	Income Tax Expense (Benefit), Current	[Concept] Monetary	For Period	Debit
10	Income Tax Expense (Benefit), Deferred [Roll Up]	[Abstract]		
11	Income Tax Expense (Benefit), Deferred, Foreign	[Concept] Monetary	For Period	Debit
12	Income Tax Expense (Benefit), Deferred, Domestic	[Concept] Monetary	For Period	Debit
13	Income Tax Expense (Benefit), Deferred	[Concept] Monetary	For Period	Debit
14	Income Tax Expense (Benefit), Total	[Concept] Monetary	For Period	Debit

14.5.4. Description

A *Nested Roll Up* builds on the *Roll Up* showing that a *Roll Up* may contain other *Roll Ups*. Nested roll ups can be looked at as basically sub totals. In this example, the grand total Income Tax Expense (Benefit) is broken down by the sub totals Current and Deferred. Each of those sub totals is broken down by its Foreign and Domestic components.

Alternatively, the sub totals could have been Foreign and Domestic with those sub totals then broken down by their Current and Deferred components. Or, both of these breakdowns could have been provided, see the *Multiple Roll Ups* use case.

14.5.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- A *Roll Up* can have another *Roll Up* nested within it.
- Any depth of nesting is allowed.
- Alternatively, the subtotal could have been foreign/domestic and the breakdown current/deferred; however, a choice was made here to provide only this subtotalling. Another alternative would be to provide both approaches to totalling the information.



14.6. Inverted roll up

The *Inverted Roll Up* business use case points out that roll ups can appear to be inverted. This business use case is really no different than a Roll Up other than it has a number of nested roll ups creating what amounts to a very deep nesting. The metapattern of this business use case is the **roll up**.

14.6.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	For Year Ended December 31,	
	2010	2009
Revenues, Gross	1,000	2,000
Returns and Allowances	-1,000	-2,000
Cost of Sales	Revenues, Net	0
	-1,000	-2,000
Other Operating Expenses	Gross Profit (Loss)	-1,000
Other Operating Income		-2,000
Nonoperating Expenses (Income)	Operating Income (Loss)	-1,000
		-2,000
Income (Loss) from Continuing Operations Before Income Taxes	1,000	2,000
Income Tax Expense (Benefit)		
	1,000	2,000
Net Income (Loss)	-1,000	-2,000

14.6.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																																																											
Network	Income Statement (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/InvertedRollUp/IncomeStatement)																																																																										
Table	Income Statement [Table]																																																																										
Slicers (applies to each fact value in each table cell)																																																																											
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Income Statement [Line Items]		Period [Axis]																																																																									
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Gross Profit (Loss)		(1,000,000)	(2,000,000)																																																																								
Other Operating Income		1,000,000	2,000,000																																																																								
Other Operating Expenses		(1,000,000)	(2,000,000)																																																																								
Operating Income (Loss)		(1,000,000)	(2,000,000)																																																																								
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Income (Loss) from Continuing Operations Before Income Taxes		0	0																																																																								
Income Tax Expense (Benefit)		1,000,000	2,000,000																																																																								
Net Income (Loss)		(1,000,000)	(2,000,000)																																																																								



14.6.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Income Statement (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/InvertedRollUp/IncomeStatement)			
Table	Income Statement [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Income Statement [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Income Statement [Line Items]	[Line Items]		
5	<i>Net Income (Loss) [Roll Up]</i>	[Abstract]		
6	<i>Income (Loss) from Continuing Operations Before Income Taxes [Roll Up]</i>	[Abstract]		
7	<i>Operating Income (Loss) [Roll Up]</i>	[Abstract]		
8	<i>Gross Profit (Loss) [Roll Up]</i>	[Abstract]		
9	<i>Revenues, Net [Roll Up]</i>	[Abstract]		
10	Revenues, Gross	[Concept] Monetary	For Period	Credit
11	Returns and Allowances	[Concept] Monetary	For Period	Debit
12	Revenues, Net	[Concept] Monetary	For Period	Credit
13	Cost of Sales	[Concept] Monetary	For Period	Debit
14	Gross Profit (Loss)	[Concept] Monetary	For Period	Credit
15	Other Operating Income	[Concept] Monetary	For Period	Credit
16	Other Operating Expenses	[Concept] Monetary	For Period	Debit
17	Operating Income (Loss)	[Concept] Monetary	For Period	Credit
18	Nonoperating Income (Loss)	[Concept] Monetary	For Period	Credit
19	<i>Income (Loss) from Continuing Operations Before Income Taxes</i>	[Concept] Monetary	For Period	Credit
20	Income Tax Expense (Benefit)	[Concept] Monetary	For Period	Debit
21	Net Income (Loss)	[Concept] Monetary	For Period	Credit

14.6.4. Description

An *Inverted Roll Up* again builds on the *Roll Up* and *Nested Roll Up* showing what amounts to a more complex nesting which makes the *Roll Up* look inverted, or up-side-down.

The presentation of the information articulated within a *Roll Up* is dependent on the software application which is generating the presentation. There is nothing in XBRL which says *Roll Ups* need to be presented up-side-down. However, many software interfaces do work this way.

14.6.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- There is no real difference between a *Roll Up*, a *Nested Roll Up*, and an *Inverted Roll Up* other than the number of nesting levels.
- Notice in this use case that the concepts are both debits and credits. The weight in the XBRL calculations determines whether the relation is additive or subtractive in nature.
- There is a relation between the balance type of a concept and the weight which is used when expressing an XBRL calculation. There is no relation between the balance type and the presentation of the concept as positive or negative. Many business users get confused by this and believe that there is a relation.



- Software interfaces are free to present information as positive or negative. Automated processes need clarity about the polarity of numeric values relative to other numeric values.
- Numeric concepts which do not have a balance type must have the polarity of the concept defined within the concept's documentation to make the polarity clear.
- Creators of a taxonomy can use different preferred label roles to help indicate how a software application should render the information, helping to make the choice to show either a positive or negative value.



14.7. Multiple roll ups

The *Multiple Roll Ups* business use case is a variation of a Roll Up where one concept is the total concept of two or more unique Roll Ups. Basically because the one total concept aggregates in more than one way, then multiple networks must be used to separate the roll ups. The metapattern of this business use case is the **roll up**.

14.7.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
TRADE AND OTHER RECEIVABLES		
Trade and Other Receivables, Net, by Component		
Trade Receivables, Net	8,790	6,431
Financing Lease Receivables, Net	2,498	1,263
Other Receivables, Net	1,305	1,096
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>
Trade and Other Receivables, Net, by Net/Gross		
Trade and Other Receivables, Gross	18,280	13,472
Allowance for Doubtfull Accounts	-5,687	-4,682
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>
Trade and Other Receivables, Net, by Current/Noncurrent		
Trade Receivables, Net, Current	6,340	5,701
Trade Receivables, Net, Noncurrent	6,253	3,089
Trade and Other Receivables, Net	<u>12,593</u>	<u>8,790</u>

14.7.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	Trade and Other Receivables, Net, by Current/Noncurrent (http://www.xbrbsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByCurrentNoncurrent)
Table	Trade and Other Receivables, Net, by Current/Noncurrent [Table]
Slicers (applies to each fact value in each table cell)	
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]
Period [Axis]	
Trade and Other Receivables, Net, by Current/Noncurrent [Line Items]	2010-12-31 2009-12-31
Trade and Other Receivables, Net, by Current/Noncurrent [Roll Up]	
Trade and Other Receivables, Net, Current	6,340,000 5,701,000
Trade and Other Receivables, Net, Noncurrent	6,253,000 3,089,000
Trade and Other Receivables, Net	<u>12,593,000</u> <u>8,790,000</u>



Component: (Network and Table)	
Network	Trade and Other Receivables, Net, by Net/Gross (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByNetGross)
Table	Trade and Other Receivables, Net, by Net/Gross [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Trade and Other Receivables, Net, by Net/Gross [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Trade and Other Receivables, Net, by Net/Gross [Roll Up]		
Trade and Other Receivables, Gross	18,280,000	13,472,000
Allowance for Doubtfull Accounts	5,687,000	4,682,000
Trade and Other Receivables, Net	<u>12,593,000</u>	<u>8,790,000</u>

Component: (Network and Table)

Network	Trade and Other Receivables, Net, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByComponent)
Table	Trade and Other Receivables, Net, by Component [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Trade and Other Receivables, Net, by Component [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Trade and Other Receivables, Net [Roll Up]		
Trade Receivables, Net	8,790,000	6,431,000
Financing Lease Receivables, Net	2,498,000	1,263,000
Other Receivables, Net	1,305,000	1,096,000
Trade and Other Receivables, Net	<u>12,593,000</u>	<u>8,790,000</u>

14.7.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	Trade and Other Receivables, Net, by Current/Noncurrent (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByCurrentNoncurrent)
Table	Trade and Other Receivables, Net, by Current/Noncurrent [Table]

#	Label	Report Element Class	Period Type	Balance
1	Trade and Other Receivables, Net, by Current/Noncurrent [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Trade and Other Receivables, Net, by Current/Noncurrent [Line Items]	[Line Items]		
5	<i>Trade and Other Receivables, Net, by Current/Noncurrent [Roll Up]</i>	[Abstract]		
6	Trade and Other Receivables, Net, Current	[Concept] Monetary	As Of	Debit
7	Trade and Other Receivables, Net, Noncurrent	[Concept] Monetary	As Of	Debit
8	Trade and Other Receivables, Net	[Concept] Monetary	As Of	Debit



Component: (Network and Table)	
Network	Trade and Other Receivables, Net, by Net/Gross (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByNetGross)
Table	Trade and Other Receivables, Net, by Net/Gross [Table]

#	Label	Report Element Class	Period Type	Balance
1	Trade and Other Receivables, Net, by Net/Gross [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Trade and Other Receivables, Net, by Net/Gross [Line Items]	[Line Items]		
5	<i>Trade and Other Receivables, Net, by Net/Gross [Roll Up]</i>	[Abstract]		
6	Trade and Other Receivables, Gross	[Concept] Monetary	As Of	Debit
7	Allowance for Doubtfull Accounts	[Concept] Monetary	As Of	Credit
8	Trade and Other Receivables, Net	[Concept] Monetary	As Of	Debit

Component: (Network and Table)	
Network	Trade and Other Receivables, Net, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultipleRollUps/ByComponent)
Table	Trade and Other Receivables, Net, by Component [Table]

#	Label	Report Element Class	Period Type	Balance
1	Trade and Other Receivables, Net, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Trade and Other Receivables, Net, by Component [Line Items]	[Line Items]		
5	<i>Trade and Other Receivables, Net [Roll Up]</i>	[Abstract]		
6	Trade Receivables, Net	[Concept] Monetary	As Of	Debit
7	Financing Lease Receivables, Net	[Concept] Monetary	As Of	Debit
8	Other Receivables, Net	[Concept] Monetary	As Of	Debit
9	Trade and Other Receivables, Net	[Concept] Monetary	As Of	Debit

14.7.4. Description

The *Multiple Roll Ups* business use case points out that a concept might have any number of ways to break down a total concept. To avoid conflicts, these different computations must be separated into different networks.

Networks can be thought of in the same way that broadcast networks send signals using different frequencies in order to separate the different television channels so the signals do not conflict. In this example, Trade and Other Receivables, Net is aggregated in three different ways: by component, by net/gross, and by current/noncurrent.

14.7.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Different aggregations of the same number need to be put into separate and distinct networks in order to avoid modelling conflicts.
- Be sure to keep the presentation, calculation, and definition networks synchronized in order to be clear as to which set of aggregations go with which set of breakdowns (i.e. presentation, calculation, definition for each set should be the same network role).



14.8. Simple roll forward

The *Simple Roll Forward* business use case shows how to model a very common information model found in financial reporting: the roll forward or sometimes called a movement analysis. A roll forward reconciles an ending balance with a beginning balance via one or more changes in the balance. The business rule equation for a roll forward is: beginning balance + changes to the balance = ending balance. The metapattern of this business use case is the **roll forward** and the **roll up**.

14.8.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Roll Forward of Land		
Land, Beginning Balance	1,147	1,147
Additions	1,992	400
Disposals	-193	-200
Translation difference	2,401	-200
	<hr/>	<hr/>
Land, Ending Balance	5,347	1,147

14.8.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																		
Network	Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleRollForward/RollForwardOfLand)																																	
Table	Land Changes [Table]																																	
Slicers (applies to each fact value in each table cell)																																		
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																	
Legal Entity [Axis]	Consolidated Entity [Member]																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th><th colspan="2" style="text-align: center;">Period [Axis]</th></tr> <tr> <td style="text-align: center;">Land Changes [Line Items]</td><td style="text-align: center;">2010-01-01 - 2010-12-31</td><td style="text-align: center;">2009-01-01 - 2009-12-31</td></tr> </thead> <tbody> <tr> <td>Roll Forward of Land [Roll Forward]</td><td></td><td></td></tr> <tr> <td>Land, Beginning Balance</td><td style="text-align: right;">1,147,000</td><td style="text-align: right;">1,147,000</td></tr> <tr> <td>Land, Period Increase (Decrease), Total [Roll Up]</td><td></td><td></td></tr> <tr> <td>Land, Additions</td><td style="text-align: right;">1,992,000</td><td style="text-align: right;">400,000</td></tr> <tr> <td>Land, Disposals</td><td style="text-align: right;">(193,000)</td><td style="text-align: right;">(200,000)</td></tr> <tr> <td>Land, Translation Difference</td><td style="text-align: right;">2,401,000</td><td style="text-align: right;">(200,000)</td></tr> <tr> <td></td><td style="text-align: right;">Land, Period Increase (Decrease), Total</td><td style="text-align: right;">0</td></tr> <tr> <td></td><td style="text-align: right;">Land, Ending Balance</td><td style="text-align: right;">5,347,000</td></tr> <tr> <td></td><td style="text-align: right;"></td><td style="text-align: right;">1,147,000</td></tr> </tbody> </table>			Period [Axis]		Land Changes [Line Items]	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	Roll Forward of Land [Roll Forward]			Land, Beginning Balance	1,147,000	1,147,000	Land, Period Increase (Decrease), Total [Roll Up]			Land, Additions	1,992,000	400,000	Land, Disposals	(193,000)	(200,000)	Land, Translation Difference	2,401,000	(200,000)		Land, Period Increase (Decrease), Total	0		Land, Ending Balance	5,347,000			1,147,000
	Period [Axis]																																	
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14.8.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleRollForward/RollForwardOfLand)			
Table	Land Changes [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Land Changes [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Land Changes [Line Items]	[Line Items]		
5	Roll Forward of Land [Roll Forward]	[Abstract]		
6	Land, Beginning Balance	[Concept] Monetary	As Of	Debit
7	Land, Period Increase (Decrease), Total [Roll Up]	[Abstract]		
8	Land, Additions	[Concept] Monetary	For Period	Debit
9	Land, Disposals	[Concept] Monetary	For Period	Credit
10	Land, Translation Difference	[Concept] Monetary	For Period	Debit
11	Land, Period Increase (Decrease), Total	[Concept] Monetary	For Period	Debit
12	Land, Ending Balance	[Concept] Monetary	As Of	Debit

14.8.4. Description

The *Simple Roll Forward* introduces a different type of computation, different from the *Roll Up*. A *Roll Forward* is a reconciliation of a balance between two different points in time (i.e. *Period [Axis]*). The equation of a roll forward is: Beginning balance + Changes = Ending Balance. The beginning and ending balance is always the same concept at two different points in time, period is different for the two balances. The changes relate to the period between the two balances. The data types of all concepts involved in a roll forward are the same.

A roll forward can contain only one change represented by a total concept. That total could be represented by a roll up which breaks down the details of the changes. In this business use case there is one change concept and the details of the changes aggregate to that total using a roll up. The changes is detailed to be Additions, Disposals, and Translation Difference within the roll up of changes. Alternatively, this could have been modelled without the total and Additions, Disposals and Translation Difference would each be changes between the beginning and ending balance. Semantically, the two approaches are equivalent.

14.8.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- A *Roll Forward* always reconciles a concept balance between two different points in time. The balance is always an instant, the changes are always durations or for some period of time.
- A *Roll Forward* computation cannot be expressed using XBRL calculations because all XBRL calculations must be within the exact same context. The balance concept is at two different points in time, therefore two different contexts. Further, the changes are in a third context.
- XBRL Formulas can be used to create a business rule to validate a *Roll Forward* computation.
- There are two approaches to showing the polarity of the numbers for the changes of a roll forward. One approach is for the rendering engine to



leverage the balance attribute value to determine if it should be shown as a positive or negative. A second approach, required if the concepts have no balance attribute, is to use a negated label role to indicate that the sign of a presented change should be flipped.



14.9. Complex roll forward

The *Complex Roll Forward* business use case shows how to model what amounts to several *Roll Forwards* combined into one set of information. The metapattern of this business use case is the **roll forward** and the **roll up**.

14.9.1. Visual Example

Sample Company
December 31,
 (thousands of dollars)

	Land	Buildings, Net	Furniture and Fixtures, Net	Other Property, Plant, and Equipment, Net	Property, Plant, and Equipment, Net
Balance at December 31, 2008	1,000	1,000	1,000	1,000	4,000
Additions	1,000	1,000	1,000	1,000	4,000
Disposals	-1,000	-1,000	-1,000	-1,000	-4,000
Translation Difference	0	0	0	0	0
Other Increase (Decrease)	0	0	0	0	0
Balance at December 31, 2009	1,000	1,000	1,000	1,000	4,000
Additions	1,000	1,000	1,000	1,000	4,000
Disposals	-1,000	-1,000	-1,000	-1,000	-4,000
Translation Difference	0	0	0	0	0
Other Increase (Decrease)	0	0	0	0	0
Balance at December 31, 2010	1,000	1,000	1,000	1,000	4,000

14.9.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	Property, Plant, and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward/PropertyPlantAndEquipmentNet)
Table	Components of Property, Plant and Equipment, Net [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Components of Property, Plant and Equipment, Net [Line Items]	Period [Axis]		
	2010-12-31	2009-12-31	2008-12-31
Property, Plant and Equipment, Net [Roll Up]			
Land	1,000	1,000	1,000
Buildings, Net	1,000	1,000	1,000
Furniture and Fixtures, Net	1,000	1,000	1,000
Other Property, Plant and Equipment, Net	1,000	1,000	1,000
Property, Plant and Equipment, Net	4,000	4,000	4,000



Component: (Network and Table)	
Network	Movement in Property, Plant and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward)
Table	Movement in Property, Plant and Equipment, Net [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Movement in Property, Plant and Equipment, Net [Line Items]	Period [Axis]	
	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31
Movement in Land [Roll Forward]		
Land, Beginning Balance	1,000	1,000
Land, Period Increase (Decrease) [Roll Up]		
Land, Additions	1,000	1,000
Land, Disposals	(1,000)	(1,000)
Land, Translation Difference	0	0
Land, Other Increase (Decrease)	0	0
Land, Period Increase (Decrease)	0	0
Land, Ending Balance	1,000	1,000
Movement in Buildings, Net [Roll Forward]		
Buildings, Net, Beginning Balance	1,000	1,000
Buildings, Net, Period Increase (Decrease) [Roll Up]		
Buildings, Net, Additions	1,000	1,000
Buildings, Net, Disposals	(1,000)	(1,000)
Buildings, Net, Translation Difference	0	0
Buildings, Net, Other Increase (Decrease)	0	0
Buildings, Net, Period Increase (Decrease)	0	0
Buildings, Net, Ending Balance	1,000	1,000



Movement in Furniture and Fixtures, Net [Roll Forward]		
Furniture and Fixtures, Net, Beginning Balance	1,000	1,000
Furniture and Fixtures, Net, Period Increase (Decrease) [Roll Up]		
Furniture and Fixtures, Net, Additions	1,000	1,000
Furniture and Fixtures, Net, Disposals	(1,000)	(1,000)
Furniture and Fixtures, Net, Translation Difference	0	0
Furniture and Fixtures, Net, Other Increase (Decrease)	0	0
Furniture and Fixtures, Net, Period Increase (Decrease)	0	0
Furniture and Fixtures, Net, Ending Balance	1,000	1,000
Movement in Other Property, Plant and Equipment, Net [Roll Forward]		
Other Property, Plant and Equipment, Net, Beginning Balance	1,000	1,000
Other Property, Plant and Equipment, Net, Period Increase (Decrease) [Roll Up]		
Other Property, Plant and Equipment, Net, Additions	1,000	1,000
Other Property, Plant and Equipment, Net, Disposals	(1,000)	(1,000)
Other Property, Plant and Equipment, Net, Translation Difference	0	0
Other Property, Plant and Equipment, Net, Other Increase (Decrease)	0	0
Other Property, Plant and Equipment, Net, Period Increase (Decrease)	0	0
Other Property, Plant and Equipment, Net, Ending Balance	1,000	1,000
Movement in Property, Plant and Equipment, Net [Roll Forward]		
Property, Plant and Equipment, Net, Beginning Balance	4,000	4,000
Property, Plant and Equipment, Net, Period Increase (Decrease) [Roll Up]		
Property, Plant and Equipment, Net, Additions	4,000	4,000
Property, Plant and Equipment, Net, Disposals	(4,000)	(4,000)
Property, Plant and Equipment, Net, Translation Difference	0	0
Property, Plant and Equipment, Net, Other Increase (Decrease)	0	0
Property, Plant and Equipment, Net, Period Increase (Decrease)	0	0
Property, Plant and Equipment, Net, Ending Balance	4,000	4,000



Component: (Network and Table)																																																																																																															
Network	Roll Up of Changes in Property, Plant, and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward)																																																																																																														
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14.9.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Movement in Property, Plant and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward/MovementInPropertyPlantAndEquipmentNet)			
Table	Movement in Property, Plant and Equipment, Net [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Movement in Property, Plant and Equipment, Net [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Movement in Property, Plant and Equipment, Net [Line Items]	[Line Items]		
5	<i>Movement in Land [Roll Forward]</i>	[Abstract]		
6	Land, Beginning Balance	[Concept] Monetary	As Of	Debit
7	<i>Land, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
8	Land, Additions	[Concept] Monetary	For Period	Debit
9	Land, Disposals	[Concept] Monetary	For Period	Credit
10	Land, Translation Difference	[Concept] Monetary	For Period	Debit
11	Land, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
12	Land, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit
13	Land, Ending Balance	[Concept] Monetary	As Of	Debit
14	<i>Movement in Buildings, Net [Roll Forward]</i>	[Abstract]		
15	Buildings, Net, Beginning Balance	[Concept] Monetary	As Of	Debit
16	<i>Buildings, Net, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
17	Buildings, Net, Additions	[Concept] Monetary	For Period	Debit
18	Buildings, Net, Disposals	[Concept] Monetary	For Period	Credit
19	Buildings, Net, Translation Difference	[Concept] Monetary	For Period	Debit
20	Buildings, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
21	Buildings, Net, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit
22	Buildings, Net, Ending Balance	[Concept] Monetary	As Of	Debit
23	<i>Movement in Furniture and Fixtures, Net [Roll Forward]</i>	[Abstract]		
24	Furniture and Fixtures, Net, Beginning Balance	[Concept] Monetary	As Of	Debit
25	<i>Furniture and Fixtures, Net, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
26	Furniture and Fixtures, Net, Additions	[Concept] Monetary	For Period	Debit
27	Furniture and Fixtures, Net, Disposals	[Concept] Monetary	For Period	Credit
28	Furniture and Fixtures, Net, Translation Difference	[Concept] Monetary	For Period	Debit
29	Furniture and Fixtures, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
30	Furniture and Fixtures, Net, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit
31	Furniture and Fixtures, Net, Ending Balance	[Concept] Monetary	As Of	Debit
32	<i>Movement in Other Property, Plant and Equipment, Net [Roll Forward]</i>	[Abstract]		
33	Other Property, Plant and Equipment, Net, Beginning Balance	[Concept] Monetary	As Of	Debit
34	<i>Other Property, Plant and Equipment, Net, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
35	Other Property, Plant and Equipment, Net, Additions	[Concept] Monetary	For Period	Debit
36	Other Property, Plant and Equipment, Net, Disposals	[Concept] Monetary	For Period	Credit
37	Other Property, Plant and Equipment, Net, Translation Difference	[Concept] Monetary	For Period	Debit
38	Other Property, Plant and Equipment, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
39	Other Property, Plant and Equipment, Net, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit
40	Other Property, Plant and Equipment, Net, Ending Balance	[Concept] Monetary	As Of	Debit
41	<i>Movement in Property, Plant and Equipment, Net [Roll Forward]</i>	[Abstract]		
42	Property, Plant and Equipment, Net, Beginning Balance	[Concept] Monetary	As Of	Debit
43	<i>Property, Plant and Equipment, Net, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
44	Property, Plant and Equipment, Net, Additions	[Concept] Monetary	For Period	Debit
45	Property, Plant and Equipment, Net, Disposals	[Concept] Monetary	For Period	Credit
46	Property, Plant and Equipment, Net, Translation Difference	[Concept] Monetary	For Period	Debit
47	Property, Plant and Equipment, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
48	Property, Plant and Equipment, Net, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit
49	Property, Plant and Equipment, Net, Ending Balance	[Concept] Monetary	As Of	Debit



Component: (Network and Table)	
Network	Roll Up of Changes in Property, Plant, and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward/RollUpOfChangesInProperty)
Table	Roll Up of Changes in Property, Plant and Equipment, Net [Table]

#	Label	Report Element Class	Period Type	Balance
1	Roll Up of Changes in Property, Plant and Equipment, Net [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Roll Up of Changes in Property, Plant and Equipment, Net [Line Items]	[Line Items]		
5	<i>Property, Plant and Equipment, Net, Period Increase (Decrease) [Roll Up]</i>	[Abstract]		
6	<i>Property, Plant and Equipment, Net, Additions [Roll Up]</i>	[Abstract]		
7	Land, Additions	[Concept] Monetary	For Period	Debit
8	Buildings, Net, Additions	[Concept] Monetary	For Period	Debit
9	Furniture and Fixtures, Net, Additions	[Concept] Monetary	For Period	Debit
10	Other Property, Plant and Equipment, Net, Additions	[Concept] Monetary	For Period	Debit
11	Property, Plant and Equipment, Net, Additions	[Concept] Monetary	For Period	Debit
12	<i>Property, Plant and Equipment, Net, Disposals [Roll Up]</i>	[Abstract]		
13	Land, Disposals	[Concept] Monetary	For Period	Credit
14	Buildings, Net, Disposals	[Concept] Monetary	For Period	Credit
15	Furniture and Fixtures, Net, Disposals	[Concept] Monetary	For Period	Credit
16	Other Property, Plant and Equipment, Net, Disposals	[Concept] Monetary	For Period	Credit
17	Property, Plant and Equipment, Net, Disposals	[Concept] Monetary	For Period	Credit
18	<i>Property, Plant and Equipment, Net, Translation Difference [Roll Up]</i>	[Abstract]		
19	Land, Translation Difference	[Concept] Monetary	For Period	Debit
20	Buildings, Net, Translation Difference	[Concept] Monetary	For Period	Debit
21	Furniture and Fixtures, Net, Translation Difference	[Concept] Monetary	For Period	Debit
22	Other Property, Plant and Equipment, Net, Translation Difference	[Concept] Monetary	For Period	Debit
23	Property, Plant and Equipment, Net, Translation Difference	[Concept] Monetary	For Period	Debit
24	<i>Property, Plant and Equipment, Net, Other Increase (Decrease) [Roll Up]</i>	[Abstract]		
25	Land, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
26	Buildings, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
27	Furniture and Fixtures, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
28	Other Property, Plant and Equipment, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
29	Property, Plant and Equipment, Net, Other Increase (Decrease)	[Concept] Monetary	For Period	Debit
30	Property, Plant and Equipment, Net, Period Increase (Decrease)	[Concept] Monetary	For Period	Debit

Component: (Network and Table)	
Network	Property, Plant, and Equipment, Net (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ComplexRollForward/PropertyPlantAndEquipment)
Table	Components of Property, Plant and Equipment, Net [Table]

#	Label	Report Element Class	Period Type	Balance
1	Components of Property, Plant and Equipment, Net [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Components of Property, Plant and Equipment, Net [Line Items]	[Line Items]		
5	<i>Property, Plant and Equipment, Net [Roll Up]</i>	[Abstract]		
6	Land	[Concept] Monetary	As Of	Debit
7	Buildings, Net	[Concept] Monetary	As Of	Debit
8	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
9	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
10	Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit

14.9.4. Description

The *Complex Roll Forward* builds on the *Simple Roll Forward*, adding multiple *Roll Forwards* which then aggregate to a *Roll Forward* of the total. In the example, *Roll*



Forwards for Land; Buildings, Net; Furniture and Fixtures, Net; Other Property, Plant and Equipment, Net aggregate to the *Roll Forward* of the total Property, Plant and Equipment.

Essentially, the *Complex Roll Forward* can be decomposed into three distinct components: a roll up of the components of property, plant and equipment; a roll up of all the changes in property, plant and equipment; and finally a roll forward for each component of property, plant and equipment.

Note the roll ups, expressed as XBRL calculations, which tie the individual roll forwards to the total roll forward.

14.9.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Roll Ups* for the changes can be expressed and validated using XBRL calculations.
- The *Roll Up* of each balance concept for individual classes of Property, Plant and Equipment to the total for Property, Plant and Equipment, Net can likewise be expressed using XBRL calculations. For example: Land + Buildings, Net + Furniture and Fixtures, Net + Other Property, Plant and Equipment, Net = Property, Plant and Equipment, Net for 2008, 2009, and 2010.
- The *Roll Up* of each change can also be expressed. For example, Additions for each class of Property, Plant and Equipment aggregates to the concept for all categories of Property, Plant and Equipment, Net, Additions. This relation can be seen horizontally in the example.
- A business rule expressed using XBRL Formula is used to make sure the roll forward properly reconciles: beginning balance + total changes = ending balance for each class of PPE and for total PPE.
- Note that the classes of Property, Plant and Equipment could have been presented in the rows and the different balances and changes expressed in the columns. Transposing the information in this way does not change the semantics of the information, it is purely the preference of the consumer of the information. Changing the rows and columns would not change how the information is modelled.
- Note that if each class of PPE were modelled as a [Member] the total number of concepts within the model would be significantly reduced.



14.10. Simple compound fact

The *Simple Compound Fact* business use case shows how to model what amounts set of information which must go together to make any sense. An axis holds the set together, creating in essence a compound fact. The metapattern of this business use case is the **compound fact** and the **hierarchy**.

14.10.1. Visual Example

Sample Company For Period Ending December 31, 2010

Director	Salary	Bonus	Director Fee	Options Granted, at Fair Value
pattern:JohnDoeMember	1,000	1,000	1,000	1,000
pattern:JaneDoeMember	1,000	1,000	1,000	1,000
frm:DirectorsAllMember	2,000	2,000	2,000	2,000

14.10.2. Basic Automated Semantic Rendering

Component: (Network and Table)																												
Network	Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleCompoundFact/DirectorCompensation)																											
Table	Director Compensation [Table]																											
Slicers (applies to each fact value in each table cell)																												
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																											
Period [Axis]	2010-01-01 - 2010-12-31																											
Legal Entity [Axis]	Consolidated Entity [Member]																											
<table border="1"> <thead> <tr> <th rowspan="2">Director Compensation [Line Items]</th> <th colspan="3">Director [Axis]</th> </tr> <tr> <th>John Doe [Member]</th> <th>Jane Doe [Member]</th> <th>Directors, All [Member]</th> </tr> </thead> <tbody> <tr> <td>Director [Hierarchy]</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Director, Salary</td> <td>1,000</td> <td>1,000</td> <td>2,000</td> </tr> <tr> <td>Director, Bonuses</td> <td>1,000</td> <td>1,000</td> <td>2,000</td> </tr> <tr> <td>Director, Fees</td> <td>1,000</td> <td>1,000</td> <td>2,000</td> </tr> <tr> <td>Director, Options Granted, at Fair Value</td> <td>1,000</td> <td>1,000</td> <td>2,000</td> </tr> </tbody> </table>		Director Compensation [Line Items]	Director [Axis]			John Doe [Member]	Jane Doe [Member]	Directors, All [Member]	Director [Hierarchy]				Director, Salary	1,000	1,000	2,000	Director, Bonuses	1,000	1,000	2,000	Director, Fees	1,000	1,000	2,000	Director, Options Granted, at Fair Value	1,000	1,000	2,000
Director Compensation [Line Items]	Director [Axis]																											
	John Doe [Member]	Jane Doe [Member]	Directors, All [Member]																									
Director [Hierarchy]																												
Director, Salary	1,000	1,000	2,000																									
Director, Bonuses	1,000	1,000	2,000																									
Director, Fees	1,000	1,000	2,000																									
Director, Options Granted, at Fair Value	1,000	1,000	2,000																									



14.10.3. Model structure

Component: (Network and Table)				
Network	Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/SimpleCompoundFact/DirectorCompensation)			
Table	Director Compensation [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Director Compensation [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Director [Axis]	[Axis]		
5	Directors, All [Member]	[Member]		
6	John Doe [Member]	[Member]		
7	Jane Doe [Member]	[Member]		
8	Director Compensation [Line Items]	[Line Items]		
9	Director [Hierarchy]	[Abstract]		
10	Director, Salary	[Concept] Monetary	For Period	Credit
11	Director, Bonuses	[Concept] Monetary	For Period	Credit
12	Director, Fees	[Concept] Monetary	For Period	Credit
13	Director, Options Granted, at Fair Value	[Concept] Monetary	For Period	Credit

14.10.4. Description

The *Simple Compound Fact* business use case shows the notion of a compound fact. A compound fact is a set of facts which must go together to make sense. A compound fact always has an axis which differentiates one set of facts from another. It could be that multiple axis create a composite set of axis which uniquely identifies the compound fact, see the *Grouped Report* business use case.

In this example, the *Director [Axis]* is used to distinguish one director from the other and each director from the total for all directors. The Salary; Bonus; Director Fee; and Options Granted, at Fair Value are provided for each director and for the total for all directors.

14.10.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- A compound fact always has at least one explicit axis (beyond the reporting entity and period) which uniquely identifies each set of facts.
- A compound fact is like the row of a data base table. The axis for the compound fact is like the key for the table containing the rows of the compound fact. If more than one axis is provided, that is like a composite key for the table.
- This Simple Compound Fact business use case introduces the notion of a domain partition and a domain partition aggregation model. The computation of the total Salary, as an example, for all directors is NOT a roll up as each director and the total of all directors are different XBRL contexts and therefore XBRL calculations cannot be utilized to express this computation. XBRL Formulas must be used to express the business rule for the aggregation of information across the Director [Axis]. The facts for add directors may, or may not, tie to another table within the financial report. In this case, there are no other tables.



14.11. Repeating fact

The *Repeating Fact* business use case is a variation of the compound fact metapattern which points out that even only one fact can repeat. The metapattern of this business use case is the **compound fact** and the **hierarchy**.

14.11.1. Visual Example

Sample Company
For Period Ending December 31, 2010

SUBSEQUENT EVENTS

The following is a summary of events subsequent to the balance sheet date:

Description of subsequent event number 1 which relates to the loss of an uncollectable receivable and occurred on January 16, 2011.

Description of subsequent event number 2 which relates to the purchase of a business and occurred on February 1, 2011.

14.11.2. Basic Automated Semantic Rendering

Component: (Network and Table)															
Network	Subsequent Events (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/RepeatingFact/SubsequentEvents)														
Table	Subsequent Events [Table]														
Slicers (applies to each fact value in each table cell)															
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)														
Period [Axis]	2010-01-01 - 2010-12-31														
Legal Entity [Axis]	Consolidated Entity [Member]														
<table border="1"> <thead> <tr> <th colspan="2">Subsequent Event [Axis]</th></tr> <tr> <th colspan="2">Subsequent Event [Line Items]</th></tr> </thead> <tbody> <tr> <td colspan="2"> <table border="1"> <thead> <tr> <th colspan="2">Subsequent Event [Hierarchy]</th></tr> <tr> <th colspan="2">Subsequent Event, Description</th></tr> </thead> <tbody> <tr> <td colspan="2">Description of subsequent event number 1 which relates to the loss of an uncollectable receivable and occurred on January 16, 2011.</td></tr> <tr> <td colspan="2">Description of subsequent event number 2 which relates to the purchase of a business and occurred on February 1, 2011.</td></tr> </tbody> </table> </td></tr> </tbody> </table>		Subsequent Event [Axis]		Subsequent Event [Line Items]		<table border="1"> <thead> <tr> <th colspan="2">Subsequent Event [Hierarchy]</th></tr> <tr> <th colspan="2">Subsequent Event, Description</th></tr> </thead> <tbody> <tr> <td colspan="2">Description of subsequent event number 1 which relates to the loss of an uncollectable receivable and occurred on January 16, 2011.</td></tr> <tr> <td colspan="2">Description of subsequent event number 2 which relates to the purchase of a business and occurred on February 1, 2011.</td></tr> </tbody> </table>		Subsequent Event [Hierarchy]		Subsequent Event, Description		Description of subsequent event number 1 which relates to the loss of an uncollectable receivable and occurred on January 16, 2011.		Description of subsequent event number 2 which relates to the purchase of a business and occurred on February 1, 2011.	
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Subsequent Event, Description															
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Description of subsequent event number 2 which relates to the purchase of a business and occurred on February 1, 2011.															



14.11.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Subsequent Events (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/RepeatingFact/SubsequentEvents)			
Table	Subsequent Events [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Subsequent Events [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Subsequent Event [Axis]	[Axis]		
5	Subsequent Events, All [Member]	[Member]		
6	Uncollected Receivable [Member]	[Member]		
7	Purchase of Business [Member]	[Member]		
8	Subsequent Event [Line Items]	[Line Items]		
9	Subsequent Event [Hierarchy]	[Abstract]		
10	Subsequent Event, Description	[Concept] String	For Period	

14.11.4. Description

The *Repeating Concept* business use case builds on the *Simple Compound Fact* use case, pointing out the notion that one fact can act like a compound fact and repeat.

In this example the subsequent event description repeats. Each subsequent event is uniquely described by the Subsequent Event [Axis] value or Member.

14.11.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Compound facts repeat. You might only have one fact in your financial report, but you might also have any unknown number of such facts, each differentiated by some [Axis].
- In this case, the member of the Subsequent Even [Axis] "Subsequent Event [Member]" would never be used because subsequent events and in particular the description would never be aggregated. However, it is the practice of the US GAAP taxonomy to have such members currently referred to as a [Domain].



14.12. Multiple periods compound fact

The *Multiple Periods Compound Fact* business use case shows how to model what amounts to a *Compound Fact* which is reported for multiple periods within that one *Compound Fact*. The metapattern of this business use case is the **compound fact** and the **hierarchy**.

14.12.1. Visual Example

Sample Company For Period Ending December 31, 2010

The following is a summary of leasehold land and buildings as of December 31, 2010 and 2009:

State	Location	Description	Tenure	Tenure Start Date	Land Area	2010 Value (at Cost)	2009 Value (at Cost)
pattern:WashingtonMember	Tacoma, Washington	Warehouse	Fifteen year lease	2000-01-01	1,000	5,000	4,000
pattern:WashingtonMember	Seattle, Washington	Warehouse	Twenty year lease	2000-01-01	100,000	50,000	40,000
				Total	101,000	55,000	44,000

14.12.2. Basic Automated Semantic Rendering

Component: (Network and Table)																											
Network	Leasehold Land and Buildings (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultiplePeriodsCompoundFact/LeaseHoldLandAndBuildings)																										
Table	Leasehold Land and Buildings [Table]																										
Slicers (applies to each fact value in each table cell)																											
Reporting Entity [Axis]		SAMP (http://www.SampleCompany.com)																									
Legal Entity [Axis]		Consolidated Entity [Member]																									
State [Axis]		Washington [Member]																									
Leasehold Land and Building [Line Items]		<table border="1"> <thead> <tr> <th colspan="3">Period [Axis]</th> </tr> <tr> <th colspan="3">2010-01-01 - 2010-12-31</th> </tr> <tr> <th colspan="3">2009-12-31</th> </tr> <tr> <th colspan="2">Leasehold Land and Building, Identifier [Axis]</th> <th>Leasehold Land and Building, Identifier [Axis]</th> </tr> </thead> <tbody> <tr> <td>Tacoma Warehouse Under 15 Year Lease [Member]</td> <td>Seattle Warehouse Under 20 Year Lease [Member]</td> <td>Leaseholds, All [Member]</td> </tr> <tr> <td>Tacoma Warehouse Under 15 Year Lease [Member]</td> <td>Seattle Warehouse Under 20 Year Lease [Member]</td> <td>Leaseholds, All [Member]</td> </tr> <tr> <td>Seattle Warehouse Under 20 Year Lease [Member]</td> <td>Tacoma Warehouse Under 15 Year Lease [Member]</td> <td>Leaseholds, All [Member]</td> </tr> </tbody> </table>					Period [Axis]			2010-01-01 - 2010-12-31			2009-12-31			Leasehold Land and Building, Identifier [Axis]		Leasehold Land and Building, Identifier [Axis]	Tacoma Warehouse Under 15 Year Lease [Member]	Seattle Warehouse Under 20 Year Lease [Member]	Leaseholds, All [Member]	Tacoma Warehouse Under 15 Year Lease [Member]	Seattle Warehouse Under 20 Year Lease [Member]	Leaseholds, All [Member]	Seattle Warehouse Under 20 Year Lease [Member]	Tacoma Warehouse Under 15 Year Lease [Member]	Leaseholds, All [Member]
Period [Axis]																											
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Tacoma, Washington	Seattle, Washington																										
Warehouse	Warehouse																										
Fifteen year lease	Twenty year lease																										
2000-01-01	2000-01-01																										
1,000	100,000	101,000	4,000	40,000	44,000																						
Leasehold Land and Building [Hierarchy]		5,000	50,000	55,000	4,000	40,000	44,000																				
Leasehold Land and Buildings, Location																											
Leasehold Land and Buildings, Description of Facility																											
Leasehold Land and Buildings, Tenure																											
Leasehold Land and Buildings, Tenure Start Date																											
Leasehold Land and Buildings, Land Area																											
Leasehold Land and Buildings, Value at Cost																											



14.12.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Leasehold Land and Buildings (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/MultiplePeriodsCompoundFact/LeaseHoldLandAndBuildings)			
Table	Leasehold Land and Buildings [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Leasehold Land and Buildings [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Leasehold Land and Building, Identifier [Axis]	[Axis]		
5	Leaseholds, All [Member]	[Member]		
6	Tacoma Warehouse Under 15 Year Lease [Member]	[Member]		
7	Seattle Warehouse Under 20 Year Lease [Member]	[Member]		
8	State [Axis]	[Axis]		
9	States, All [Member]	[Member]		
10	Washington [Member]	[Member]		
11	Oregon [Member]	[Member]		
12	California [Member]	[Member]		
13	Leasehold Land and Building [Line Items]	[Line Items]		
14	<i>Leasehold Land and Building [Hierarchy]</i>	[Abstract]		
15	Leasehold Land and Buildings, Location	[Concept] String	For Period	
16	Leasehold Land and Buildings, Description of Facility	[Concept] String	For Period	
17	Leasehold Land and Buildings, Tenure	[Concept] String	For Period	
18	Leasehold Land and Buildings, Tenure Start Date	[Concept] Date	For Period	
19	Leasehold Land and Buildings, Land Area	[Concept] Decimal	As Of	
20	Leasehold Land and Buildings, Value at Cost	[Concept] Monetary	As Of	

14.12.4. Description

The *Multiple Periods Compound Fact* business use case shows something quite common in financial reporting which is to provide values for both the current and prior period to describe some fact. In the screen shot, note that one value is reported for land area and two values are reported for value, 2010 and 2009. Note the report elements and relations below for the modelling of the concept Leasehold Land and Buildings, Value at Cost.

14.12.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Notice that the current period and prior period are characteristics provided within the financial report by the Period [Axis] rather than modelling each period within the taxonomy.
- Compare and contrast this use case with the *Simple Compound Fact* use case.
- Note how the information about which state relates to is presented differently in the presentation rendering (the screen shot above) and the automated rendering (the screen shot below); the business semantics remain equivalent.



14.13. Roll forward in compound fact

The *Roll Forward in Compound Fact* business use case shows how to model a *Roll Forward* which is contained within a Compound Fact. This business use case also introduces the notion of the negated label role and the component. The metapattern of this business use case is the **compound fact, roll forward**, and the **hierarchy**.

14.13.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

SHARE OWNERSHIP PLANS

The following is information relating to share ownership plan: pattern:ShareOwnershipPlan1Member .

These are the description, general conditions, and terms of share ownership plan 1. Nam rhoncus mi. Nunc eu dui non mauris interdum tincidunt. Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros. Maecenas interdum, lectus eget aliquet tincidunt, tellus dolor ultrices tellus, nec hendrerit nunc lectus eget eros. Duis feugiat velit in eros. Curabitur tincidunt aliquet neque. Nulla ac est quis urna luctus elementum. Aliquam erat volutpat. In tincidunt nunc vehicula risus. Praesent dictum arcu sit amet wisi. Praesent ac odio. Donec vestibulum, sem vel facilisis consectetur, justo arcu tempor sem, vel ultrices turpis leo quis augue.

Reconciliation of Outstanding Balance:

Type	Outstanding 2009	Granted	Forfeited	Exercised	Expired	Outstanding 2010
pattern:ShareOwnershipPlan1Member	0	4,000	-1,000	-1,000	-1,000	1,000



14.13.2. Basic Automated Semantic Rendering

Component: (Network and Table)																							
Network	Share Ownership Plans (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/RollForwardInCompoundFact/ShareOwnershipPlans)																						
Table	Share Ownership Plan [Table]																						
Slicers (applies to each fact value in each table cell)																							
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																						
Legal Entity [Axis]	Consolidated Entity [Member]																						
Share Ownership Plan, Identifier [Axis]	Share Ownership Plan 1 [Member]																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #a6c9ff; color: white;">Share Ownership Plan [Line Items]</th><th style="background-color: #a6c9ff; color: white;">Period [Axis]</th></tr> <tr> <th style="background-color: #a6c9ff; color: white;"></th><th style="background-color: #a6c9ff; color: white;">2010-01-01 - 2010-12-31</th></tr> </thead> <tbody> <tr> <td>Share Ownership Plan [Hierarchy]</td><td></td></tr> <tr> <td>Share Ownership Plan, Description, General Terms and Conditions</td><td>These are the description, general conditions, and terms of share ownership plan 1. Nam rhoncus mi. Nunc eu dui non mauris interdum tincidunt. Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros. Maecenas interdum, lectus eget aliquet tincidunt, tellus dolor ultrices tellus, nec hendrerit nunc lectus eget eros. Duis feugiat velit in eros. Curabitur tincidunt aliquet neque. Nulla ac est quis urna luctus elementum. Aliquam erat volutpat. In tincidunt nunc vehicula risus. Praesent dictum arcu sit amet wisi. Praesent ac odio. Donec vestibulum, sem vel facilisis consectetur, justo arcu tempor sem, vel ultrices turpis leo quis augue.</td></tr> <tr> <td>Share Ownership Plan, Share Options Outstanding [Roll Forward]</td><td></td></tr> <tr> <td>Share Ownership Plan, Share Options Outstanding, Beginning Balance</td><td>0</td></tr> <tr> <td>Share Ownership Plan, Share Options Granted</td><td>4,000</td></tr> <tr> <td>Share Ownership Plan, Share Options Forfeited</td><td>(1,000)</td></tr> <tr> <td>Share Ownership Plan, Share Options Exercised</td><td>(1,000)</td></tr> <tr> <td>Share Ownership Plan, Share Options Expired</td><td>(1,000)</td></tr> <tr> <td>Share Ownership Plan, Share Options Outstanding, Ending Balance</td><td>1,000</td></tr> </tbody> </table>		Share Ownership Plan [Line Items]	Period [Axis]		2010-01-01 - 2010-12-31	Share Ownership Plan [Hierarchy]		Share Ownership Plan, Description, General Terms and Conditions	These are the description, general conditions, and terms of share ownership plan 1. Nam rhoncus mi. Nunc eu dui non mauris interdum tincidunt. Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros. Maecenas interdum, lectus eget aliquet tincidunt, tellus dolor ultrices tellus, nec hendrerit nunc lectus eget eros. Duis feugiat velit in eros. Curabitur tincidunt aliquet neque. Nulla ac est quis urna luctus elementum. Aliquam erat volutpat. In tincidunt nunc vehicula risus. Praesent dictum arcu sit amet wisi. Praesent ac odio. Donec vestibulum, sem vel facilisis consectetur, justo arcu tempor sem, vel ultrices turpis leo quis augue.	Share Ownership Plan, Share Options Outstanding [Roll Forward]		Share Ownership Plan, Share Options Outstanding, Beginning Balance	0	Share Ownership Plan, Share Options Granted	4,000	Share Ownership Plan, Share Options Forfeited	(1,000)	Share Ownership Plan, Share Options Exercised	(1,000)	Share Ownership Plan, Share Options Expired	(1,000)	Share Ownership Plan, Share Options Outstanding, Ending Balance	1,000
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Share Ownership Plan, Share Options Exercised	(1,000)																						
Share Ownership Plan, Share Options Expired	(1,000)																						
Share Ownership Plan, Share Options Outstanding, Ending Balance	1,000																						

14.13.3. Model structure

Component: (Network and Table)																																																																																	
Network	Share Ownership Plans (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/RollForwardInCompoundFact/ShareOwnershipPlans)																																																																																
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>#</th><th>Label</th><th>Report Element Class</th><th>Period Type</th><th>Balance</th></tr> </thead> <tbody> <tr> <td>1</td><td>Share Ownership Plan [Table]</td><td>[Table]</td><td></td><td></td></tr> <tr> <td>2</td><td>Legal Entity [Axis]</td><td>[Axis]</td><td></td><td></td></tr> <tr> <td>3</td><td>Consolidated Entity [Member]</td><td>[Member]</td><td></td><td></td></tr> <tr> <td>4</td><td>Share Ownership Plan, Identifier [Axis]</td><td>[Axis]</td><td></td><td></td></tr> <tr> <td>5</td><td>Share Ownership Plan 1 [Member]</td><td>[Member]</td><td></td><td></td></tr> <tr> <td>6</td><td>Share Ownership Plan [Line Items]</td><td>[Line Items]</td><td></td><td></td></tr> <tr> <td>7</td><td>Share Ownership Plan [Hierarchy]</td><td>[Abstract]</td><td></td><td></td></tr> <tr> <td>8</td><td>Share Ownership Plan, Description, General Terms and Conditions</td><td>[Concept] String</td><td>For Period</td><td></td></tr> <tr> <td>9</td><td>Share Ownership Plan, Share Options Outstanding [Roll Forward]</td><td>[Abstract]</td><td></td><td></td></tr> <tr> <td>10</td><td>Share Ownership Plan, Share Options Outstanding, Beginning Balance</td><td>[Concept] Shares</td><td>As Of</td><td></td></tr> <tr> <td>11</td><td>Share Ownership Plan, Share Options Granted</td><td>[Concept] Shares</td><td>For Period</td><td></td></tr> <tr> <td>12</td><td>Share Ownership Plan, Share Options Forfeited</td><td>[Concept] Shares</td><td>For Period</td><td></td></tr> <tr> <td>13</td><td>Share Ownership Plan, Share Options Exercised</td><td>[Concept] Shares</td><td>For Period</td><td></td></tr> <tr> <td>14</td><td>Share Ownership Plan, Share Options Expired</td><td>[Concept] Shares</td><td>For Period</td><td></td></tr> <tr> <td>15</td><td>Share Ownership Plan, Share Options Outstanding, Ending Balance</td><td>[Concept] Shares</td><td>As Of</td><td></td></tr> </tbody> </table>		#	Label	Report Element Class	Period Type	Balance	1	Share Ownership Plan [Table]	[Table]			2	Legal Entity [Axis]	[Axis]			3	Consolidated Entity [Member]	[Member]			4	Share Ownership Plan, Identifier [Axis]	[Axis]			5	Share Ownership Plan 1 [Member]	[Member]			6	Share Ownership Plan [Line Items]	[Line Items]			7	Share Ownership Plan [Hierarchy]	[Abstract]			8	Share Ownership Plan, Description, General Terms and Conditions	[Concept] String	For Period		9	Share Ownership Plan, Share Options Outstanding [Roll Forward]	[Abstract]			10	Share Ownership Plan, Share Options Outstanding, Beginning Balance	[Concept] Shares	As Of		11	Share Ownership Plan, Share Options Granted	[Concept] Shares	For Period		12	Share Ownership Plan, Share Options Forfeited	[Concept] Shares	For Period		13	Share Ownership Plan, Share Options Exercised	[Concept] Shares	For Period		14	Share Ownership Plan, Share Options Expired	[Concept] Shares	For Period		15	Share Ownership Plan, Share Options Outstanding, Ending Balance	[Concept] Shares	As Of	
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14.13.4. Description

The *Roll Forward in Compound Fact* shows exactly that, a *Roll Forward* use case modelled within a *Compound Fact* use case. In this business use case the *Roll Forward* is part of the set of information which could repeat, in this case there could be more than one share ownership plan.

Further, the compound fact which could repeat is comprised of two distinct components: a Hierarchy which contains information about the share ownership plan and a Roll Forward which reconciles the beginning and ending balance of the plan.

Finally, within the roll forward are numbers which do not contain a balance attribute and therefore the polarity of the numbers, in this case shares, is unknown unless that information is somehow made available. In this case a negated label was created and within the relations that preferred label was used. This tells an application rendering the information to reverse the sign of the fact value when rendering.

14.13.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- In this use case a *Roll Forward* exists within a *Compound Fact*, in this case share ownership plans.
- The [Line Items] of the [Table] have two distinct sets or components. You can think of components as pieces of [Line Items] which are generally always used together and generally have a different rendering format.
- Negated label roles are used to indicate that reductions in shares outstanding should be rendered as negative values.



14.14. Nested compound fact

The *Nested Compound Fact* business use case shows how to model what amounts to two sets of information which are interrelated. Another way to look at this is to say that there is a master-detail type of relation between two [Table]s. This business use case also introduces the notion of using custom data type restrictions to control financial report fact values. The metapattern of this business use case is the **compound fact** and the **hierarchy**.

14.14.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

RELATED PARTY TRANSACTIONS

The following is a summary of related party of the company and transactions with those related parties. (Notice how the Related Party Name [Axis] connects the two tables of information together):

Related Parties:

Name of Related Party	Type of Relationship	Nature of Relationship
pattern:RelatedParty1Member	Parent	This is other descriptive information about the relationship.
pattern:RelatedParty2Member	JointVenture	This is other descriptive information about the relationship.

Transactions with Related Parties:

Party	Transaction Description	Pricing Policy	Amount
pattern:RelatedParty1Member	Transaction 1 description	Cost	1000
pattern:RelatedParty1Member	Transaction 2 description	Cost	1000
pattern:RelatedParty2Member	Transaction 1 description	Cost	1000
pattern:RelatedParty2Member	Transaction 2 description	Cost	1000



14.14.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	Related Parties (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedCompoundFact/RelatedParties)
Table	Related Parties [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Related Parties [Line Items]	Related Party Name [Axis]	
	Related Party 1 [Member]	Related Party 2 [Member]
Related Party [Hierarchy]		
Related Party, Type of Relationship	Parent	JointVenture
Related Party, Nature of Relationship	This is other descriptive information about the relationship.	This is other descriptive information about the relationship.

Component: (Network and Table)	
Network	Related Party Transactions (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedCompoundFact/RelatedPartyTransactions)
Table	Related Party Transactions [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Related Party Transaction [Line Items]	Related Party Name [Axis]			
	Related Party 1 [Member]		Related Party 2 [Member]	
	Related Party Transaction Type [Axis]		Related Party Transaction Type [Axis]	
Related Party Transaction [Line Items]	Purchase or Sale of Goods with Related Party [Member]	Purchase or Sale of Property or Other Assets with Related Party [Member]	Leasing Arrangements with Related Party [Member]	Purchase or Sale of Goods with Related Party [Member]
Related Party Transaction [Hierarchy]	Transaction 1 description	Transaction 2 description	Transaction 2 description	Transaction 1 description
Related Party Transaction, Description	Cost	Cost	Cost	Cost
Related Party Transaction, Pricing Policy				
Related Party Transaction, Amount	1,000	1,000	1,000	1,000



14.14.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	Related Parties (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedCompoundFact/RelatedParties)
Table	Related Parties [Table]

#	Label	Report Element Class	Period Type	Balance
1	Related Parties [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Related Party Name [Axis]	[Axis]		
5	Related Party 1 [Member]	[Member]		
6	Related Party 2 [Member]	[Member]		
7	Related Parties [Line Items]	[Line Items]		
8	Related Party [Hierarchy]	[Abstract]		
9	Related Party, Type of Relationship	[Concept] String	For Period	
10	Related Party, Nature of Relationship	[Concept] String	For Period	

Component: (Network and Table)	
Network	Related Party Transactions (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NestedCompoundFact/RelatedPartyTransactions)
Table	Related Party Transactions [Table]

#	Label	Report Element Class	Period Type	Balance
1	Related Party Transactions [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Related Party Name [Axis]	[Axis]		
5	Related Party 1 [Member]	[Member]		
6	Related Party 2 [Member]	[Member]		
7	Related Party Transaction Type [Axis]	[Axis]		
8	Related Party Transaction Type, All [Member]	[Member]		
9	Agency Arrangements with Related Party [Member]	[Member]		
10	Leasing Arrangements with Related Party [Member]	[Member]		
11	Purchase or Sale of Goods with Related Party [Member]	[Member]		
12	Purchase or Sale of Property or Other Assets with Related Party [Member]	[Member]		
13	Related Party Transaction [Line Items]	[Line Items]		
14	Related Party Transaction [Hierarchy]	[Abstract]		
15	Related Party Transaction, Description	[Concept] String	For Period	
16	Related Party Transaction, Pricing Policy	[Concept] String	For Period	
17	Related Party Transaction, Amount	[Concept] Monetary	For Period	Debit

14.14.4. Description

The *Nested Compound Concept* business use case models a compound fact nested within another compound fact also known as a master-detail type relationship. Consider that an entity can have zero to many related parties and that each of those related parties can have zero or many related party transactions. Those two report relations are modelled in this business use case.

Also, there is a desire to restrict the possible values provided for the types of related party reported. As such, a custom data type is created for the concept RepeatedPartyType and an enumerated list of values is provided.



14.14.5. *Important distinguishing aspects and dynamics*

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Notice that each [Table] have the [Axis] Related Party Name [Axis]. It is this [Axis] which relates to two [Table]s together.
- Note that [Table]s should not be physically nested as XBRL Dimensions does not allow one [Table] to be nested within another [Table].
- The type of relationship here is common referred to as a master-detail relationship, similar to an invoice master table and second table which contains invoice line items.
- Note that the enumerated values provided for Related Party, Type of Relationship cannot be changed as enumerated lists cannot be extended.



14.15. Reconciliation of balance

The *Reconciliation of Balance* business use case shows how to model a reconciliation of one balance to another balance and to tie the detailed reconciling items to the summary. In addition, this business use case introduces the notion of integrity between the summary and detail information sets. The metapattern of this business use case is the **compound fact**, **roll up**, and the **hierarchy**.

14.15.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Cash and Cash Equivalents, per Balance Sheet	1,000	1,000
Reconciling Item A	2,500	500
Reconciling Item B	-500	500
Cash and Cash Equivalents, per Cash Flow Statement	3,000	2,000

14.15.2. Basic Automated Semantic Rendering

Component: (Network and Table)																					
Network	Reconciliation of Cash and Cash Equivalents, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReconciliationOfBalance/ReconciliationOfCashSummary)																				
Table	Reconciliation of Cash, Summary [Table]																				
Slicers (applies to each fact value in each table cell)																					
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																				
Legal Entity [Axis]	Consolidated Entity [Member]																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2" style="text-align: center;">Period [Axis]</th> </tr> <tr> <th colspan="2"></th> <th style="text-align: center;">2010-12-31</th> <th style="text-align: center;">2009-12-31</th> </tr> </thead> <tbody> <tr> <td colspan="2">Reconciliation of Cash, Summary [Line Items]</td><td style="text-align: center;">1,000,000</td><td style="text-align: center;">1,000,000</td></tr> <tr> <td colspan="2">Reconciliation of Cash, Summary [Roll Up]</td><td style="text-align: center;">2,000,000</td><td style="text-align: center;">1,000,000</td></tr> <tr> <td colspan="2">Cash and Cash Equivalents</td><td style="text-align: center;">3,000,000</td><td style="text-align: center;">2,000,000</td></tr> </tbody> </table>				Period [Axis]				2010-12-31	2009-12-31	Reconciliation of Cash, Summary [Line Items]		1,000,000	1,000,000	Reconciliation of Cash, Summary [Roll Up]		2,000,000	1,000,000	Cash and Cash Equivalents		3,000,000	2,000,000
		Period [Axis]																			
		2010-12-31	2009-12-31																		
Reconciliation of Cash, Summary [Line Items]		1,000,000	1,000,000																		
Reconciliation of Cash, Summary [Roll Up]		2,000,000	1,000,000																		
Cash and Cash Equivalents		3,000,000	2,000,000																		

Component: (Network and Table)																																									
Network	Reconciliation of Cash and Cash Equivalents, Detail (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReconciliationOfBalance/ReconciliationOfCashDetail)																																								
Table	Reconciliation of Cash, Detail [Table]																																								
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		Period [Axis]																																							
		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31																																						
		Reconciling Item Type [Axis]																																							
		Reconciling Item Type A [Member]	Reconciling Item Type B [Member]																																						
Reconciliation of Cash, Detail [Line Items]		Reconciling Item Types, All Types [Member]	Reconciling Item Types, All Types [Member]																																						
Reconciling Item [Hierarchy]		Reconciling Item Type A [Member]	Reconciling Item Type B [Member]																																						
Reconciling Item Description	Reconciling Item A for 2010	Reconciling Item B for 2010	Reconciling Item A for 2009																																						
Reconciling Item Amount	2,500,000	(500,000)	2,000,000																																						
		500,000	500,000																																						
			1,000,000																																						



14.15.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	Reconciliation of Cash and Cash Equivalents, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReconciliationOfBalance/ReconciliationOfCashSummary)
Table	Reconciliation of Cash, Summary [Table]

#	Label	Report Element Class	Period Type	Balance
1	Reconciliation of Cash, Summary [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Reconciliation of Cash, Summary [Line Items]	[Line Items]		
5	Reconciliation of Cash, Summary [Roll Up]	[Abstract]		
6	Cash and Cash Equivalents	[Concept] Monetary	As Of	Debit
7	Reconciling Item Amount	[Concept] Monetary	As Of	Debit
8	Cash and Cash Equivalents, per Cash Flow Statement	[Concept] Monetary	As Of	Debit

Component: (Network and Table)	
Network	Reconciliation of Cash and Cash Equivalents, Detail (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReconciliationOfBalance/ReconciliationOfCashDetail)
Table	Reconciliation of Cash, Detail [Table]

#	Label	Report Element Class	Period Type	Balance
1	Reconciliation of Cash, Detail [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Reconciling Item Type [Axis]	[Axis]		
5	Reconciling Item Types, All Types [Member]	[Member]		
6	Reconciling Item Type A [Member]	[Member]		
7	Reconciling Item Type B [Member]	[Member]		
8	Reconciliation of Cash, Detail [Line Items]	[Line Items]		
9	Reconciling Item [Hierarchy]	[Abstract]		
10	Reconciling Item Description	[Concept] String	For Period	
11	Reconciling Item Amount	[Concept] Monetary	As Of	Debit

14.15.4. Description

The *Reconciliation of Balance* business use case reconciles two different concepts at the same point in time. In the example shown, Cash and Cash Equivalents per the balance sheet is reconciled to Cash and Cash Equivalents per the cash flow statement. (The example assumes that the two balances are different as could be the case with IFRS.) In addition, the summary information ties to detailed information about the reconciling items.

14.15.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The summary information is basically a very simple roll up.
- The detailed information is a compound fact.
- The summary [Table] and the detailed [Table] intersect via the “Reconciling Item Amount” concept and the “Reconciling Item Types, All Types [Member]”.
- The [Axis] must assign dimension-defaults to the “Reconciling Item Type [Axis]”. In this example, the “Legal Entity [Axis]” was also assigned a dimension-default.



- Compare the XBRL instance and the fact tables, note that the [Axis] do not physically exist in the XBRL instance, but do exist within the fact tables.



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14.16. Adjustment

An *adjustment* information model reconciles an originally stated balance to a restated balance, the adjustment being the total change, between two different report dates. An adjustment is similar to a roll forward in that it is a reconciliation, however rather than the Period [Axis] changing; it is the *Report Date [Axis]* which changes: originally reported balance + adjustment = restated balance.

The *Adjustment* metapattern shows how to model an adjustment to a prior period financial statement for a change in accounting policy or correction of an error as defined by financial reporting standards. This same approach can be used for making adjustments to other beginning balances not related to financial reporting. The metapattern of this business use case is the **adjustment**.

14.16.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
<i>Prior Period Adjustment</i>		
Retained Earnings (Accumulated Losses), Originally Stated 2009	4,000	
Change in Accounting Policy	3,000	
Correction of an Error	<u>-1,000</u>	
Retained Earnings (Accumulated Losses), Restated 2009 Beginning Balance	<u>6,000</u>	



14.16.2. Basic Automated Semantic Rendering

Component: (Network and Table)																								
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/Adjustment/PriorPeriodAdjustments)																							
Table	Prior Period Adjustments [Table]																							
Slicers (applies to each fact value in each table cell)																								
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																							
Legal Entity [Axis]	Consolidated Entity [Member]																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding-bottom: 5px;">Prior Period Adjustments [Line Items]</th> <th style="text-align: center; padding-bottom: 5px;">Report Date [Axis]</th> <th style="text-align: center; padding-bottom: 5px;">Period [Axis]</th> </tr> <tr> <th></th> <th style="text-align: center; padding-bottom: 5px;">2009-12-31</th> <th></th> </tr> </thead> <tbody> <tr> <td>Retained Earnings (Accumulated Losses), Originally Stated</td><td style="text-align: center;">Reported March 21, 2010 [Member]</td><td style="text-align: center;">4,000</td></tr> <tr> <td>Changes in Accounting Policy</td><td style="text-align: center;">Reported March 18, 2011 [Member]</td><td style="text-align: center;">3,000</td></tr> <tr> <td>Correction of an Error</td><td style="text-align: center;">Reported March 18, 2011 [Member]</td><td style="text-align: center;">(1,000)</td></tr> <tr> <td>Prior Period Adjustments, Period Increase (Decrease), Total</td><td style="text-align: center;">Reported March 18, 2011 [Member]</td><td style="text-align: center;">2,000</td></tr> <tr> <td>Retained Earnings (Accumulated Losses), Restated</td><td style="text-align: center;">Reported March 18, 2011 [Member]</td><td style="text-align: center;">6,000</td></tr> </tbody> </table>				Prior Period Adjustments [Line Items]	Report Date [Axis]	Period [Axis]		2009-12-31		Retained Earnings (Accumulated Losses), Originally Stated	Reported March 21, 2010 [Member]	4,000	Changes in Accounting Policy	Reported March 18, 2011 [Member]	3,000	Correction of an Error	Reported March 18, 2011 [Member]	(1,000)	Prior Period Adjustments, Period Increase (Decrease), Total	Reported March 18, 2011 [Member]	2,000	Retained Earnings (Accumulated Losses), Restated	Reported March 18, 2011 [Member]	6,000
Prior Period Adjustments [Line Items]	Report Date [Axis]	Period [Axis]																						
	2009-12-31																							
Retained Earnings (Accumulated Losses), Originally Stated	Reported March 21, 2010 [Member]	4,000																						
Changes in Accounting Policy	Reported March 18, 2011 [Member]	3,000																						
Correction of an Error	Reported March 18, 2011 [Member]	(1,000)																						
Prior Period Adjustments, Period Increase (Decrease), Total	Reported March 18, 2011 [Member]	2,000																						
Retained Earnings (Accumulated Losses), Restated	Reported March 18, 2011 [Member]	6,000																						

[CSH: This has numerous rendering errors. [Roll Up] and [Adjustment] abstract concepts are not shown and the Report Date [Axis] column width is too narrow.]

14.16.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/Adjustment/PriorPeriodAdjustments)			
Table	Prior Period Adjustments [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Prior Period Adjustments [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Reported March 21, 2010 [Member]	[Member]		
6	Reported March 18, 2011 [Member]	[Member]		
7	Prior Period Adjustments [Line Items]	[Line Items]		
8	Prior Period Adjustments to Retained Earnings [Adjustment]	[Abstract]		
9	Retained Earnings (Accumulated Losses), Originally Stated	[Concept] Monetary	As Of	Credit
10	Prior Period Adjustments, Period Increase (Decrease), Total [Roll Up]	[Abstract]		
11	Changes in Accounting Policy	[Concept] Monetary	As Of	Credit
12	Correction of an Error	[Concept] Monetary	As Of	Credit
13	Prior Period Adjustments, Period Increase (Decrease), Total	[Concept] Monetary	As Of	Credit
14	Retained Earnings (Accumulated Losses), Restated	[Concept] Monetary	As Of	Credit



14.16.4. Description

The example *Adjustment* above reconciles the Retained Earnings (Accumulated Losses), Originally Stated in 2009 to its Restated 2009 Beginning Balance via the Prior Period Adjustments which make up the change. Note that an *Adjustment* looks similar in presentation to a roll forward, however it is different in that a different [Axis] is changing.

An *Adjustment* can be identified by software applications by the business rule which computes the adjustment to verify that it is correctly articulated within the XBRL instance: originally stated + adjustment = restated balance over a changing *Report Date [Axis]*.

14.16.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- An *Adjustment* reconciles two balances at the same point in time, the first balance being the originally stated balance and the second the restated balance.
- A common use for an adjustment is reporting an adjustment to retained earnings for a prior period error or change in accounting policy.
- Note that the concepts relating to the adjustment amount are as of a point in time.
- Note that there are two domain partitions.
- The adjustments could be from a roll forward or individual adjustments, for example: originally stated + adjustment1 + adjustment2 + adjustmentN = restated balance



14.17. Variance

A **variance** information model reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes. For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation in this case is: actual – budget = variance. But a variance could take other forms such as a variance from forecast, variance from plan, etc. The metapattern of this business use case is the **variance** and **hierarchy**. Any metapattern could be modelled as variance.

A variance is characterised by a changing Reporting Scenario [Axis] and the information model of a variance could take the form of any information model such as a hierarchy, roll up, roll forward, etc.

14.17.1. Visual Example

Sample Company For Period Ending December 31, 2010

Concept	Actual	Budgeted	Variance
Sales	6,000	5,000	1,000
Cost of Goods Sold	4,000	3,000	1,000
Contribution Margin	1,000	2,000	-1,000
Distribution Costs	1,000	1,000	0

14.17.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																				
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/Variance/VarianceAnalysis)																																			
Table	Variance Analysis [Table]																																			
Slicers (applies to each fact value in each table cell)																																				
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																			
Period [Axis]	2010-01-01 - 2010-12-31																																			
Legal Entity [Axis]	Consolidated Entity [Member]																																			
<table border="1"> <thead> <tr> <th colspan="2">Variance Analysis [Line Items]</th><th colspan="3">Reporting Scenario [Axis]</th></tr> <tr> <th colspan="2"></th><th>Actual [Member]</th><th>Budgeted [Member]</th><th>Reporting Scenarios, All [Member]</th></tr> </thead> <tbody> <tr> <td colspan="2">Variance Analysis [Hierarchy]</td><td></td><td></td><td></td></tr> <tr> <td colspan="2">Sales</td><td>6,000</td><td>5,000</td><td>1,000</td></tr> <tr> <td colspan="2">Cost of Goods Sold</td><td>4,000</td><td>3,000</td><td>1,000</td></tr> <tr> <td colspan="2">Contribution Margin</td><td>1,000</td><td>2,000</td><td>(1,000)</td></tr> <tr> <td colspan="2">Distribution Costs</td><td>1,000</td><td>1,000</td><td>0</td></tr> </tbody> </table>		Variance Analysis [Line Items]		Reporting Scenario [Axis]					Actual [Member]	Budgeted [Member]	Reporting Scenarios, All [Member]	Variance Analysis [Hierarchy]					Sales		6,000	5,000	1,000	Cost of Goods Sold		4,000	3,000	1,000	Contribution Margin		1,000	2,000	(1,000)	Distribution Costs		1,000	1,000	0
Variance Analysis [Line Items]		Reporting Scenario [Axis]																																		
		Actual [Member]	Budgeted [Member]	Reporting Scenarios, All [Member]																																
Variance Analysis [Hierarchy]																																				
Sales		6,000	5,000	1,000																																
Cost of Goods Sold		4,000	3,000	1,000																																
Contribution Margin		1,000	2,000	(1,000)																																
Distribution Costs		1,000	1,000	0																																



14.17.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/Variance/VarianceAnalysis)			
Table	Variance Analysis [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Variance Analysis [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Reporting Scenario [Axis]	[Axis]		
5	Reporting Scenarios, All [Member]	[Member]		
6	Actual [Member]	[Member]		
7	Budgeted [Member]	[Member]		
8	Variance Analysis [Line Items]	[Line Items]		
9	Variance Analysis [Hierarchy]	[Abstract]		
10	Sales	[Concept] Monetary	For Period	Credit
11	Cost of Goods Sold	[Concept] Monetary	For Period	Debit
12	Contribution Margin	[Concept] Monetary	For Period	Credit
13	Distribution Costs	[Concept] Monetary	For Period	Debit

14.17.4. Description

A *Variance* reconciles two different reporting scenarios differentiated using the *Reporting Scenarios [Axis]*, in the case here *Actual [Member]* and *Budgeted [Member]*, the difference being the variance, or *Reporting Scenarios, All [Member]*.

A *Variance* can be identified by software applications by the business rule which verifies and computes the variance, *Actual [Member]* + *Budgeted [Member]* = *Reporting Scenarios, All [Member]*, all within the *Reporting Scenario [Axis]*.

14.17.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Variance* use case shows how to report facts for different reporting scenarios.
- The *Variance* could be combined with many different types of information models.



14.18. Complex computation

A *Complex Computation* information model can be thought of as a hierarchy plus a set of commutations between different concepts within that hierarchy which are challenging to model as the parent/child relations of a graph. The type of computations can vary significantly, thus the challenging in modelling. For example, the computation of earnings per share is a complex computation. The metapattern of this business use case is the **complex computation** and **hierarchy**.

14.18.1. Visual Example

Sample Company
For Period Ended December 31,

2010	2009
------	------

OTHER INFORMATION

Earnings Per Share Components

Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	0.10	0.20

14.18.2. Basic Automated Semantic Rendering

Component: (Network and Table)		
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/ComplexComputation/EarningsPerShareComponents)	
Table	Earnings Per Share Components [Table]	
Slicers (applies to each fact value in each table cell)		
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)	
Legal Entity [Axis]	Consolidated Entity [Member]	
Earnings Per Share Components [Line Items]		Period [Axis]
		2010-01-01 - 2009-01-01 - 2010-12-31 2009-12-31
Earnings Per Share Components [Hierarchy]		
Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	.10	.20

14.18.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/ComplexComputation/EarningsPerShareComponents)			
Table	Earnings Per Share Components [Table]			
# Label Report Element Class Period Type Balance				
1 Earnings Per Share Components [Table]	[Table]			
2 Legal Entity [Axis]	[Axis]			
3 Consolidated Entity [Member]	[Member]			
4 Earnings Per Share Components [Line Items]	[Line Items]			
5 Earnings Per Share Components [Hierarchy]	[Abstract]			
6 Net Income (Loss)	[Concept] Monetary	For Period	Credit	
7 Weighted Average Common Shares	[Concept] Shares	For Period		
8 Earnings Per Share	[Concept] Decimal	For Period		



14.18.4. Description

Any information set can be modelled as a hierarchy metapattern. A hierarchy is nothing more than a set of relations. If you add computations to the hierarchy, indicating that the concepts within that hierarchy have some set of computation type relations, then you get what is shown in this business use case, a *Complex Computation*.

14.18.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- A complex computation is a hierarchy of concepts, some of which are numeric and there are computation-type relations between the numeric concepts.
- Many types of computation-type relations can be difficult to express as a parent-child hierarchy, thus the need to use XBRL formula to express these business rules.



14.19. Text block

The *Text Block* business use case shows how one fragment of information or multiple pieces of information can be put reported together within on “block of text”, as opposed to modelling the individual pieces of information. Note the *Prose* and *Escaped XHTML* business use cases which expand on this business use case. The metapattern of this business use case is the **text block**.

14.19.1. Visual Example

Sample Company
December 31, 2010

Accounting Policies

Duis fermentum

Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.

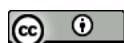
- Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis.
- Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.
- Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede.

DONEC PULVINAR NONUMMY ERAT

Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.

14.19.2. Basic Automated Semantic Rendering

Component: (Network and Table)						
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/TextBlock/AccountingPolicies)					
Table	Accounting Policies [Table]					
Slicers (applies to each fact value in each table cell)						
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)					
Legal Entity [Axis]	Consolidated Entity [Member]					
<table border="1"> <thead> <tr> <th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">2010-01-01 - 2010-12-31</td></tr> </tbody> </table>		Period [Axis]		2010-01-01 - 2010-12-31		
Period [Axis]						
2010-01-01 - 2010-12-31						
Accounting Policies [Line Items]	<table border="1"> <thead> <tr> <th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">2010-01-01 - 2010-12-31</td></tr> </tbody> </table> <p>Duis fermentum</p> <p>Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.</p> <ul style="list-style-type: none"> • Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. • Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. • Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. <p>Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.</p> <ol style="list-style-type: none"> 1. Etiam ut augue 2. Aliquam erat volutpat <p>DONEC PULVINAR NONUMMY ERAT</p> <p>Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.</p>	Period [Axis]		2010-01-01 - 2010-12-31		
Period [Axis]						
2010-01-01 - 2010-12-31						



14.19.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/TextBlock/AccountingPolicies)			
Table	Accounting Policies [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Accounting Policies [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Accounting Policies [Line Items]	[Line Items]		
5	Accounting Policies [Text Block]	[Concept] String	For Period	

14.19.4. Description

The *Text Block* business use case shows how information can be communicated as a “block of text” rather than reporting individual components. The reason this is referred to as a “text block” is that originally in the US GAAP Taxonomy a text block was to report literally a block of text. This has subsequently changed and instead of text, escaped XHTML is reported. The escaped XHTML is converted into actual XHTML and then the XHTML is rendered. In this example, one concept is used to communicate information about accounting policies.

Because of formatting considerations and little control over text other than tabs, spaces, and line feeds; the escaped XHTML is used rather than plain text.

14.19.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- When a text block is used, one fact value is used to articulate a “block” of information, rather than breaking the block into individual facts. The up side is that articulating the information is easier as less work is involved. The down side is that the user of the information cannot get to the details of the block of information, they can only use the set as one unit of information.



14.20. Prose

The *Prose* business use case shows how to model prose or information which has sophisticated formatting referred to as prose or as narrative such as tables, lists, paragraphs which should be read in a specific order or sequence. The metapattern of this business use case is the **text block**.

14.20.1. Visual Example

Sample Company For Period Ending December 31, 2010

SOME SET OF BUSINESS INFORMATION

The following is a summary of some set of business information for the period ended December 31, 2010:

Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, iacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.

Sed justo: Nibh, placerat

Praesent eleifend	Loem ipsum dolor	Suspendisse	Maecenas ante	Phasellus sagittis orci quis orci
Vivamus quis nunc	1,000	1,000	1,000	1,000
Proin porta tincidunt nunc	1,000	1,000	1,000	1,000
Pellentesque condimentum	2,000	2,000	2,000	2,000

Duis fermentum

Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.

- Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis.
- Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.
- Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede.

Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.

1. Etiam ut augue
2. Aliquam erat volutpat

Sed justo: Nibh, placerat

	20XX	20XX
Sed dapibus dui quis lectus; Donec id sem. Integer sit amet 2% diam ac nibh consequat vestibulum; Sed eget augue malesuada quam adipiscing mattis	23,480	46,080
Sed lobortis, Maecenas scelerisque ullamcorper libero, Aliquam porta \$880 leo imperdiet pede	85,000	-
Nunc congue. Fusce venenatis. Maecenas tincidunt, ipsum in fringilla hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus	-	45,000
Fusce venenatis. Maecenas tincidunt, ipsum in fringilla \$1,200 hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus	33,301	43,782
Pellentesque	141,781	134,862

DONEC PULVINAR NONUMMY ERAT

Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.



14.20.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																													
Network	Some Set of Business Information (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Prose/SomeSetOfBusinessInformation)																																												
Table	Some Set of Business Information [Table]																																												
Slicers (applies to each fact value in each table cell)																																													
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																																												
Legal Entity [Axis]	Consolidated Entity [Member]																																												
Some Characteristic [Axis]	Some Characteristic [Member]																																												
Some Set of Business Information [Line Items]		Period [Axis]																																											
		2010-01-01 - 2010-12-31																																											
Some Set of Business Information [HTML]		<p>Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.</p> <p>Sed justo: Nibh, placerat</p> <table> <thead> <tr> <th>Praesent eleifend</th> <th>Lorem ipsum dolor</th> <th>Suspendisse</th> <th>Maecenas ante</th> <th>Phasellus sagittis orci quis orci</th> </tr> </thead> <tbody> <tr> <td>Vivamus quis nunc</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>Proin porta tincidunt nunc</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>Pellentesque condimentum</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> </tr> </tbody> </table> <p>Duis fermentum</p> <p>Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed moncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.</p> <ul style="list-style-type: none"> • Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. • Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. • Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. <p>Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.</p> <ol style="list-style-type: none"> 1. Etiam ut augue 2. Aliquam erat volutpat <p>Sed justo: Nibh, placerat</p> <table> <thead> <tr> <th></th> <th>20XX</th> <th>20XX</th> </tr> </thead> <tbody> <tr> <td>Sed dapibus dui quis lectus; Donec id sem. Integer sit amet 2% diam ac nibh consequat vestibulum; Sed eget augue malesuada quam adipiscing mattis</td> <td>23,480</td> <td>46,080</td> </tr> <tr> <td>Sed lobortis, Maecenas scelerisque ullamcorper libero, Aliquam porta \$880 leo imperdiet pede</td> <td>85,000</td> <td>-</td> </tr> <tr> <td>Nunc congue. Fusce venenatis. Maecenas tincidunt, ipsum in fringilla hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus</td> <td>-</td> <td>45,000</td> </tr> <tr> <td>Fusce venenatis. Maecenas tincidunt, ipsum in fringilla \$1,200 hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus</td> <td>33,301</td> <td>43,782</td> </tr> <tr> <td>Pellentesque</td> <td>141,781</td> <td>134,862</td> </tr> </tbody> </table> <p>DONEC PULVINAR NONUMMY ERAT</p> <p>Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.</p>						Praesent eleifend	Lorem ipsum dolor	Suspendisse	Maecenas ante	Phasellus sagittis orci quis orci	Vivamus quis nunc	1,000	1,000	1,000	1,000	Proin porta tincidunt nunc	1,000	1,000	1,000	1,000	Pellentesque condimentum	2,000	2,000	2,000	2,000		20XX	20XX	Sed dapibus dui quis lectus; Donec id sem. Integer sit amet 2% diam ac nibh consequat vestibulum; Sed eget augue malesuada quam adipiscing mattis	23,480	46,080	Sed lobortis, Maecenas scelerisque ullamcorper libero, Aliquam porta \$880 leo imperdiet pede	85,000	-	Nunc congue. Fusce venenatis. Maecenas tincidunt, ipsum in fringilla hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus	-	45,000	Fusce venenatis. Maecenas tincidunt, ipsum in fringilla \$1,200 hendrerit, dolor metus eleifend neque, vel tincidunt mi nunc a purus	33,301	43,782	Pellentesque	141,781	134,862
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Pellentesque	141,781	134,862																																											

14.20.3. Report Elements and Model Structure

Component: (Network and Table)					
Network	Some Set of Business Information (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Prose/SomeSetOfBusinessInformation)				
Table	Some Set of Business Information [Table]				
#	Label	Report Element Class	Period Type	Balance	
1	Some Set of Business Information [Table]	[Table]			
2	Legal Entity [Axis]	[Axis]			
3	Consolidated Entity [Member]	[Member]			
4	Some Characteristic [Axis]	[Axis]			
5	Some Characteristic [Member]	[Member]			
6	Some Set of Business Information [Line Items]	[Line Items]			
7	Some Set of Business Information [HTML]	[Concept] String	For Period		



14.20.4. Description

The *Prose* or narrative business use case shows how information can be disclosed if the ordering of the information matters and if rather than disclosing individual pieces of information, an entire set of information can be articulated as one fact value. This use case is similar to the *Escaped XHTML* and *Text Block* use cases.

14.20.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Escaped XHTML is used to disclose such prose (rather than normal XHTML) because XBRL items must not contain mark up. To overcome this constraint, the mark up characters are escaped, thus converting "<" into "<" and ">" into ">".
- Conversion from escaped XHTML to normal XHTML is a well understood process, easily done by software applications.
- Other XML formats can be escaped in the same manner, basically allowing for different types of XML data to be imbedded within XBRL.
- Eventually XBRL may be changed to allow specific data types to appear within specific XBRL data type; for example a specific data type "XHTML", not requiring the escaping process to be used.



14.21. Escaped XHTML

The *Escaped XHTML* business use case is a variation of a *Text Block* and models how one can make use of HTML (hypertext mark-up language) to achieve pixel perfect renderings of information which has complex information structures. The metapattern of this business use case is the **text block**.

14.21.1. Visual Example

Sample Company For Period Ending December 31, 2010

DIRECTOR COMPENSATION

The following is a summary of director compensation for the period ended December 31, 2010:

Table 1: Director's compensation

Name of director	Salary	Bonus	Director fees	Fair Value of Options Granted
Jane Doe	1,000	1,000	1,000	1,000
John Doe	1,000	1,000	1,000	1,000
Total	2,000	2,000	2,000	2,000

14.21.2. Metapattern(s) employed

Component: (Network and Table)																									
Network	Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/EscapedXHTML/DirectorCompensation)																								
Table	Director Compensation [Table]																								
Slicers (applies to each fact value in each table cell)																									
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																								
Legal Entity [Axis]	Consolidated Entity [Member]																								
<table border="1"> <tr> <th>Director Compensation [Line Items]</th> <th>Period [Axis] 2010-01-01 - 2010-12-31</th> </tr> <tr> <th>Director [Hierarchy] Director Compensation [HTML]</th> <th> <table border="1"> <tr> <th>Name of director</th> <th>Salary</th> <th>Bonus</th> <th>Director fees</th> <th>Fair Value of Options Granted</th> </tr> <tr> <td>Jane Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>John Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>Total</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> </tr> </table> </th> </tr> </table>		Director Compensation [Line Items]	Period [Axis] 2010-01-01 - 2010-12-31	Director [Hierarchy] Director Compensation [HTML]	<table border="1"> <tr> <th>Name of director</th> <th>Salary</th> <th>Bonus</th> <th>Director fees</th> <th>Fair Value of Options Granted</th> </tr> <tr> <td>Jane Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>John Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>Total</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> </tr> </table>	Name of director	Salary	Bonus	Director fees	Fair Value of Options Granted	Jane Doe	1,000	1,000	1,000	1,000	John Doe	1,000	1,000	1,000	1,000	Total	2,000	2,000	2,000	2,000
Director Compensation [Line Items]	Period [Axis] 2010-01-01 - 2010-12-31																								
Director [Hierarchy] Director Compensation [HTML]	<table border="1"> <tr> <th>Name of director</th> <th>Salary</th> <th>Bonus</th> <th>Director fees</th> <th>Fair Value of Options Granted</th> </tr> <tr> <td>Jane Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>John Doe</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td>Total</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> <td>2,000</td> </tr> </table>	Name of director	Salary	Bonus	Director fees	Fair Value of Options Granted	Jane Doe	1,000	1,000	1,000	1,000	John Doe	1,000	1,000	1,000	1,000	Total	2,000	2,000	2,000	2,000				
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Total	2,000	2,000	2,000	2,000																					

14.21.3. Report Elements and Model Structure

Component: (Network and Table)																																				
Network	Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/EscapedXHTML/DirectorCompensation)																																			
Table	Director Compensation [Table]																																			
<table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Report Element Class</th> <th>Period Type</th> <th>Balance</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Director Compensation [Table]</td> <td>[Table]</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Legal Entity [Axis]</td> <td>[Axis]</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Consolidated Entity [Member]</td> <td>[Member]</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Director Compensation [Line Items]</td> <td>[Line Items]</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Director [Hierarchy]</td> <td>[Abstract]</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Director Compensation [HTML]</td> <td>[Concept] String</td> <td>For Period</td> <td></td> </tr> </tbody> </table>		#	Label	Report Element Class	Period Type	Balance	1	Director Compensation [Table]	[Table]			2	Legal Entity [Axis]	[Axis]			3	Consolidated Entity [Member]	[Member]			4	Director Compensation [Line Items]	[Line Items]			5	Director [Hierarchy]	[Abstract]			6	Director Compensation [HTML]	[Concept] String	For Period	
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2	Legal Entity [Axis]	[Axis]																																		
3	Consolidated Entity [Member]	[Member]																																		
4	Director Compensation [Line Items]	[Line Items]																																		
5	Director [Hierarchy]	[Abstract]																																		
6	Director Compensation [HTML]	[Concept] String	For Period																																	



14.21.4. Description

The *Escaped XHTML* business use case is basically the same as the *Text Block* and *Prose* business use case. All these business use cases show how information can be modelled if there is formatted structure to the information or if there is a desire to model the information as a set, rather than modelling each detailed fact which may exist in the information set.

14.21.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- While a business user cannot parse the details of the information set, this type of an approach can be useful in modelling certain detailed information.



14.22. Using JSON

The JSON business use case models how to articulate data primarily for the purpose of exchanging a set of information. JSON (pronounced Jayson) is an approach to formatting data. Other formats such as CSV (comma separated values) could likewise use this approach. The metapattern of this business use case is the **text block**.

14.22.1. Visual Example

```
{
  "DirectorCompensation": [
    {
      "DirectorName": "Jane Doe",
      "Salary": "1,000",
      "Bonus": "1,000",
      "DirectorFees": "1,000",
      "FairValueOfOptionsGranted": "1,000"
    },
    {
      "DirectorName": "John Doe",
      "Salary": "1,000",
      "Bonus": "1,000",
      "DirectorFees": "1,000",
      "FairValueOfOptionsGranted": "1,000"
    },
    {
      "DirectorName": "All Directors",
      "Salary": "2,000",
      "Bonus": "2,000",
      "DirectorFees": "2,000",
      "FairValueOfOptionsGranted": "2,000"
    }
  ]
}
```

14.22.2. Basic Automated Semantic Rendering

Component: (Network and Table)										
Network	Director Compensation (http://www.xbrisite.com/DigitalFinancialReporting/BusinessUseCase/UsingJSON/DirectorCompensation)									
Table	Director Compensation [Table]									
Slicers (applies to each fact value in each table cell)										
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)									
Legal Entity [Axis]	Consolidated Entity [Member]									
<table border="1"> <thead> <tr> <th colspan="2">Director Compensation [Line Items]</th><th>Period [Axis]</th></tr> <tr> <th colspan="2"></th><th>2010-01-01 - 2010-12-31</th></tr> </thead> <tbody> <tr> <td colspan="2">Director Compensation [JSON]</td><td>{"DirectorCompensation": [{ "DirectorName": "Jane Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "John Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "All Directors", "Salary": "2,000", "Bonus": "2,000", "DirectorFees": "2,000", "FairValueOfOptionsGranted": "2,000" }] }</td></tr> </tbody> </table>		Director Compensation [Line Items]		Period [Axis]			2010-01-01 - 2010-12-31	Director Compensation [JSON]		{"DirectorCompensation": [{ "DirectorName": "Jane Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "John Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "All Directors", "Salary": "2,000", "Bonus": "2,000", "DirectorFees": "2,000", "FairValueOfOptionsGranted": "2,000" }] }
Director Compensation [Line Items]		Period [Axis]								
		2010-01-01 - 2010-12-31								
Director Compensation [JSON]		{"DirectorCompensation": [{ "DirectorName": "Jane Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "John Doe", "Salary": "1,000", "Bonus": "1,000", "DirectorFees": "1,000", "FairValueOfOptionsGranted": "1,000" }, { "DirectorName": "All Directors", "Salary": "2,000", "Bonus": "2,000", "DirectorFees": "2,000", "FairValueOfOptionsGranted": "2,000" }] }								



14.22.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/UsingJSON/DirectorCompensation)			
Table	Director Compensation [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Director Compensation [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Director Compensation [Line Items]	[Line Items]		
5	Director Compensation [JSON]	[Concept] String	For Period	

14.22.4. Description

JSON (Java Script Object Notation, see <http://www.json.org>) is a data format which is similar to CSV but more powerful because it can express a hierarchy. JSON can be useful in exchanging information, this is how such information can be modelled using XBRL. CSV or other formats can be used in a similar manner.

14.22.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Using JSON* business use case is similar to the *Text Block*, *Prose*, *Escaped XHTML* use cases in that a set of information is modelled as one concept and in a financial report, that one Fact holds the complete set of information.
- This is one approach to modelling some formatted set of information. CSV or other data formats could also be used.



14.23. General comment (parenthetical explanation)

The *General Comment* business use case shows how to include a comment (implemented as an XBRL footnote) within a financial report which includes additional information about a fact which is reported. Any metapattern can use a parenthetical explanation.

14.23.1. Visual Example

Sample Company
For Period Ending December 31,
 (thousands of dollars, except number of employees)

	2010	2009	2008	2007	2006
Sales, Net	1,500	1,400	1,300	1,200	1,100
Income (Loss) from Continuing Operations	500	400	300	200	100
Net Income (Loss) ^{(a) (c)}	51	41	31	21	11
Cash Flow Provided by (used in) Operating Activities, Net	5,000	4,000	3,000	2,000	1,000
Capital Additions	1,000	650	550	450	350
Average Number of Employees ^{(b) (c)}	300	290	280	270	260

COMMENTS:

- (a). XBRL Footnote: This is an XBRL footnote, there is no 'categorization' as to what this is for. This indicates that the report is trying to tell you something about the Fact 'pattern:NetIncomeLoss' for a specific context.
- (b). XBRL Footnote: This is another XBRL footnote, again, trying to tell you something about the average number of employees.
- (c). This comment hooks two reported Facts together, average number of employees and net income for 2010.

14.23.2. Basic Automated Semantic Rendering

Component: (Network and Table)					
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/GeneralComment/FinancialHighlights)				
Table	Financial Highlights [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)				
Legal Entity [Axis]	Consolidated Entity [Member]				
Financial Highlights [Line Items]		Period [Axis]			
		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	2008-01-01 - 2008-12-31	2007-01-01 - 2007-12-31
					2006-01-01 - 2006-12-31
Financial Highlights [Hierarchy]					
Sales, Net		1,500,000	1,400,000	1,300,000	1,200,000
Income (Loss) from Continuing Operations		500,000	400,000	300,000	200,000
Net Income (Loss)		51,000 ^{3.1}	41,000	31,000	21,000
Cash Flow Provided by (Used in) Operating Activities, Net		5,000,000	4,000,000	3,000,000	2,000,000
Capital Additions		1,000,000	650,000	550,000	450,000
Average Number of Employees		300 ^{1.2}	290	280	270
					260

1: This comment hooks two reported Facts together, average number of employees and net income for 2010.

2: XBRL Footnote: This is another XBRL footnote, again, trying to tell you something about the average number of employees.

3: XBRL Footnote: This is an XBRL footnote, there is no 'categorization' as to what this is for. This indicates that the report is trying to tell you something about the Fact 'pattern:NetIncomeLoss' for a specific context.



14.23.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/GeneralComment/FinancialHighlights)			
Table	Financial Highlights [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Financial Highlights [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Financial Highlights [Line Items]	[Line Items]		
5	Financial Highlights [Hierarchy]	[Abstract]		
6	Sales, Net	[Concept] Monetary	For Period	Credit
7	Income (Loss) from Continuing Operations	[Concept] Monetary	For Period	Credit
8	Net Income (Loss)	[Concept] Monetary	For Period	Credit
9	Cash Flow Provided by (Used in) Operating Activities, Net	[Concept] Monetary	For Period	Debit
10	Capital Additions	[Concept] Monetary	For Period	Debit
11	Average Number of Employees	[Concept] Decimal	For Period	

14.23.4. Description

The *General Comment* business use case shows how a comment of any sort can be associated with any fact being reported. In addition, facts can be linked together indicating that they are related in some arbitrary way. These comments are implemented as an XBRL footnote.

14.23.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The only difference between the Flat Hierarchy and this business use case is the addition of an XBRL footnote within the financial report.
- A specific role and arcrole can be used to categorize an XBRL footnote which is contained within a financial report.
- See the *Reclassification* and *Reason Not Reported* business use cases which show other categories of XBRL footnotes.
- Note that XBRL footnotes can be used to associate one or more facts to one or more other Facts, effectively expressing a set of related facts.



14.24. Classes

The *Classes* business use case shows how information can be modelled as concepts or as the members of an [Axis]. Please note the *Simple Roll Up* business use case which models the classes of property, plant, and equipment as concepts. This business use cases models classes of property, plant, and equipment as the members of an [Axis]. The metapattern of this business use case is the **hierarchy**.

14.24.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
ASSETS		
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	295,183	413,441

14.24.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																																																																																			
Network	Property, Plant, and Equipment, by Component (http://www.xbrlite.com/DigitalFinancialReporting/BusinessUseCase/Classes/PropertyPlantAndEquipmentByComponent)																																																																																																		
Table	Property, Plant and Equipment, by Component [Table]																																																																																																		
Slicers (applies to each fact value in each table cell)																																																																																																			
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14.24.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Classes/PropertyPlantAndEquipmentByComponer)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Class of Property, Plant and Equipment [Axis]	[Axis]		
5	All Classes of Property, Plant and Equipment [Member]	[Member]		
6	Land [Member]	[Member]		
7	Buildings [Member]	[Member]		
8	Furniture and Fixtures [Member]	[Member]		
9	Computer Equipment [Member]	[Member]		
10	Other Property, Plant and Equipment [Member]	[Member]		
11	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
12	Property, Plant and Equipment, Net [Hierarchy]	[Abstract]		
13	Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit

14.24.4. Description

This business use case shows an alternative approach to modelling the *Simple Roll Up* business use case. Be sure to compare that business use case with this business use case noting the difference. There is no difference in the business semantics between these two use cases.

14.24.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Classes* business use cases points out that there are alternative approaches to modelling the same information. Contrast the approach used in this use case with the *Simple Roll Up* use case to see two approaches to adding taxonomy information: as a concept or as a member of an [Axis].
- Choosing whether to model information as a concept or as a member of an [Axis] should be done consistently with some clear strategy being communicated.
- Each approach has various pros and cons. It is these pros and cons which will generally determine the most appropriate option.
- Note that the members of an [Axis] can have what amount to any number of properties associated with a class. By modelling something as a concept this is not possible. See the *Class Properties* business use case.



14.25. Class properties

The *Class Properties* business use case expands on the *Classes* business use case showing how concepts can be related to other concepts by an [Axis] if classes are expressed using [Member]s of an [Axis]. By contrast, [Line Items] expressed using concepts where there are no [Axis] in common and when they are expressed in different [Table]s are not related in any way. The metapattern of this business use case is the **hierarchy** and **roll up**.

14.25.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

Property, Plant and Equipment Policies

Class	Valuation Basis	Depreciation Method	Estimated Useful Life
Land	Mauris tincidunt cursus est	NA	NA
Buildings	Sed dapibus venenatis ipsum	Etiam porttitor	20 years
Furniture and Fixtures	Nunc congue	Maecenas tincidunt	10 years
Computer Equipment	Suspendisse potenti	Maecenas tincidunt	5 years
Other	Phasellus eleifend	Maecenas tincidunt	5 years

Property, Plant, and Equipment, Net, Components

	2010	2009
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
 Property, Plant and Equipment, Net, Total	 295,183	 413,441

14.25.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																																													
Network	Property, Plant, and Equipment, Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ClassProperties/PropertyPlantAndEquipmentPolicies)																																																												
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14.25.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Property, Plant, and Equipment, Policies (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ClassProperties/PropertyPlantAndEquipmentPolicies)			
Table	Property, Plant and Equipment, Policies [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, Policies [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Class of Property, Plant and Equipment [Axis]	[Axis]		
5	All Classes of Property, Plant and Equipment [Member]	[Member]		
6	Land [Member]	[Member]		
7	Buildings [Member]	[Member]		
8	Furniture and Fixtures [Member]	[Member]		
9	Computer Equipment [Member]	[Member]		
10	Other Property, Plant and Equipment [Member]	[Member]		
11	Property, Plant and Equipment, Policies [Line Items]	[Line Items]		
12	<i>Property, Plant and Equipment, Policies [Hierarchy]</i>	[Abstract]		
13	Valuation Basis	[Concept] String	For Period	
14	Depreciation Method	[Concept] String	For Period	
15	Estimated Useful Life	[Concept] String	For Period	

Component: (Network and Table)				
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ClassProperties/PropertyPlantAndEquipmentByComponent)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Class of Property, Plant and Equipment [Axis]	[Axis]		
5	All Classes of Property, Plant and Equipment [Member]	[Member]		
6	Land [Member]	[Member]		
7	Buildings [Member]	[Member]		
8	Furniture and Fixtures [Member]	[Member]		
9	Computer Equipment [Member]	[Member]		
10	Other Property, Plant and Equipment [Member]	[Member]		
11	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
12	<i>Property, Plant and Equipment, Net [Hierarchy]</i>	[Abstract]		
13	Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit

14.25.4. Description

In this business use case the policies and the components of property, plant, and equipment are modelled in different [Table]s because they are presented in different areas of the report. However, the policies and the components of property, plant, and equipment are related, even though they are expressed for presentation purposes in a different area of a report.

When classes of something are modelled as [Member]s of an [Axis], it is easy to have two different sets of [Line Items] but still keep the relation between those [Line Items]. This allows for the alternative rendering to easily be created, combining these two separate sets of [Line Items].

By contrast, if two [Table]s have [Line Items] which are in fact related but there is nothing, such as an [Axis], a software application has no way of understanding that the two pieces are related.



14.25.5. *Important distinguishing aspects and dynamics*

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Note that the policies and components [Table]s share the Class of Property, Plant and Equipment [Axis].
- Note that a software application could easily render the two sets of information as one set of [Line Items] should the user of this information prefer this organization.
- If there is nothing physically connecting different [Line Items] of different [Table]s a human reading the information may understand the relation, but a computer software application will not.



14.26. Grid

A *Grid* information model is a pseudo metapattern which uses the presentation characteristics of the columns and rows of a table to model information. Because the grid models presentation information and not business semantics, it cannot be considered a metapattern. However, the grid is included in this list because the US GAAP Taxonomy uses a grid information model to model the statement of changes in equity. A grid is more of a technique for presenting information than a business use case. The metapattern of this business use case is the **grid** (pseudo metapattern).

14.26.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	Common Stock	Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Equity
Balance at December 31, 2009	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			-100,000	-100,000
Common Stock Issued	25,000	25,000		50,000
Balance at December 31, 2010	175,000	75,000	300,000	550,000

14.26.2. Basic Automated Semantic Rendering

Component: (Network and Table)				
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Grid/StatementOfChangesInEquity)			
Table	Statement of Changes in Equity [Table]			
Slicers (applies to each fact value in each table cell)				
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)			
Period [Axis]	2010-01-01 - 2010-12-31			
Legal Entity [Axis]	Consolidated Entity [Member]			
Statement of Changes in Equity [Line Items]	Equity Component [Axis]			
	Common Stock [Member]	Additional Paid-in Capital [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity [Member]
Statement of Changes in Equity [Grid]				
Equity, Beginning Balance	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			(100,000)	(100,000)
Common Stock Issued	25,000	25,000		50,000
Equity, Ending Balance	175,000	75,000	300,000	550,000



14.26.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Grid/StatementOfChangesInEquity)			
Table	Statement of Changes in Equity [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Statement of Changes in Equity [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Equity Component [Axis]	[Axis]		
5	Equity [Member]	[Member]		
6	Common Stock [Member]	[Member]		
7	Additional Paid-in Capital [Member]	[Member]		
8	Retained Earnings (Accumulated Deficit) [Member]	[Member]		
9	Statement of Changes in Equity [Line Items]	[Line Items]		
10	<i>Statement of Changes in Equity [Grid]</i>	[Abstract]		
11	Equity, Beginning Balance	[Concept] Monetary	As Of	Credit
12	Net Income (Loss)	[Concept] Monetary	For Period	Credit
13	Dividends	[Concept] Monetary	For Period	Debit
14	Common Stock Issued	[Concept] Monetary	For Period	Credit
15	Equity, Ending Balance	[Concept] Monetary	As Of	Credit

14.26.4. Description

With the *Grid* pseudo metapattern, each of the columns of the presentation identified and articulated as a [Member] of an [Axis]. In this business use case the [Axis] is “Equity Component [Axis]” which has four [Member]s as there are four columns. The [Line Items] indicate the rows of the grid. In this case the rows are actually a roll forward. The cells of the grid represent intersections of the columns [Axis] and the [Line Items].

14.26.5. Important distinguishing aspects and dynamics

While the grid pseudo metapattern makes for easy rendering of information, it has to very significant negative aspects. Clues of these negative aspects become clear by closely examining the fact table of this business use case.

- The Equity Component [Axis] which is generally unique to the [Table] the grid is modelling causes duplication of concepts. For example, the “Net Income (Loss)” which will likely appear in other locations in a report such as a financial statement have either the “Equity [Member]” or “Retained Earnings (Accumulated Deficit) [Member]” characteristics of the “Equity Component [Axis]”. This causes these concept to not fit elsewhere in a report.
- A second negative side effect is that the [Line Items] concept which is used is used in every column. For example, the “Net Income (Loss)” concept is used in all columns where “Net Income (Loss)” appears. However, in a financial statement the concepts would actually be different. For example if a report contained a noncontrolling interest the net income concepts would be: Net Income (Loss) Applicable to Parent, Net Income (Loss) Attributable to Noncontrolling Interest, and Net Income (Loss) (i.e. the total including the portion attributable to the parent plus the portion attributable to the noncontrolling interest).
- Note the XBRL Formulas used to verify the computations of the information, in particular the second formula.



The following is a screen shot of the fact table for the information in this report where you can see the impact of the Equity Component [Axis] on the facts:

Component: (Network and Table)						
Network	90000 - Statement of Changes in Equity (http://www.xbrsite.com/DigitalFinancialReporting/BusinessUseCase/Grid/StatementOfChangesInEquity)					
Table	Statement of Changes in Equity [Table]					
#	Reporting Entity	Period	Legal Entity [Axis]	Equity Component [Axis]	Concept	Value
1	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Equity [Member]	Dividends	100000
2	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Retained Earnings (Accumulated Deficit) [Member]	Dividends	100000
3	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Equity [Member]	Common Stock Issued	50000
4	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Common Stock [Member]	Common Stock Issued	25000
5	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Additional Paid-in Capital [Member]	Common Stock Issued	25000
6	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Equity [Member]	Net Income (Loss)	200000
7	SAMP (http://www.SampleCompany.com)	2010-01-01 - 2010-12-31	Consolidated Entity [Member]	Retained Earnings (Accumulated Deficit) [Member]	Net Income (Loss)	200000
8	SAMP (http://www.SampleCompany.com)	2009-12-31	Consolidated Entity [Member]	Equity [Member]	Equity	400000
9	SAMP (http://www.SampleCompany.com)	2010-12-31	Consolidated Entity [Member]	Equity [Member]	Equity	550000
10	SAMP (http://www.SampleCompany.com)	2009-12-31	Consolidated Entity [Member]	Common Stock [Member]	Equity	150000
11	SAMP (http://www.SampleCompany.com)	2010-12-31	Consolidated Entity [Member]	Common Stock [Member]	Equity	175000
12	SAMP (http://www.SampleCompany.com)	2009-12-31	Consolidated Entity [Member]	Additional Paid-in Capital [Member]	Equity	50000
13	SAMP (http://www.SampleCompany.com)	2010-12-31	Consolidated Entity [Member]	Additional Paid-in Capital [Member]	Equity	75000
14	SAMP (http://www.SampleCompany.com)	2009-12-31	Consolidated Entity [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity	200000
15	SAMP (http://www.SampleCompany.com)	2010-12-31	Consolidated Entity [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity	300000



14.27. Pivot table

The *Pivot Table* business use case shows how to model information which might commonly be used within an Excel pivot table. The metapattern of this business use case is the **hierarchy**.

14.27.1. Visual Example

Sample Company
For Period Ending December 31,
 (thousands of dollars)

	2010	2009	2008
Sales, all Business Segments, all Geographic Areas	32,038	35,805	32,465
Breakdown by Business Segment:			
Pharmaceuticals	20,181	18,150	15,275
Generics	2,433	1,973	1,823
Consumer Health	6,675	6,514	5,752
Other Segments	2,749	9,168	9,615
Breakdown by Geographic Area:			
North America	10,214	12,649	10,137
Europe	11,901	10,374	10,396
Asia	5,639	4,371	3,210
Other regions	4,284	8,411	8,722

14.27.2. Basic Automated Semantic Rendering

Component: (Network and Table)													
Network	Sales Analysis, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisSummary)												
Table	Sales Analysis, Summary [Table]												
Slicers (applies to each fact value in each table cell)													
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)												
Legal Entity [Axis]	Consolidated Entity [Member]												
Business Segment [Axis]	Business Segments, All [Member]												
Geographic Area [Axis]	Geographic Areas, All [Member]												
<table border="1"> <thead> <tr> <th colspan="2"></th><th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">Sales Analysis, Summary [Line Items]</td><td style="text-align: center;">2010-01-01 - 2010-12-31</td><td style="text-align: center;">2009-01-01 - 2009-12-31</td></tr> <tr> <td colspan="2"></td><td style="text-align: center;">2008-01-01 - 2008-12-31</td><td></td></tr> </tbody> </table>				Period [Axis]		Sales Analysis, Summary [Line Items]		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31			2008-01-01 - 2008-12-31	
		Period [Axis]											
Sales Analysis, Summary [Line Items]		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31										
		2008-01-01 - 2008-12-31											
<table border="1"> <thead> <tr> <th colspan="2">Sales Analysis, Summary [Hierarchy]</th></tr> </thead> <tbody> <tr> <td colspan="2">Sales</td></tr> </tbody> </table>		Sales Analysis, Summary [Hierarchy]		Sales									
Sales Analysis, Summary [Hierarchy]													
Sales													



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Component: (Network and Table)																		
Network	Sales Analysis, by Business Segment (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisByBusinessSegment)																	
Table	Sales Analysis, by Business Segment [Table]																	
Slicers (applies to each fact value in each table cell)																		
Reporting Entity [Axis] SAMP (http://www.SampleCompany.com)																		
Legal Entity [Axis] Consolidated Entity [Member]																		
Geographic Area [Axis] Geographic Areas, All [Member]																		
Sales Analysis, by Business Segment [Line Items]		Period [Axis]																
		2010-01-01 - 2010-12-31				2009-01-01 - 2009-12-31												
		Business Segment [Axis]				Business Segment [Axis]												
		Pharmaceuticals Segment [Member]	Generics Segment [Member]	Consumer Health Segment [Member]	Other Segments [Member]	Business Segments, All [Member]	Pharmaceuticals Segment [Member]	Generics Segment [Member]	Consumer Health Segment [Member]									
Sales Analysis, by Business Segment [Hierarchy]		18,181,000	2,433,000	6,675,000	2,749,000	32,038,000	18,150,000	1,973,000	6,514,000									
Sales		9,168,000	35,805,000	9,168,000	15,275,000	1,823,000	5,752,000	9,615,000	32,465,000									
Component: (Network and Table)																		
Network	Sales Analysis, by Geographic Area (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisByGeographicArea)																	
Table	Sales Analysis, by Geographic Area [Table]																	
Slicers (applies to each fact value in each table cell)																		
Reporting Entity [Axis] SAMP (http://www.SampleCompany.com)																		
Legal Entity [Axis] Consolidated Entity [Member]																		
Business Segment [Axis] Business Segments, All [Member]																		
Sales Analysis, by Geographic Area [Line Items]		Period [Axis]																
		2010-01-01 - 2010-12-31				2009-01-01 - 2009-12-31												
		Geographic Area [Axis]				Geographic Area [Axis]												
		North America Region [Member]	Europe Region [Member]	Asia Region [Member]	Other Regions [Member]	Geographic Areas, All [Member]	North America Region [Member]	Europe Region [Member]	Asia Region [Member]									
Sales Analysis, by Geographic Area [Hierarchy]		10,214,000	11,901,000	5,639,000	4,284,000	32,038,000	12,649,000	10,374,000	4,371,000									
Sales		8,411,000	35,805,000	8,411,000	10,137,000	10,396,000	3,210,000	8,722,000	32,465,000									

14.27.3. Report Elements and Model Structure

Component: (Network and Table)									
Network	Sales Analysis, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisSummary)								
Table	Sales Analysis, Summary [Table]								

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, Summary [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Geographic Area [Axis]	[Axis]		
7	Geographic Areas, All [Member]	[Member]		
8	Sales Analysis, Summary [Line Items]	[Line Items]		
9	Sales Analysis, Summary [Abstract]	[Abstract]		
10	Sales	[Concept] Monetary	For Period	Credit

Component: (Network and Table)									
Network	Sales Analysis, by Business Segment (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisByBusinessSegment)								
Table	Sales Analysis, by Business Segment [Table]								

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, by Business Segment [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Pharmaceuticals Segment [Member]	[Member]		
7	Generics Segment [Member]	[Member]		
8	Consumer Health Segment [Member]	[Member]		
9	Other Segments [Member]	[Member]		
10	Geographic Area [Axis]	[Axis]		
11	Geographic Areas, All [Member]	[Member]		
12	Sales Analysis, by Business Segment [Line Items]	[Line Items]		
13	Sales Analysis, by Business Segment [Abstract]	[Abstract]		
14	Sales	[Concept] Monetary	For Period	Credit



Component: (Network and Table)	
Network	Sales Analysis, by Geographic Area (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/PivotTable/SalesAnalysisByGeographicArea)
Table	Sales Analysis, by Geographic Area [Table]

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, by Geographic Area [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Geographic Area [Axis]	[Axis]		
7	Geographic Areas, All [Member]	[Member]		
8	North America Region [Member]	[Member]		
9	Europe Region [Member]	[Member]		
10	Asia Region [Member]	[Member]		
11	Other Regions [Member]	[Member]		
12	Sales Analysis, by Geographic Area [Line Items]	[Line Items]		
13	Sales Analysis, by Geographic Area [Hierarchy]	[Abstract]		
14	Sales	[Concept] Monetary	For Period	Credit

14.27.4. Description

The *Pivot Table* business use case shows information which might commonly populate an electronic spread sheet pivot table. The one concept is expressed with characteristics which indicate which business segment and which geographic area that sales fact value relates to. This is done using the Business Segment [Axis] and Geographic Area [Axis] to differentiate the facts.

14.27.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- In a spread sheet pivot table totals are generally not provided, rather the pivot table computes the totals as needed. However, in this example the totals are provided.
- Alternatively, this information could have been modelled as all concepts, rather than using the [Axis] to express the business segment and geographic area. However doing so would make the pivot table less usable. Note the *Class* business use case as contrast to the *Roll Up* business use case.
- Notice that there are three sections of this report: totals, a business segment breakdown, and a geographic area breakdown. Each of these is articulated in different [Table]s of information. Alternatively, one single [Table] could have been used; however, it would be less clear that two breakdowns were required.
- Notice that the [Table]s are not in the desired order in the relations rendering. This is because the software application is using the alphabetic order of the label of each network to determine the ordering or sequencing of the network. Note the *Flow* business use case in contrast which shows how to add an ordering of networks and/or [Table]s.



14.28. *Grouped report*

The *Grouped Report* business use case is a variation of the *Compound Fact* use case which uses a large number of [Axis]. As such, what this use case shows is complexity in the area of [Axis]. It also introduces the notion of groupings or levels within a report which summarizes information. The metapattern of this business use case is the **hierarchy**.

14.28.1. *Visual Example*

Sample Company
For Period Ending December 31, 2010
Investments

Shares	Description	Moody's Rating	S & P Rating	Value
SHORT-TERM INVESTMENTS				
Singapore				
SGD				
Software				
Microcom				
11,500 11500000		A1	A+	12,993,736
5,000 5000000		Aa3	A-	5,662,500
Telecoms				
Cable and Wireless Optus Finance				
5,800 5800000		A2	A+	6,857,321
			Total Singapore	25,513,557
			Total Short-Term Investments	25,513,557
			Total Investments	25,513,557



14.28.2. Basic Automated Semantic Rendering

Component: (Network and Table)					
Network	Portfolio of Investments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/GroupedReport/PortfolioOfInvestments)				
Table	Portfolio of Investments [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)				
Period [Axis]	2010-12-31				
Legal Entity [Axis]	Consolidated Entity [Member]				
Investment Term [Axis]	Investments [Line Items]				
	Investment Type [Axis]				
	Telecoms [Member]	Software [Member]	All Types [Member]		
	Investment Country [Axis]	Investment Country [Axis]	Investment Country [Axis]		
	Singapore [Member]	Singapore [Member]	Singapore [Member]	All Countries [Member]	
	Investment Entity [Axis]	Investment Entity [Axis]	Investment Entity [Axis]	Investment Entity [Axis]	
Short-Term Investment [Member]	Cable and Wireless Optus Finance [Member]	Microcom [Member]	All Entities [Member]	All Entities [Member]	
	Investment Description	3.00% 3/25/09	3.50% 12/7/04		
	Moody Rating	A2	A1		
	Standard and Poor Rating	A+	A+		
	Investment Shares	5,800,000	11,500,000	22,300,000	22,300,000
	Investment Value, at Cost	6,857,321	12,993,736	25,513,557	25,513,557
All Terms [Member]	Investment [Hierarchy]				
	Investment Description				
	Moody Rating				
	Standard and Poor Rating				
	Investment Shares				22,300,000
	Investment Value, at Cost				25,513,557



14.28.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Portfolio of Investments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/GroupedReport/PortfolioOfInvestments)			
Table	Portfolio of Investments [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Portfolio of Investments [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Investment Term [Axis]	[Axis]		
5	All Terms [Member]	[Member]		
6	Short-Term Investment [Member]	[Member]		
7	Investment Type [Axis]	[Axis]		
8	All Types [Member]	[Member]		
9	Telecoms [Member]	[Member]		
10	Software [Member]	[Member]		
11	Investment Country [Axis]	[Axis]		
12	All Countries [Member]	[Member]		
13	Singapore [Member]	[Member]		
14	Australia [Member]	[Member]		
15	Investment Entity [Axis]	[Axis]		
16	All Entities [Member]	[Member]		
17	EFIC [Member]	[Member]		
18	Cable and Wireless Optus Finance [Member]	[Member]		
19	Microcom [Member]	[Member]		
20	Investments [Line Items]	[Line Items]		
21	<i>Investment [Hierarchy]</i>	[Abstract]		
22	Investment Description	[Concept] String	As Of	
23	Moody Rating	[Concept] String	As Of	
24	Standard and Poor Rating	[Concept] String	As Of	
25	Investment Shares	[Concept] Shares	As Of	
26	Investment Value, at Cost	[Concept] Monetary	As Of	Debit

14.28.4. Description

The *Grouped Report* business use cases shows that additional characteristics can be provided for an information set in the form of one or more [Axis]. In this use case five [Axis] are used to communicate characteristics of the information set. Other characteristics, such as the ratings in this case, are articulated as concepts within the set of [Line Items]. Where these characteristics are modelled does impact how the information can be used.

Also notice the visualization of the example, consider how the information is grouped. While this business use case shows only a few report rows, there could be a long list of items being reported and multiple grouping levels based on the different [Axis] or even the [Line Items].

14.28.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- The *Grouped Report* business use case simply shows a [Table] which has a larger number of [Axis].
- Nothing is really complicated about the use case as compared to other use cases other than the large number of [Axis] which are used to characterize the investment information.



- A choice needs to be made in many cases to determine if information should be modelled as an [Axis] or as a concept within the set of [Line Items]. For example, in this case the Moody Rating and Standard and Poor Rating might have been modelled as an [Axis]. Likewise the Investment Description could have been modelled as an [Axis].
- Monetary values such as Investment Shares and Investment Value, at Cost would never be modelled as an [Axis] generally.
- Where things are modelled impacts how they are treated by a rendering application.



14.29. Flow

The *Flow* business use case models how to articulate the sequence or ordering of information within a financial report. Notice that this visual example has three sections: Total Sales, Sales by Business Segment, and Sales by Geographic Area. Flow has to do with putting these three components into the appropriate order or sequence. Any metapattern can have flow. The metapattern of this business use case is the **hierarchy**.

14.29.1. Visual Example

Sample Company
For Period Ending December 31,
(thousands of dollars)

	2010	2009	2008
Sales, all Business Segments, all Geographic Areas	32,038	35,805	32,465
Breakdown by Business Segment:			
Pharmaceuticals	20,181	18,150	15,275
Generics	2,433	1,973	1,823
Consumer Health	6,675	6,514	5,752
Other Segments	2,749	9,168	9,615
Breakdown by Geographic Area:			
North America	10,214	12,649	10,137
Europe	11,901	10,374	10,396
Asia	5,639	4,371	3,210
Other regions	4,284	8,411	8,722

14.29.2. Basic Automated Semantic Rendering

Component: (Network and Table)																					
Network	1001 - Table - Sales Analysis, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisSummary)																				
Table	Sales Analysis, Summary [Table]																				
Slicers (applies to each fact value in each table cell)																					
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)																				
Legal Entity [Axis]	Consolidated Entity [Member]																				
Business Segment [Axis]	Business Segments, All [Member]																				
Geographic Area [Axis]	Geographic Areas, All [Member]																				
<table border="1"> <thead> <tr> <th colspan="2"></th><th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">Sales Analysis, Summary [Line Items]</td><td style="text-align: center;">2010-01-01 - 2010-12-31</td><td style="text-align: center;">2009-01-01 - 2009-12-31</td></tr> <tr> <td colspan="2">Sales Analysis, Summary [Hierarchy]</td><td style="text-align: center;">2008-01-01 - 2008-12-31</td><td></td></tr> <tr> <td colspan="2">Sales</td><td style="text-align: right;">32,038,000</td><td style="text-align: right;">35,805,000</td></tr> <tr> <td colspan="2"></td><td style="text-align: right;">32,465,000</td><td></td></tr> </tbody> </table>				Period [Axis]		Sales Analysis, Summary [Line Items]		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	Sales Analysis, Summary [Hierarchy]		2008-01-01 - 2008-12-31		Sales		32,038,000	35,805,000			32,465,000	
		Period [Axis]																			
Sales Analysis, Summary [Line Items]		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31																		
Sales Analysis, Summary [Hierarchy]		2008-01-01 - 2008-12-31																			
Sales		32,038,000	35,805,000																		
		32,465,000																			



DIGITAL FINANCIAL REPORTING (DRAFT VERSION .8)

Component: (Network and Table)																				
Network	2001 - Table - Sales Analysis, by Geographic Area (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisByGeographicArea)																			
Table	Sales Analysis, by Geographic Area [Table]																			
Slicers (applies to each fact value in each table cell)																				
Reporting Entity [Axis] SAMP (http://www.SampleCompany.com)																				
Legal Entity [Axis] Consolidated Entity [Member]																				
Business Segment [Axis] Business Segments, All [Member]																				
Sales Analysis, by Geographic Area [Line Items]		Period [Axis] 2010-01-01 - 2010-12-31			2009-01-01 - 2009-12-31			2008-01-01 - 2008-12-31												
		Geographic Area [Axis]			Geographic Area [Axis]			Geographic Area [Axis]												
		North America Region [Member]	Europe Region [Member]	Asia Region [Member]	Other Regions [Member]	Geographic Areas, All [Member]	North America Region [Member]	Europe Region [Member]	Asia Region [Member]	Other Regions [Member]										
Sales Analysis, by Geographic Area [Hierarchy]		10,214,000	11,901,000	5,639,000	4,284,000	32,038,000	12,649,000	10,374,000	4,371,000	8,411,000	35,805,000									
Sales		10,137,000	10,396,000	3,210,000	8,722,000	32,465,000														
Component: (Network and Table)																				
Network	3001 - Table - Sales Analysis, by Business Segment (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisByBusinessSegment)																			
Table	Sales Analysis, by Business Segment [Table]																			
Slicers (applies to each fact value in each table cell)																				
Reporting Entity [Axis] SAMP (http://www.SampleCompany.com)																				
Legal Entity [Axis] Consolidated Entity [Member]																				
Geographic Area [Axis] Geographic Areas, All [Member]																				
Sales Analysis, by Business Segment [Line Items]		Period [Axis] 2010-01-01 - 2010-12-31			2009-01-01 - 2009-12-31			2008-01-01 - 2008-12-31												
		Business Segment [Axis]			Business Segment [Axis]			Business Segment [Axis]												
		Pharmaceuticals Segment [Member]	Generics Segment [Member]	Consumer Health Segment [Member]	Other Segments [Member]	Business Segments, All [Member]	Pharmaceuticals Segment [Member]	Generics Segment [Member]	Consumer Health Segment [Member]	Other Segments [Member]	Business Segments, All [Member]									
Sales Analysis, by Business Segment [Hierarchy]		20,181,000	2,433,000	6,675,000	2,749,000	32,038,000	18,150,000	1,973,000	6,514,000	9,168,000	35,805,000									
Sales		15,275,000	1,823,000	5,752,000	9,615,000	32,465,000														

14.29.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	1001 - Table - Sales Analysis, Summary (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisSummary)
Table	Sales Analysis, Summary [Table]

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, Summary [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Geographic Area [Axis]	[Axis]		
7	Geographic Areas, All [Member]	[Member]		
8	Sales Analysis, Summary [Line Items]	[Line Items]		
9	Sales Analysis, Summary [Hierarchy]	[Abstract]		
10	Sales	[Concept] Monetary	For Period	Credit

Component: (Network and Table)	
Network	2001 - Table - Sales Analysis, by Geographic Area (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisByGeographicArea)
Table	Sales Analysis, by Geographic Area [Table]

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, by Geographic Area [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Geographic Area [Axis]	[Axis]		
7	Geographic Areas, All [Member]	[Member]		
8	North America Region [Member]	[Member]		
9	Europe Region [Member]	[Member]		
10	Asia Region [Member]	[Member]		
11	Other Regions [Member]	[Member]		
12	Sales Analysis, by Geographic Area [Line Items]	[Line Items]		
13	Sales Analysis, by Geographic Area [Hierarchy]	[Abstract]		
14	Sales	[Concept] Monetary	For Period	Credit

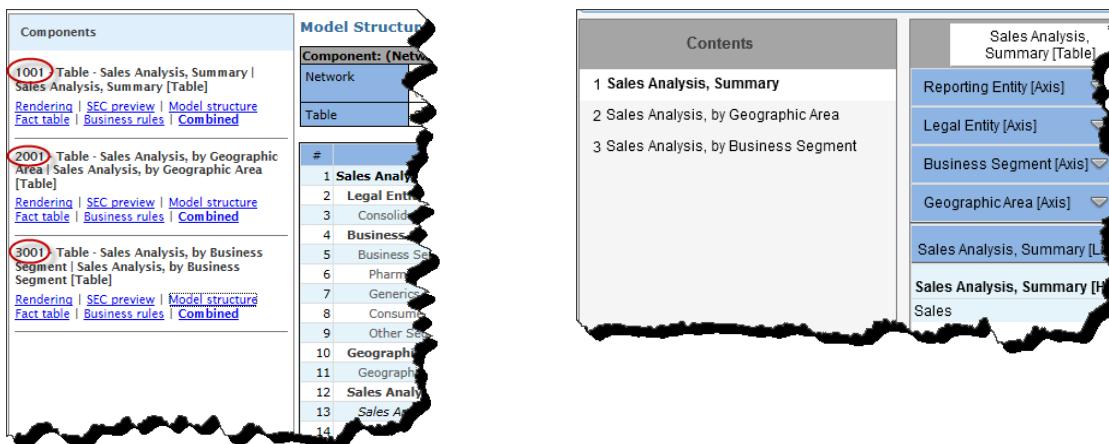


Component: (Network and Table)	
Network	3001 - Table - Sales Analysis, by Business Segment (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Flow/SalesAnalysisByBusinessSegment)
Table	Sales Analysis, by Business Segment [Table]

#	Label	Report Element Class	Period Type	Balance
1	Sales Analysis, by Business Segment [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Business Segment [Axis]	[Axis]		
5	Business Segments, All [Member]	[Member]		
6	Pharmaceuticals Segment [Member]	[Member]		
7	Generics Segment [Member]	[Member]		
8	Consumer Health Segment [Member]	[Member]		
9	Other Segments [Member]	[Member]		
10	Geographic Area [Axis]	[Axis]		
11	Geographic Areas, All [Member]	[Member]		
12	Sales Analysis, by Business Segment [Line Items]	[Line Items]		
13	Sales Analysis, by Business Segment [Hierarchy]	[Abstract]		
14	Sales	[Concept] Monetary	For Period	Credit

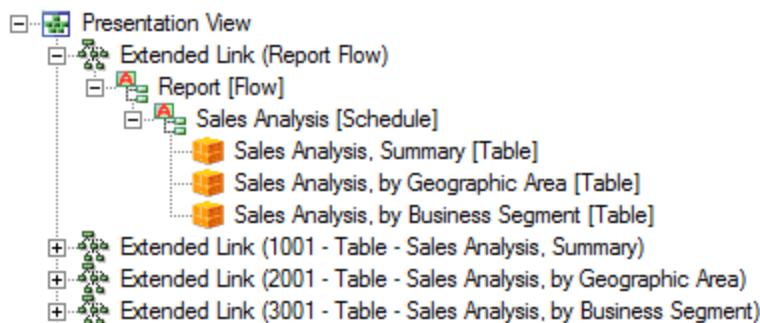
14.29.4. Description

The *Flow* business use case shows that financial reports have an ordering or sequence and how to model that sequence within an XBRL taxonomy by creating what amounts to a hierarchy of [Tables]. Here you see two software applications which order the three networks used within this business use case:



Expressing the hierarchy of [Table]s can be achieved using a number of approaches. Using the diagram below we will explain the approaches.





The first approach is used by the US GAAP Taxonomy and ordering is achieved by adding a “number” and a “category” to the network label. In the screen shot above see the last three items within the presentation view tree. A software application can order the networks using the numbers, the category, or any part of the label.

The second approach, used in this example, shows a hierarchy of [Table]s expressed within the presentation view within a separate network. You can see this above in the “Report Flow” network. In this example the list is flat, but it could be a nested hierarchy.

The screen shot below shows an application which utilizes the network numbers to organize the networks. The selected network and [Table] is selected on the left and displayed in the software application on the right.

14.29.5. *Important distinguishing aspects and dynamics*

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- There is no standard approach to expressing the specific ordering or sequence within a financial report.
- One approach to expressing an ordering or sequence is to add a number and category to a network label. If the application supports that approach, the number and category can be used for ordering/sequencing.
- Another approach is to express a hierarchy of [Table]s within the presentation or definition linkbase. This is not a standard approach, however it can be effective and provide a nested hierarchy. Note that networks cannot be nested.
- Contrast this use case with the *Pivot Table* use case which does not provide the flow information, but all other aspects of the use case are the same.



14.30. Restatement

The *Restatement* business use case shows how to model an accounting restatement due to a change in accounting policy or the correction of an error. It also points out the notion of integrity between [Table]s within a financial report. The metapattern of this business use case is the **roll forward, roll up, and adjustment**.

14.30.1. Visual Example

Sample Company
December 31,
(dollars)

	2010	2009 (Restated)	
Balance Sheet (Fragment)			
Equity			
Common Stock	5,000,000	5,000,000	
Retained Earnings	10,850,000	10,700,000	
	<u>15,850,000</u>	<u>15,700,000</u>	
Total Equity			
	2010	2009 (Restated)	2009 (Previous)
Income Statement (Fragment)			
Gross Sales	1,500,000	1,000,000	1,000,000
Cost of sales	500,000	200,000	200,000
Net sales	1,000,000	800,000	800,000
Operating expenses (*)	350,000	1,600,000	300,000
	<u>650,000</u>	<u>-800,000</u>	<u>500,000</u>
Net income (loss)			
Statement of Changes in Equity (Fragment)			
	2010	2009	
<i>Prior Period Adjustment</i>			
Retained Earnings (Accumulated Losses), Originally Stated 2009		12,000,000	
Change in Accounting Policy		0	
Correction of an Error		<u>-1,300,000</u>	
Retained Earnings (Accumulated Losses), Restated 2009 Beginning Balance		<u>10,700,000</u>	
<i>Changes in Equity</i>			
Retained Earnings (Accumulated Losses), Beginning Balance	10,700,000	12,300,000	
Net Income (Loss)	650,000	-800,000	
Dividends	-500,000	-800,000	
Retained Earnings (Accumulated Losses), Ending Balance	<u>10,850,000</u>	<u>10,700,000</u>	



14.30.2. Basic Automated Semantic Rendering

Component: (Network and Table)																															
Network	Balance Sheet (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/BalanceSheet)																														
Table	Balance Sheet [Table]																														
Slicers (applies to each fact value in each table cell)																															
Reporting Entity [Axis]		SAMP (http://www.SampleCompany.com)																													
Legal Entity [Axis]		Consolidated Entity [Member]																													
<table border="1"> <thead> <tr> <th rowspan="2">Balance Sheet [Line Items]</th> <th rowspan="2">Report Date [Axis]</th> <th colspan="3">Period [Axis]</th> </tr> <tr> <th>2010-12-31</th> <th>2009-12-31</th> <th>2008-12-31</th> </tr> </thead> <tbody> <tr> <td>Common Stock</td> <td>Reported March 18, 2011 [Member]</td> <td>5,000,000</td> <td>5,000,000</td> <td></td> </tr> <tr> <td>Retained Earnings (Accumulated Losses)</td> <td>Reported March 18, 2011 [Member]</td> <td>10,850,000</td> <td>10,700,000</td> <td>12,300,000</td> </tr> <tr> <td></td> <td>Equity</td> <td>Reported March 18, 2011 [Member]</td> <td>15,850,000</td> <td>15,700,000</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Balance Sheet [Line Items]	Report Date [Axis]	Period [Axis]			2010-12-31	2009-12-31	2008-12-31	Common Stock	Reported March 18, 2011 [Member]	5,000,000	5,000,000		Retained Earnings (Accumulated Losses)	Reported March 18, 2011 [Member]	10,850,000	10,700,000	12,300,000		Equity	Reported March 18, 2011 [Member]	15,850,000	15,700,000					
Balance Sheet [Line Items]	Report Date [Axis]	Period [Axis]																													
		2010-12-31	2009-12-31	2008-12-31																											
Common Stock	Reported March 18, 2011 [Member]	5,000,000	5,000,000																												
Retained Earnings (Accumulated Losses)	Reported March 18, 2011 [Member]	10,850,000	10,700,000	12,300,000																											
	Equity	Reported March 18, 2011 [Member]	15,850,000	15,700,000																											

Component: (Network and Table)																																													
Network	Income Statement (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/IncomeStatement)																																												
Table	Income Statement [Table]																																												
Slicers (applies to each fact value in each table cell)																																													
Reporting Entity [Axis]		SAMP (http://www.SampleCompany.com)																																											
Legal Entity [Axis]		Consolidated Entity [Member]																																											
<table border="1"> <thead> <tr> <th rowspan="2">Income Statement [Line Items]</th> <th rowspan="2">Report Date [Axis]</th> <th colspan="2">Period [Axis]</th> </tr> <tr> <th>2010-01-01 - 2010-12-31</th> <th>2009-01-01 - 2009-12-31</th> </tr> </thead> <tbody> <tr> <td>Sales, Gross</td> <td>Reported March 18, 2011 [Member]</td> <td>1,500,000</td> <td>1,000,000</td> </tr> <tr> <td>Cost of Sales</td> <td>Reported March 18, 2011 [Member]</td> <td>500,000</td> <td>200,000</td> </tr> <tr> <td></td> <td>Sales, Net</td> <td>Reported March 21, 2010 [Member]</td> <td>800,000</td> </tr> <tr> <td></td> <td></td> <td>Reported March 18, 2011 [Member]</td> <td>1,000,000</td> </tr> <tr> <td>Operating Expenses</td> <td>Reported March 21, 2010 [Member]</td> <td></td> <td>300,000</td> </tr> <tr> <td></td> <td>Reported March 18, 2011 [Member]</td> <td>350,000</td> <td>1,600,000</td> </tr> <tr> <td></td> <td>Net Income (Loss)</td> <td>Reported March 21, 2010 [Member]</td> <td>500,000</td> </tr> <tr> <td></td> <td></td> <td>Reported March 18, 2011 [Member]</td> <td>650,000</td> </tr> <tr> <td></td> <td></td> <td></td> <td>(800,000)</td> </tr> </tbody> </table>				Income Statement [Line Items]	Report Date [Axis]	Period [Axis]		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	Sales, Gross	Reported March 18, 2011 [Member]	1,500,000	1,000,000	Cost of Sales	Reported March 18, 2011 [Member]	500,000	200,000		Sales, Net	Reported March 21, 2010 [Member]	800,000			Reported March 18, 2011 [Member]	1,000,000	Operating Expenses	Reported March 21, 2010 [Member]		300,000		Reported March 18, 2011 [Member]	350,000	1,600,000		Net Income (Loss)	Reported March 21, 2010 [Member]	500,000			Reported March 18, 2011 [Member]	650,000				(800,000)
Income Statement [Line Items]	Report Date [Axis]	Period [Axis]																																											
		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31																																										
Sales, Gross	Reported March 18, 2011 [Member]	1,500,000	1,000,000																																										
Cost of Sales	Reported March 18, 2011 [Member]	500,000	200,000																																										
	Sales, Net	Reported March 21, 2010 [Member]	800,000																																										
		Reported March 18, 2011 [Member]	1,000,000																																										
Operating Expenses	Reported March 21, 2010 [Member]		300,000																																										
	Reported March 18, 2011 [Member]	350,000	1,600,000																																										
	Net Income (Loss)	Reported March 21, 2010 [Member]	500,000																																										
		Reported March 18, 2011 [Member]	650,000																																										
			(800,000)																																										



DIGITAL FINANCIAL REPORTING (DRAFT VERSION .8)

Component: (Network and Table)	
Network	Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/PriorPeriodAdjustments)
Table	Prior Period Adjustments [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Prior Period Adjustments [Line Items]	Report Date [Axis]	Period [Axis]		
		2010-12-31	2009-12-31	2008-12-31
Retained Earnings (Accumulated Losses), Originally Stated	Reported March 21, 2010 [Member]		12,000,000	
Changes in Accounting Policy	Reported March 18, 2011 [Member]		0	
Correction of an Error	Reported March 18, 2011 [Member]		(1,300,000)	
	Changes in Accounting Policy	Reported March 18, 2011 [Member]	(1,300,000)	
Retained Earnings (Accumulated Losses), Restated	Reported March 18, 2011 [Member]	10,850,000	10,700,000	12,300,000

Component: (Network and Table)

Network	Changes in Equity (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/ChangesInEquity)
Table	Changes in Equity [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Changes in Equity [Line Items]	Report Date [Axis]	Period [Axis]	
		2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31
Retained Earnings (Accumulated Losses), Beginning Balance	Reported March 21, 2010 [Member]	12,000,000	
	Reported March 18, 2011 [Member]	10,700,000	12,300,000
Net Income (Loss)	Reported March 21, 2010 [Member]		500,000
	Reported March 18, 2011 [Member]	650,000	(800,000)
Dividends Paid	Reported March 18, 2011 [Member]	500,000	800,000
Retained Earnings (Accumulated Losses), Period Increase (Decrease), Total	Reported March 18, 2011 [Member]	150,000	(1,600,000)
Retained Earnings (Accumulated Losses), Ending Balance	Reported March 21, 2010 [Member]		12,000,000
	Reported March 18, 2011 [Member]	10,850,000	10,700,000



14.30.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	Balance Sheet (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/BalanceSheet)
Table	Balance Sheet [Table]

#	Label	Report Element Class	Period Type	Balance
1	Balance Sheet [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report Dates, All [Member]	[Member]		
6	Reported March 18, 2011 [Member]	[Member]		
7	Balance Sheet [Line Items]	[Line Items]		
8	<i>Equity [Roll Up]</i>	[Abstract]		
9	Common Stock	[Concept] Monetary	As Of	Credit
10	Retained Earnings (Accumulated Losses)	[Concept] Monetary	As Of	Credit
11	Equity	[Concept] Monetary	As Of	Credit

Component: (Network and Table)	
Network	Income Statement (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/IncomeStatement)
Table	Income Statement [Table]

#	Label	Report Element Class	Period Type	Balance
1	Income Statement [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report Dates, All [Member]	[Member]		
6	Reported March 21, 2010 [Member]	[Member]		
7	Reported March 18, 2011 [Member]	[Member]		
8	Income Statement [Line Items]	[Line Items]		
9	<i>Net Income (Loss) [Roll Up]</i>	[Abstract]		
10	<i>Sales, Net [Roll Up]</i>	[Abstract]		
11	Sales, Gross	[Concept] Monetary	For Period	Credit
12	Cost of Sales	[Concept] Monetary	For Period	Debit
13	Sales, Net	[Concept] Monetary	For Period	Credit
14	Operating Expenses	[Concept] Monetary	For Period	Debit
15	Net Income (Loss)	[Concept] Monetary	For Period	Credit



Component: (Network and Table)	
Network	Changes in Equity (Fragment) (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/ChangesInEquity)
Table	Changes in Equity [Table]

#	Label	Report Element Class	Period Type	Balance
1	Changes in Equity [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report Dates, All [Member]	[Member]		
6	Reported March 21, 2010 [Member]	[Member]		
7	Reported March 18, 2011 [Member]	[Member]		
8	Changes in Equity [Line Items]	[Line Items]		
9	Changes in Retained Earnings [Roll Forward]	[Abstract]		
10	Retained Earnings (Accumulated Losses), Beginning Balance	[Concept] Monetary	As Of	Credit
11	Retained Earnings (Accumulated Losses), Period Increase (Decrease), Total [Roll Up]	[Abstract]		
12	Net Income (Loss)	[Concept] Monetary	For Period	Credit
13	Dividends Paid	[Concept] Monetary	For Period	Debit
14	Retained Earnings (Accumulated Losses), Period Increase (Decrease), Total	[Concept] Monetary	For Period	Credit
15	Retained Earnings (Accumulated Losses), Ending Balance	[Concept] Monetary	As Of	Credit

Component: (Network and Table)	
Network	Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Restatement/PriorPeriodAdjustments)
Table	Prior Period Adjustments [Table]

#	Label	Report Element Class	Period Type	Balance
1	Prior Period Adjustments [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report Dates, All [Member]	[Member]		
6	Reported March 21, 2010 [Member]	[Member]		
7	Reported March 18, 2011 [Member]	[Member]		
8	Prior Period Adjustments [Line Items]	[Line Items]		
9	Prior Period Adjustments to Retained Earnings [Adjustment]	[Abstract]		
10	Retained Earnings (Accumulated Losses), Origionally Stated	[Concept] Monetary	As Of	Credit
11	Prior Period Adjustments, Period Increase (Decrease), Total [Roll Up]	[Abstract]		
12	Changes in Accounting Policy	[Concept] Monetary	As Of	Credit
13	Correction of an Error	[Concept] Monetary	As Of	Credit
14	Changes in Accounting Policy	[Concept] Monetary	As Of	Credit
15	Retained Earnings (Accumulated Losses), Restated	[Concept] Monetary	As Of	Credit

14.30.4. Description

The *Restatement* business use case shows how to model an accounting restatement due to a prior period adjustment from an accounting error or a change in accounting policy. Also see the *Adjustment* business use case.

Note that the balance sheet is a *Roll Up* as is the income statement. The prior period adjustment is an *Adjustment* metapattern. The changes in equity is a *Roll Forward*.

The different [Table]s need to properly relate to one another just like components of a financial statement need to properly tie together.



14.30.5. *Important distinguishing aspects and dynamics*

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Note the *Roll Up*, *Roll Forward*, and *Adjustment* business use cases for detailed information about those specific use cases. This use case points out how different components relate to one another.
- Notice how the moving pieces of this use case impact multiple areas of the financial report shown in this use case namely the balance sheet, income statement, and the statement of changes in equity.
- The [Axis] used on each [Table] are logical and the different facts properly relate to one another.
- Facts in the XBRL instance are not duplicated. Net Income (Loss), for example, appears on both the income statement and in the statement of changes in equity. Likewise, Retained Earnings (Accumulated Losses) appears on both the balance sheet and the statement of changes in equity.
- The prior period adjustment and the changes in equity are modelled in separate [Table]s because the renderings have different slicers, columns and rows.



14.31. Reissue report

The *Reissue Report* business use case shows how to model the reissuance of a financial report for, say, a report which has been recalled because of a major problem. The metapattern of this business use case is the **roll up**. However, any metapattern could be reissued.

Additionally, the business rule used with this report models a roll up which makes use of a tolerance. (This has nothing to do with the reissue use case, the business rule simply shows that use case.)

14.31.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
ASSETS		
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	295,183	413,441

COMMENTS:

("). Reissued Report: This report has been reissued on March 2, 2011. The original report issued on February 15, 2011 contained a significant mistake. The amounts for Land and Building were transposed.

14.31.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReissueReport/PropertyPlantAndEquipmentByComponent)
Table	Property, Plant and Equipment, by Component [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]
Report Date [Axis]	Report as Of March 2, 2011 [Member]

Property, Plant and Equipment, by Component [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Property, Plant and Equipment, Net [Roll Up]		
Land	5,347,000 ¹	1,147,000
Buildings, Net	244,508,000 ¹	366,375,000
Furniture and Fixtures, Net	34,457,000	34,457,000
Computer Equipment, Net	4,169,000	5,313,000
Other Property, Plant and Equipment, Net	6,702,000	6,149,000
Property, Plant and Equipment, Net, Total	295,183,000	413,441,000

1: Reissued Report: This report has been reissued on March 2, 2011. The original report issued on February 15, 2011 contained a significant mistake.



14.31.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/ReissueReport/PropertyPlantAndEquipmentByCor)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report as Of March 2, 2011 [Member]	[Member]		
6	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
7	<i>Property, Plant and Equipment, Net [Roll Up]</i>	[Abstract]		
8	Land	[Concept] Monetary	As Of	Debit
9	Buildings, Net	[Concept] Monetary	As Of	Debit
10	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
11	Computer Equipment, Net	[Concept] Monetary	As Of	Debit
12	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
13	Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit

14.31.4. Description

The *Reissue Report* business use case shows how the reissuance of a financial statement can be handled. Note that the entire report is reissued, resulting in a different report date. The report date is indicated by the Report Date [Axis]. This fragment is in all other ways the same as the Roll Up business use case.

14.31.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Sometimes major errors are made and reports need to be reissued.
- Different regulators or others using reports could have different mechanisms for determining a report date. One common mechanism is the date of the audit, review, or compilation if a third party public accountant is involved with the report. For the SEC the filing date may be considered the report date.
- If data exists within a system used for analysis and a report is reissued, that system needs to be updated with the new report and could contain both the original report and the reissued report. Those reports need to be differentiated in some way.
- Note the business rule which models the roll up business rule using a tolerance.



14.32. Reclassification

The *Reclassification* business use case shows how to model information which was reported with one classification in a prior period but has been reclassified in a current report to conform to the current classifications of the information. This is a classic accounting reclassification of, say, balance sheet line items. The metapattern of this business use case is the **roll up**. However, any metapattern could be reissued.

14.32.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009	<i>Previous 2009</i>
ASSETS			
Property, Plant, and Equipment, Net			
Land	5,347	1,147	1,147
Buildings, Net	244,508	366,375	366,375
Furniture and Fixtures, Net	34,457	34,457	34,457
Computer Equipment, Net	4,169	5,313	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149	11,462
Property, Plant and Equipment, Net, Total	295,183	413,441	413,441

POLICIES:

Prior period classifications have been restated to conform to current period classifications.

14.32.2. Basic Automated Semantic Rendering

Component: (Network and Table)																																							
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Reclassification/PropertyPlantAndEquipmentByComponent)																																						
Table	Property, Plant and Equipment, by Component [Table]																																						
Slicers (applies to each fact value in each table cell)																																							
Reporting Entity [Axis]		SAMP (http://www.SampleCompany.com)																																					
Legal Entity [Axis]		Consolidated Entity [Member]																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Property, Plant and Equipment, by Component [Line Items]</th> <th style="width: 15%;">Report Date [Axis]</th> <th colspan="2">Period [Axis]</th> </tr> <tr> <th></th> <th></th> <th style="text-align: center;">2010-12-31</th> <th style="text-align: center;">2009-12-31</th> </tr> </thead> <tbody> <tr> <td>Land</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right;">5,347,000</td> <td style="text-align: right;">1,147,000</td> </tr> <tr> <td>Buildings, Net</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right;">244,508,000</td> <td style="text-align: right;">366,375,000</td> </tr> <tr> <td>Furniture and Fixtures, Net</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right;">34,457,000</td> <td style="text-align: right;">34,457,000</td> </tr> <tr> <td>Computer Equipment, Net</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right;">4,169,000</td> <td style="text-align: right;">5,313,000</td> </tr> <tr> <td>Other Property, Plant and Equipment, Net</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right;">6,702,000</td> <td style="text-align: right;">6,149,000</td> </tr> <tr> <td></td> <td>Report as of February 18, 2010 [Member]</td> <td></td> <td style="text-align: right;">11,462,000</td> </tr> <tr> <td>Property, Plant and Equipment, Net, Total</td> <td>Report as of March 2, 2011 [Member]</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">295,183,000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">413,441,000</td> </tr> </tbody> </table>				Property, Plant and Equipment, by Component [Line Items]	Report Date [Axis]	Period [Axis]				2010-12-31	2009-12-31	Land	Report as of March 2, 2011 [Member]	5,347,000	1,147,000	Buildings, Net	Report as of March 2, 2011 [Member]	244,508,000	366,375,000	Furniture and Fixtures, Net	Report as of March 2, 2011 [Member]	34,457,000	34,457,000	Computer Equipment, Net	Report as of March 2, 2011 [Member]	4,169,000	5,313,000	Other Property, Plant and Equipment, Net	Report as of March 2, 2011 [Member]	6,702,000	6,149,000		Report as of February 18, 2010 [Member]		11,462,000	Property, Plant and Equipment, Net, Total	Report as of March 2, 2011 [Member]	295,183,000	413,441,000
Property, Plant and Equipment, by Component [Line Items]	Report Date [Axis]	Period [Axis]																																					
		2010-12-31	2009-12-31																																				
Land	Report as of March 2, 2011 [Member]	5,347,000	1,147,000																																				
Buildings, Net	Report as of March 2, 2011 [Member]	244,508,000	366,375,000																																				
Furniture and Fixtures, Net	Report as of March 2, 2011 [Member]	34,457,000	34,457,000																																				
Computer Equipment, Net	Report as of March 2, 2011 [Member]	4,169,000	5,313,000																																				
Other Property, Plant and Equipment, Net	Report as of March 2, 2011 [Member]	6,702,000	6,149,000																																				
	Report as of February 18, 2010 [Member]		11,462,000																																				
Property, Plant and Equipment, Net, Total	Report as of March 2, 2011 [Member]	295,183,000	413,441,000																																				



14.32.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/Reclassification/PropertyPlantAndEquipmentByComponent)			
Table	Property, Plant and Equipment, by Component [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Property, Plant and Equipment, by Component [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Report Date [Axis]	[Axis]		
5	Report as of March 2, 2011 [Member]	[Member]		
6	Report as of February 18, 2010 [Member]	[Member]		
7	Property, Plant and Equipment, by Component [Line Items]	[Line Items]		
8	<i>Property, Plant and Equipment, Net [Roll Up]</i>	[Abstract]		
9	Land	[Concept] Monetary	As Of	Debit
10	Buildings, Net	[Concept] Monetary	As Of	Debit
11	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
12	Computer Equipment, Net	[Concept] Monetary	As Of	Debit
13	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
14	Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit

14.32.4. Description

The *Reclassification* business use case shows how to handle an accounting type of reclassification. In this case, Other Property, Plant, and Equipment, Net previously reported as \$11,462 in another report is broken out into its components for the prior period 2009 classification in order to be consistent with the current period 2010 classification. All other aspects of this business use case are the same as the Roll Up business use case.

14.32.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Reported information is sometimes reclassified to match current classifications. These reclassifications must be identifiable in some way.
- A footnote could be used to identify reclassifications.
- The fact that a reclassification has been made to line items of a financial report is generally required, this use case is not attempting to address this requirement. This use case focuses on the dynamics of the facts which have been reported which have been reclassified.
- The amounts of reclassified line items is not required to be disclosed (the lighter grey facts), they are provided here only to help understand the use case.



14.33. Reason not reported

The *Reason Not Reported* business use case show how to model information which is required to be reported, but for some reason the information is not available, unknown, or for some other reason cannot be determined and therefore cannot be reported. The metapattern of this business use case is the **hierarchy**.

14.33.1. Visual Example

Sample Company
For Period Ending December 31,
 (thousands of dollars, except number of employees)

	2010	2009	2008	2007	2006
Sales, Net	1,500	1,400	1,300	1,200	1,100
Income (Loss) from Continuing Operations	500	400	300	200	100
Net Income (Loss)	51	41	31	21	11
Cash Flow Provided by (used in) Operating Activities, Net	5,000	4,000	3,000	2,000	1,000
Capital Additions	1,000	650	550	450	350
Average Number of Employees (****)	300	290	280	270	*****

(****). Reason Not Reported: This information unavailable and therefore has not been reported.

14.33.2. Metapattern(s) employed

Component: (Network and Table)					
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/ReasonNotReported/FinancialHighlights)				
Table	Financial Highlights [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)				
Legal Entity [Axis]	Consolidated Entity [Member]				
Financial Highlights [Line Items]			Period [Axis]		
			2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31	2008-01-01 - 2008-12-31
				2007-01-01 - 2007-12-31	2006-01-01 - 2006-12-31
Financial Highlights [Hierarchy]					
Sales, Net			1,500,000	1,400,000	1,300,000
Income (Loss) from Continuing Operations			500,000	400,000	300,000
Net Income (Loss)			51,000	41,000	31,000
Cash Flow Provided by (Used in) Operating Activities, Net			5,000,000	4,000,000	3,000,000
Capital Additions			1,000,000	650,000	550,000
Average Number of Employees			300	290	280
					xsi:nil ¹

1: Reason Not Reported: This information unavailable and therefore has not been reported.



14.33.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Financial Highlights (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCases/ReasonNotReported/FinancialHighlights)			
Table	Financial Highlights [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Financial Highlights [Table]	[Table]		
2	Legal Entity [Axis]	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	Financial Highlights [Line Items]	[Line Items]		
5	Financial Highlights [Hierarchy]	[Abstract]		
6	Sales, Net	[Concept] Monetary	For Period	Credit
7	Income (Loss) from Continuing Operations	[Concept] Monetary	For Period	Credit
8	Net Income (Loss)	[Concept] Monetary	For Period	Credit
9	Cash Flow Provided by (Used in) Operating Activities, Net	[Concept] Monetary	For Period	Debit
10	Capital Additions	[Concept] Monetary	For Period	Debit
11	Average Number of Employees	[Concept] Decimal	For Period	

14.33.4. Description

The *Reason Not Reported* business use case shows how sometimes information for a fact might not be reportable. This is different than (a) actually reporting a value such as zero or (b) not providing the fact at all. Rather, in this use case a fact is reported but the fact has a NIL attribute value. There could be a variety of reasons as to why a NIL value was reported such as the information is unknown, the information is unavailable, the information is required to be reported but it is not applicable, or some other reason. An XBRL footnote is used to articulate the specific reason a NIL value was reported.

14.33.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- Someone counted 14 different reasons why a fact might be reported as NIL.
- A footnote is used to provide details as to why the information was not reported. Standardized categories or reasons could be created to make the footnote more useful.



14.34. Non financial information

The *Non-Financial Information* business use case is really nothing new, rather it makes the point that the business use cases cover not just financial information, but rather any information: financial or non-financial. This business use case is created using Lorem Ipsum (<http://www.lipsum.com/>) dummy text.

14.34.1. Visual Example

Lorem Ipsum Dolor Sit Amet December 31, 2010

Fringilla Feugiat Magna	Pellentesque Habitant Morbi Tristique	MaurisTincidunt Cursus	Metus Viverra Sollicitudin	Suspendisse Vestibulum Augue
pattern:CurabiturPortaDapibusMember	1,000	1,000	1,000	1,000
pattern:AeneanConvallisSemMember	1,000	1,000	1,000	1,000
pattern:MalesuadaFamesMember	2,000	2,000	2,000	2,000

14.34.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	Risus Convallis Placerat (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NonFinancialInformation/RisusConvallisPlacerat)
Table	Risus Convallis Placerat [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Litora Torquent [Axis]	Curabitur Fermentum Mattis [Member]

Risus Convallis Placerat [Line Items]	Malesuada Fames [Axis]		
	Curabitur Porta Dapibus [Member]	Aenean Convallis Sem [Member]	Malesuada Fames [Member]
Fringilla Feugiat Magna [Hierarchy]			
Pellentesque Habitant Morbi Tristique	1,000	1,000	2,000
MaurisTincidunt Cursus	1,000	1,000	2,000
Metus Viverra Sollicitudin	1,000	1,000	2,000
Suspendisse Vestibulum Augue	1,000	1,000	2,000



14.34.3. Report Elements and Model Structure

Component: (Network and Table)				
Network	Risus Convallis Placerat (http://www.xbrlsite.com/DigitalFinancialReporting/BusinessUseCase/NonFinancialInformation/RisusConvallisPlacerat)			
Table	Risus Convallis Placerat [Table]			
#	Label	Report Element Class	Period Type	Balance
1	Risus Convallis Placerat [Table]	[Table]		
2	Litora Torquent [Axis]	[Axis]		
3	Curabitur Fermentum Mattis [Member]	[Member]		
4	Malesuada Fames [Axis]	[Axis]		
5	Malesuada Fames [Member]	[Member]		
6	Curabitur Porta Dapibus [Member]	[Member]		
7	Aenean Convallis Sem [Member]	[Member]		
8	Risus Convallis Placerat [Line Items]	[Line Items]		
9	Fringilla Feugiat Magna [Hierarchy]	[Abstract]		
10	Pellentesque Habitant Morbi Tristique	[Concept] Monetary	For Period	
11	MaurisTincident Cursus	[Concept] Monetary	For Period	
12	Metus Viverra Sollicitudin	[Concept] Monetary	For Period	
13	Suspendisse Vestibulum Augue	[Concept] Monetary	For Period	

14.34.4. Description

The *Non-Financial Information* business use case is *Simple Compound Fact* business use case modelled with meaningless dummy placeholder text. The point is to show that there is nothing special necessary to model non-financial information in XBRL. Any non-financial use case can be modelled as the financial reporting examples shown. Information is simply text and numbers; whether it is financial or non-financial is not a consideration really.

14.34.5. Important distinguishing aspects and dynamics

The following is a summary of the important characteristics and dynamics of this business case which should be considered:

- This use case shows that there is no difference between modelling financial and non-financial information. Both are numbers and text used within a specific business domain.
- You can look at any of these business use cases and ignore the actual text you see and focus on the patterns and semantics of the relations which is more the focus of the business use cases.



15. Comprehensive Example

The comprehensive example takes the complete set of business use cases, puts them all into one XBRL taxonomy and XBRL instance “system”, and tests how one part of an XBRL taxonomy and XBRL instance interrelates with other parts in one comprehensive digital financial report. This enables an XBRL instance and taxonomy to be evaluated holistically, being sure all the moving pieces interact correctly with one another. This example also shows this interaction.

Don't be deceived by its apparent simplicity of this example. It would be rare for a real XBRL instance to contain all that this example contains. While it might not look like a real financial report, the example looks enough like a real financial report to help grasp the true issues of expressing information using XBRL but small enough not to be overwhelming.

This example does have the simple and complex issues you would run up against while modeling a real financial report. This is a marvelous learning tool. It is an extremely useful testing tool. It is a valuable prototype to show how to get XBRL to do the things which you will find that you need XBRL to do within your system.

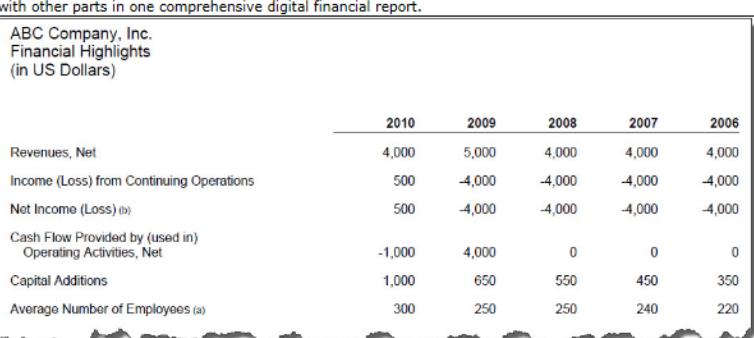
15.1. Overview of comprehensive example

The comprehensive example can be found at the following URL:

<http://www.xbrlsite.com/DigitalFinancialReporting/ComprehensiveExample/2012-09-30/>

At that URL you will see an index page which is similar to the index pages of the metapatterns and business use cases and looks as follows:

Comprehensive Example (2012-09-30)

#	Item	Description																																										
A.	Business use case name	Comprehensive Example																																										
B.	Description	The Comprehensive Example takes the complete set of business use cases, puts them all into one XBRL taxonomy and XBRL instance, and shows how one part of an XBRL taxonomy and XBRL instance interrelates with other parts in one comprehensive digital financial report.																																										
C.	Visual example	<p>ABC Company, Inc. Financial Highlights (in US Dollars)</p>  <table border="1"> <thead> <tr> <th></th> <th>2010</th> <th>2009</th> <th>2008</th> <th>2007</th> <th>2006</th> </tr> </thead> <tbody> <tr> <td>Revenues, Net</td> <td>4,000</td> <td>5,000</td> <td>4,000</td> <td>4,000</td> <td>4,000</td> </tr> <tr> <td>Income (Loss) from Continuing Operations</td> <td>500</td> <td>-4,000</td> <td>-4,000</td> <td>-4,000</td> <td>-4,000</td> </tr> <tr> <td>Net Income (Loss) (b)</td> <td>500</td> <td>-4,000</td> <td>-4,000</td> <td>-4,000</td> <td>-4,000</td> </tr> <tr> <td>Cash Flow Provided by (used in) Operating Activities, Net</td> <td>-1,000</td> <td>4,000</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Capital Additions</td> <td>1,000</td> <td>650</td> <td>550</td> <td>450</td> <td>350</td> </tr> <tr> <td>Average Number of Employees (a)</td> <td>300</td> <td>250</td> <td>250</td> <td>240</td> <td>220</td> </tr> </tbody> </table>		2010	2009	2008	2007	2006	Revenues, Net	4,000	5,000	4,000	4,000	4,000	Income (Loss) from Continuing Operations	500	-4,000	-4,000	-4,000	-4,000	Net Income (Loss) (b)	500	-4,000	-4,000	-4,000	-4,000	Cash Flow Provided by (used in) Operating Activities, Net	-1,000	4,000	0	0	0	Capital Additions	1,000	650	550	450	350	Average Number of Employees (a)	300	250	250	240	220
	2010	2009	2008	2007	2006																																							
Revenues, Net	4,000	5,000	4,000	4,000	4,000																																							
Income (Loss) from Continuing Operations	500	-4,000	-4,000	-4,000	-4,000																																							
Net Income (Loss) (b)	500	-4,000	-4,000	-4,000	-4,000																																							
Cash Flow Provided by (used in) Operating Activities, Net	-1,000	4,000	0	0	0																																							
Capital Additions	1,000	650	550	450	350																																							
Average Number of Employees (a)	300	250	250	240	220																																							
D.	Visual example file	PDF XSLT used to generate XSL-FO for PDF generation																																										
E.	XBRL taxonomy	XSD (Company) XSD (GAAP)																																										
F.	XBRL instance	XBRL instance																																										
G.	XBRL formulas	XBRL Formulas (Company) XBRL Formulas (GAAP domain level and Industry/activity level)																																										
H.	Human readable viewer	Coming soon!																																										
I.	ZIP Archive with All Files	ZIP																																										
J.	Automated validation results	XBRL validation (UBmatrix Taxonomy Designer) XBRL validation (XBRL Cloud XRun) XBRL validation (CoreFilings TrueNorth) XBRL validation (XBRL Cloud) XBRL validation (UBmatrix XPE) XBRL calculations validation (UBmatrix Taxonomy Designer) XBRL calculations validation (UBmatrix XPE) XBRL Formula validation (UBmatrix XPE)																																										



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A good place to start is by reading through the visual example of what is contained in this financial report, item "D" the visual example file which is provided in a PDF format.

One thing which the comprehensive example does not get into is taxonomy modularity. Taxonomy modularity architecture decisions need different inputs than provided by this example.

15.2. Details of each network

The following is a summary of each of the networks contained within the comprehensive example and a mapping to the business use case and/or metapattern.

Network	Business Use Case and Other Information
AA, Part 1: Financial Highlights	Flat Hierarchy
BA, Part 1: Balance Sheet	Roll Up
BA, Part 2: Balance Sheet, Classes of Preferred Stock	Simple Compound Fact, shows a class with only one member
BA, Part 3: Balance Sheet, Classes of Common Stock	Simple Compound Fact
BB, Part 1: Income Statement	Roll Up
BB, Part 2: Income Statement, Earnings Per Share	Flat Hierarchy
BC, Part 1: Cash Flow Statement, Direct Method	Roll Forward
BF, Part 1: Changes in Equity, Prior Period Adjustments	Prior Period Adjustment
BF, Part 2: Changes in Equity	Roll Forward
BF, Part 3: Changes in Equity, Preferred Stock, Shares	Roll Forward
BF, Part 4: Changes in Equity, Common Stock, Shares	Roll Forward
BF, Part 5: Changes in Equity [Extra]	
IA, Part 1: Overall Financial Reporting Presentation and Display	Nested Hierarchy
JA, Part 1: Accounting Policies	Nested Hierarchy
JB, Part 1: Cash and Cash Equivalents, Disclosures	Flat Hierarchy
JB, Part 2: Cash and Cash Equivalents, Details	Roll Up
JC, Part 1: Receivables, Disclosures	Flat Hierarchy
JC, Part 2: Receivables, Details, Current/Noncurrent	Roll Up, Multiple Roll Ups
JC, Part 3: Receivables, Details, Gross/Net	Roll Up, Multiple Roll Ups
JC, Part 4: Receivables, Details, by Component	Roll Up, Multiple Roll Ups
JD, Part 1: Inventory, Disclosures	Flat Hierarchy
JE, Part 1: Prepaid Expenses, Disclosures	Flat Hierarchy
KA, Part 1: Property, Plant and Equipment, Disclosures (As Concepts)	Roll Up
KA, Part 2: Property, Plant and Equipment, Details (As Concepts)	Roll Up
KA, Part 3: Property, Plant and Equipment, Movement (As Concepts)	Roll Forward
KF, Part 1: Property, Plant and Equipment, Disclosures (Class as Axis)	Class
KF, Part 2: Property, Plant and Equipment, Details (Class as Axis)	Class Properties
KF, Part 3: Property, Plant and Equipment, Leasehold Land and Buildings	Multiple Periods Compound Fact
KG, Part 1: Other Assets, Disclosures	Flat Hierarchy
KG, Part 2: Other Assets, Details	Roll Up
LA, Part 1: Payables and Accruals, Details	Roll Up
LA, Part 1: Payables and Accruals, Disclosures	Flat Hierarchy
LB, Part 1: Debt, Disclosures	Flat Hierarchy
LB, Part 2: Debt, Details	Roll Up
LB, Part 3: Debt, Maturities	Roll Up, ties to total debt
LB, Part 4: Debt, Instruments	Compound Fact, ties to total debt
LB, Part 5: Debt, Details, Current/Noncurrent Breakdown	Roll Up, ties to total debt
LC, Part 1: Other Liabilities, Disclosures	Flat Hierarchy
LC, Part 2: Other Liabilities, Details	Flat Hierarchy
MA, Part 1: Equity, Disclosures	Flat Hierarchy



NA, Part 1: Income Taxes, Disclosures	Flat Hierarchy
NA, Part 2: Income Tax Expense (Benefit), Details	Roll Up
OA, Part 1: Subsequent Events	Compound Fact
OB, Part 1: Business Segments	Roll Up
OC, Part 1: Related Parties	Nested Compound Fact
OC, Part 2: Related Party Transactions	Nested Compound Fact
OC, Part 3: Director Compensation	Simple Compound Fact
OC, Part 4: Share Ownership Plans	Nested Roll Forward
PB, Part 1: Reconciliation of Cash, Summary	Reconciliation
PB, Part 2: Reconciliation of Cash, Detail	Reconciliation
PC, Part 2: Investments, Details	Grouped Report
PC, Part 3: Sales Analysis	Compound Fact
QA, Part 1: Variance Analysis	Variance
VA, Part 1: Document Information	Flat Hierarchy
VB, Part 1: Address	Flat Hierarchy



16. Financial Disclosure Template Examples

The financial disclosure templates are a set of 75 smaller implementations of financial report disclosures, similar to the business use cases. Disclosure templates are created for common financial report disclosures. The disclosure templates are modelled compliant with SEC XBRL financial report rules and using the 2012 US GAAP Taxonomy.

16.1. Overview of financial disclosure templates

The disclosure templates can be found at the following URL:

<http://www.xbrlsite.com/2012/Templates/2012-04-15/TemplateIndex/index.html>

The screenshot shows a Windows Internet Explorer window displaying the 'Disclosure Template Index' from the SEC XBRL site. The main content area is titled 'SEC Financial Report Disclosure Template Database (Working prototype using 2012 US GAAP Taxonomy)'. It includes a sidebar with a 'Disclosure Template Index' table of contents and a main panel with detailed information about the templates, including a warning and creation strategy.

Disclosure Template Index

(Home | [List of templates](#) | [Templates organized within hierarchy of topics](#) | [RDF](#))

Click the home link above to take you to the main page which explains these disclosure templates. The list below is currently a flat list of disclosure templates. As the number of templates grows, the list will be converted to use the [Accounting Standards Codification \(ASC\)](#) organization scheme. Other organization schemes will also likely be made available.

Disclosure template list:

1 Balance Sheet, Classified, With Noncontrolling Interest (Template index)
2 Balance Sheet, Classified, Does Not Have Noncontrolling Interest (Template index)
3 Balance Sheet, Parenthetical (Template index)
4 Balance Sheet, Parenthetical, Two Classes of Stock (Template index)
5 Income Statement, Multi-step, Basic (Template index)
6 Nonoperating Income (Expense) Components (Template index)
7 Statement of Comprehensive Income, Basic (Template index)
8 Statement of Changes in Equity (Template index)
9 Statement of Changes in Equity, using Grid Approach (Template index)
10 Cash Flow Statement, Indirect, Basic (Template index)
11 Cash Flow Statement, Indirect, Basic, All Cash Flows from Continuing Operations

To the left are a set of SEC XBRL financial report disclosure templates. The disclosure templates are currently organized as a flat list but will eventually be available organized using the Accounting Standards Codification (ASC).

Each template is a complete model of a specific financial disclosure. This includes business rules which enforce numeric relations between the reported facts which make up the disclosure. These templates can be imported directly into software applications and can assist in the creation of an SEC XBRL financial report. For more information about integrating these templates into your software application, please contact CharlesHoffman@olywa.net.

The following is provided for each disclosure template:

- Descriptive information which explains the template
- Link to the US GAAP Taxonomy network which contains these disclosure pieces
- As these disclosure templates are for detailed disclosures, a link is provided to the [Text Block] which can also be used to provide this disclosure (coming soon)
- Visual example of the disclosure
- Model structural relations between the pieces of the template
- Model business rule relations which explain the numeric relations or computations between the pieces of the template
- Links to SEC XBRL financial filings which provide this disclosure (this needs additional work)
- Links to each of the physical files which make up the template (including taxonomy schema, XBRL instance, XBRL formulas, and numerous infosets)

For more information helpful in understanding why these templates are important to you [Digital Financial Reporting](#) on my blog.

WARNING!
Please keep the following information in mind as you use these templates:

- Be careful not to only consider each template in isolation. Each component must co-exist with other components and therefore modeling decisions must consider the holistic view of the SEC XBRL financial filing.
- This model/reference implementation of an SEC XBRL financial report helps you understand the holistic perspective: <http://www.xbrlsite.com/2012/ReferenceImplementation/2012-04-15/>
- The document Financial Report Semantics and Dynamics Theory and Guide to Verification of an SEC XBRL Financial Report help you understand the big picture. The document Modeling Business Information Using XBRL helps you understand the details. All three documents can be found here: <http://xbrl.squarespace.com/digital-financial-reporting/>

Disclosure Template Creation Strategy:
Please keep the following creation strategy in mind when using these templates:

- Each disclosure template explicitly models information within a [Table]. Although using explicit [Table]s is not required, being consistent and being explicit makes working with this information easier.
- Each disclosure template generally attempts to model the minimum information which is likely to be disclosed. Additional report elements can always be added by going to the US GAAP Taxonomy which is referenced for each disclosure template.
- Each disclosure template includes business rules for concepts which are required to be included in each

16.2. Details of financial disclosure templates

The following is a summary of the different disclosure templates available:

Template label	Description
Accounting Policies	Basic summary of significant accounting policies
Accrued Liabilities Components	Components of accrued liabilities
Antidilutive Securities Excluded from Computation of Earnings Per Share	Details of antidilutive securities excluded from computation of earnings per share



Template label	Description
Asset Retirement Obligation Roll Forward	Asset retirement obligation roll forward
Balance Sheet, Classified, Does Not Have Noncontrolling Interest	Basic classified balance sheet which does not include a noncontrolling interest.
Balance Sheet, Classified, With Noncontrolling Interest	Basic classified balance sheet which contains a noncontrolling interest.
Balance Sheet, Parenthetical	Balance sheet parenthetical information
Balance Sheet, Parenthetical, Two Classes of Stock	Balance sheet parenthetical information with two classes of stock
Business Acquisitions	Business acquisitions by acquisition
Capital Leases Future Minimum Payments Due	Future Minimum Lease Payments for Capital Leases
Cash Flow Statement, CONTRA EXAMPLE, Exchange Gain in Wrong Location	Cash flow statement, exchange gain modeled INCORRECTLY.
Cash Flow Statement, Indirect, Basic	Basic cash flow statement using indirect method, no discontinued operations
Cash Flow Statement, Indirect, Basic, All Cash Flows from Continuing Operations	Basic cash flow statement using indirect method, no discontinued operations; specifically uses concepts indicating that cash flows are from continuing operations
Cash Flow Statement, With Discontinued Operations, Option 1	Cash flow statement WITH discontinued operations, option 2.
Cash Flow Statement, With Discontinued Operations, Option 2	Cash flow statement, questionable modeling. INCORRECT
Cash, Cash Equivalents, and Short-term Investments Components	Components of cash, cash equivalents, and short-term investments
Change in Benefit Obligation	Change (roll forward) in benefit obligation of defined benefit plans.
Change in Fair Value of Benefit Plan Assets	Change (roll forward) in benefit plan assets of defined benefit plans.
Concentrations of Risk	Basic example of current vulnerability due to certain concentrations.
Contract Receivable Retainage, Fiscal Year Maturity	Fiscal year maturities of contract receivable retainage
Cost-method Investments	Cost-method Investments, Realized Gain (Loss), Excluding Other than Temporary Impairments
Debt Instruments	Basic disclosure of individual long-term debt instruments
Deferred Revenue Arrangement, by Type	Detail of deferred revenue arrangements organized by type of arrangement.
Discontinued Operations, by Disposal Group	Discontinued operations by disposal group
Document and Entity Information, Basic	Basic document and entity information, all modeled together which leads to illogical characteristics provided for some reported facts
Document and Entity Information, Separate into Three Logical Pieces	Basic document and entity information, breaks out document information, entity information, and common stock related information into individual components
Document and Entity Information, Separate into Two Pieces	Basic document and entity information, breaks out document information and entity information; still leads to illogical characteristics provided for some reported facts
Document and Entity Information, Separate Tables in Separate Networks	Basic document and entity information, breaks out document information and entity information (including stock information) into separate tables and separate networks.
Document information	Information about the report itself, the document submitted
Effective Income Tax Rate Reconciliation	Reconciliation between income tax rate between statutory rate and effective rate
Entity Information	Information which describes the entity which filed the report.
Entity Listings	Information about an entity's listings
Equity Method Investments	Details of each equity method investment which includes the investment name and the percentage ownership of common stock of each investment.
Extraordinary Items, Basic	Basic example of an extraordinary item.
Fair Value of Assets and Liabilities Measured on Recurring and Nonrecurring Basis	Fair value measurements on recurring or nonrecurring basis



Template label	Description
Fair Value, Assets Measured on Recurring Basis, Unobservable Input Reconciliation	Fair Value of Assets Measured on Recurring Basis, Unobservable Input Reconciliation
Finite-Lived Intangible Assets Acquired as Part of Business Combination	Finite-lived intangible assets acquired as part of business combination
Finite-Lived Intangible Assets, Future Amortization Expense	Future amortization expense for finite-lived intangible assets
Funding Status of Defined Benefit Plans	Combination of change in benefit obligation and change in defined benefit plan assets.
Geographic Area Information	Basic disclosure of the details of revenue from external customers and long-lived assets, by geographical area
Geographic Area Information, Nested Hierarchy	Basic disclosure of the details of revenue from external customers and long-lived assets, by geographical area; but with regions this a nested hierarchy
Geographic Area Information, Nested Hierarchy, Bad example	BAD EXAMPLE: This is a contra-example of how NOT to model geographic areas. (1) Use the existing countries taxonomy rather than create extensions. (2) Create a nested hierarchy within the geographic area [Axis] rather than creating a Countries [Axis].
Hedging Instrument Balance Sheet Location of Gains and Losses Reported	Schedule that discloses the location and fair value amounts of derivative instruments (and nonderivative instruments that are designated and qualify as hedging instruments) reported in the statement of financial position. Schedule of the location and amount of gains and losses reported in the statement of financial performance (or when applicable, the statement of financial position, for example, gains and losses initially recognized in other comprehensive income) on derivative instruments designated and qualifying as hedging instruments in fair value hedges and related hedged items designated and qualifying in fair value hedges. Schedule of the location and amount of gains and losses reported in the statement of financial performance (or when applicable, the statement of financial position, for example, gains and losses initially recognized in other comprehensive income) on derivative instruments designated and qualifying as hedging instruments in cash flow hedges. Schedule of the location and amount of gains and losses reported in the statement of financial performance (or when applicable, the statement of financial position, for example, gains and losses initially recognized in other comprehensive income) on derivative instruments not designated as hedging instruments.
Income Statement, Multi-step, Basic	Basic multi-step income statement
Income Statement, Single-Step	Income statement with a flat organization
Income Statement, With Discontinued Operations	Income statement with noncontrolling interest
Income Statement, With Noncontrolling Interest	Minimum income statement
Income Statement, With Preferred Dividends	Income statement with preferred dividends.
Income Tax Provision Components	Income tax provision (benefit) components broken out by jurisdiction and then by current/deferred
Income Tax Provision Components Alternative	Income tax provision (benefit) components broken out by current/deferred and then by jurisdiction
Inventory Components	Basic disclosure for the breakdown of components of inventory
Line of Credit Facility	Disclosure for line of credit facilities
Long-Term Debt Maturities	Basic disclosure for long-term debt maturities
Long-term Purchase Commitments	Basic disclosure of long-term purchase commitments of a reporting entity
Loss Contingency Accrual	Basic loss contingency accrual roll forward
Marketable Debt Securities By Contractual Maturity	Marketable Debt Securities By Contractual Maturity, amortized cost and fair value
Marketable Securities Components	Marketable securities components including reconciliation from cost to estimated fair value



Template label	Description
Nonmonetary Transaction By Type	Basic disclosure of the details of nonmonetary transactions classified by the type of transaction
Nonoperating Income (Expense) Components	Other nonoperating income (expense)
Operating Leases Future Minimum Payments Due	Future minimum payments due under operating leases
Organization, Consolidation, Basis of Presentation	Basic disclosures for nature of operations, consolidation of financial statements and basis of presentation of financial statements
Other Assets Components	Other assets
Other Liabilities, Noncurrent, Components	Components of other noncurrent liabilities
Prior Period Adjustment	Prior period adjustment
Product Warranty Accrual Roll Forward	Change in the product warranty accrual balance sheet account
Property, Plant and Equipment Policy	Basic summary of property, plant, and equipment related accounting policies broken down by type of PPE; each type modeled as a [Member] of an [Axis]
Property, Plant, and Equipment Components	Basic disclosure for the breakdown of the components of property, plant and equipment categorized by type; models each type of property, plant and equipment using an [Axis]
Property, Plant, and Equipment Components Alternative	Basic disclosure for the breakdown of the components of property, plant and equipment categorized by type; models each type of property, plant and equipment using a [Concept]
Receivables Components	Components of receivables
Reconciliation of Unrecognized Tax Benefits	Reconciliation of unrecognized tax benefits
Related Party Transactions	Related party transactions
Restructuring Reserve Roll Forward	Restructuring reserve roll forward
Segment Information	Basic disclosure of the details of net income (loss), assets, and other common disclosures for each reportable segment of a reporting entity
Select Financial Information	Select financial information, shows the variance information model
Share-based Compensation Arrangement By Award	Share-based Compensation Arrangement by Share-based Payment Award, Options, Outstanding Roll Forward and Share-based Compensation Arrangement by Share-based Payment Award, Options, Outstanding, Weighted Average Exercise Price Roll Forward
Statement of Changes in Equity	Statement of changes in equity
Statement of Changes in Equity, using Grid Approach	Statement of changes in equity using the common [Grid] approach as done in the US GAAP Taxonomy
Statement of Comprehensive Income, Basic	Very basic Statement of Comprehensive income (WARNING!!! Not totally sure I have these calculations/XBRL formulas correct; need to double check these)
Stock by Class	Stock by class, preferred and common
Subsequent Events	Basic subsequent events disclosure
Unusual or Infrequent Item	Unusual or infrequent financial statement item
Variable Interest Entities, Carrying Amounts of Assets and Liabilities	Disclosure of carrying amounts of assets and liabilities in the statement of financial position of each VIE for the reporting entity.

16.3. Information available for each disclosure template

Each disclosure template has the following information available: (the screen shots below provide an example of the information available using the document information template)



Template Descriptive Information

Template label:	Document information
Template code:	995200-005-DocumentInformation
Template description:	Information about the report itself, the document submitted
Keywords:	document
Disclosure object code:	Document Information
Star rating:	★★★★★ (5 stars)
Status:	WIP
US GAAP Taxonomy Network Location:	995200 - Document - Document Information
Reorganized US GAAP Taxonomy Network Location:	995200 - Document - Document Information
Business rules:	<ul style="list-style-type: none"> • Current Fiscal Year End Date (dei:CurrentFiscalYearEndDate) required in this component. (ASSERTION_Exists_CurrentFiscalYearEndDate) • Document Period End Date (dei:DocumentPeriodEndDate) required in this component. (ASSERTION_Exists_DocumentPeriodEndDate) • Document Fiscal Year Focus (dei:DocumentFiscalYearFocus) required in this component. (ASSERTION_Exists_DocumentFiscalYearFocus) • Document Fiscal Period Focus (dei:DocumentFiscalPeriodFocus) required in this component. (ASSERTION_Exists_DocumentFiscalPeriodFocus) • Amendment Flag (dei:AmendmentFlag) required in this component. (ASSERTION_Exists_AmendmentFlag) • Document Type (dei:DocumentType) required in this component. (ASSERTION_Exists_DocumentType)
Equivalent [Text Block]:	Document Information [Text Block]

Visual image

	0000000001
	Year ended 31-Dec-2010
Document Information [Abstract]	
Document Information [Table]	
Document Information [Line Items]	
Document Information [Hierarchy]	
Document Type	10-K
Amendment Flag	false
Document Fiscal Period Focus	FY
Document Fiscal Year Focus	2010
Document Period End Date	31-Dec-2010
Current Fiscal Year End Date	31-Dec



Model Structural Relations

Line	Label	Object Class	Data type	Period Type	Balance	Name
1	Document Information	[Network]				http://www.template.com/DocumentInformation
2	Document Information [Abstract]	[Concept] (Abstract)				added:DocumentInformationAbstract
3	Document Information [Table]	[Table]				del:DocumentInformationTable
4	Legal Entity [Axis]	[Axis]				del:LegalEntityAxis
5	Consolidated Entity [Domain]	[Member]				del:EntityDomain
6	Document Information [Line Items]	[Line Items]				del:DocumentInformationLineItems
7	Document Information [Hierarchy]	[Concept] (Abstract)				added:DocumentInformationHierarchy
8	Document Type	[Concept]	Submission Type	For Period		del:DocumentType
9	Amendment Flag	[Concept]	Yes/No	For Period		del:AmendmentFlag
10	Document Fiscal Period Focus	[Concept]	Fiscal Period	For Period		del:DocumentFiscalPeriodFocus
11	Document Fiscal Year Focus	[Concept]	Year	For Period		del:DocumentFiscalYearFocus
12	Document Period End Date	[Concept]	Date	For Period		del:DocumentPeriodEndDate
13	Current Fiscal Year End Date	[Concept]	Month/Day	For Period		del:CurrentFiscalYearEndDate

Similar SEC XBRL Filer Examples

3D SYSTEMS CORP | Activision Blizzard, Inc. | ADOBE SYSTEMS INC | AKAMAI TECHNOLOGIES INC | ALEXION PHARMACEUTICALS INC | ALLERGAN INC | ALLSCRIPTS HEALTHCARE SOLUTIONS, INC | AMERICAN AXLE & MANUFACTURING HOLDINGS INC | AMETEK INC | AMKOR TECHNOLOGY INC | AMYRIS, INC | Ancestry.com, Inc. | ANSYS INC | ARBITRON INC | ASIAINFO-LINKAGE, INC | ASTEC INDUSTRIES INC | AUTOLIV INC | Avery Dennison Corp | BAKER HUGHES INC | BALCHEM CORP | BARD C R INC/NY | BAXTER INTERNATIONAL INC | BEAM INC | BEMIS CO INC | BENCHMARK ELECTRONICS INC | BLACKBAUD INC | BIOCORNE NILE INC | BOEING COMPANY | BOSTON SCIENTIFIC CORP | BRIDGESTONE AMERICA INC | BRINKS INC | BROADCOM INC | BROWNSVILLE DESIGN SYSTEMS INC | CAMPBELL INTERNATIONAL CORP | CAPELLA EDUCATION CO | CARDTRONICS INC | CARTEL AMERICA INTERNATIONAL INC | CEC ENTERTAINMENT INC | CENTRAL EUROPEAN MEDIA ENTERPRISES LTD | CEPHEID | CERNER CORP/MO/ | CHEVRON CORP | CHURCH & DWIGHT CO INC/DE/ | CIENA CORP | CIRCOR INTERNATIONAL INC | CLEAN HARBORS INC | COGNEX CORP | COGNIZANT TECHNOLOGY SOLUTIONS CORP | COLUMBIA SPORTSWEAR CO | COMPASS MINERALS INTERNATIONAL INC | COMSCORE, INC | COMMED CORP | Constant Contact, Inc | COOPER COMPANIES INC | CORNING INC/NY | CORPORATE EXECUTIVE BOARD CO | COTT CORP/CN/ | CRANE CO/DE/ | CTC Media, Inc | CURTISS WRIGHT CORP | CYMER INC | DELUXE CORP | Digital Generation, Inc | Discovery Communications, Inc | DOMINOS PIZZA INC | DRIL-UPP INC | DUPONT E I DE NEMOURS & CO | EMCOR GROUP INC | ENDO PHARMACEUTICALS HOLDINGS INC | ENPRO INDUSTRIES, INC | EOG RESOURCES INC | EQUIFAIR INC | EQUINIX INC | ESTERLINE TECHNOLOGIES CORP | EXPEDITORS INTERNATIONAL OF WASHINGTON INC | EXPRESS SCRIPTS INC | EXXON MOBIL CORP | FASTENAL CO | FELCO | FERRO CORP | FIRST SOLAR, INC | FLUOR CORP | FORD MOTOR CO | FRUITLANDERS INC | FURNITURE OF AMERICA INC | GENCO SYSTEMS INC | GEOPHYSICAL SURVEY SYSTEMS INC | GEOPROBE INC | GEORGIA GULF CORP/DE/ | GRACO INC | GRAINGER W W INC | GROUP 1 AUTOMOTIVE INC | HALCO ROBERT INTERNATIONAL INC/DE/ | HALLIBURTON CO | Hasbroboards INC | HARLEY DAVIDSON INC | HARMONIC INC | HASBRO INC | HITITE MICROWAVE CORP | HORNBECK OFFSHORE SERVICES INC/AA | HUB GROUP INC | IDEXX CORP/DE/ | IDEXX LABORATORIES INC/DE/ | ILLINOIS TOOL WORKS INC | ILLUMINA INC | INFORMATICA CORP | INGRAM MICRO INC | INSIGHT ENTERPRISES INC | INTEGRA LIFESCIENCES HOLDINGS CORP | INTEL CORP | Intermetis, Inc | INTERNATIONAL FLAVORS & FRAGRANCES INC | INTUITIVE SURGICAL INC | ION GEOPHYSICAL CORP | IPG PHOTONICS CORP | JOHNSON & JOHNSON | JONES GROUP INC | KAYDON CORP | KBW, INC | KELLOGG CO | KRAFT FOODS INC | Kraton Performance Polymers, Inc. | K3 COMMUNICATIONS CORP | LABORATORY CORP OF AMERICA HOLDINGS | LANDSTAR SYSTEM INC | LEGGETT & PLATTING | LEXMARK INTERNATIONAL INC/KY | Life Technologies Corp | LILLY ELI & CO | LINCOLN ELECTRIC HOLDINGS INC | LINCOLN ELECTRIC INC | MANAGEON INC | MARVELL SEMICONDUCTOR INC | MASTERS OF MANAGEMENT INC | MATCOR CORP | MCDERMOTT INTERNATIONAL INC | MEDICALWARE CORP | MCGRAW-HILL COMPANIES INC | MEDICINES CO/DE/ | MERADOLIBRE INC | MERCK & CO, Inc | MERGE-E HEALTHCARE INC | METTLER TOLEDO INTERNATIONAL INC | MICROSTRATEGY INC | MINE SAFETY APPLIANCES CO | MINERALS TECHNOLOGIES INC | MKS INSTRUMENTS INC | MOHAWK INDUSTRIES INC | Motorola Solutions, Inc | MSCI,Inc | MUELLER INDUSTRIES INC | MYLAN INC | NAVIGANT CONSULTING INC | NEKTAR THERAPEUTICS | NEWMARKET CORP | NEWPARK RESOURCES INC | NIL HOLDINGS INC | NORDSON CORP | NOVELLUS SYSTEMS INC | NU SKIN ENTERPRISES INC | NUCOR CORP | NUVASIVE INC | NxStage Medical, Inc | OFFICEMAX INC | OIL STATES INTERNATIONAL, INC | OM GROUP INC | ON SEMICONDUCTOR CORP | ORTHOFIX INTERNATIONAL N.V | PEGASYSTEMS INC | PEPSICO INC | PHOTONICS INC | PILGRIMS PRIDE CORP | POLYONE CORP | PPG INDUSTRIES INC | PROGRESS SOFTWARE CORP/MA | QLIK TECHNOLOGIES INC | QUANTA SERVICES INC | QUEST SOFTWARE INC | REGAL BRITOTT CORP | Riverbed Technology | ROPER INDUSTRIES INC | RTI INTERTECHNOLOGIES INC | SANFORD-BLAZER INC | SANDISK CORP | SAPIENT CORP | SANTANDER BANK NORTH AMERICA INC | SCAFFOLDED AIR CLOUD INC | SCHNEIDER GENETICS INC | SERVPRO OF VILANO BEACH INC | SHIPRO GROUP INC | SII NIPPON CORP | SolarWinds, Inc | SOUTHWESTERN ENERGY CO | Spectra Energy Corp | ST JUDE MEDICAL INC | STAPLES INC | STARWOOD HOTEL & RESORTS WORLDWIDE, INC | SUPERIOR ENERGY SERVICES INC | SYKES ENTERPRISES INC | SYNOPSYS INC | SYNTEL INC | TEMPUR PEDIC INTERNATIONAL INC | TENNANT CO | TERADATA CORP/DE/ | THOMAS & BETTS CORP | TIBCO SOFTWARE INC | TIMKEN CO | TITAN INTERNATIONAL INC | TITANIUM METALS CORP | TORO CO | TRIMBLE NAVIGATION LTD/CA | TTM TECHNOLOGIES INC | TUUPERAWARE BRANDS CORP | ULTIMATE SOFTWARE GROUP INC | UNDER Armour, Inc | UNISYS CORP | UNITED PARCE SERVICE INC | UNITED STATES STEEL CORP | UNITED STATIONERS INC | UNITED TECHNOLOGIES CORP/DE/ | USG CORP | VFC CORP | VALUECLICK INC/CA | VEECO INSTRUMENTS INC | VERISIGN INC/CA | Verisk Analytics, Inc | VIROPHARM INC | WARCO Holdings Inc | Warner Chilcott plc | WASTE MANAGEMENT INC | WATSON PHARMACEUTICALS INC | WEBSENSE INC | WEIGHT WATCHERS INTERNATIONAL INC | WERNER ENTERPRISES INC | WESTINGHOUSE AIR BRAKE TECHNOLOGIES CORP | WRIGHT MEDICAL GROUP INC | WYNDHAM WORLDWIDE CORP | WYNN RESORTS LTD | YUM BRANDS INC | ZEBRA TERMINAL SYSTEMS CORP | ZIMMED UNIPHARM INC

Template Files

Model taxonomy schema:	Template.xsd
Model instance:	Instance.xml
Model business rules:	Template_formulas.xml
Model business rules verification results:	Instance_XPE_FormulaTrace.html Instance_XPE_Calctrace.html
Model structural relations (HTML):	Template_Relations.html
Model structural relations (XML infoset):	Template_Relations.xml
XBRL Technical Syntax Validation:	Per XBRL Cloud (XRun) (Also validated using UBmatrix XPE and Taxonomy Designer)



17. Reference Implementation of SEC XBRL Financial Filing

The reference implementation of an SEC XBRL financial filing builds on the metapatterns, business use cases, comprehensive example, and disclosure templates. It is like the comprehensive example in that the reference implementation puts all business use cases together to be sure they interact with one another correctly.

The reference implementation endeavours to create a digital financial report which adheres to the filing rules specified by the SEC within the Edgar Filer Manual (EFM). It uses the 2012 US GAAP taxonomy. It follows the modelling principles and practices shown in other parts of this resource.

The ultimate goal of the reference implementation is to create a digital financial report which is a true and fair representation of a financial report which complies with all EFM filing rules. All mathematical computations cross cast and foot. All the pieces of the reference implementation property tick and tie. The digital financial report works the same as a financial report articulated on paper or electronically using HTML or PDF; it is just that the information is formatted in XBRL so that the information in the financial report can be *effectively* exchanged. While not being a 100% complete financial report from a financial reporting perspective, it does have all the “moving pieces” of a financial report yet allows the user to focus on modelling of financial information digitally rather than being distracted that it does not look enough like a financial report.

This section explains this reference implementation in more detail.

17.1. Overview of reference implementation

The *Reference Implementation* of an SEC XBRL financial filing can be found at the following URL:

<http://www.xbrlsite.com/DigitalFinancialReporting/ReferenceImplementation/2012-09-30/>

At that URL you will see an index page which is similar to the index pages of the metapatterns and business use cases and looks as follows:

Reference Implementation (2012-09-30) Using 2012 US GAAP Taxonomy		
#	Item	Description
A.	Title	Reference Implementation (2012-09-30) Using 2012 US GAAP Taxonomy Note that this model and supporting information are being updated to leverage the Financial Report Semantics and Dynamics Theory
B.	Description	This is a reference implementation of an SEC XBRL financial filing using the ideas of the Financial Report Semantics and Dynamics Theory as modeled using a specific taxonomy. This document is a digital financial reporting document. The purpose of the reference implementation is to try and assure that a correct SEC XBRL financial filing can be created and validated using the tools and standards of such financial report. This reference implementation exercises all the things one might find in such a financial filing helping to make sure the individual components work correctly and components work together appropriately.
C.	Industry/Activity	Commercial and Industrial Companies
D.	XBRL instance	XBRL instance
E.	XBRL taxonomy	XSD
F.	XBRL calculations	XML (Linkbase) Calculation Consistency Check Results
G.	XBRL formulas: reporting entity level rules	XML (Linkbase)
H.	XBRL formulas: US GAAP domain level rules	XML (Linkbase)
I.	XBRL formulas: Industry/Activity level rules	XML (Linkbase)
J.	Validation results for XBRL formulas	Reporting entity specific, US GAAP domain level, and industry/activity level rules validation results
K.	Download: Test submission ZIP file	ZIP (works with SEC Previewer, however you MUST remove links to XBRL formulas from the XBRL instance)
L.	Download: All files	ZIP
M.	Human readable evidence package (provided by XBRL Cloud)	Coming soon!
N.	Documentation	PDF

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The purpose of the reference implementation is to bring to light in the form of physically instantiated examples and key considerations related to expressing financial information digitally, such as using the XBRL global standard. The primary focus of this reference implementation of the model is two areas. The first area is the intersections between different components which make up a financial statement. The second area is the notion of integrity at both the component level of a financial report and the overall or holistic integrity of a financial report and the system in which that report will be used.

The document explains the perspective used when evaluating this reference/model financial report, it sets forth precise terminology used to describe the reference/model financial report in order to minimize confusion.

Then, the document describes each financial report component which is expressed, provides visual fragment of the component as a point of reference, describes the key characteristics of the financial report component, articulates the business rules of the component, and how the component intersects or interacts with other financial report components.

The ultimate goal of this reference/model implementation of a digital financial report is to better understand such reports, learn about such reports, and communicate information helpful in determining the appropriate way or ways to use mediums, such as XBRL, to express financial information digitally.

Ultimately the financial reporting supply chain will need to determine the most appropriate approach. It is hoped that this information contributes to the financial reporting supply chain's understanding of the mechanics of technologies used such as XBRL.

17.2. How to read component information

The underlying technical syntax of technologies such as XBRL are technical, difficult to understand at the technical syntax level particularly for business users, and therefore result in a narrow set of business users who can relate to this information. Using a specific software application to understand this information likewise has challenges.

This documentation tries to strike a balance between meeting the needs of business users and in particular accountants which must understand this information, providing proprietary views of this information which are not generally understood, and otherwise trying to communicate useful information about a complex topic to both business users and technical users whom advise these business users.

XBRL Cloud's "Evidence Package" was picked as a way to explain this information because it is a complete and accurate implementation of ideas expressed by the *Financial Report Semantics and Dynamics Theory, Guide to Verification of an SEC XBRL Financial Report, Modeling Business Information Using XBRL, the US GAAP Taxonomy Architecture*, and other such documents which attempt to explain digital financial reports. Other software will be shown to make specific points, show consistency between software, and wherever else it serves a purpose to do so. The use of XBRL Cloud's software in no way implies that XBRL Cloud software is the only software which implements these ideas.

The following explains how to read the information provided by the XBRL Cloud Evidence Package for each component by providing a detailed explanation of one



component. This same process can be used to understand each of the components of the reference/model implementation of a digital financial report. Providing every example of every component would make this document too large and cluttered to serve its purpose. Using this document in combination with the XBRL Cloud Evidence Package or other software application which makes this information available is how this document is intended to be used.

The best starting point for looking at a component is by looking at its **rendering**. The rendering displays all information about the reported facts for a component provided within a financial report. From the rendering, business users can click on any fact and see the **fact properties** of any reported fact. You can likewise click on any report element used within that component and get information as to the **report element properties**. If parenthetical explanations exist, they can also be navigated to using the rendering view.

The following is an example of the rendering view for the "Inventory Components" section of a financial report. It shows the details which make up the individual components of inventory and the total amount of inventory which intersects with the balance sheet.

Component: (Network and Table)	
Network	5040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)
Table	Inventory Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Inventory Components [Line Items]	Period	
	2012-12-31	2011-12-31
Inventory, Net [Roll Up]		
Finished Goods	1,000,000	1,000,000
Work in progress	1,000,000	1,000,000
Raw materials	1,000,000	1,000,000
Other	1,000,000	1,000,000
Total inventories, net	4,000,000	4,000,000

Another useful view of the report component is the SEC interactive viewer rendering or **SEC preview**. One down side is that the SEC preview does not display 100% of the information about report elements or reported facts. Here is the SEC preview of the Inventory Components component.



Inventory Components (USD \$) In Thousands, unless otherwise specified	Dec. 31, 2012	Dec. 31, 2011
Inventory, Net [Roll Up]		
Finished Goods	\$ 1,000	\$ 1,000
Work in progress	1,000	1,000
Raw materials	1,000	1,000
Other	1,000	1,000
Total inventories, net	\$ 4,000	\$ 4,000

Another view of a component is the **model structure**. The model structure shows the relations between report elements which work together to model a financial report component. Report elements are grouped together in helpful groupings, or report element classes, to make working with the information easier. Here is the model structure of the Inventory Components component.

Model Structure

Component: (Network and Table)					
#	Label	Report Element Class	Period Type	Balance	Name
1	Inventory Components [Table]	[Table]			abc:InventoryComponentsTable
2	Legal Entity [Axis]	[Axis]			dei:LegalEntityAxis
3	Consolidated Entity [Domain]	[Domain]			dei:EntityDomain
4	Inventory Components [Line Items]	[Line Items]			abc:InventoryComponentsLineItems
5	Inventory, Net [Roll Up]	[Abstract]			us-qaa:p:InventoryNetAbstract
6	Finished Goods	[Concept] Monetary	As Of	Debit	us-qaa:p:InventoryFinishedGoods
7	Work in progress	[Concept] Monetary	As Of	Debit	us-qaa:p:InventoryWorkInProcess
8	Raw materials	[Concept] Monetary	As Of	Debit	us-qaa:p:InventoryRawMaterials
9	Other	[Concept] Monetary	As Of	Debit	us-qaa:p:OtherInventorySupplies
10	Total inventories, net	[Concept] Monetary	As Of	Debit	us-qaa:p:InventoryNet

If you click on the name of any report element, the **report element properties** of that report element are shown in a popup window. Below the report element properties for the concept "Total inventories, net" are shown and as you can see it provides all properties for that specific report element:



Report Element Properties	
Report Standard Label	Inventories
Base Taxonomy Standard Label	Inventory, Net
Documentation	Carrying amount (lower of cost or market) as of the balance sheet date of inventories less all valuation and other allowances. Excludes noncurrent inventory balances (expected to remain on hand past one year or one operating cycle, if longer).
Report Element Class	Concept
Prefix (From Taxonomy)	us-gaap
Balance Type	Debit
Period Type	As Of (instant)
Data Type	Monetary (xbrli:monetaryItemType)
Name	us-gaap:InventoryNet
ID	us-gaap_InventoryNet

Labels of Report Element			
From	Role	Label	Lang
Filer	http://www.xbrl.org/2003/role/totalLabel	Total inventories, net	en-us
Filer	http://www.xbrl.org/2003/role/label	Inventories	en-us
Base	http://www.xbrl.org/2003/role/label	Inventory, Net	en-US
Base	http://www.xbrl.org/2003/role/totalLabel	Inventory, Net, Total	en-US

References of Report Element		
Publisher	Reference Name	Reference Information

The raw information for reported facts which exist within a reported component is summarized within the **fact table** view of a component. The fact table view shows each fact, the characteristics of each fact, the value of each fact, and for numeric facts it shows the units and rounding of the fact. If any parenthetical explanations (i.e. XBRL footnotes) exist for the fact, you can navigate to those from this view. This is the fact table view of the Inventory Components component.

Fact Table

Component: (Network and Table)	
Network	S040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)
Table	Inventory Components [Table]

#	Reporting Entity	Period	Legal Entity [Axis]	Concept	Value	Unit	Rounding	Parenthetical Explanations
1	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Other	1000000	USD	-3	
2	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Other	1000000	USD	-3	
3	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Raw materials	1000000	USD	-3	
4	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Raw materials	1000000	USD	-3	
5	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Inventories	4000000	USD	-3	
6	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Inventories	4000000	USD	-3	
7	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Finished Goods	1000000	USD	-3	
8	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Finished Goods	1000000	USD	-3	
9	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Work in progress	1000000	USD	-3	
10	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Work in progress	1000000	USD	-3	

By clicking on any fact, you can see all the **fact properties** for that individual fact. For example, here is the fact properties for fact # 6 which is "Inventories" for 2011:



Fact Properties	
Characteristic, trait or fact	Value of characteristic, trait, or fact
Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Period	2011-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]
Concept	Inventories
Fact value	4000000
Units	USD
Decimals (rounding)	-3
Parenthetical explanation (i.e. footnote) (None)	

Finally, any business rules defined for the fact can be seen in the **business rules** view. If a business rule exists, you should see that rule and the rule should pass the business rule. Business rules include rules expressed using XBRL calculations technical syntax or XBRL Formula technical syntax. For example, here are the business rules which show that the roll up of inventories properly foots for both 2011 and 2012:

Business Rules

Component: (Network and Table)							
Network	5040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)						
Table	Inventory Components [Table]						
Reporting Entity	0000000001 (http://www.sec.gov/CIK)						
Period	2012-12-31						
Measure	USD						
Legal Entity [Axis]	Consolidated Entity [Domain]						
Label	Rendered	Reported	Calculated	Balance	Decimals	Message	
Inventories [Roll Up]							
Finished Goods	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Work in progress	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Raw materials	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Other	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Inventories	4,000,000	<u>4,000,000</u>	<u>4,000,000</u>	DR		-3	
Reporting Entity	0000000001 (http://www.sec.gov/CIK)						
Period	2011-12-31						
Measure	USD						
Legal Entity [Axis]	Consolidated Entity [Domain]						
		Rendered	Reported	Calculated	Balance	Decimals	Message
Inventories [Roll Up]							
Finished Goods	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Work in progress	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Raw materials	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Other	1,000,000	+ 1,000,000	1,000,000	DR		-3	
Inventories	4,000,000	<u>4,000,000</u>	<u>4,000,000</u>	DR		-3	

While other information is provided within the XBRL Cloud Evidence Package, the information shown in the reports above provide everything which is necessary to understand the financial information expressed by the components of a digital financial report.

17.2.1. Understanding the notion of intersections

A notion which is important to understand is that of an intersection. An intersection is basically an object of a report which is used in more than one location. For example, report elements can be used in one or more locations within a digital



financial report and facts can be used in one or more components of a digital financial report.

Understanding intersections are important for two specific reasons. The primary reason for understanding intersections is to both avoid creating duplicate information and realizing that it is the fact that the intersection can be expressed and if properly expressed avoids such duplicate information.

For example, the balance sheet component has a line item "Inventories" and values for 2012 and 2011 as can be seen below:

Component: (Network and Table)				
Network	2001 - Statement - Balance Sheet (http://www.abc.com/role/BalanceSheet)			
Table	Balance Sheet [Table]			
Slicers (applies to each fact value in each table cell)				
Reporting Entity	0000000001 (http://www.sec.gov/CIK)			
Legal Entity [Axis]	Consolidated Entity [Domain]			
Balance Sheet [Line Items]		Period		
		2012-12-31	2011-12-31	2010-12-31
Assets [Roll Up]				
Current assets [Roll Up]				
Cash, cash equivalents, and marketable securities [Roll Up]				
Cash and cash equivalents		11,000,000	10,000,000	9,000,000
Marketable securities		9,000,000	10,000,000	
Cash, cash equivalents, and marketable securities		20,000,000	20,000,000	
Accounts receivable, net of allowance for doubtful accounts of \$1,000 and \$1,000		29,000,000	29,000,000	
Inventories		4,000,000	4,000,000	
Prepaid expenses		3,000,000	3,000,000	
Total current assets		56,000,000	56,000,000	

Inventories also exists in the inventories components component where these same two values exist as can be seen here:



Component: (Network and Table)			
Network	5040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)		
Table	Inventory Components [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity			0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]			Consolidated Entity [Domain]
Inventory Components [Line Items]		Period	
		2012-12-31	2011-12-31
Inventory, Net [Roll Up]			
Finished Goods		1,000,000	1,000,000
Work in progress		1,000,000	1,000,000
Raw materials		1,000,000	1,000,000
Other		1,000,000	1,000,000
Total inventories, net		4,000,000	4,000,000

This is one type of intersection, the same facts which exist within more than one component. Likewise the characteristics of the fact are used within both components, such as the concept, the legal entity, the period, and the reporting entity.

The main focus on intersections is the intersections of facts in this document.

A secondary reason for understanding intersections is that it enables interesting software features. Not all software applications currently take advantage of such features; however, more software will leverage intersections and those expressing models should understand and provide good models which enable such functionality as opposed to bad models which mask such intersections.

Other specific examples of intersections will be provided throughout this document; here we simply wanted to explain the notion of an intersection.

17.2.2. Reference implementation components

A financial report has many components. A component is simply a piece of a financial report. A component defined as being a set of facts which go together for some specific purpose within a financial report. A component can also be broken down into subcomponents.

The reference implementation has approximately 30 components. Each component is provided for two reasons. The first reason is to provide examples of how to model different components of a financial report. The second is to show how the components of a financial report and that the components fit together. The reference/model implementation is a balance between providing too little and providing too much.

On the one hand, the reference/model implementation digital financial report should look like a financial report. On the other hand, real financial reports can be quite



large, repeat the same sorts of things many times, and be an overwhelming example to work with because of its size. The reference/model implementation looks enough like a financial report and has the pieces of a typical financial report and therefore will not confuse accountants which understand what a financial report should look like. But the reference/model implementation also has all the moving pieces which need to interact with one another correctly.

Everything in the reference/model is there for a specific reason. Accounting is well understood and the reference/model is not about accounting and not about changing accounting or financial reporting.

The reference/model is about figuring out how to use structured mediums such as XBRL to articulate information which is expressed today using unstructured mediums such as paper and electronic paper-type mediums such as HTML, PDF, or Microsoft Word. The reference/model is about figuring out what a digital financial report should look like, all things considered.

The reference/model implementation "works correctly" by one definition of works correctly. Each aspect of "correctly" can be shown and also "incorrectly" can be pointed out because "correct" is so explicitly defined. (This is as opposed to the situation where correct is not well defined and therefore it is hard to figure out if something is, or is not, correct.) If a modelling approach is changed in one area of the reference/model implementation which breaks the model in another area, that modelling option is not considered as an option because it cannot be made to work.

It is the objective balancing of all the allowable options and the fact that when used together the financial report works correctly from a financial reporting perspective and from a technical perspective which decides whether some modelling approach is appropriate or inappropriate. The intent here is to minimize subjectivity. When multiple options work, the option which seems to work the best, all things considered, which is used.

While the reference/model implementation is correct, by the author's definition of correct; other definitions of correct are possible and other definitions of "best modelling approach" are possible. That other approach could be a slight tweaking of this reference/model implementation or it could be a totally overhauled version. However, any other version of any digital financial report should be able to pass the criteria established for this reference/model implementation.

Others may have additional criteria which a digital financial report must have. Perhaps the author missed something or for some other reason neglected to include an important aspect of a digital financial report. If that is the case, the reference/model implementation should be tested against that criteria. On the other hand, any other implementation of a digital financial report should either be able to (a) pass the author's criteria or (b) show why the author's criteria is incorrect.

The criteria which were used to judge the reference implementation are enumerated here. These are the self-imposed criteria which were used to evaluate this reference implementation and define what we mean by "correct":

1. **Every model structure is logical and consistent.** Meaning there are no inconsistent and therefore perhaps confusing or potentially misinterpreted modeling situations. For example, an [Axis] as part of a [Table] definition makes sense; an [Axis] within a set of [Line Items] does not.



2. **Every computation is expressed and proven to work correctly.** Every computation must be proven to work correctly by passing one or more business rules. If a computation relation exists and it is not expressed, then there is no way to tell if the computation works correctly per the XBRL medium.
3. **No duplicate facts.** Duplicate facts result from modeling errors and therefore should not exist.
4. **Everything is consistent.** If there is no specific reason for an inconsistency which can be articulated which justifies the inconsistency; then you are being inconsistent and one of the approaches must be dropped. Inconsistencies cause additional training costs and additional burden, and unnecessary, burden on the user to somehow rationalize the inconsistency.
5. **Each property is correct.** Each property of any component, fact, report element, or parenthetical explanation must be correct from a business meaning or semantics perspective.
6. **Meaning can be logically explained to a business user.** The meaning of each and every aspect of the digital financial report can be explained, logically, to a business user. If the meaning cannot be explained, then it cannot be considered to be correct.
7. **True and fair representation of financial information.** In all other ways the information expressed is correct, complete, accurate, and consistent.

The reference implementation strives to get all the accounting information correct however some things are simplified for the purpose of focusing in expressing the accounting information digitally. As such, some disclosures are left out. The reference implementation strives to look enough like a financial report as not to distract the accounting users but keep in mind that the ultimate goal is to prove the digital expression of financial information.



17.3. Document information

Document information is a hierarchy of facts related only in that they all provide information about the document being submitted.

The document information section of a financial report is required by the SEC and provides basic information about the document itself.

Component: (Network and Table)																	
Network	1100 - Document - Document Information (http://www.abc.com/role/DocumentInformation)																
Table	Document Information [Table]																
<i>Slicers (applies to each fact value in each table cell)</i>																	
Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)																
Legal Entity [Axis]	Consolidated Entity [Domain]																
<table border="1"> <tr> <td style="text-align: center;">Document Information [Line Items]</td><td>Period [Axis]</td></tr> <tr> <td></td><td>2012-01-01 - 2012-12-31</td></tr> <tr> <td colspan="2">Document information [Hierarchy]</td></tr> <tr> <td>Document type</td><td>10-K¹</td></tr> <tr> <td>Amendment flag</td><td>false</td></tr> <tr> <td>Document period end date</td><td>2012-12-31</td></tr> <tr> <td>Document fiscal year focus</td><td>2012</td></tr> <tr> <td>Document fiscal period focus</td><td>FY</td></tr> </table>		Document Information [Line Items]	Period [Axis]		2012-01-01 - 2012-12-31	Document information [Hierarchy]		Document type	10-K ¹	Amendment flag	false	Document period end date	2012-12-31	Document fiscal year focus	2012	Document fiscal period focus	FY
Document Information [Line Items]	Period [Axis]																
	2012-01-01 - 2012-12-31																
Document information [Hierarchy]																	
Document type	10-K ¹																
Amendment flag	false																
Document period end date	2012-12-31																
Document fiscal year focus	2012																
Document fiscal period focus	FY																

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Key Points:

- Document information is different than entity information and entity listing information.
- There are no intersections between the document information component and other components of a financial report.
- Note that the document information does not have a "Class of Stock [Axis]", that characteristic makes no sense for any of the concepts reported by this component.
- The relation between the concepts within a document information component is that of a hierarchy as there are no numeric relations between the concepts.
- Note the parenthetical explanation.

Business Rules:

- There are no numeric concepts, therefore there are no computation-type business rules.
- A number of the facts are required to be reported, therefore a business rule is provided to assure that the required fact is reported. For example, a business rule is provided to check for the existence of the "Document Type" fact within the report.



17.4. Entity information

Entity information is a hierarchy of facts related only in that they provide information about the entity submitting the financial report.

Entity information related to the reporting entity which submits a financial report is required by the SEC and provides basic information about the entity which submits the report.

Component: (Network and Table)																							
Network	1200 - Document - Entity Information (http://www.abc.com/role/EntityInformation)																						
Table	Entity Information [Table]																						
Slicers (applies to each fact value in each table cell)																							
Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)																						
Legal Entity [Axis]	Consolidated Entity [Domain]																						
<table border="1"> <thead> <tr> <th colspan="2">Entity Information [Line Items]</th></tr> <tr> <th colspan="2">Period [Axis]</th></tr> </thead> <tbody> <tr> <td colspan="2">Entity information [Hierarchy]</td></tr> <tr> <td>Entity registrant name</td><td>ABC Company, Inc.</td></tr> <tr> <td>Entity central index key (CIK)</td><td>0000000001</td></tr> <tr> <td>Entity well-known seasoned issuer</td><td>No</td></tr> <tr> <td>Current fiscal year end date</td><td>--12-31</td></tr> <tr> <td>Entity current reporting status</td><td>Yes¹</td></tr> <tr> <td>Entity voluntary filers</td><td>No</td></tr> <tr> <td>Entity filer category</td><td>Large Accelerated Filer¹</td></tr> <tr> <td>Entity public float</td><td>114,824,600</td></tr> </tbody> </table>		Entity Information [Line Items]		Period [Axis]		Entity information [Hierarchy]		Entity registrant name	ABC Company, Inc.	Entity central index key (CIK)	0000000001	Entity well-known seasoned issuer	No	Current fiscal year end date	--12-31	Entity current reporting status	Yes ¹	Entity voluntary filers	No	Entity filer category	Large Accelerated Filer ¹	Entity public float	114,824,600
Entity Information [Line Items]																							
Period [Axis]																							
Entity information [Hierarchy]																							
Entity registrant name	ABC Company, Inc.																						
Entity central index key (CIK)	0000000001																						
Entity well-known seasoned issuer	No																						
Current fiscal year end date	--12-31																						
Entity current reporting status	Yes ¹																						
Entity voluntary filers	No																						
Entity filer category	Large Accelerated Filer ¹																						
Entity public float	114,824,600																						

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Key Points:

- Entity information is different than document information and entity listing information.
- There are no intersections between the entity information component and other components of a financial report.
- Note that the entity information does not have a "Class of Stock [Axis]", that characteristic makes no sense for any of the concepts reported by this component. For example, "Entity Registrant Name" is in no way related to a class of stock.
- The relation between the concepts within a entity information component is that of a hierarchy as there are no numeric relations between the concepts.
- Note the one parenthetical explanation which relates to two facts.

Business Rules:



- There are no numeric concepts, therefore there are no computation-type business rules.
- A number of the facts are required to be reported, therefore a business rule is provided to assure that the required fact is reported. For example, a business rule is provided to check for the existence of the "Entity Registrant Name" fact within the report.

QUESTION: It is unclear to me whether Entity Public Float is reported per entity or per listing.



17.5. Entity listing information

Entity listing information is a hierarchy of facts related only in that the facts provide information about the listings of an entity.

Entity listing information related to each listing of the reporting entity which submits a financial report and is required by the SEC.

Component: (Network and Table)																
Network	1300 - Document - Entity Listings Information (http://www.abc.com/role/EntityListingsInformation)															
Table	Entity Listings [Table]															
<i>Slicers (applies to each fact value in each table cell)</i>																
Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)															
Period [Axis]	2012-01-01 - 2012-12-31															
Legal Entity [Axis]	Consolidated Entity [Domain]															
<table border="1"> <thead> <tr> <th colspan="2"></th><th>Class of Stock [Axis]</th></tr> <tr> <th colspan="2">Entity Listings [Line Items]</th><th>Common Class A [Member] Common Class B [Member]</th></tr> </thead> <tbody> <tr> <td colspan="2">Listing [Hierarchy]</td><td></td></tr> <tr> <td>Trading symbol</td><td>abc</td><td>abc</td></tr> <tr> <td>Entity common stock shares outstanding</td><td>50,000</td><td>40,000</td></tr> </tbody> </table>				Class of Stock [Axis]	Entity Listings [Line Items]		Common Class A [Member] Common Class B [Member]	Listing [Hierarchy]			Trading symbol	abc	abc	Entity common stock shares outstanding	50,000	40,000
		Class of Stock [Axis]														
Entity Listings [Line Items]		Common Class A [Member] Common Class B [Member]														
Listing [Hierarchy]																
Trading symbol	abc	abc														
Entity common stock shares outstanding	50,000	40,000														

Key Points:

- Entity listing information is different than document information and entity information.
- There is an intersection between the listings and the class of stock reported on the balance sheet, earnings per share computations, and other information reported which relates to a specific class of stock.
- Note that the entity listing information does have a "Class of Stock [Axis]".
- The relation between the concepts within a entity listing information component is that of a hierarchy as there are no numeric relations between the concepts.

Business Rules:

- There are no numeric relations. It makes no sense to aggregate the shares of class A and class B common stock.
- The "Entity Common Stock, Shares Outstanding" is required to be reported within this component and therefore a business rule exists to test for this fact.

QUESTION: What is the difference between this "Entity Common Stock, Shares Outstanding" and the common stock shares outstanding concept which is used on the balance sheet? It seems to me that this is a duplicate concept.



HINT: Mismatched [Axis] and [Line Items] cause "empty cells" and are generally a sign of a modelling error.

If you look at the "Document and Entity Information" as reported by most SEC filers, that one component combines the three separated components modelled in the reference model implementation: document information, entity information, and entity listing information. This results in numerous "blank cells". Blank cells such as this is generally a sign of an incorrect or at least less than optimal modelling.

For example, an "Entity Registrant Name" would never have a class of stock associated with it. Same thing for other reported facts. Assigning the wrong [Axis] within a model results in empty cells which could never be filled with reported information. This is a clue that the model has been created incorrectly.

Document and Entity Information (USD \$)	12 Months Ended		Jan. 19, 2012 Class A Common Stock	Jan. 19, 2012 Class B Common Stock
	Dec. 31, 2011	Jun. 30, 2011		
Document Information [Line Items]				
Document Type	10-K			
Amendment Flag	false			
Document Period End Date	Dec. 31, 2011			
Document Fiscal Year Focus	2011			
Document Fiscal Period Focus	FY			
Trading Symbol	GOOG			
Entity Registrant Name				
Entity Central Index Key				
Current Fiscal Year End Date	-12-31			
Entity Well-known Seasoned Issuer	Yes			
Entity Current Reporting Status	Yes			
Entity Voluntary Filers	No			
Entity Filer Category	Large Accelerated Filer			
Entity Public Float		\$ 114,824,568,582		
Entity Common Stock, Shares Outstanding			257,960,636	67,175,694

Compare this modelling above with the previously shown modelling of *document information*, *entity information*, and *entity listing information* and note how those have no empty cells at all.



17.6. Balance sheet

Balance sheets are two independent roll ups: assets, liabilities and equity. Each roll up foots and the two roll ups must be of the same value (i.e. balance sheets balance).

Balance sheets are essentially two roll ups: assets and liabilities & equity. Numerous other components intersect with the balance sheet, which are pointed out below in the key points.

Component: (Network and Table)				
Network	2001 - Statement - Balance Sheet (http://www.abc.com/role/BalanceSheet)			
Table	Balance Sheet [Table]			
Slicers (applies to each fact value in each table cell)				
Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)			
Legal Entity [Axis]	Consolidated Entity [Domain]			
Balance Sheet [Line Items]		Period [Axis]		
		2012-12-31	2011-12-31	2010-12-31
Assets [Roll Up]				
Current assets [Roll Up]				
Cash, cash equivalents, and marketable securities [Roll Up]				
Cash and cash equivalents		11,000,000	10,000,000	9,000,000
Marketable securities		9,000,000	10,000,000	
Cash, cash equivalents, and marketable securities		20,000,000	20,000,000	
Accounts receivable, net of allowance for doubtful accounts of \$1,000 and \$1,000		29,000,000	29,000,000	
Inventories		4,000,000	4,000,000	
Prepaid expenses		3,000,000	3,000,000	
Total current assets		56,000,000	56,000,000	
Noncurrent assets [Roll Up]				
Property, plant and equipment, net		82,000,000	82,000,000	
Deferred costs		9,000,000	9,000,000	
Total noncurrent assets		91,000,000	91,000,000	
Total assets				
		147,000,000	147,000,000	
Liabilities and Equity [Roll Up]				
Current liabilities [Roll Up]				
Accounts payable		3,000,000	3,000,000	
Accrued liabilities		4,000,000	4,000,000	
Current portion of long-term debt		22,000,000	22,000,000	
Product warranty accrual, current portion		26,000,000	26,000,000	
Total current liabilities		55,000,000	55,000,000	
Noncurrent liabilities [Roll Up]				
Product warranty accrual, noncurrent portion		32,000,000	32,000,000	
Long-term debt		19,000,000	19,000,000	
Other		1,000,000	1,000,000	
Total noncurrent liabilities		52,000,000	52,000,000	
Commitments and contingencies		0	0	
Stockholders' Equity [Roll Up]				
Stockholders' equity attributable to parent [Roll Up]				
Preferred stock, \$1 par, 10,000 shares authorized, issued and outstanding		10,000,000	10,000,000	
Class A and Class B common stock, \$1 par, 110,000 shares authorized (Class A 60,000, Class B 50,000), 90,000 shares issued and outstanding (Class A 50,000, Class B 40,000)		20,000,000	20,000,000	
Additional paid-in capital		1,000,000	1,000,000	
Treasury stock, 10,000 shares		(2,000,000)	(2,000,000)	
Accumulated other comprehensive income		1,000,000	1,000,000	
Retained earnings		6,000,000	6,000,000	
Stockholders' equity attributable to parent		36,000,000	36,000,000	
Stockholders' equity attributable to noncontrolling interest		4,000,000	4,000,000	
Total stockholders' equity		40,000,000	40,000,000	40,000,000
Total liabilities and equity		147,000,000	147,000,000	



Key Points:

- Balance sheets almost universally report "assets" and "liabilities and equity". There are two common exceptions to this rule which are not necessarily violations of the rule, they just tweak the rule slightly. If the net assets approach is used, which tends to be rare in SEC filings, then "assets", "liabilities" and "net assets" are reported rather than "assets" and "liabilities and equity". Some filers only have "Cash and cash equivalents" and therefore do not provide a total for "assets" or "current assets". Some do. How this case should be modeled should be made clearer.
- Balance sheets foot. Assets foot. Liabilities and equity foot.
- Balance sheets balance.
- One of the most common modeling errors when creating a balance sheet is to erroneously mix modeling approaches. Generally balance sheets are modeled by providing a set of [Line Items] for the balance sheet. Some filers sometimes switch to articulating what would be and could be modeled as [Line Items] as [Member]s of an [Axis]. Mixing these approaches is a modeling error.
- One of the more common [Line Items] which causes inappropriate modeling is common stock when a reporting entity has more than one class of common stock. In the modeling above, note that there are two classes of stock; but the balance sheet still foots. This modeling approach is copied from Google's approach to modeling two classes of common stock. See the HINT related to modeling classes of stock below.
- While all balance sheets have assets, a majority have current assets and current liabilities. While there is a domain business rule that balance sheets have assets; there is an industry business rule which says that specific industries provide a classified balance sheet and therefore report current assets and liabilities while other reporting entities in other industries report unclassified balance sheets and do not.
- FASB CON 6 defines the elements of a financial report and one of those elements is "equity". Equity can take many different forms such as stockholders equity, owners equity, partner capital, member equity; but all of those concepts are equity which are just labeled differently for different types of reporting entities.
- Equity does not change depending on whether a reporting entity has or does not have a noncontrolling interest. What does change if a reporting entity has a noncontrolling interest is the reporting of the subtotal "Equity attributable to parent". (This reasoning contradicts XBRL US' best practice.)

Business Rules:

- Assets exists on the balance sheet.
- Liabilities and equity exists on the balance sheet.
- Assets = Liabilities and equity.
- Assets foot.



- Liabilities and equity foot.
- Equity exists on the balance sheet.

QUESTION: Why is it that XBRL US decided that if noncontrolling interest exists, then the concept which represents equity changes; yet the concept "Assets" does not change if there is or if there is not a current/noncurrent breakdown? Also, how do you keep filers from accidentally switch the two equity concepts and use them backwards?

HINT: Approaches for providing details of balance sheet items.

There are two approaches for providing details of balance sheet items.

The first is to create one or more [Line Items] which are used to articulate those detailed items. An example of this approach is provided in the inventory components component of this reference model.

The second is to create an [Axis] which is used to express the "types" or "classes" of the detailed items, [Member]s for each type/class, and only one [Line Item] which is used by each of those types/classes. An example of this approach is the property, plant, and equipment components.

Each approach has its set of pros and cons. In general, the use second approach whereby an [Axis] and a set of [Member]s provides the better functionality, all things considered. There are occasions when all that functionality is not necessary. However, using only one approach also has its benefits.

Currently, the US GAAP Taxonomy uses both approaches and sometimes at the seam time. There is no clarity as to which approach should be used when. Therefore the US GAAP Taxonomy can be considered inconsistent in this regard.

NOTE: There is a third approach to achieving this result also which is not allowed by the US GAAP Taxonomy Architecture but to be complete, it will be mentioned here. That approach is to use tuples to provide detailed items. The primary reason for mentioning this approach is to point out that (a) XBRL Global Ledger is based on this approach and (b) the [Axis]/[Member] approach could achieve the same thing as XBRL Global Ledger.



HINT: Equity does not change if you do or do not have a noncontrolling interest.

FASB Con 6 defines the elements of a financial report and one of those elements is equity. Based on a best practice articulated by XBRL US, equity changes depending whether a reporting entity does, or does not, have a noncontrolling interest.

Another way to look at this situation is to view "equity" as not changing and view the situation as providing a subtotal for "equity attributable to parent" as a concept which should be added to a financial report should the concept "equity attributable to noncontrolling interest" should be required. This approach certainly cannot be considered wrong.

In fact, there are two specific reasons why the notion that equity should NOT be allowed to change is a better approach. The first reason is to model a financial report without a noncontrolling interest, and then add a noncontrolling interest and notice all the pieces of the model which would need to change. The second is ability to reverse the total equity concept and the equity attributable to parent concept, basically using them backwards.

If a simple business rule were created "equity must exist" and then enforced, the potential to accidentally reverse these concepts essentially becomes zero. Whereas, simply trying to write that business rule given XBRL US' best practice provides yet another clue that this best practice is not the best approach.

NOTE: The reason that this point is important is that it impacts many, many other areas of the taxonomy and how things should be modelled. It is reasonably easy to overcome this poor choice; but to have to modify software to deal with this type of situation over, and over, and over should be avoided in my view. It seems that people who set these rules don't understand these sorts of ramifications of the decisions they are making.



17.7. Balance sheet parenthetical, general

Balance sheet parenthetical information can be grouped together into related groups, all the information is not related other than the fact that each component is parenthetical information related to the balance sheet. General parenthetical information here contains only one fact, allowance for doubtful accounts.

Component: (Network and Table)	
Network	2002 - Statement - Balance Sheet Parenthetical, General (http://www.abc.com/role/BalanceSheetParentheticalGeneral)
Table	Balance Sheet Parenthetical, General [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Balance Sheet Parenthetical, General [Line Items]	Period [Axis]	
	2012-12-31	2011-12-31
Balance Sheet Parenthetical General [Hierarchy]		
Allowance for doubtful accounts	1,000,000	1,000,000

Key Points:

- Concept is a hierarchy.
- Numerous different concept might exist.

Business Rules:

- If trade receivables exists, then an allowance for doubtful accounts must exist.



17.8. Balance sheet parenthetical, preferred stock

Preferred stock parenthetical information is numerous facts all of which relate to preferred stock. (Note that common stock and preferred stock are in no way related and should not be modelled together.)

Component: (Network and Table)			
Network	2003 - Statement - Balance Sheet Parenthetical, Preferred Stock (http://www.abc.com/role/BalanceSheetParentheticalPreferredStock)		
Table	Stock by Class [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity [Axis]	0000000001 (http://www.sec.gov/CIK)		
Legal Entity [Axis]	Consolidated Entity [Domain]		
Class of Stock [Line Items]		Period [Axis]	
		2012-12-31	2011-12-31
		Class of Stock [Axis]	Class of Stock [Axis]
		Preferred Class A [Member]	Preferred Class A [Member]
		Class of Stock [Domain]	Class of Stock [Domain]
Class of Preferred Stock [Hierarchy]			
Par value		1.00	
Shares authorized		10,000	
Shares issued		10,000	
Shares outstanding		10,000	
Preferred stock amount outstanding		10,000,000	10,000,000
		10,000,000	10,000,000

Key Points:

- Component is a hierarchy.
- The component intersects with the balance sheet amount of preferred stock outstanding.

Business Rules:

- The class of preferred stock must exist and is articulated using an [Axis].
- Par value (if appropriate), shares authorized, shares issued, shares outstanding, and amount must each exist.
- Shares authorized must be greater than or equal to the amount issued.
- Shares issued must be greater than or equal to the amount outstanding.
- Amount of each class must foot to total of all classes.



17.9. Balance sheet parenthetical, common stock

Common stock parenthetical information is numerous facts all of which relate to preferred stock.

Component: (Network and Table)						
Network	2004 - Statement - Balance Sheet Parenthetical, Common Stock (http://www.abc.com/role/BalanceSheetParentheticalCommonStock)					
Table	Stock by Class [Table]					
Slicers (applies to each fact value in each table cell)						
Reporting Entity [Axis]	000000001 (http://www.sec.gov/CIK)				2011-12-31	2012-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]				Class of Stock [Axis]	Class of Stock [Axis]
Class of Stock [Line Items]		Common Class A [Member]	Common Class B [Member]	Class of Stock [Domain]	Common Class A [Member]	Common Class B [Member]
Class of Common Stock [Hierarchy]		1.00	1.00			
Par value						
Shares authorized		60,000	50,000			
Shares issued		50,000	40,000			
Shares outstanding		50,000	40,000			
Common stock amount outstanding		10,000,000	10,000,000	20,000,000	10,000,000	10,000,000
						20,000,000

Key Points:

- Component is a hierarchy.
- The component intersects with the balance sheet amount of common stock outstanding.

Business Rules:

- The class of common stock must exist and is articulated using an [Axis].
- Par value (if appropriate), shares authorized, shares issued, shares outstanding, and amount must each exist.
- Shares authorized must be greater than or equal to the amount issued.
- Shares issued must be greater than or equal to the amount outstanding.
- Amount of each class must foot to total of all classes.



17.10. Balance sheet parenthetical, treasury stock

Treasury stock parenthetical information is numerous facts all of which relate to treasury stock.

Component: (Network and Table)			
Network	2005 - Statement - Balance Sheet Parenthetical, Treasury Stock (http://www.abc.com/role/BalanceSheetParentheticalTreasuryStock)		
Table	Class of Treasury Stock [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity	0000000001 (http://www.sec.gov/CIK)		
Legal Entity [Axis]	Consolidated Entity [Domain]		
Equity, Class of Treasury Stock [Line Items]		Period	
		2012-12-31	
		Class of Stock [Axis]	
		Common Class A [Member]	Class of Stock [Domain]
Class of Treasury Stock [Hierarchy]			
Shares		10,000	
Treasury stock amount		2,000,000	2,000,000
			2,000,000

Key Points:

- Component is a hierarchy.
 - The component intersects with the balance sheet amount of treasury stock outstanding.

Business Rules:

- Amount must exist.
 - Shares must exist.
 - Amount of all classes must foot.

QUESTION: Currently, there is only one axis for all stock, "Class of Stock [Axis]", and that is used for preferred, common, and treasury stock. Is this appropriate, or should each type of stock have its own axis; "Class of Preferred Stock [Axis]", "Class of Common Stock [Axis]", "Class of Treasury Stock [Axis]"? What is the general rule which should be applied as to when one [Axis] should be created and shared as opposed to when multiple [Axis] created. For example, why does property, plant, and equipment have its own [Axis] (Property, Plant and Equipment Type [Axis]), cash and cash equivalents have its own [Axis] (Cash and Cash Equivalents Type [Axis]), marketable securities have a more general [Axis] (Instrument [Axis]). What is the general rule?

QUESTION: If you consider the component for common stock you will note that there are two classes of common stock. The sum of the amount of both classes of common stock foots to the total amount for all classes which ties to the balance sheet. If you contrast this to preferred stock which has one class this is modeled precisely the same way. However, what if there were only one class of common stock? How would, or should, the modeling change? Why would the modeling change. What I mean is that if there is only one class of stock, it seems to be implied that the "domain" and the "class of stock" are the same thing. This assumption would need to be stated for every case where there is some "list" and that list has only one member. By contrast, if one models this as this



reference model has modeled this information, there is no need for making any specific assumption and all components of the US GAAP taxonomy or any financial report created using the US GAAP taxonomy would each work in exactly the same way. Certainly the modeling approach used by this reference model cannot be considered wrong. The question is, should the approach most filers seem to use be considered right? It is not a question that it is or is not considered "right" currently; but rather is this a good approach, all things considered?



17.11. Income statement

Income statements are four components. The first component is a roll up of net income (loss). The second is a roll up (breakdown) of net income (loss) between the amount attributable to the parent company and the amount attributable to a noncontrolling interest. The third section is a hierarchy of net income per share information. The forth is a hierarchy of weighted average share information.

Component: (Network and Table)			
Network	2006 - Statement - Income Statement (http://www.abc.com/role/IncomeStatement)		
Table	Income Statement [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity	0000000001 (http://www.sec.gov/CIK)		
Legal Entity [Axis]	Consolidated Entity [Domain]		
Income Statement [Line Items]		Period	
		2012-01-01 - 2012-12-31	2011-01-01 - 2011-12-31
		2010-01-01 - 2010-12-31	
Net Income (Loss) [Roll Up]			
Income from Continuing Operations Before Tax [Roll Up]			
Operating Income (Loss) [Roll Up]			
Gross Profit [Roll Up]			
Revenues		10,000,000	10,000,000
Cost of revenues		4,000,000	4,000,000
	Gross profit	6,000,000	6,000,000
Operating Expenses [Roll Up]			
Selling, general and administrative expenses		1,000,000	1,000,000
Research and development expenses		500,000	500,000
Marketing expense		250,000	250,000
Other operating cost and expenses		100,000	100,000
	Total operating expenses	1,850,000	1,850,000
	Operating income (loss)	4,150,000	4,150,000
Foreign currency transaction gain (loss), before tax		200,000	(200,000)
Interest income		5,000,000	6,000,000
Interest expense		(3,000,000)	(2,000,000)
Other nonoperating income (expenses)		1,000,000	2,000,000
	Income (loss) from continuing operations before taxes	7,350,000	9,950,000
Provision for income taxes		2,000,000	2,500,000
	Net income (loss)	5,350,000	7,450,000
Net Income (Loss) Attributable to [Roll Up]			
Net income (loss) attributable to parent		4,815,000	6,705,000
Net income (loss) attributable to noncontrolling interest		535,000	745,000
	Net income (loss)	5,350,000	7,450,000
Earnings Per Share [Hierarchy]			
Basic		96.30	134.10
Diluted		53.50	74.50
Weighted average common shares outstanding [Hierarchy]			
Basic		50,000	50,000
Diluted		90,000	90,000



Key Points:

- Component is a roll up.
- Net income must exist (although based on current practices this could take a number of different forms, unsure if this is a good or bad thing).
- Additionally, hierarchies are provided for net income per share and weighted average common shares outstanding.
- The breakdown for net income attributable to parent and noncontrolling interest is a roll up

Business Rules:

- Net income must exist.
- Net income must foot.
- Earnings per share must exist.

QUESTION: The IFRS taxonomy provides the concept which is similar to "Net income attributable to noncontrolling interest" as a credit, whereas the US GAAP taxonomy provides this concept as a debit. It is not logical that these two taxonomies would or should do this differently. The modeling of the breakdown of net income to the parent and noncontrolling interest can logically be modeled as it is above, or similar to the approach used on the statement of comprehensive income. It is unclear how the modeling of net income attributable to noncontrolling interest impacts other things such as the statement of changes in equity. (I don't understand all the moving pieces here to be 100% sure I am seeing this correctly.)

QUESTION: Why would the concept which represents net income change depending on whether a reporting entity has or does not have a noncontrolling interest or preferred stock? This is not the same question as to whether a separate concepts are needed to articulate such a breakdown, this question relates to trying to issues related to comparing or obtaining the correct concept which expresses net income for a reporting entity.



17.12. Statement of comprehensive income

Statements of comprehensive income are two components. The first is a roll up of comprehensive income (loss). The second is a roll up (breakdown) of comprehensive income (loss) between the amount attributable to the parent and to the noncontrolling interest.

Component: (Network and Table)	
Network	2007 - Statement - Comprehensive Income (http://www.abc.com/role/ComprehensiveIncome)
Table	Comprehensive Income [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Comprehensive Income [Line Items]	Period		
	2012-01-01 - 2012-12-31	2011-01-01 - 2011-12-31	2010-01-01 - 2010-12-31
Comprehensive Income Attributable to Parent [Roll Up]			
Comprehensive Income [Roll Up]			
Net income (loss)	5,350,000	7,450,000	1,350,000
Other comprehensive income [Roll Up]			
Change in foreign currency translation adjustment	3,650,000	1,550,000	7,650,000
Other comprehensive income (loss)	3,650,000	1,550,000	7,650,000
Comprehensive income (loss)	9,000,000	9,000,000	9,000,000
Noncontrolling interest	2,000,000	5,000,000	5,000,000
Parent	7,000,000	4,000,000	4,000,000

Key Points:

- Component is a roll up.
- Component intersects with the income statement (net income (loss)) and statement of changes in equity (other comprehensive income).

Business Rules:

- Other comprehensive income must exist.
- Comprehensive income must exist.
- Other comprehensive income must foot.
- Comprehensive income must foot.



17.13. Cash flow statement

Cash flow statements are three components. The first is a roll up of net cash flow which must foot. The second is a roll forward of cash and cash equivalents which should both reconcile and tie to the balance sheet. The third is a hierarchy of supplemental cash flow disclosures.

Component: (Network and Table)			
Network	2008 - Statement - Cash Flow Statement (http://www.abc.com/role/CashFlowStatement)		
Table	Cash Flow Statement [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity	0000000001 (http://www.sec.gov/CIK)		
Legal Entity [Axis]	Consolidated Entity [Domain]		
Cash Flow Statement [Line Items]		Period	
		2012-01-01 - 2012-12-31	2011-01-01 - 2011-12-31
		2010-01-01 - 2010-12-31	
Cash and Cash Equivalents [Roll Forward]			
Net Increase (Decrease) in Cash and Cash Equivalents [Roll Up]			
Operating activities [Roll Up]			
Net income (loss)		5,350,000	7,450,000
			1,350,000
Adjustments to reconcile to cash provided by operations [Roll Up]			
Noncash charges and credits [Abstract]			
Depreciation		500,000	500,000
Deferred income tax		80,000	80,000
Other noncash charges and credits		(10,000)	(10,000)
			(10,000)
Changes in working capital items [Abstract]			
Accounts receivable		0	0
Inventories		0	0
Accounts payable		0	0
Accrued liabilities		0	0
Product warranty accrual		0	0
		570,000	570,000
			570,000
	Cash provided by operating activities	5,920,000	8,020,000
			1,920,000
Investing activities [Roll Up]			
Payments to acquire property, plant and equipment		(10,000,000)	(10,000,000)
Proceeds from sale of property, plant, and equipment		23,000,000	20,000,000
Other investing activities		2,000,000	2,000,000
		15,000,000	12,000,000
			19,160,000
Financing activities [Roll Up]			
Proceeds from issuance of long-term debt		20,000,000	20,000,000
Repayments of long-term debt		(32,000,000)	(32,000,000)
Payment of common stock dividends		(9,000,000)	(9,000,000)
Other financing activities		1,000,000	1,000,000
		(20,000,000)	(20,000,000)
			(20,000,000)
Effect of exchange rate on cash and cash equivalents		80,000	980,000
		1,000,000	(80,000)
			1,000,000
Net increase (decrease) in cash and cash equivalents			
		10,000,000	9,000,000
			8,000,000
	Cash and cash equivalents, beginning balance	11,000,000	10,000,000
			9,000,000
Supplemental cash flow disclosures [Hierarchy]			
Interest paid		500,000	500,000
Income taxes paid		1,000,000	1,000,000
			1,000,000



Key Points:

- Component is a roll forward of cash and cash equivalents with an embedded roll up which aggregates all of the concepts which make up the change, or net cash flow, of the roll forward.
- Additionally, the supplemental cash flow disclosures is a hierarchy.
- Cash and cash equivalents intersects with the balance sheet.
- Net income intersects with the income statement.
- Numerous other intersections exist.

Business Rules:

- Some concept for cash and cash equivalents must exist.
- Net cash flow must exist.
- Generally, cash flows from operating, investing, and financing activities all exist; however, one or more of those categories might not exist if the reporting entity has no activities in those areas.
- Roll up of net cash flow must foot.
- Roll forward of cash and cash equivalents must foot.
- Changes in working capital items must reconcile with changes in related balance sheet item.

QUESTION: Why would the concept "net cash flow" change if the balance sheet account which is used for cash changes? Generally, most filers us "Cash and cash equivalents" and "Cash and cash equivalents, period increase (decrease)" or us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease. However, other filers simply use "Cash" on the cash flow statement and balance sheet and still use the concept named us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease, yet others use us-gaap:CashPeriodIncreaseDecrease. This is somewhat like changing the concept "Assets" depending upon which set of balance sheet line items which exist. Is this necessary? Is it appropriate? Why the need to differentiate what amounts to net cash flow depending on what the cash account is? You know what the cash account is by simply looking at the cash account.



17.14. Prior period adjustment

Focusing on the prior period adjustment for a moment you will note that a prior period adjustment reconciles an originally stated balance as of a specific balance sheet date to a restated balance as of that same balance sheet date. What changes between the originally stated and restated balance is the report date associated with the fact.

Component: (Network and Table)					
Network	2009 - Statement - Prior Period Adjustment (http://www.abc.com/role/PriorPeriodAdjustment)				
Table	Changes in Stockholders' Equity [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity	0000000001 (http://www.sec.gov/CIK)				
Legal Entity [Axis]	Consolidated Entity [Domain]				
Changes in Stockholders' Equity [Line Items]		Report Date [Axis]	Period		
			2012-12-31	2011-12-31	2010-12-31
Stockholders' equity, originally stated		Originally Stated Report Date [Member]		40,000,000	
		Restated Report Date [Domain]	40,000,000	40,000,000	40,000,000
Correction of a prior period error		Restated Report Date [Domain]		2,000,000	
Effect of mandatory change in accounting policy for adoption of FAS XXX		Restated Report Date [Domain]		(2,000,000)	
Stockholders' equity, restated		Originally Stated Report Date [Member]		40,000,000	
		Restated Report Date [Domain]	40,000,000	40,000,000	40,000,000

[CSH: This rendering is not correct]

Key Points:

- Component is an adjustment. (Recall that an adjustment reconciles an originally stated balance to a restated balance.)
- The balance being reconciled, in this case retained earnings, is always required to exist.
- The characteristic of retained earnings which changes in this adjustment is its report date. The originally stated balance is as of one report date, the adjustments and the restated balance are as of a different report date.
- Although the presentation of an adjustment looks similar to that of a roll forward, the dynamics of the facts is different. In a roll forward, it is the period of the reconciling item which changes, rather than the report date as is the case within an adjustment.

Business Rules:

- The concept being adjusted, in this case retained earnings, is required to exist within the component.



- The adjustment is required to properly reconcile (i.e. originally stated balance + adjustments = restated balance).

17.15. Total stockholders' equity

Focusing on a single piece of the entire statement of changes in equity, total stockholders' equity, note that a change in equity is a roll forward. The entire statement of changes in equity is nothing more than a number of roll forwards, one for item contained within equity on the balance sheet. Additionally, roll forwards are provided for changes in share amounts, where appropriate. Whether the statement of equity is presented vertically or horizontally does not change the model.

Component: (Network and Table)					
Network	2010 - Statement - Changes in Total Stockholders' Equity (http://www.abc.com/role/ChangesInTotalStockholdersEquity)				
Table	Changes in Stockholders' Equity [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity	0000000001 (http://www.sec.gov/CIK)				
Legal Entity [Axis]	Consolidated Entity [Domain]				
Changes in Stockholders' Equity [Line Items]		Period			
Increase (Decrease) in Stockholders' Equity [Roll Forward]		2012-01-01 - 2012-12-31	2011-01-01 - 2011-12-31		
Stockholders' equity, beginning balance		40,000,000	40,000,000		
Net income (loss)		5,350,000	7,450,000		
Dividends		(9,000,000)	(9,000,000)		
Other comprehensive income (loss)		3,650,000	1,550,000		
Stockholders' equity, ending balance		40,000,000	40,000,000		
		2010-01-01 - 2010-12-31			

Key Points:

- Component is a roll forward.
- The concept total stockholders' equity ties to the balance sheet.

Business Rules:

- The concept being rolled forward, in this case total stockholders' equity, must exist.
- The roll forward must properly reconcile.



17.16. Statement of changes in equity

[CSH: This statement is not complete yet.]

Statements of changes in equity are a set of multiple roll forwards each of which ties to the balance sheet equity section except for the share roll forwards.

	Preferred stock	Class A common stock	Class B common stock	Additional paid-in capital	Treasury stock	Accumulated other comprehensive income	Retained earnings	Stockholders' equity attributable to parent	Stockholders' equity attributable to non-controlling interest	Stockholders' equity
Balance, December 31, 2009	\$ 10,000	\$ 10,000	\$ 10,000	\$ 1,000	\$ (2,000)	\$ 1,000	\$ 6,000	\$ 36,000	\$ 4,000	\$ 40,000
Net income							1,350	1,350	3,000	1,350
Dividends							(9,000)	(9,000)		(9,000)
Other comprehensive income (loss)						1,000				7,650
Balance, December 31, 2010, originally stated	10,000	10,000	10,000	1,000	(2,000)	2,000	(1,650)	28,350	7,000	40,000
Correction of prior period error							2,000	2,000	—	2,000
Effect of voluntary change in accounting policy							(2,000)	(2,000)		(2,000)
Balance, December 31, 2010, restated	10,000	1,000	1,000	1,000	(2,000)	2,000	(1,650)	28,350	7,000	40,000
Net income							1,350	1,350	3,000	7,450
Dividends							(9,000)	(9,000)		(9,000)
Other comprehensive income (loss)						1,000				1,550
Balance, December 31, 2011	10,000	1,000	1,000	1,000	(2,000)	3,000	(9,300)	20,700	10,000	40,000
Net income							1,350	1,350	3,000	5,350
Dividends							(9,000)	(9,000)		(9,000)
Other comprehensive income (loss)						1,000				3,650
Balance, December 31, 2012	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ (2,000)	\$ 4,000	\$ (16,950)	\$ 13,050	\$ 13,000
										\$ 40,000

Additionally, in the rare case where a prior period adjustment exists, a statement of changes in equity also can contain an adjustment which reconciles the originally stated balance to the restated balance for certain specific accounts.

As roll forwards and prior period adjustments are significantly different from a modelling perspective, they are shown separately. From a presentation perspective these can be combined.

Here is a statement of changes in equity presented with the balance sheet equity accounts across the top and the changes to those accounts presented within the rows of the presentation. Alternatively, statements of changes in equity are sometimes presented with the changes across the top and the balance sheet equity accounts within the rows of the presentation. There are other ways to present this statement. How the statement is presented does not impact the model of the component.

This statement of changes in equity is a set of 10 roll forwards, one for each item within the equity section of the balance sheet.

Key Points:

- Component is a set of individual roll forwards. Additionally, a set of adjustment components also exists to model this statement of changes in equity presentation.



- The roll forwards tie together as do the items which make up the equity section of the balance sheet, which is a roll up. It is that roll up which ties together each set of balances for each period.
- Net income attributable to parent, net income attributable noncontrolling interest, and total net income per the income statement is the identical fact which is reported on the income statement.
- Other comprehensive income in total, attributable to parent, and attributable to noncontrolling interest is the same facts which exist on the statement of comprehensive income.

Business Rules:

- Each concept for each individual roll forward which is being rolled forward must exist.
- Each roll forward must reconcile correctly (i.e. in the presentation above, each roll forward must foot).
- All roll forward information must cross cast (i.e. the roll up for each item shown in the visual presentation must add up correctly).

HINT: Most statements of changes in equity are incorrectly modelled.

Most SEC XBRL financial reports have statements of changes in equity which are incorrectly modelled which result in duplicate concepts. This is particularly true if the reporting entity has a noncontrolling interest.



17.17. Nature of business

Nature of business is a hierarchy of generally one and perhaps more facts. In this case there is one fact. Nature of business is not a significant accounting policy, although many reporting entities combine the two disclosures from a presentation perspective.

Component: (Network and Table)					
Network	4010 - Disclosure - Nature of Business (http://www.abc.com/role/NatureOfBusiness)				
Table	Nature of Business [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity	000000001 (http://www.sec.gov/CIK)				
Legal Entity [Axis]	Consolidated Entity [Domain]				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d9e1f2; width: 60%;">Nature of Business [Line Items]</th><th style="background-color: #d9e1f2; width: 40%;">Period</th></tr> </thead> <tbody> <tr> <td></td><td style="text-align: center;">2012-01-01 - 2012-12-31</td></tr> </tbody> </table>		Nature of Business [Line Items]	Period		2012-01-01 - 2012-12-31
Nature of Business [Line Items]	Period				
	2012-01-01 - 2012-12-31				
Nature of business [Text Block]	<p>Duis fermentum. Nullam dui orci, scelerisque porttitor, volutpat a, porttitor a, enim. Sed lobortis. Maecenas scelerisque ullamcorper libero. Aliquam porta leo imperdiet pede. In semper, elit vel elementum auctor, lectus purus rhoncus arcu, lacinia sollicitudin justo odio et nunc. Phasellus sagittis fringilla risus. Curabitur iaculis sagittis orci. Ut malesuada libero nec nulla molestie vestibulum. Suspendisse lectus massa ullamcorper at, tincidunt eget, bibendum vel, risus. Curabitur imperdiet. Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacinia sodales felis. Pellentesque dapibus, leo non sollicitudin consequat, lectus orci fringilla felis, non interdum leo libero sed augue. Sed magna. Maecenas ante ipsum, congue ut, sodales a, pulvinar ut, dui. Suspendisse mauris massa, sollicitudin et, hendrerit eget, placerat id, orci. Donec molestie magna.</p> <p>Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit. Aenean nec justo. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Duis sodales.</p>				

Key Points:

- Component is a text block or single reported fact.
- Nature of business is not a significant accounting policy.

Business Rules:

- Nature of business is a required disclosure.



HINT: Organization, Consolidation and Presentation of Financial Statements Disclosure and Significant Accounting Policies; Combining Disclosure Facts.

The US GAAP Taxonomy provides a concept "Organization, Consolidation and Presentation of Financial Statements Disclosure and Significant Accounting Policies [Text Block]" which, in essence, combines multiple disclosures into one fact. The taxonomy also provides numerous permutations and combinations of the many possible ways to combine this, and many other disclosures (i.e. this is only provided as an example of a more generally occurring theme). This approach is likely used because, in practice, many reporting entities do in fact combine this information from a presentation perspective in multiple different ways. This applies to textual-type disclosures and numeric-type disclosures and even line items which appear on the primary financial statements.

Is this a desired approach? Is this approach optimal for use of the information by analysts which desire to consume a financial report? An alternative approach is to not make the multiple permutations and combinations available in the US GAAP Taxonomy and make only the specific disclosures available and no matter how they are combined for presentation purposes; digital disclosure of the information would provide only the pieces which users of the information can combine how they see fit.

This idiosyncrasy is a characteristic of digital financial reporting or reporting information in a structured way. Contrasting this to disclosing information in an unstructured way (really more structured for presentation but not structured from the disclosure perspective). What this means is that accountants can be forced to put information into some sort of specific "box". If this is not done appropriately the richness and perhaps even the meaning of the information could be limited or even change.

How to approach this issue is a choice the accounting profession and others within the financial reporting supply chain will need to grapple with and decide what is best, all things considered. Today, the choice which has been made is to provide as many permutations and combinations as possible; this choice is reflected in the current instantiation of the US GAAP Taxonomy. How reporting entities use the US GAAP Taxonomy, however, is also a choice reporting entities must make.



17.18. ***Significant accounting policies***

Significant accounting policies is a hierarchy of facts related only in that they are accounting policies disclosed by a reporting entity. Policies can be put into two groups: one fact to one policy and multiple facts to one policy. Here is a set of policies which is a hierarchy of individual policies:

Component: (Network and Table)					
Network	4020 - Disclosure - Significant Accounting Policies (http://www.abc.com/role/SignificantAccountingPolicies)				
Table	Significant Accounting Policies [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity	0000000001 (http://www.sec.gov/CIK)				
Legal Entity [Axis]	Consolidated Entity [Domain]				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #a6c9ff; color: white; padding: 2px;">Significant Accounting Policies [Line Items]</th> <th style="background-color: #a6c9ff; color: white; padding: 2px;">Period</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px; text-align: center;">2012-01-01 - 2012-12-31</td> </tr> </tbody></table>		Significant Accounting Policies [Line Items]	Period		2012-01-01 - 2012-12-31
Significant Accounting Policies [Line Items]	Period				
	2012-01-01 - 2012-12-31				
Cash and cash equivalents policy [Text Block]	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #a6c9ff; color: white; padding: 2px;">Significant Accounting Policies [Line Items]</th> <th style="background-color: #a6c9ff; color: white; padding: 2px;">Period</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px; text-align: center;">2012-01-01 - 2012-12-31</td> </tr> </tbody> </table> <p>Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.</p>	Significant Accounting Policies [Line Items]	Period		2012-01-01 - 2012-12-31
Significant Accounting Policies [Line Items]	Period				
	2012-01-01 - 2012-12-31				
Receivables policy [Text Block]	<p>Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede. Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.</p>				
Inventories policy [Text Block]	<p>Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede. Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus.</p>				
Debt policy [Text Block]	<p>Pellentesque condimentum commodo wisi. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.</p>				
Revenue recognition policy [Text Block]	<p>Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi.</p>				

Key Points:

- Component is a hierarchy.
- The list of policies, in this case, is simply a flat list. The policies could have sub-hierarchies or groupings within sections of the financial report presentation.
- While there is a relation between the balance sheet item "Cash and cash equivalents" and the "Cash and cash equivalents policy", there is no physical relation expressed in the US GAAP taxonomy or in financial reports. The same is true for other policies.
- By contrast, there is a physical relation between the next component, "Property, plant and equipment policy" and the items which make up the classes of property, plant, and equipment. This relation is indicated via the "Property, Plant, and Equipment Type [Axis]". This is one of the primary benefits of modeling information as [Member]s of an [Axis] as compared to as concepts within a set of [Line Items].

Business Rules:

- If the item cash and cash equivalents exist on the balance sheet, then it is likely that the policy for that component likely should also exist. The same is true for other policies.
- Revenue recognition policy is required to be provided.



17.19. *Property, plant and equipment policies*

By contrast, this property, plant and equipment policy is comprised of multiple facts which work together to make up that disclosure. These disclosures are tied together via the "Property, Plant and Equipment Type [Axis]" which distinguishes which valuation basis, depreciation method, estimated useful life, and disclosure policy relates to which class of property, plant, and equipment.

Component: (Network and Table)																																				
Network	4030 - Disclosure - Property, Plant and Equipment Policies (http://www.abc.com/role/PropertyPlantAndEquipmentPolicies)																																			
Table	Property, Plant and Equipment Components [Table]																																			
Slicers (applies to each fact value in each table cell)																																				
Reporting Entity	0000000001 (http://www.sec.gov/CIK)																																			
Period	2012-01-01 - 2012-12-31																																			
Legal Entity [Axis]	Consolidated Entity [Domain]																																			
<table border="1"> <thead> <tr> <th colspan="2">Property, Plant and Equipment [Line Items]</th><th colspan="3">Property, Plant and Equipment, Type [Axis]</th></tr> <tr> <th colspan="2"></th><th>Land [Member]</th><th>Machinery and equipment [Member]</th><th>Furniture and fixtures [Member]</th></tr> </thead> <tbody> <tr> <td colspan="2">Property, Plant and Equipment Policies [Hierarchy]</td><td></td><td></td><td></td></tr> <tr> <td colspan="2">Basis of valuation</td><td>Mauris tincidunt cursus</td><td>Mauris tincidunt cursus</td><td>Mauris tincidunt cursus</td></tr> <tr> <td colspan="2">Depreciation methods</td><td></td><td>Sed elementum feugiat</td><td>Mauris tincidunt</td></tr> <tr> <td colspan="2">Estimated useful lives</td><td></td><td>15 years</td><td>5 years</td></tr> <tr> <td colspan="2">Dispositions policy</td><td>Nam non tortor</td><td>Nam non tortor</td><td>Nam non tortor</td></tr> </tbody> </table>		Property, Plant and Equipment [Line Items]		Property, Plant and Equipment, Type [Axis]					Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Property, Plant and Equipment Policies [Hierarchy]					Basis of valuation		Mauris tincidunt cursus	Mauris tincidunt cursus	Mauris tincidunt cursus	Depreciation methods			Sed elementum feugiat	Mauris tincidunt	Estimated useful lives			15 years	5 years	Dispositions policy		Nam non tortor	Nam non tortor	Nam non tortor
Property, Plant and Equipment [Line Items]		Property, Plant and Equipment, Type [Axis]																																		
		Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]																																
Property, Plant and Equipment Policies [Hierarchy]																																				
Basis of valuation		Mauris tincidunt cursus	Mauris tincidunt cursus	Mauris tincidunt cursus																																
Depreciation methods			Sed elementum feugiat	Mauris tincidunt																																
Estimated useful lives			15 years	5 years																																
Dispositions policy		Nam non tortor	Nam non tortor	Nam non tortor																																

Key Points:

- Component is a hierarchy.
- The five concepts within the set of [Line Items] which are included within the hierarchy are tied together via the Property, Plant and Equipment Type [Axis] and its related [Member]s.
- Likewise, these same five concepts in this component can be physically combined with the [Line Item]s can be combined with the single concept in the set of [Line Items] within the "Property, Plant and Equipment Components" component. Again, it is the Property, Plant and Equipment Type [Axis] and its related [Member]s which provides this physical connection.
- Software may not take advantage of this feature currently, but as software matures, software will leverage this feature.

Business Rules:

- Valuation basis is required for all [Member]s.
- Depreciation method, and estimated useful life is required for all [Member]s other than Land.



17.20. Cash, cash equivalents, and marketable securities details

Cash, cash equivalents, and marketable securities components are three separate models which work together to disclose their components. The first component is a roll up of total cash, cash equivalents, and marketable securities which is best seen by viewing the balance sheet.

Cash, cash equivalents, and marketable securities [Roll Up]			
Cash and cash equivalents	11,000,000	10,000,000	9,000,000
Marketable securities	9,000,000	10,000,000	
Cash, cash equivalents, and marketable securities	20,000,000	20,000,000	

Component: (Network and Table)

Network	5010 - Disclosure - Cash, Cash Equivalents, and Marketable Securities (http://www.abc.com/role/CashCashEquivalentsAndMarketableSecurities)
Table	Cash, Cash Equivalents, and Marketable Securities [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Cash, Cash Equivalents, and Marketable Securities [Line Items]	Period			
	2012-12-31	2011-12-31	2010-12-31	2009-12-31
Cash, Cash Equivalents, and Marketable Securities [Roll Up]				
Cash and cash equivalents	11,000,000	10,000,000	9,000,000	8,000,000
Marketable securities	9,000,000	10,000,000		
Cash, cash equivalents, and marketable securities	20,000,000	20,000,000		

The second and third are two member aggregations, the first for total cash and cash equivalents and the second for total marketable securities. Each of the member aggregations ties to and intersects with the corresponding balance sheet fact as shown above. The balance sheet roll up is repeated in the disclosure to tie the two member aggregations to the grand total, "Total cash, cash equivalents, and marketable securities.

Cash and cash equivalents components

Component: (Network and Table)

Network	5020 - Disclosure - Cash and Cash Equivalents Components (http://www.abc.com/role/CashAndCashEquivalentsComponents)
Table	Cash and Cash Equivalents Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Cash and Cash Equivalents [Line Items]	Period															
	2012-12-31						2011-12-31									
	Cash and Cash Equivalents Type [Axis]						Cash and Cash Equivalents Type [Axis]									
Cash and Cash Equivalents [Hierarchy]	Cash [Member]	Bank time deposits [Member]	Money market funds [Member]	U.S. government securities [Member]	Foreign government debt [Member]	Corporate debt securities [Member]	Cash and Cash Equivalents, All Types [Domain]	Cash [Member]	Bank time deposits [Member]	Money market funds [Member]	U.S. government securities [Member]	Foreign government debt [Member]				
Cash and cash equivalents	4,000,000	2,000,000	3,000,000	500,000	300,000	1,200,000	11,000,000	4,000,000	1,000,000	2,000,000	500,000	0	2,500,000	10,000,000	9,000,000	8,000,000



Marketable securities components

Component: (Network and Table)													
Network	S030 - Disclosure - Marketable Securities Components (http://www.abc.com/role/MarketableSecuritiesComponents)												
Table	Marketable Securities [Table]												
Slicers (applies to each fact value in each table cell)													
Reporting Entity	0000000001 (http://www.sec.gov/CIK)						2011-12-31						
Legal Entity [Axis]	Consolidated Entity [Domain]						Instrument Type [Axis]						
Marketable Securities [Line Items]		Period											
		2012-12-31						2011-12-31					
		Instrument Type [Axis]						Instrument Type [Axis]					
Marketable Securities [Hierarchy]		Bank time deposits [Member]	U.S. government agencies securities [Member]	Foreign government debt [Member]	Municipal securities [Member]	Marketable equity securities [Member]	Instruments, All Types [Domain]	Bank time deposits [Member]	U.S. government agencies securities [Member]	Foreign government debt [Member]	Municipal securities [Member]	Marketable equity securities [Member]	Instruments, All Types [Domain]
Marketable securities		300,000	3,000,000	1,200,000	2,500,000	2,000,000	9,000,000	400,000	4,000,000	1,600,000	1,000,000	3,000,000	10,000,000

Key Points:

- The components of both "Total cash and cash equivalents" and "Total marketable securities" are detailed using member aggregations.
- Each of the two member aggregations of components ties to the corresponding concept in the roll up, which also provides a grand total.
- Note that alternatively, each of the member aggregations could have been modeled using concepts within a set of [Line Items].
- Because of the presentation layout there might be a temptation to model "Cash" as an item. However, this would not be appropriate as the model would not work correctly. Cash is simply a type of cash and cash equivalents.
- Note the item of cash and cash equivalents "Foreign government debt" and that the fact value is zero for 2011. As the item is provided for 2012, it is appropriate to have a fact value for 2011. The fact value is not "nil", it is zero.

Business Rules:

- Total cash and cash equivalents must exist within this component.
- Total marketable securities must exist within this component.
- Total cash and cash equivalents must foot.
- Total marketable securities must foot.
- Total cash, cash equivalents, and marketable securities must foot.



HINT: Dimension defaults are misnamed.

"Dimension defaults" are commonly misunderstood to be a "default" value for a dimension or [Axis]. This is not the case. Dimension defaults are used to indicate the dimension or [Axis] value which serves as the intersection between two components which use the same one fact to express information which is presented in multiple physical locations within the set of components which make up a financial report. For example, "Cash and cash equivalents" is expressed both on the balance sheet and in the component breakdown of "Cash and cash equivalents". The balance sheet does not have a "Cash and cash equivalents type [Axis]", but the component breakdown of cash and cash equivalents does. This requires the fact to "morph" into two different forms in this case, potentially into even more forms. This happens by not physically instantiating the dimension default, or the intersection between the two components, within the context of the fact which must show up in two or perhaps more different presentation locations on the financial report. Rather, an XBRL processor virtually instantiates the dimension or [Axis] depending on the component "lens" through which you are looking at the fact.

This sounds a little like quantum physics, but if you think about it or better yet if you look at the fact tables of each of the components what is going on becomes quite clear.

TECHNICAL: *Technically (if you are interested) what is going on behind the scenes is that XBRL processors create Cartesian products of all facts to deal with two situations. The first situation is these intersections between component fact tables. The second reason is the fact that XBRL 2.1 has no knowledge of XBRL Dimensions and this is the way XBRL International got XBRL 2.1 and XBRL Dimensions to work together correctly. This becomes another problem when you bring XBRL Formula into the equation. XBRL Formula has two aspect models: non-dimensional and dimensional. XBRL Formula cannot handle mixed models. It is very dangerous to mix XBRL instances with both dimensional and non-dimensional facts. It is best, and safest, to use one model or the other.*



17.21. Inventories details

Inventory components is a roll up of the detailed [Line Items] which make up the components of inventory. This component intersects with the balance sheet fact "Inventories" which it details. This roll up foots.

Component: (Network and Table)	
Network	5040 - Disclosure - Inventory Components (http://www.abc.com/role/InventoryComponents)
Table	Inventory Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Inventory Components [Line Items]	Period	
	2012-12-31	2011-12-31
Inventory, Net [Roll Up]		
Finished Goods	1,000,000	1,000,000
Work in progress	1,000,000	1,000,000
Raw materials	1,000,000	1,000,000
Other	1,000,000	1,000,000
Total inventories, net	4,000,000	4,000,000

Key Points:

- Component is a roll up.
- Alternatively, this could have been modeled as one concept and each individual component of inventory being articulated as a [Member] of an [Axis].

Business Rules:

- Total inventories is required.
- Total inventories must foot.



17.22. Property, plant and equipment details

Property, plant, and equipment details is two models. The first is a member aggregation which details property, plant and equipment, gross. The second is a roll up which details the components of property, plant, and equipment, net which are property, plant and equipment, gross and accumulated depreciation. Both the member aggregation and the roll up must foot. Property, plant, and equipment, net, intersects with and ties to the balance sheet.

Component: (Network and Table)	
Network	5050 - Disclosure - Property, Plant and Equipment Components (http://www.abc.com/role/PropertyPlantAndEquipmentComponents)
Table	Property, Plant and Equipment Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Property, Plant and Equipment [Line Items]	Period							
	2012-12-31				2011-12-31			
	Property, Plant and Equipment, Type [Axis]				Property, Plant and Equipment, Type [Axis]			
	Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Equipment, All Types [Domain]	Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Equipment, All Types [Domain]
Property, Plant and Equipment [Hierarchy]								
Property, plant and equipment, gross	40,000,000	50,000,000	7,000,000	97,000,000	40,000,000	50,000,000	7,000,000	97,000,000
Property, Plant and Equipment, Net, by Type [Roll Up]								
Property, plant and equipment, gross	40,000,000	50,000,000	7,000,000	97,000,000	40,000,000	50,000,000	7,000,000	97,000,000
Accumulated depreciation				(15,000,000)				(15,000,000)
Property, plant, and equipment, net				82,000,000				82,000,000

Key Points:

- The component which details property, plant, and equipment gross is modeled as a member aggregation.
- Alternatively, this could have been modeled as a roll up.
- The component which computes property, plant and equipment, net is a roll up (net = gross - accumulated depreciation).
- Note that this component intersects with the property, plant, and equipment policies via the connection created by the Property, Plant and Equipment Type [Axis].

Business Rules:

- Property, plant, and equipment, gross must exist.
- Accumulated depreciation must exist.
- Accumulated depreciation must be a positive value.
- Property, plant, and equipment, net must exist.
- Member aggregation of property, plant, and equipment, gross must foot.
- Roll up of property, plant and equipment, net must foot.



HINT: Modelling as [Line Items] or [Member]s of an [Axis]; which to use when?

If you look at the inventory components breakdown and the property, plant, and equipment breakdown; you will notice that they are modelled differently. Inventory components are modelled using multiple concepts within a set of [Line Items]. Whereas, property, plant and equipment, gross components are modelled using a single concept "Property, plant, and equipment, gross" and then distinguishing which the class of PPE using different [Member]s of the "Property, plant and equipment type [Axis]".

An obvious question is why the difference and when do you use the first approach and when do you use the second? Also, because the US GAAP Taxonomy uses both approaches, does not explain or reveal any pattern as to which approach is use and in fact many times provides both approaches for the same financial report component; selecting the right option can be challenging.

Here is the way to look at this. First off, most of the time how things are modelled in other areas determines how you have to model something. For example, the balance sheet is a set of concepts. You are not going to create an extension concept which is a [Member] of an [Axis] and get that on the balance sheet and get your balance sheet roll ups to foot correctly by using that approach. In this particular case, you need to create a concept which fits onto the balance sheet correctly given its existing model and given that all your business rules must work correctly.

The second consideration is the need to articulate other information. For example, if you consider the balance sheet parenthetical components of preferred and common stock, multiple pieces of information are provided for each class of stock. You cannot provide that information by creating one single concept, you have to create multiple concepts and wire those concepts together using a [Member] of an [Axis]. Further, if you consider the property, plant and equipment component breakdown and the property, plant, and equipment policies; the components and the policies are tied together via that "Property, plant and equipment type [Axis]" and the [Member]s of each component. It would be trivial for a user of the information to use those two components together, if of course the application using that information worked correctly and leveraged that connection.

And so, while there is no clear answer for all cases, these rules can be helpful in determining when to model a component as a set of [Line Items] or as [Member]s of an [Axis]:

Consider the component into which the piece that you are going to model must fit into, you need to make sure you don't break any existing component model and be sure you pass all business rules.

Consider how the component you want to create will intersect with other components.

Consider what other facts what you are modelling might be used with and how those components are modelled.

Consider whether your component communicates one piece of information per fact or will need to communicate multiple or a more complex set of facts.

Each approach does have a distinct set of pros and cons; understanding these pros and cons can help you make the correct choice given your specific situation.



HINT: Seeing how an [Axis] ties [Line Items] together

Take a look at two components and you can understand why modelling information correctly is important: Property, plant, and equipment policies and property, plant and equipment components:

Policies:

Component: (Network and Table)	
Network	4030 - Disclosure - Property, Plant and Equipment Policies (http://www.abc.com/role/PropertyPlantAndEquipmentPolicies)
Table	Property, Plant and Equipment Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Period	2012-01-01 - 2012-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]

Property, Plant and Equipment [Line Items]	Property, Plant and Equipment, Type [Axis]		
	Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]
Property, Plant and Equipment Policies [Hierarchy]			
Basis of valuation	Mauris tincidunt cursus	Mauris tincidunt cursus	Mauris tincidunt cursus
Depreciation methods		Sed elementum feugiat	Mauris tincidunt
Estimated useful lives		15 years	5 years
Dispositions policy	Nam non tortor	Nam non tortor	Nam non tortor

Components:

Component: (Network and Table)	
Network	5050 - Disclosure - Property, Plant and Equipment Components (http://www.abc.com/role/PropertyPlantAndEquipmentComponents)
Table	Property, Plant and Equipment Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Property, Plant and Equipment [Line Items]	Period							
	2012-12-31				2011-12-31			
	Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Property, Plant and Equipment, All Types [Domain]	Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Property, Plant and Equipment, All Types [Domain]
Property, Plant and Equipment [Hierarchy]								
Property, plant and equipment, gross	40,000,000	50,000,000	7,000,000	97,000,000	40,000,000	50,000,000	7,000,000	97,000,000
Property, Plant and Equipment, Net, by Type [Roll Up]								
Property, plant and equipment, gross	40,000,000	50,000,000	7,000,000	97,000,000	40,000,000	50,000,000	7,000,000	97,000,000
Accumulated depreciation				(15,000,000)				(15,000,000)
Property, plant, and equipment, net				82,000,000				82,000,000

If you look at the model structures for these two components you see that they share the same axis, "Property, Plant and Equipment Type [Axis]" and the same [Member]:s:



Policies model structure:

Component: (Network and Table)					
Network	4030 - Disclosure - Property, Plant and Equipment Policies (http://www.abc.com/role/PropertyPlantAndEquipmentPolicies)				
Table	Property, Plant and Equipment Components [Table]				
#	Label	Report Element Class	Period Type	Balance	Name
1	Property, Plant and Equipment Components [Table]	[Table]			us-gaap:ScheduleOfPropertyPlantAndEquipmentTable
2	Legal Entity [Axis]	[Axis]			dei:LegalEntityAxis
3	Consolidated Entity [Domain]	[Domain]			dei:EntityDomain
4	Property, Plant and Equipment, Type [Axis]	[Axis]			us-gaap:PropertyPlantAndEquipmentByTypeAxis
5	Property, Plant and Equipment, All Types [Domain]	[Domain]			us-gaap:PropertyPlantAndEquipmentTypeDomain
6	Land [Member]	[Member]			us-gaap:LandMember
7	Machinery and equipment [Member]	[Member]			us-gaap:MachineryAndEquipmentMember
8	Furniture and fixtures [Member]	[Member]			us-gaap:FurnitureAndFixturesMember
9	Property, Plant and Equipment [Line Items]	[Line Items]			us-gaap:PropertyPlantAndEquipmentLineItems
10	Property, Plant and Equipment Policies [Hierarchy]	[Abstract]			abc:PropertyPlantEquipmentPoliciesHierarchy
11	Basis of valuation	[Concept] String	For Period		us-gaap:PropertyPlantAndEquipmentBasisOfValuation
12	Depreciation methods	[Concept] String	For Period		us-gaap:PropertyPlantAndEquipmentDepreciationMethods
13	Estimated useful lives	[Concept] String	For Period		us-gaap:PropertyPlantAndEquipmentEstimatedUsefulLives
14	Dispositions policy	[Concept] String	For Period		us-gaap:PropertyPlantAndEquipmentDispositions

Components model structure:

Component: (Network and Table)					
Network	5050 - Disclosure - Property, Plant and Equipment Components (http://www.abc.com/role/PropertyPlantAndEquipmentComponents)				
Table	Property, Plant and Equipment Components [Table]				
#	Label	Report Element Class	Period Type	Balance	Name
1	Property, Plant and Equipment Components [Table]	[Table]			us-gaap:ScheduleOfPropertyPlantAndEquipmentTable
2	Legal Entity [Axis]	[Axis]			dei:LegalEntityAxis
3	Consolidated Entity [Domain]	[Domain]			dei:EntityDomain
4	Property, Plant and Equipment, Type [Axis]	[Axis]			us-gaap:PropertyPlantAndEquipmentByTypeAxis
5	Property, Plant and Equipment, All Types [Domain]	[Domain]			us-gaap:PropertyPlantAndEquipmentTypeDomain
6	Land [Member]	[Member]			us-gaap:LandMember
7	Machinery and equipment [Member]	[Member]			us-gaap:MachineryAndEquipmentMember
8	Furniture and fixtures [Member]	[Member]			us-gaap:FurnitureAndFixturesMember
9	Property, Plant and Equipment [Line Items]	[Line Items]			us-gaap:PropertyPlantAndEquipmentLineItems
10	Property, Plant and Equipment [Hierarchy]	[Abstract]			abc:PropertyPlantEquipmentHierarchy
11	Property, plant and equipment, gross	[Concept] Monetary	As Of	Debit	us-gaap:PropertyPlantAndEquipmentGross
12	Property, Plant and Equipment, Net, by Type [Roll Up]	[Abstract]			us-gaap:PropertyPlantAndEquipmentNetByTypeAbstract
13	Property, plant and equipment, gross	[Concept] Monetary	As Of	Debit	us-gaap:PropertyPlantAndEquipmentGross
14	Accumulated depreciation	[Concept] Monetary	As Of	Credit	us-gaap:AccumulatedDepreciationDepletionAndAmortizationPropertyPlantAndEquipment
15	Property, plant, and equipment, net	[Concept] Monetary	As Of	Debit	us-gaap:PropertyPlantAndEquipmentNet

Software applications, if they are built correctly, can leverage these sorts of intersections of metadata to provide functionality to users such as displaying the information about the components and the policies of components together. Software can also use these intersections to navigate to different sections of the same financial report which are linked together by this correctly modelled intersecting metadata.

It is this type of functionality which should drive the best way to model your financial information.



HINT: Roll ups, roll forwards, adjustments, variance are defined by which [Axis] changes.

If you look at a roll up, roll forward, adjustment, or variance visually they might look the similar. However, the dynamics of each is different and is defined by which [Axis] is changing. The following table summarizes which [Axis] changes for each of the different types of numeric relations patterns:

Metapattern	Concept	Period	Report date	Reporting scenario
Roll up	Yes	No	No	No
Roll forward	No	Yes	No	No
Adjustment	No	No	Yes	No
Variance	No	No	No	Yes

Note that for each of the numeric patterns articulated above, one and only one of the [Axis] changes. For example, a "roll up" it is an aggregation across some set of concepts, the only characteristic of a set of reported facts which changes in a roll up. For example, the assets roll up of a balance sheet is an aggregation of the items, or concepts, which make up the assets section of a balance sheet.

A member aggregation is similar to a roll up (such as the Inventories Components) except that rather than the concept changing (it does not change, it stays the same) it is the [Axis] which differentiates the [Member]s of that [Axis] which change (such as the Property, Plant and Equipment Components).



17.23. Deferred Costs details

Deferred costs details is a roll up which foots. The component intersects with the balance sheet.

Component: (Network and Table)	
Network	5060 - Disclosure - Deferred Costs (http://www.abc.com/role/DeferredCosts)
Table	Deferred Costs Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Deferred Costs Components [Line Items]	Period	
	2012-12-31	2011-12-31
Deferred Costs [Roll Up]		
Deferred advertising costs	2,000,000	2,000,000
Deferred set-up costs	2,000,000	2,000,000
Deferred sales commissions	5,000,000	5,000,000
	Total deferred costs	9,000,000

Key Points:

- Component is a roll up.
 - Alternatively, this could have been modeled as one concept and each individual component of deferred costs being articulated as a [Member] of an [Axis].

Business Rules:

- Total deferred costs must exist.
 - Total deferred costs must foot.

QUESTION: Suppose a reporting entity had only one item of deferred costs, say "Deferred setup costs". There are two approaches which could be taken to disclose/present this item. The first would be to have the concept "Total deferred costs" on the balance sheet, then to have this same detail of the components of deferred costs as above, but showing only the single line item. The advantage of this is that analysts could always find deferred costs on the balance sheet and the always go find the component which details that total in the disclosures. Alternatively, a reporting entity could simply put the concept "Deferred setup costs" on the balance sheet. As there could be any number of different items of deferred costs on the balance sheet, the analysis algorithm would be vastly more complicated. Multiply this by each balance sheet line item, and writing analysis software becomes significantly more challenging and what the analysis software can safely do to sort out the items on the balance sheet is significantly reduced. The purpose of pointing this out is not to say that one approach is better than the other, it is simply to point out the reality of what analysis software needs to deal with and help the financial reporting



supply chain understand the options which they have available to them.



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17.24. Product warranty accrual

The product warranty accrual is two components which work together to tie information together. The first component is a roll forward of the product warranty accrual. The second component is a roll up or breakdown of the total product warranty into its current and noncurrent portions which are provided on the balance sheet. The roll forward must reconcile and the roll up must foot.

Roll forward:

Component: (Network and Table)	
Network	5070 - Disclosure - Product Warranty Accrual (http://www.abc.com/role/ProductWarrantyAccrual)
Table	Product Liability Contingency [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Product Liability Contingency [Line Items]	Period	
	2012-01-01 - 2012-12-31	2011-01-01 - 2011-12-31
Product warranty accrual [Roll Forward]		
Product warranty accrual, beginning balance	58,000,000	58,000,000
Provision for product warranties issued	7,000,000	7,000,000
Payments to satisfy claims	(6,000,000)	(6,000,000)
Currency translation	(1,000,000)	(1,000,000)
Product warranty accrual, ending balance	58,000,000	58,000,000
Product Warranty Accrual, Balance Sheet Classification [Roll Up]		
Product warranty accrual, current portion	26,000,000	26,000,000
Product warranty accrual, noncurrent portion	32,000,000	32,000,000
Product warranty accrual, total	58,000,000	58,000,000

Key Points:

- Component is a roll forward.
- Note that this roll forward is for the total product warranty accrual, current and noncurrent portion.

Business Rules:

- Product warranty accrual concept is required.
- Product warranty accrual roll forward must reconcile.



Roll up:

Key Points:

- Component is a roll up.

Business Rules:

- Product warranty accrual is required.
- Product warranty accrual total must foot (roll up must foot).

QUESTION: If a reporting entity only has a current product warranty or only has a noncurrent product warranty; then which concept should be used for the roll forward? There are two choices: (a) the same concept they would use if they had both a current and noncurrent portion, or (b) either the current or noncurrent portion depending on which it is and then they would not need to roll up. In my view, while approach "b" seems appealing, approach "a" is superior as it makes financial reports consistent and analysis software does not have to deal with this exception. The primary point here is not specifically product warranty accruals, but rather the need to deal with each exception such as this within analysis software. This is an issue which is similar to having a domain which only has one member, such as pointed out in the preferred stock component of the balance sheet parenthetical section.



17.25. Long-term debt instruments

Long-term debt instruments is two components. The first component is a hierarchy which details facts reported for each debt instrument and it is also a member aggregation which details each long-term debt instrument amount and provides a total of all amounts of long-term debt instruments. The second component is a roll up which details the current and noncurrent portions of total long-term debt. Total long-term debt intersects with the long-term debt maturities component. The current and noncurrent portions intersect with the balance sheet. Detail of long-term debt instruments foots to total long-term debt. Current and noncurrent portions also foot to total long-term debt.

Component: (Network and Table)			
Network	5080 - Disclosure - Long-term Debt Instruments (http://www.abc.com/role/LongTermDebtInstruments)		
Table	Long-term Debt Instruments [Table]		
Slicers (applies to each fact value in each table cell)			
Reporting Entity	0000000001 (http://www.sec.gov/CIK)		
Legal Entity [Axis]	Consolidated Entity [Domain]		
Debt Instrument [Line Items]	Period		
	2012-01-01 - 2012-12-31		2011-12-31
	Long-term Debt, Type [Axis]		
	Loans payable [Member]		Long-term Debt, All Types [Domain]
	Debt Instrument [Axis]		Long-term Debt, All Types [Domain]
	Debt instrument AA [Member]	Debt instrument BB [Member]	Debt Instrument [Axis]
Debt Instrument Hierarchy [Hierarchy]	Debt Instrument, All Instruments [Domain]		Debt Instrument, All Instruments [Domain]
	Mauris tincidunt cursus est	Mincidunt est	
	cursus elit sem	cursus elit sem	
	.10	.125	
	April 2018	October 2016	
Long-term Debt [Roll Up]	30,000,000	11,000,000	41,000,000
			22,000,000
			22,000,000
Current portion of long-term debt			19,000,000
			19,000,000
			19,000,000
Long-term debt excluding current maturities	30,000,000	11,000,000	41,000,000
Long-term debt			

Key Points:

- Long-term debt instruments itself is a hierarchy which contains 5 concepts.
- The amount concept is part of a member aggregation.
- Note that in this hierarchy, the amount is shown twice, once for the current period and once for the prior period. Yet, the description, collateral, interest rate, and maturity date are shown once.
- Alternatively, this component could have been modeled as two concepts: one which contains the entire description (combining what is now separated into description, collateral, interest rate, maturity date). There are pros and cons related to either



combining the facts or separating the facts. Neither approach is inherently right or wrong; rather the needs of the overall system determine what is most appropriate.

- The breakdown of the current and noncurrent portion of long-term debt is a roll up. Although the roll up is presented upside down as compared to other roll ups, it is still a roll up.
- Another approach to expressing this roll up would be: "noncurrent portion of long-term debt = total long-term debt - current portion of long-term debt". However, by convention roll ups are generally shown: "Total = Part A + Part B". The reason for this has to do with limitations of XBRL Calculations and a rule created which shows the relations between debits and credits. The rule was created because people were modeling this type of situation inconsistently. In hind sight, the calculation rules for debits and credits is a mistake, in my view. The rules was created to protect people from themselves.
- The current portion intersects with both the balance sheet and should intersect with the maturities of long-term debt component. (See the question related to this in that component.)
- The long-term debt excluding current portion intersects with the balance sheet.

Business Rules:

- Long-term debt amount for each instrument foots to the total.
- Long-term debt amount is required.
- Total long-term debt = Current portion of long term debt + Long-term debt excluding current portion.



17.26. Long-term debt maturities

Long-term debt maturities is a roll up. The roll up foots to total long-term debt. Total long-term debt intersects with the long-term debt instruments component.

Component: (Network and Table)	
Network	5090 - Disclosure - Maturities of Long-term Debt (http://www.abc.com/role/MaturitiesOfLongTermDebt)
Table	Maturities of Long-Term Debt [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

	Period	
	2012-12-31	2011-12-31
Maturities of Long-Term Debt [Line Items]		
Maturities of Long-Term Debt RollUp [Roll Up]		
Current	22,000,000	
2014	1,000,000	
2015	1,000,000	
2016	1,000,000	
2017	1,000,000	
Thereafter	15,000,000	
	Total long-term debt	41,000,000
		41,000,000

Key Points:

- Component is a roll up.
 - Component intersects with the long-term debt instruments component.

Business Rules:

- The concept total long-term debt must exist in this component.
 - Total maturities must foot.

QUESTION: The concept used to express current maturities here and the concept used to express current maturities on the balance sheet are two different concepts. Would it ever be the case that these two numbers would be different? If not (which I believe is the case) then one of the concepts should be removed from the US GAAP Taxonomy.



17.27. Other noncurrent liabilities details

Other noncurrent liabilities details is a roll up which foots to total other noncurrent liabilities. This component intersects with the balance sheet.

Component: (Network and Table)	
Network	5110 - Disclosure - Other Noncurrent Liabilities (http://www.abc.com/role/OtherNoncurrentLiabilities)
Table	Other Noncurrent Liabilities [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity	0000000001 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Consolidated Entity [Domain]

Other Noncurrent Liabilities [Line Items]	Period	
	2012-12-31	2011-12-31
Other Liabilities, Noncurrent [Roll Up]		
Other sundry noncurrent liabilities	250,000	250,000
Noncurrent deferred taxes and other liabilities	750,000	750,000
Total other noncurrent liabilities	1,000,000	1,000,000

Key Points:

- Component is a roll up, and is modeled using concepts which are part of a set of [Line Items].
- Alternatively, this could have been modeled as one concept and each individual component of other noncurrent liabilities being articulated as a [Member] of an [Axis].

Business Rules:

- Total other noncurrent liabilities must exist.
- Total other noncurrent liabilities must foot.



17.28. Business segment breakdown

The business segment breakdown is a hierarchy of facts which the reporting entity discloses for each business segment. In this case, each fact within the hierarchy is also part of a member aggregation which totals to a sum for all business segments. A number of the facts intersect with the income statement, capital additions intersects with the cash flow statement, and total assets intersects with the balance sheet. Note that this member aggregation is a complete flat set.

Component: (Network and Table)																																																																																																																																	
Network	5120 - Disclosure - Business Segments (http://www.abc.com/role/BusinessSegments)																																																																																																																																
Table	Business Segment Information, by Segment [Table]																																																																																																																																
Slicers (applies to each fact value in each table cell)																																																																																																																																	
Reporting Entity	000000001 (http://www.sec.gov/CIK)							2010-01-01 - 2010-12-31																																																																																																																									
Legal Entity [Axis]	Consolidated Entity [Domain]							2010-01-01 - 2010-12-31																																																																																																																									
Segment Reporting Information [Line Items]	<table border="1"> <thead> <tr> <th colspan="10">Period</th></tr> <tr> <td colspan="5">2012-01-01 - 2012-12-31</td><td colspan="5">2011-01-01 - 2011-12-31</td></tr> <tr> <td colspan="9">Business Segments [Axis]</td><td>Business Segments [Axis]</td></tr> <tr> <td>Business Segment Alpha [Member]</td><td>Business Segment Bravo [Member]</td><td>Business Segment Charlie [Member]</td><td>Business Segment Delta [Member]</td><td>All Business Segments [Domain]</td><td>Business Segment Alpha [Member]</td><td>Business Segment Bravo [Member]</td><td>Business Segment Charlie [Member]</td><td>Business Segment Delta [Member]</td><td>All Business Segments [Domain]</td></tr> </thead> <tbody> <tr> <td>Revenues</td><td>4,000,000</td><td>2,000,000</td><td>2,000,000</td><td>2,000,000</td><td>10,000,000</td><td>4,000,000</td><td>2,000,000</td><td>2,000,000</td><td>2,000,000</td><td>10,000,000</td></tr> <tr> <td>Operating expenses</td><td>500,000</td><td>500,000</td><td>500,000</td><td>350,000</td><td>1,850,000</td><td>500,000</td><td>500,000</td><td>350,000</td><td>350,000</td><td>1,850,000</td></tr> <tr> <td>Selling, general and administrative expenses</td><td>250,000</td><td>250,000</td><td>250,000</td><td>250,000</td><td>1,000,000</td><td>250,000</td><td>250,000</td><td>250,000</td><td>250,000</td><td>1,000,000</td></tr> <tr> <td>Depreciation</td><td>100,000</td><td>100,000</td><td>100,000</td><td>200,000</td><td>500,000</td><td>100,000</td><td>100,000</td><td>100,000</td><td>200,000</td><td>500,000</td></tr> <tr> <td>Operating income (loss)</td><td>1,000,000</td><td>1,000,000</td><td>1,000,000</td><td>1,150,000</td><td>4,150,000</td><td>1,000,000</td><td>1,000,000</td><td>1,000,000</td><td>1,150,000</td><td>4,150,000</td></tr> <tr> <td>Capital additions</td><td>4,000,000</td><td>2,000,000</td><td>2,000,000</td><td>2,000,000</td><td>10,000,000</td><td>4,000,000</td><td>2,000,000</td><td>2,000,000</td><td>2,000,000</td><td>10,000,000</td></tr> <tr> <td>Assets</td><td>25,000,000</td><td>25,000,000</td><td>47,000,000</td><td>50,000,000</td><td>147,000,000</td><td>25,000,000</td><td>25,000,000</td><td>47,000,000</td><td>50,000,000</td><td>147,000,000</td></tr> </tbody> </table>										Period										2012-01-01 - 2012-12-31					2011-01-01 - 2011-12-31					Business Segments [Axis]									Business Segments [Axis]	Business Segment Alpha [Member]	Business Segment Bravo [Member]	Business Segment Charlie [Member]	Business Segment Delta [Member]	All Business Segments [Domain]	Business Segment Alpha [Member]	Business Segment Bravo [Member]	Business Segment Charlie [Member]	Business Segment Delta [Member]	All Business Segments [Domain]	Revenues	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	Operating expenses	500,000	500,000	500,000	350,000	1,850,000	500,000	500,000	350,000	350,000	1,850,000	Selling, general and administrative expenses	250,000	250,000	250,000	250,000	1,000,000	250,000	250,000	250,000	250,000	1,000,000	Depreciation	100,000	100,000	100,000	200,000	500,000	100,000	100,000	100,000	200,000	500,000	Operating income (loss)	1,000,000	1,000,000	1,000,000	1,150,000	4,150,000	1,000,000	1,000,000	1,000,000	1,150,000	4,150,000	Capital additions	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	Assets	25,000,000	25,000,000	47,000,000	50,000,000	147,000,000	25,000,000	25,000,000	47,000,000	50,000,000	147,000,000		
Period																																																																																																																																	
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Revenues	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000																																																																																																																							
Operating expenses	500,000	500,000	500,000	350,000	1,850,000	500,000	500,000	350,000	350,000	1,850,000																																																																																																																							
Selling, general and administrative expenses	250,000	250,000	250,000	250,000	1,000,000	250,000	250,000	250,000	250,000	1,000,000																																																																																																																							
Depreciation	100,000	100,000	100,000	200,000	500,000	100,000	100,000	100,000	200,000	500,000																																																																																																																							
Operating income (loss)	1,000,000	1,000,000	1,000,000	1,150,000	4,150,000	1,000,000	1,000,000	1,000,000	1,150,000	4,150,000																																																																																																																							
Capital additions	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000	4,000,000	2,000,000	2,000,000	2,000,000	10,000,000																																																																																																																							
Assets	25,000,000	25,000,000	47,000,000	50,000,000	147,000,000	25,000,000	25,000,000	47,000,000	50,000,000	147,000,000																																																																																																																							

Key Points:

- This component is a hierarchy. In addition, each concept in the hierarchy is part of a member aggregation.
- This component intersects with the income statement, statement of cash flows, and the balance sheet.
- Note that the member aggregation is "flat". Contrast that to the geographic area component which is a two level hierarchy.

Business Rules:

- Each of the member aggregations must foot.
- Reporting entities can disclose different facts in many cases, other facts are specifically required.

NOTE: There is an issue with the creation application which needs to be worked around, the total Capital Additions should be a positive number but is shown as a negative number here. That will be corrected.

QUESTION: Should a business segment breakdown like this have a "Legal Entity [Axis]"?



17.29. Geographic areas breakdown

The geographic area breakdown is two hierarchies. The first hierarchy contains only the fact with the concept revenues. The second hierarchy has the fact with the concept long-lived assets (which is total noncurrent assets). Each component is also a member aggregation of each of those two concepts over the set of geographic areas. This member aggregation is a complete hierarchical set in that the set of countries has an additional layer of hierarchy in that countries are grouped into regions. Revenues intersects with the income statement. Long-lived assets intersects with the balance sheet.

Component: (Network and Table)						
Network	5130 - Disclosure - Geographic Areas (http://www.abc.com/role/GeographicAreas)					
Table	Revenues from External Customers and Long-lived Assets by Geographic Area [Table]					
Slicers (applies to each fact value in each table cell)						
Reporting Entity	0000000001 (http://www.sec.gov/CIK)					
Legal Entity [Axis]	Consolidated Entity [Domain]					
Revenues from External Customers and Long-Lived Assets [Line Items]		Period				
		2012-01-01 - 2012-12-31		2011-01-01 - 2011-12-31		2010-01-01 - 2010-12-31
		Geographic Area [Axis]			Geographic Area [Axis]	
		North America [Member]	Europe [Member]	All geographic areas [Domain]	North America [Member]	Europe [Member]
					All geographic areas [Domain]	All geographic areas [Domain]
Revenues from External Customers [Hierarchy]						
Revenues		6,000,000	4,000,000	10,000,000	6,000,000	4,000,000
Long Lived Assets [Hierarchy]						
Long lived assets		52,000,000	39,000,000	91,000,000	52,000,000	39,000,000
						91,000,000

Key Points:

- This component could be modeled as one hierarchy or it could be modeled as two distinct hierarchies. Modeling it as two hierarchies as opposed to one provides a better rendering of the information.
- This component intersects with the balance sheet and with the income statement.
- While most domains of an [Axis] tends to be flat, this set of members is a hierarchy because the individual countries are grouped into the regions "North America" and "Europe". Many people tend to imply meaning in such hierarchy, however there is nothing in XBRL which allows you to communicate such meaning, other than the expression of an XBRL Formula to explicitly state your meaning.
- This model could have been created using two separate [Axis], one for region and a different [Axis] for the country. Neither approach is inherently right or wrong, but XBRL US suggests that using one [Axis] in this situation is the better alternative.

Business Rules:

- Revenues foots by region.
- Revenues by region foots to total revenues.
- Long-lived assets foots by region.
- Long-lived assets foots to total long-lived assets.



- Revenues exists.
- Long-lived assets exists.

QUESTION: What is the general rule for when one should use one [Axis] and when one would use two separate [Axis]?

QUESTION: Should a geographic area breakdown like this have a "Legal Entity [Axis]" in addition to the Geographic Area [Axis]?

HINT: How to model nested hierarchies of members

[To Do]



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17.30. Nonmonetary transactions details

Nonmonetary transactions is a hierarchy of facts. Of the facts, two facts are also member aggregations across the set of all monetary transactions. This component does not intersect with any other components, it stands on its own.

Component: (Network and Table)				
Network	5140 - Disclosure - Nonmonetary Transactions (http://www.abc.com/role/NonmonetaryTransactions)			
Table	Nonmonetary Transaction, by Type [Table]			
Slicers (applies to each fact value in each table cell)				
Reporting Entity	000000001 (http://www.sec.gov/CIK)			
Period	2012-01-01 - 2012-12-31			
Legal Entity [Axis]	Consolidated Entity [Domain]			
Nonmonetary Transaction [Line Items]		Nonmonetary Transaction Type [Axis]		
Nonmonetary Transaction [Hierarchy]		Receipt of Assets in Satisfaction of Debt [Member]	Advertising Barter Transactions [Member]	Inventory Exchanges [Member]
Basis of accounting for assets transferred	Nunc in elit non metus viverra sollicitudin.	Mulla sit amet nibh	Nam non tortor non leo	
Name of counterparty	Duis metus	Nulla sit amet	Proinsitamet sem	
Gain (loss) recognized on transfer		100,000	100,000	100,000
Amount of barter transaction		200,000	200,000	200,000
				300,000
				600,000

Key Points:

- The component is a hierarchy of facts and also a member aggregation.
- Note that not all concepts are part of an aggregation.
- The component does not intersect with any other component, it stands alone.

Business Rules:

- Transaction type is required and is expressed using an [Axis].
- Basis of accounting for assets transferred, name of counterparty, gain on transfer, and amount of barter transaction are required in this component.



17.31. Selected financial information

The selected financial information component is a hierarchy in that it contains three facts which are not related to the other facts in any way except that all three concepts participate within the same component. However, the component is also a variance which, in this case, is the difference between an actual and forecast amounts of the facts. Each of the three facts intersects with the income statement.

Component: (Network and Table)					
Network	S150 - Disclosure - Select Financial Information (SelectFinancialInformation">http://www.abc.com/role>SelectFinancialInformation)				
Table	Select Financial Information [Table]				
Slicers (applies to each fact value in each table cell)					
Reporting Entity		0000000001 (http://www.sec.gov/CIK)			
Legal Entity [Axis]		Consolidated Entity [Domain]			
Select Financial Information [Line Items]		Period			
		2012-01-01 - 2012-12-31		2011-01-01 - 2011-12-31	2010-01-01 - 2010-12-31
		Reporting scenario [Axis]			Reporting scenario [Axis]
		Variance [Member]	Forecast [Member]	Actual [Domain]	Actual [Domain]
Select Financial Information [Hierarchy]					
Revenues		(1,000,000)	11,000,000	10,000,000	10,000,000
Operating income (loss)		(850,000)	5,000,000	4,150,000	4,150,000
Net income (loss)		3,350,000	2,000,000	5,350,000	7,450,000
					1,350,000

Key Points:

- Component is a hierarchy and a variance.
- A variance is a change of the Reporting Scenario [Axis] between two different reporting scenarios.
- It is the actual reporting scenario which generally intersects with other components.
For example, here all three actual facts intersect with the income statement. As such, it is the actual [Member] which should be the dimension-default because that enables the facts to be usable within both components.

Business Rules:

- The variance between each scenario must compute. Here, variance = forecast - actual.
This may vary depending on preference and depending on which reporting scenarios are used by the variance.



17.32. Subsequent events

Subsequent events is a hierarchy of four concepts which make up a subsequent event. Each concept is reported three times, once for each of the three subsequent events. In this case the amount is not aggregated (i.e. it is not a member aggregation) as it would make no sense to aggregate the amount of all three subsequent events. This component does not intersect with any other component within the financial report.

Component: (Network and Table)	
Network	S160 - Disclosure - Subsequent Events (http://www.abc.com/role/SubsequentEvents)
Table	Subsequent Event [Table]

Slicers (applies to each fact value in each table cell)	
Reporting Entity	000000001 (http://www.sec.gov/CIK)
Period	2012-01-01 - 2012-12-31
Legal Entity [Axis]	Consolidated Entity [Domain]

Subsequent Event [Line Items]	Subsequent Event Type [Axis]		
	Dividend Declared [Member]	Issuance of Debt [Member]	Threatened Litigation [Member]
Subsequent Event [Hierarchy]			
Event description	Nunc in elit non metus viverra sollicitudin. Duis metus. Donec pulvinar nonummy erat. In vel justo at urna rutrum ultrices. Cras consectetur orci non lorem. Vestibulum bibendum aliquet augue.	Duis fermentum. Nullam dui orci, scelerisque porttitor, volutpat a, porttitor a, enim. Sed lobortis. Maecenas scelerisque ullamcorper libero. Aliquam porta leo imperdiet pede.	Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Fusce suscipit pede ut erat. Sed rutrum.
Event date	2013-03-01	2013-02-15	2013-01-22
Event amount	100,000	200,000	50,000

Key Points:

- Component is a hierarchy.
- Although there is a numeric concept as part of this component, that amount is not aggregated.
- The US GAAP Taxonomy provides a specific set of concepts which should be reported for a subsequent event;

Business Rules:

- The type of subsequent event is required which is expressed via an [Axis] of the component.
- Either an amount is required, a range of amounts is required, or a reason an amount is inestimable is required.

QUESTION: A physical [Domain] (as this has been used in the past) is not necessary here. Why should it be provided and is it required to be provided. If so, why?

QUESTION: See the HINT "Differing forms of quantitative and qualitative measures. It seems that the taxonomy is very clear in indicating what concepts should be reported. However, if you look at the subsequent event disclosures of filers, very few use any of the [Line Items] provided by the US GAAP Taxonomy. Which is correct? How does the user of the US GAAP Taxonomy know the difference?



HINT: Commonly Used Axes

Some axes are specific to specific components modelled within a financial report taxonomy model. Other axes are very common and tend to be shared between components. The following is a summary of the more common axes used within a financial report:

- **Reporting entity:** Articulates the reporting entity, identified by the SEC CIK number to which a fact relates. Providing a reporting entity is required.
- **Period:** Articulates the calendar period to which a fact relates. (Note that XBRL has no means currently of articulating which fiscal period to which a fact relates, only the calendar period.) Providing a period is required.
- **[Line Items]:** Articulates the concept to which the reported fact relates such as "Cash and cash equivalents" or "Net income (loss)". Providing a concept is required.
- **Legal Entity [Axis]:** Articulates the legal entity which is to which the fact relates such as the consolidated entity, parent holding company, variable interest entity, or some legal subunit. Generally facts are considered to relate to the consolidated entity if the Legal Entity [Axis] is not provided.
- **Report Date [Axis]:** Articulates the date of the report to which the reported fact relates. This could be the date filed or the audit report date. Generally facts are all considered to be of the same report date if the Report Date [Axis] is not provided.
- **Reporting Scenario [Axis]:** Articulates the reporting scenario of the reported fact such as actual, forecast, budgeted, etc. Generally facts are considered to be actual if the Reporting Scenario is not provided.
- **Business Segment [Axis]:** Articulates the business segment to which the reported fact relates. Generally facts are considered to relate to the combined business segment if the Business Segment [Axis] is not provided.
- **Geographic Area [Axis]:** Articulates the geographic area to which a reported fact relates. Generally facts are considered to relate to the combined set of all geographic areas if the Geographic Area [Axis] is not provided.

Note that syntactically, or considering the technical syntax, the reporting entity, period, and concept are implemented technically in a manner different than other axes. However, semantically or considering the business meaning, all are axes just like any other axes and articulate some specific characteristic related to a reported fact.



HINT: Using fact tables to understand component intersections.

The notion of intersections were discussed, this is another discussion of intersections leveraging the raw information which makes up a component of a financial report. This raw information is sometimes called a **fact table**.

Fact tables are exactly as the name implies, a table of facts. Recall that a fact is a set of characteristics, a value, and may contain some additional information if the fact is numeric which we will ignore for now.

The following is a fact table for the balance sheet component. A partial list of the 66 facts which make up the balance sheet are shown below. Each fact has the characteristics: Reporting entity, Period, Legal Entity, and Concept. Each fact also has a value. Each row which is numbered represents one fact.

Component: (Network and Table)						
Network	2001 - Statement - Balance Sheet (http://www.abc.com/role/BalanceSheet)					
Table	Balance Sheet [Table]					
#	Reporting Entity	Period	Legal Entity [Axis]	Concept	Value	
1	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Liabilities and Equity	147000000	
2	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Liabilities and Equity	147000000	
3	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Product warranty accrual, current portion	26000000	
4	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Product warranty accrual, current portion	26000000	
52	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Assets	147000000	
63	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Long-term debt	19000000	
64	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Long-term debt	19000000	
65	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Property, plant and equipment, net	82000000	
66	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Property, plant and equipment, net	82000000	

The fact table below is for the Property, Plant and Equipment Components component. Note that it likewise has characteristics. In fact, all the characteristic are the same except for one, the "Property, Plant and Equipment, Type [Axis]".

Note that line # 65 and #66 from the fact table above relating to the balance sheet and #11 and #12 below relating to the property, plant and equipment components component are the same fact (i.e. they exist only once within an XBRL instance).

Recall the hint "HINT: Dimension defaults are misnamed". Be sure you have read that hint.

Component: (Network and Table)						
Network	5050 - Disclosure - Property, Plant and Equipment Components (http://www.abc.com/role/PropertyPlantAndEquipmentComponents)					
Table	Property, Plant and Equipment Components [Table]					
#	Reporting Entity	Period	Legal Entity [Axis]	Property, Plant and Equipment, Type [Axis]	Concept	Value
1	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment	15000000
2	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Accumulated Depreciation, Depletion and Amortization, Property, Plant, and Equipment	15000000
3	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Machinery and equipment [Member]	Property, plant and equipment, gross	50000000
4	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Property, plant and equipment, gross	97000000
5	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Land [Member]	Property, plant and equipment, gross	40000000
6	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Furniture and fixtures [Member]	Property, plant and equipment, gross	7000000
7	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Property, plant and equipment, gross	97000000
8	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Land [Member]	Property, plant and equipment, gross	40000000
9	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Furniture and fixtures [Member]	Property, plant and equipment, gross	7000000
10	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Machinery and equipment [Member]	Property, plant and equipment, gross	50000000
11	0000000001 (http://www.sec.gov/CIK)	2011-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Property, plant and equipment, net	82000000
12	0000000001 (http://www.sec.gov/CIK)	2012-12-31	Consolidated Entity [Domain]	Property, Plant and Equipment, All Types [Domain]	Property, plant and equipment, net	82000000

The fact morphs, using the dimension-default, to be the balance sheet line item or to become the total of the property, plant and equipment components component (the net amount) depending upon which fact table or rendering you are using to look at the fact.



This is why the fact property, plant, and equipment, net can be viewed as an intersection between two components.



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18. APPENDIX: Financial Report Semantic Object Properties

This section provides the properties of report elements. See the section on the logical model report elements for a summary overview.

18.1. Reconciliation of financial report semantics terminology to XBRL Abstract Model 2.0 terminology:

Example	Financial Report Semantics and Dynamics Theory Object	XBRL Abstract Model 2.0 Object
<i>Financial statement portion of a 10-Q or 10-K; financial statement issued by a private entity</i>	Financial report – A financial statement plus supplementary financial information. Financial report can be broken down into components.	Document or Manifest
<i>See the examples from each rudimentary or primitive piece above</i>	Financial report rudiments – One of the primitive building blocks or objects of a financial report: financial report, component, characteristic, fact, parenthetical explanation, relation	Model Element
<i>Balance sheet, significant accounting policies, maturities of long-term debt</i>	Component – A portion of a financial report. Made up of facts which go together for some specific purpose and the relations between facts and relations between characteristics.	Cube, Cube Region
<i>Reporting entity with CIK number 1234567890; Legal entity of "consolidated entity"; Period of "2011-21-31"; Property, plant and equipment class of "Land"</i>	Characteristic – Describes a fact. Made up of a characteristic and the value of that characteristic.	Aspect
<i>Assets = Liabilities + Equity; Beginning cash + net cash flows = ending cash</i>	Relation – The relation from one object of a financial report to another object or objects.	Relation
<i>Value of 1000 for the concept "Cash and cash equivalents" for the legal entity "consolidated entity" for the period ended "December 31, 2010" expressed in US Dollars rounded to millions</i>	Fact – A single, observable, reported piece of information. Connection of characteristics, a value, traits of the value if numeric, and parenthetical information	Data Point
<i>Parenthetical explanation on the bottom of a page, a footnote to a financial fact</i>	Parenthetical explanation – provide additional descriptive information about a fact.	Footnote
<i>Roll up, roll forward, hierarchy</i>	Relation between concepts within the concept characteristic	Relation
<i>North America, United States, Canada</i>	Relations between values of a characteristic	Relation
<i>Balance sheet, then income statement, then statement of changes in equity, ...</i>	Relationship between components or the order or sequence of components	Relation
<i>Units, rounding, balance type, period type</i>	Property – Property or trait of an object.	Attribute



18.2. Semantic objects and their properties

This section provides a more complete detailed explanation of the semantic objects of a financial report, including an SEC XBRL financial filing, the relations of those semantic objects, and the properties of those objects and relations. For a complete diagram of these semantics see [the PDF here.](#))

Semantic Object / Discussion	Graphical representation
<p>Overview of semantic objects: These are the fundamental or primitive building blocks of any financial report, no matter what the format (paper, HTML, PDF, Word, XBRL).</p> <p>A financial report set has 1 or more financial reports. For example, when you compare the financial information of one reporting entity to the financial information of one or more other reporting entities; the financial report set is that complete set of financial reports being compared.</p> <p>A financial report communicates facts.</p> <p>A component is a set of facts which goes together for some specific purpose.</p> <p>A fact is a single, observable, reportable piece of information. Facts have characteristics, a value, and they may have parenthetical explanations which further describe a fact.</p> <p>Characteristics describe facts.</p> <p>Facts and characteristics organized within a component can have relations.</p>	<pre> graph TD FRS[Financial Report Set] -- "Has (1 to many)" --> FR[Financial Report] FR -- "Has (1 to many)" --> C[Component] C -- "Has (1 to many)" --> F[Fact] C -- "Has (1 to many)" --> CH[Characteristics] C -- "Has (exactly 1)" --> VF[Fact Value] C -- "Has (0 to many)" --> PE[Parenthetical Explanation] R[Relations] -- "Has (1 to many)" --> F </pre>



Semantic Object / Discussion	Graphical representation
<p>Financial Report: Financial reports communicate facts.</p> <p>A financial report is implemented as an XBRL instance and supporting XBRL taxonomies. The distinction between instance and taxonomy is a nature of XBRL, not a nature of a financial report.</p>	<pre> graph TD FRP[Financial Report Properties] -- "Has (exactly 1)" --> PU[Prefix + URI] FRP -- "Has (1 set/collection)" --> BR[US GAAP, DEI or other Base report elements] FRP -- "Has (0 to many)" --> CC[Components Collection] FRP -- "Has (1 set/collection)" --> BR[Business rules] </pre>
<p>Component: A component is a set of facts which go together for some specific purpose (defined by Financial Report Semantics and Dynamics Theory).</p> <p>A component is implemented as a network/table. Neither the US GAAP Taxonomy architecture nor the SEC defines precisely what a “network” or “table” is semantically.</p> <p>This is a notion rather than a physical thing.</p>	<pre> graph TD CP[Component Properties] -- "Has (exactly 1)" --> N[Network] CP -- "Has (exactly 1)" --> T[Table Explicit or implied] CP -- "Has (0 to many)" --> FC[Facts Collection] CP -- "Has (1 set/collection)" --> BR[Business rules] </pre>
<p>Fact: A fact defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics.</p> <p>Numeric fact values must also provide the additional traits “units” and “rounding” to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.</p> <p>Facts are implemented as XBRL simple facts. Compound facts (i.e. tuples) are not allowed per the US GAAP Taxonomy Architecture.</p>	<pre> graph TD FP[Fact Properties] -- "Has (1 set/collection)" --> CH[Characteristics Collection] FP -- "Has (exactly 1)" --> FV[Fact Value] FP -- "Has (1 set/collection)" --> PE[Parenthetical Explanations Collection] </pre>
<p>Fact Value: Facts have a value.</p>	<pre> graph TD FV[Fact Value] -- "is a" --> NV[Numeric Value] FV -- "is a" --> NVN[Non-numeric Value] NV -- "Has (exactly 1)" --> A[Amount] NV -- "Has (exactly 1)" --> U[Unit] NV -- "Has (exactly 1)" --> R[Rounding] NVN -- "Has (exactly 1)" --> T[Text] NVN -- "Has (exactly 1)" --> TN[Narrative Text Block] NVN -- "Has (exactly 1)" --> O[Other] </pre>



Semantic Object / Discussion	Graphical representation
<p>Parenthetical explanations: Financial facts have parenthetical explanations which provide additional descriptive information about the fact. Parenthetical explanations are implemented as XBRL footnotes.</p>	<pre> graph TD PE[Parenthetical Explanation Properties] -- Has (1 set/collection) --> PE_Explanations[Parenthetical Explanations (Textual value)] </pre>
<p>Characteristics: Facts have characteristics. Characteristics describe facts. Characteristics are implemented using several different technical syntax in XBRL; as axes (i.e. set of [Axis]), [Member]s, [Line Items]; reporting entity and period are part of the XBRL instance context element technical syntax, but these are clearly axis.</p>	<pre> graph TD Characteristics[Characteristics] -- "Has (exactly 1)" --> ReportingEntity[Reporting Entity] Characteristics -- "Has (exactly 1)" --> Period[Period] Characteristics -- "Has (UNCLEAR)" --> LegalEntity[Legal Entity] Characteristics -- "Has (0 to many)" --> OtherCharacteristics[Other Characteristic(s)] Characteristics -- "Has (exactly 1 set)" --> LineItems[Line Items (Concepts)] </pre>
<p>Relations: Characteristics of a financial fact may be related. Facts may be related. Components may be related. Flow is the relationship between components. Member aggregation model (or domain aggregation model) is the relations between members of a domain for an [Axis]. Information model is the relation between concepts within a set of [Line Items]. Business rules are relations between facts and characteristics.</p>	<pre> graph TD BusinessRules[Business Rules] -- "many to many" --> Flow[Flow (Relations between Components)] BusinessRules -- "Has (exactly 1)" --> RelationsBetweenAxis[Relations between Axis] BusinessRules -- "Has (exactly 1)" --> RelationsBetweenLineItems[Relations between Line Items] BusinessRules -- "any" --> InformationModel[Information model (Roll up, roll forward, adjustment, variance, hierarchy, complex computation)] Relations[Relations] -- "(many)" --> Flow Relations -- "(many)" --> RelationsBetweenAxis Relations -- "(many)" --> RelationsBetweenLineItems RelationsBetweenAxis -- "Has (1 to many)" --> Member[Member] RelationsBetweenLineItems -- "Has (1 to many)" --> Concept[Concept (Abstract or Concrete)] DomainAggregation[Domain aggregation model (Partial set, complete flat set, complete hierarchical set, complex set)] --- BusinessRules </pre>



Semantic Object / Discussion	Graphical representation
<p>Relations: Relations have properties. A relation is between two report elements. A relation has a role.</p>	<pre> graph TD RP([Relation Properties]) -- "Has (exactly 1)" --> FRE([From Report Element]) RP -- "Has (exactly 1)" --> TRE([To Report Element]) RP -- "Has (exactly 1)" --> LR([Label Role]) </pre>
<p>Network: Semantics of a network are undefined.</p> <p>Networks are implemented as XBRL networks.</p>	<pre> graph TD NP([Network Properties]) -- "Has (exactly 1)" --> D([Description]) NP -- "Has (1 set/collection)" --> TC([Table]) NP -- "Has (exactly 1)" --> UI([Unique Identifier Syntax]) D -- "Has (exactly 1)" --> SC([Sort Code]) D -- "Has (exactly 1)" --> T([Title]) TC -- "Has (exactly 1)" --> TDS([Type Documentation Statement Disclosure Schedule]) </pre>
<p>Table: Semantics of a table are undefined.</p> <p>HINT: While the semantics of a [Table] are clearly defined from a report logical model perspective, they are undefined from a domain perspective.</p> <p>Tables are implemented either explicitly as a [Table] or XBRL Dimensions hypercube or implicitly (i.e. if concepts are not associated with a hypercube) as the relations within a network.</p> <p>Said another way, the reporting entity characteristic and period characteristic are required, XBRL Dimensions can be used to create additional characteristics.</p>	<pre> graph TD TP([Table Properties]) -- "Has (exactly 1)" --> UI([Unique Identifier Name, syntax]) TP -- "Has (exactly 1)" --> L([Label]) TP -- "Has (1 set/collection)" --> AC([Axis Collection]) TP -- "Has (exactly 1)" --> LI([Line Items]) L -- "Has (exactly 1)" --> TDS([Type Documentation Statement Disclosure Schedule]) </pre>

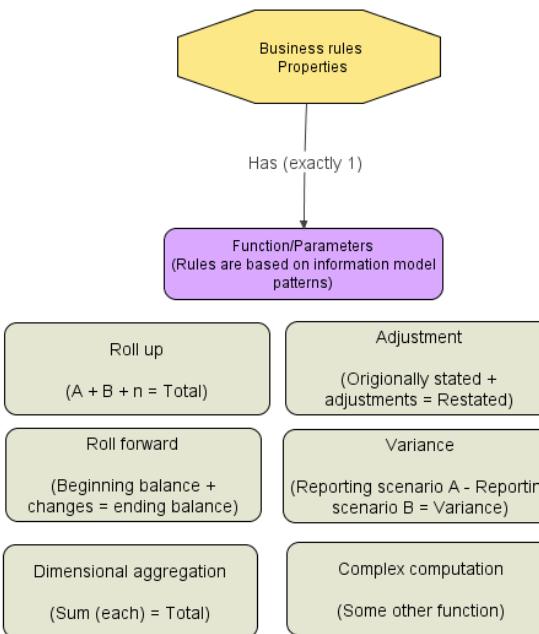
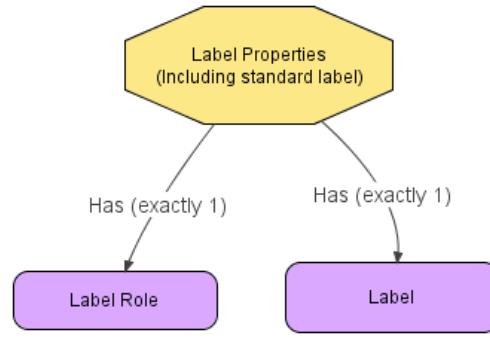
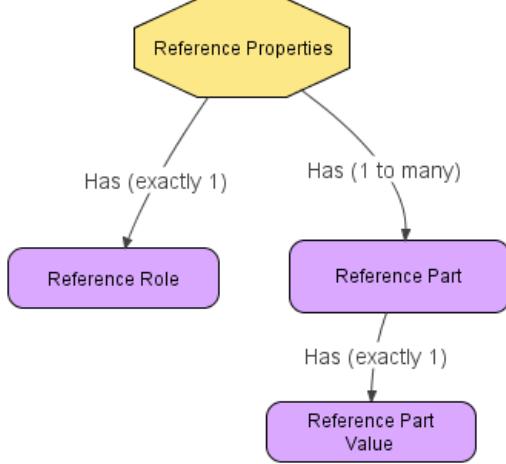


Semantic Object / Discussion	Graphical representation
<p>Axis: An [Axis] is used to articulate a characteristic.</p> <p>An [Axis] is abstract and therefore can never contain a value. Therefore the data type, period type, and balance have no semantic meaning. SEC EFM requires specific values for these attributes.</p> <p>There are multiple ways characteristics are implemented: as an [Axis], as a context entity identifier, and as a context period.</p>	<pre> graph TD AP[Axis Properties] -- Has (exactly 1) --> UI[Unique Identifier
(Name, syntax)] AP -- Has (exactly 1) --> SL[Standard Label] AP -- Has (1 to many) --> R[References] AP -- Has (1 to many) --> D[Documentation] </pre>
<p>Member: A [Member] is a possible value of an [Axis]; together they are used to articulate a characteristic.</p> <p>A [Member] is abstract and therefore can never contain a value. Therefore the data type, period type, and balance have no semantic meaning. SEC EFM requires specific values for these attributes.</p>	<pre> graph TD MP[Member Properties] -- Has (exactly 1) --> UI[Unique Identifier
(Name, syntax)] MP -- Has (exactly 1) --> SL[Standard Label] MP -- Has (1 to many) --> R[References] MP -- Has (1 to many) --> D[Documentation] </pre>
<p>Concepts: Concepts describe facts in such a way that they can contain values. As such, concepts therefore have a data type, period type, balance type are important.</p> <p>Concepts are implemented as (a) XBRL Dimensions primary items if they participate in a hypercube or if they do not participate in a hypercube (b) XBRL concepts.</p> <p>HINT: It is recommended that all concepts be implemented as XBRL Dimensions primary items, mixing the two can cause problems.</p>	<pre> graph TD CP[Concept Properties] -- Has (exactly 1) --> DT[Data Type] CP -- Has (exactly 1) --> PT[Period Type] CP -- Has (exactly 1) --> BT[Balance Type] CP -- Has (0 to 1) --> RC[Reference Collection] CP -- Has (0 to 1 set/collection) --> LC[Label Collection] CP -- Has (0 to many) --> SL[Standard Label
(Is also part of the label collection)] CP -- Has (1 set/collection) --> D[Documentation] </pre>



Semantic Object / Discussion	Graphical representation
<p>Abstract: [Line Items] which are abstract can never contain a value. Therefore the data type, period type, and balance have no semantic meaning. SEC EFM requires specific values for these attributes.</p> <p>HINT: Abstract report elements are implemented similar to concepts, but have an attribute "abstract" whose value is "true". Note that the term "abstract" is not being used here to mean the value of the XML Schema abstract attribute.</p> <p>NOTE: Documentation is optional for abstract concepts.</p> <p>HINT: It is recommended that all concepts be implemented as XBRL Dimensions primary items, mixing the two can cause problems.</p>	<pre> graph TD A([Concept(Abstract) Properties]) -- Has (exactly 1) --> B[Unique Identifier (Name, syntax)] A -- Has (exactly 1) --> C[Standard Label] A -- Has (0 to many) --> D[Documentation] A -- Has (0 to many) --> E[Label Collection] A -- Has (1 to many) --> F[Reference Collection] </pre>
<p>Reporting Entity is a type of [Axis], just implemented as a different technical syntax.</p>	<pre> graph TD A([Reporting Entity Axis Properties]) -- Has (exactly 1) --> B[Reporting Entity Member] B -- Has (exactly 1) --> C[Identifier Scheme] B -- Has (exactly 1) --> D[Identifier] </pre>
<p>Period is a type of [Axis], just implemented using a different technical syntax.</p>	<pre> graph TD A([Period Axis Properties]) -- Has (exactly 1) --> B[Period Member] B -- Option --> C[Instant i.e. as of] B -- Option --> D[Start Date + End Date i.e. for period] B -- Option --> E[Forever i.e. always] </pre>



Semantic Object / Discussion	Graphical representation
<p>Business rules: A business rule is a type of relation.</p>	 <pre> graph TD BRP[Business rules Properties] -- "Has (exactly 1)" --> FPP[Function/Parameters Rules are based on information model patterns] FPP --- RollUp[Roll up (A + B + n = Total)] FPP --- Adjustment[Adjustment (Origionally stated + adjustments = Restated)] FPP --- RollForward[Roll forward (Beginning balance + changes = ending balance)] FPP --- Variance[Variance (Reporting scenario A - Reporting scenario B = Variance)] FPP --- DA[Dimensional aggregation (Sum (each) = Total)] FPP --- CC[Complex computation (Some other function)] </pre>
<p>Label: The lang="en-US" is required, therefore it never needs to be entered by the user.</p>	 <pre> graph TD LP[Label Properties Including standard label] -- "Has (exactly 1)" --> LR[Label Role] LP -- "Has (exactly 1)" --> L[Label] </pre>
<p>References: Users will never add references in their filer extension taxonomies; they are not allowed to by the SEC. References are only used by the base taxonomies.</p> <p>As such, the references themselves don't need to be reviewed; but they are used to review concepts which possess references.</p>	 <pre> graph TD RP[Reference Properties] -- "Has (exactly 1)" --> RR[Reference Role] RP -- "Has (1 to many)" --> RP[Reference Part] RP --- RPV[Reference Part Value] RPV -- "Has (exactly 1)" --> RPV[Reference Part Value] </pre>



19. APPENDIX: Report Element Properties

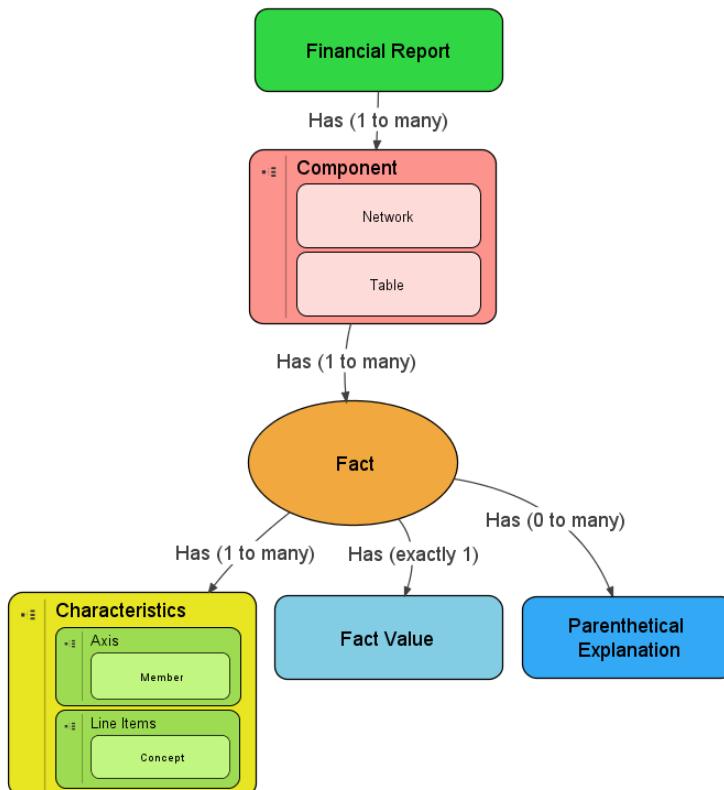
This section provides the properties of report elements used within the financial report implementation model.

19.1. Implementation model terminology summary

A report element or model element is a piece of a digital financial report. Report elements or model elements can be grouped into categories. These categories are summarised below:

- Financial Report
- Network
- Table
- Axis
- Member
- Line Items
- Concept
- Fact

The following graphic shows the relations between report element categories:



19.2. Reconciliation of implementation model terminology to financial report semantic terminology

The following is a reconciliation of implementation model terminology to financial report semantics terminology defined by the *Financial Report Semantics and Dynamics Theory*. Also provided is a column for the XBRL technical syntax of how the report element is implemented.

Implementation Model Term (US GAAP Taxonomy Architecture /SEC Model Term)	XBRL Technical Syntax Term	Financial Report Semantics and Dynamics Theory Term	Example
Report element or Model element	XML Schema element with specific attributes; different sets of attributes and attribute values define report elements to be different things	Financial report rudiments	Network, Table, Axis, Member, Line Items, Concept, Fact
Network (must have a unique URI, must have a number, must have a sort group, must have a title)	Network expressed using the XLink extended link with an XBRL extended link role	This is <i>part of a component</i> , but because different taxonomies use network, hypercube, or combinations of network/hypercube; this cannot be mapped to one physical technical syntax	Balance sheet
[Table] (period must be "duration", must not have a balance attribute, must be abstract)	XML schema element with the substitutionGroup value of "xbrldt:hypercubeItem"	This is <i>part of a component</i> , but because different taxonomies use network, hypercube, or combinations of network/hypercube; this cannot be mapped to one physical technical syntax	Balance sheet
[Axis] (must have a type of "nonnum:domainMemberItem", period must be "duration", must not have a balance attribute, must be abstract)	XBRL Dimensions dimension which is XML schema element with the substitutionGroup value of "xbrldt:dimensionItem"; some characteristics are expressed within an XBRL instance as a context; the concept is expressed using XML Schema elements which have the substitutionGroup value of "xbrli:item". XBRL Formula refers to this as an "aspect"	Characteristic – This is part of a characteristic; the actual characteristic itself.	The "Legal entity" to which a fact relates
[Member]	XBRL Dimensions Member	Characteristic value – The value of a characteristic.	"Consolidated entity" is the value of "Legal Entity" characteristic
[Line Items]	Primary Items	Line items – Set of concepts	Assets [Roll up] of a balance sheet
Concept or Line Item (one line item from the set of [Line Items])	XML schema element with the substitutionGroup value of "xbrli:item", a specific type, a specific period, and a specific balance; must NOT be abstract.	Line Item – This is the concept characteristic	Cash and cash equivalents; Assets; Net income (loss)
Fact	Simple fact (compound facts are not allowed)	Fact – Connection of characteristics, a value, traits of the value if numeric, and parenthetical information	Value of 1000 for the concept "Cash and cash equivalents" for the legal entity "consolidated entity" for the period ended "December 31, 2010" expressed in US Dollars rounded to millions



Implementation Model Term (US GAAP Taxonomy Architecture /SEC Model Term)	XBRL Technical Syntax Term	Financial Report Semantics and Dynamics Theory Term	Example
Business rules, Domain partition aggregation model, Information model	Presentation relations, calculation relations, definition relations, XBRL Formula	Relations – The relation from one concept to another concept.	<i>Assets = Liabilities + Equity;</i> <i>Beginning cash + net cash flows = ending cash</i>
Flow , uses Network {SortCode} - {Type} - {Title}	--Does not have this level--	Relations between components – Flow, or the order or sequence of components	<i>Balance sheet, then income statement, then statement of changes in equity, ...</i>
Roll up, roll forward, hierarchy	--Does not have this level--	Relations between concepts – Relation between concepts within the concept characteristic	<i>Roll up, roll forward, hierarchy</i>
Member aggregation model	--Does not have this level--	Relations between characteristics – Relations between characteristic members	<i>North America, United States, Canada</i>
De facto standard is the RSS Feed provided by SEC	--Does not have this level--	Set of financial reports which are being worked with; reading one, comparing across period for same reporting entity; comparing one or more financial reports from multiple reporting entities	<i>Comparing IBM, Apple, and Microsoft</i>

19.3. Reconciliation of implementation model terminology to XBRL Abstract Model 2.0 terminology:

Example	US GAAP/SEC Model Object	XBRL Abstract Model 2.0 Object
<i>Financial statement portion of a 10-Q or 10-K; financial statement issued by a private entity</i>	SEC XBRL financial filing ; XBRL instance + XBRL taxonomy;	Document, Manifest
<i>See the examples from each rudimentary or primitive piece above</i>	Report element : Network, [Table], [Axis], [Member], [Line Items], Concept, Abstract concept, Fact, Footnote	Model Element
<i>Balance sheet, significant accounting policies, maturities of long-term debt</i>	Network	Cube, Cube Region
<i>Balance sheet, significant accounting policies, maturities of long-term debt</i>	[Table]	Cube, Cube Region
<i>The "Legal entity" to which a fact relates</i>	[Axis]	Aspect
<i>"Consolidated entity" is the value of "Legal Entity" characteristic</i>	[Member]	Aspect Value
<i>Assets [Roll up] of a balance sheet</i>	[Line Items]	Aspect
<i>Cash and cash equivalents; Assets; Net income (loss)</i>	Concept or Line Item	Aspect Value
<i>Assets for the legal entity "consolidated entity" of the reporting entity with CIK 0000000001 for December 31, 2010</i>	Fact	Data Point
<i>Note that this is ...</i>	XBRL footnote	Footnote
<i>US Dollars</i>	Units	Aspect, Aspect Value
<i>-6 (rounded to millions)</i>	Decimals	Aspect, Aspect Value



19.4. Network

A **network** is a one approach to break a digital financial report into smaller pieces. There are two reasons why you might need to break a financial filing into pieces: because you want to or because you have to.

Property	Meaning/Definition	Example
Identifier	Uniquely identifies the Network. Used mainly by software applications.	http://xasb.org/roles/BalanceSheet
Number	Provides a way to order the network	100000
Category	A network must be either: document, statement, disclosure	Statement
Label	Human readable label for Network	"Balance Sheet"
Table (Collection)	A Network has a collection of Tables. Tables may be explicitly defined or implicitly defined.	All the Facts which are used by the "Balance Sheet" network.

19.5. Table

A **table** is used to combine facts which go together for some specific reason. Tables are comprised of axis and line items. The line items of a table share the axis defined within a table.

There are two types of tables: explicit tables and implicit tables. Implicit tables only have the axis reporting entity and period. An explicit table always has at least one explicit axis, it could have more than one. An explicit table always has one set of line items.

HINT: Because of the way SEC XBRL works in that tables do not have to be unique within an extension taxonomy, the table plus the network must be used to uniquely identify a table. This is because a table of the same name such as "Statement [Table]" can be used for multiple information sets (such as the balance sheet, income statement, and cash flow statement) and therefore the combination network and table is needed to uniquely identify a specific table. One way to get around this is to implement tables uniquely within a taxonomy. This model suggests that all tables be unique within a taxonomy.

Property	Meaning/Definition	Example
Identifier	Uniquely identifies the Table. Used mainly by software applications.	Unique identifier is the name such as "us-gaap:BalanceSheetTable". Would distinguish from other Tables such as the "Income Statement [Table]", "Maturities of Long term Debt [Table]", "Related Party Transactions [Table]"
Label	Human readable label for Table	"Balance Sheet [Table]"
Documentation	Explanation of the table	Reports the collection of concepts which make up the balance sheet of the reporting entity.
Axis (Collection)	Collection of one to many axis which make up a table. NOTE: A table always has an entity axis. NOTE: A table always has a period axis.	Set of: Period, Entity, Legal Entity [Axis]



Property	Meaning/Definition	Example
Line Items (Collection)	A table has a collection of line items. Line items are comprised of one or more concepts.	Cash and Cash Equivalents, Receivables, Inventory, Prepaid Expenses (i.e. all concepts)

19.6. Sub Component

A **sub component** is a sub set of line items which have the same information model and go together for some specific purpose. A sub component is an abstract report element in that it is more of an idea for convenience than a necessary report element.

For example, the balance sheet has two sub components: "Assets [Roll Up]" and "Liabilities and Equity [Roll Up]".

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Line Items. Used mainly by software applications.	us-gaap:AssetsAbstract
Label	Human readable label for Table	"Assets [Roll Up]"
Documentation	Explanation of the line items	The set of all assets of a company.
Concepts (Collection)	Has a collection of one or more components.	

19.7. Axis

An **axis** is a means of providing information about the characteristics of the concepts for the line items within a table regardless of whether that table is explicitly or implicitly defined.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Axis. Used mainly by software applications.	us-gaap:LegalEntityAxis
Label	Human readable label for axis	"Legal Entity [Axis]"
Documentation	Explanation of the axis	Used to indicate which legal entity the fact relates.
Domain (relation to)	Has exactly one domain.	"Geographic Area, All Areas [Domain]"
Member (collection), optional	A possible (i.e. allowed) value for a Measure property.	Europe Geographic Area, Asia Geographic Area, Pharmaceuticals Business Segment;
Business rules (collection)	Zero to many business rules which articulate the aggregation model of the axis.	The value of each geographic area [Member] equals the value of the geographic areas [Domain].

19.8. Member

A **member** is a possible value of an axis. A domain is a set of members. A member is always part of a domain of an axis, thus the term "member". A member expresses the value of the axis or characteristic being described. For example, the "Consolidated Entity [Member]" might be the value of the characteristic "Legal Entity [Axis]".

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Domain. Used mainly by software applications.	dei:ParentCompanyMember
Label	Human readable label for Member	Parent Company [Member]



Term	Meaning/Definition	Example
Documentation	Explanation of the member	Used to indicate that the fact relates to the parent company of the reporting entity.

19.9. Line Items

Line items are a set of concepts which can be reported by an entity, they can contain values. Concepts can be organized within the set of line items using abstracts.

Line items are what amounts to a special type of characteristic or axis. Because the concepts within a set of line items can report fact values, they have data types such as string, monetary, etc. They may also have a balance type (debit or credit), a period type (as of a point in time, for some period, etc.).

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Line Items. Used mainly by software applications.	us-gaap:BalanceSheetLineItems
Label	Human readable label for Table	"Balance Sheet [Line Items]"
Documentation	Explanation of the line items	Contains all the line items of the balance sheet.
Component (Collection)	Has a collection of one or more components.	

19.10. Concept

A **concept** refers to a financial reporting concept or a non-financial concept which can be reported as a fact within a financial report.

Line items contain concepts organized within a sub component which have the same information model.

Term	Meaning/Definition	Example
Identifier (name)	A unique identifier of a concept, its name. (i.e. not the id attribute)	us-gaap:CashAndCashEquivalents
Standard Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "labels collection" is different than the standard label. But, this is part of the labels collection from a syntax perspective.)	Cash and Cash Equivalents
Data type	The data type of a concept which the value must take.	String, monetary, decimals, Boolean, etc.
Period type	The period type of a concept allowed such as of a point in time, for a period of time, or forever.	Instant, duration, forever
Balance type	<i>Optional.</i> The balance type of a concept such as debit or credit. Applies only to certain monetary concepts.	Debit, credit
Documentation	<i>Optional.</i> The documentation or definition of the meaning of the concept.	Cash includes



Term	Meaning/Definition	Example
References	<i>Optional.</i> References to one or more external sources of documentation or definitions. This is a collection.	References to the authoritative financial reporting standards.

HINT: the Period type of instant is equivalent to what an accountant refers to as "As of" a point in time. The duration is equivalent to "For Period Ended".

Note that it is the US GAAP taxonomy standard label which should be the primary interface into a concept, not the name of the concept. So, rather than a user seeing "us-gaap:CashAndCashEquivalents" they would see "us-gaap:Cash and Cash Equivalents".

Identifiers and/or names are meaningless tokens whose only use is to serve as a unique identifier to the actual concept.

19.11. Abstract (line items)

Abstract line items are only be used within a set of line items for organizing the line items and may never be reported have the following properties.

Term	Meaning/Definition	Example
Identifier	A unique identifier of a concept, its name. (i.e. not the id attribute)	us-gaap:BalanceSheetAbstract
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "labels collection" is different than the standard label. But, this is part of the labels collection from a syntax perspective.)	Balance Sheet [Abstract]
Documentation	The documentation or definition of the meaning of the concept.	Balance sheet includes
Reference (collection)	References to one or more external sources of documentation or definitions. This is a collection.	References to the authoritative financial reporting standards.

19.12. Fact

A **fact** defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics. Numeric fact values must also provide the additional traits "units" and "rounding" to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.

A fact could be numeric, non-numeric (i.e. strings), or narrative (i.e. Text Block).

Term	Meaning/Definition	Example
Fact	Fact value is an abstract notion which is broken into two possible concrete possibilities: numeric value or non-numeric value.	Cash and Cash Equivalents on December 31, 2010, for the reporting entity ACME Company, which is a consolidated entity, with a value of 11,000 rounded to the nearest thousands, expressed in US Dollars



Term	Meaning/Definition	Example
Characteristic or Axis (collection)	A notion that represents the collection of information properties which describe the meaning and context of a fact. The axis collection identifies the fact.	Cash and Cash Equivalents on December 31, 2010, Audited, for ACME Company, Actual, etc.
Fact value	Fact value is an abstract notion which is broken into two possible concrete possibilities: numeric value or non-numeric value.	11,000; Or the text "FIFO".
Units (trait)	Numeric fact values only. Describes the units of the fact.	US Dollars
Rounding (trait)	Numeric facts only. Indicates the rounding of the numeric fact value.	Rounded to the nearest thousands
ID	<i>Optional.</i> Uniquely identifies the fact. (Required if footnotes are used because they connect the footnote to the fact.)	ID-0001

19.13. Parenthetical Explanation (Footnote)

Facts may have **parenthetical explanations** or **footnotes** which provide additional descriptive information about the fact.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the footnote.	FN-00001
Footnote	The actual footnote	For additional information see Note B to the financial statements.
Footnote Role	<i>Optional.</i> Category into which the footnote fits	Reason not reported

19.14. Concept Relations or Information Model

A **concept relations** model or **information model** describes the organization or relation between concepts within a component.

Concepts are not interspersed randomly within a sub component; they have patterns. Said another way, concepts are organized into different information models. A sub component is a set of concepts which have the same information model pattern or metapattern which are organized and used together for some specific purpose.

Term	Meaning/Definition	Example
[Hierarchy]	A hierarchy information model denotes a hierarchy of concepts with no numeric relations. If no numeric relations exist, then the information model of the component is a hierarchy. Basically, anything can be modeled as a hierarchy. It is the addition of additional relations, typically computations, which turns a hierarchy into some other metapattern.	Accounting policies; Miscellaneous numbers which have no computation relation to other numbers



Term	Meaning/Definition	Example
[Roll Up]	A roll up information model computes a total from a set of other concepts. This information model is commonly referred to a "roll up", or the equation $A + B = C$. All concepts involved in this information model have the same set of characteristics and all must be numeric.	Calculations of a balance sheet (all concepts); breakdown of assets by business segment.
[Roll Forward]	A roll forward information model reconciles the balance of a concept between two points in time. This information model is commonly referred to a "roll forward" or "movement analysis" or the equation: beginning balance + changes = ending balance. In this equation period [Axis] is as of two different points in time and the changes occur during the period between those two points in time.	Movements in property, plant, and equipment; Cash flow statement; Reconciliation of the change in the number of employees.
[Adjustment]	An adjustment information model reconciles an originally stated balance to a restated balance, the adjustment being the total change, between two different report dates. An adjustment is similar to a roll forward in that it is a reconciliation, however rather than the period [Axis] changing; it is the Report Date [Axis] which changes: originally reported balance + adjustment = restated balance.	Restatements: Originally stated balance + adjustments = Restated balance.
[Variance]	A variance information model reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes. For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation is: actual - budget = variance.	For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation is: actual - budget = variance.
[Complex Computation]	A complex computation information model can be thought of as a hierarchy plus a set of commutations between different concepts within that hierarchy which are challenging to model as the parent/child relations of a graph. The type of computations can vary significantly, thus the challenging in modeling. For example, the computation of earnings per share is a complex computation.	Earnings per share (Net income / shares outstanding) because it is a division
[Text Block]	A text block information model is an information model which contains, by definition, only one concept and that concept expresses what amounts to a narrative or prose as escaped HTML within that one concept. For example, the narrative associated with a set of accounting policies expressed as a list or a table presentation format is a text block. As there is only one concept, there can be no relations within the information model.	An accounting policy, a complex disclosure, an HTML table of information which is disclosed but not "detailed tagged."



Term	Meaning/Definition	Example
[Grid]	A grid information model is a pseudo metapattern which uses the presentation characteristics of the columns and rows of a table to model information. Because the grid models presentation information and not business semantics, it cannot be considered a metapattern. However, the grid is included in this list because the US GAAP Taxonomy uses a grid information model to model the statement of changes in equity.	Statement of changes in equity within the US GAAP taxonomy
Other information models	Some other information model	(Have no examples, from what I can see all information models fit into one of the above)

Additional information model metapatterns could be added if the needs is determined to exist.

19.15. Domain Partition or Member Aggregation Models

A domain is a set of members. Domains have partitions. A partition is collectively exhaustive and mutually exclusive set of members within a domain. Domain partitions do not overlap. Give a set X, a domain partition is a division of X into non-overlapping and non-empty "parts" or "blocks" or "cells" that cover all of X. More formally, these "cells" are both collectively exhaustive and mutually exclusive with respect to the set being partitioned. Domains always has at least one partition and may have many partitions.

The **members** of a **domain** have relations to one another. These relations are referred to as **domain partition or member aggregation models**. There are two dynamics which impact domain aggregation. The first is whether you have a **partial set** or a **complete set** represented by the domain members. The second dynamic is whether the set aggregates or adds up. Axis which express partial sets and describe the characteristics of non-numeric concepts cannot aggregate.

Term	Meaning/Definition	Example
Partial set (or no aggregation)	A partial set is a set which is incomplete so it can never aggregate or a set which describes non-numeric concepts which could never aggregate. A set of numeric concepts which could be aggregated but the aggregated value is illogical or never used is considered a partial set.	A partial set of the classes of cash, a set which describes the accounting policies such as the depreciation method of useful lives of each class. Subsequent events (which are never aggregated) are a partial set. The aggregate value of the useful lives of PPE (a numeric value) is a partial set as the value is illogical.
Complete flat set	A complete flat set is a set which is both complete and characterizes a numeric concept which can be aggregated. A complete flat set is similar to a [Roll Up] information model. The aggregation scheme is that the members of the list aggregate to the parent of those members.	A value of all classes of property, plant and equipment and the value of each class of property, plant and equipment is a complete flat set.



Term	Meaning/Definition	Example
Complete hierarchical set	A complete hierarchical set is a set comprised of a collection of complete flat sets. A business rule will always describe the aggregation scheme.	A breakdown of revenues by geographic area whereby the domain of geographic areas has a hierarchy of geographic regions such as "North America" which makes up one hierarchy and countries such as "United States" and "Canada" which comprise a second hierarchy nested within the first hierarchy.
Complex set	A complex set is a set which has some other set of complex relations expressed within a business rule.	Some complex disclosure.

19.16. Business rules

A **business rule** is a relation between facts. Business rules can be used to verify reported facts within a financial report.

Term	Meaning/Definition	Example
Identifier	A unique identifier of a concept, its name. (i.e. not the id attribute)	Assertion_RollForward_CashFlows_Re conciles
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "labels collection" is different than the standard label. But, this is part of the labels collection from a syntax perspective.)	Roll forward: the concept us-gaap:CashAndCashEquivalents for the beginning of the period plus us-gaap:CashNetChange reconciles to the balance of cash at the end of the period.
Network	The network which the business rule is associated.	http://www.Company.com/CashFlowStatement
Rule	Variable_Cash(beginning) + Variable_ChangeInCash = Variable_Cash (ending)	The actual business rule.

19.17. Labels

Additional labels (i.e. beyond the standard label) for a concept, axis, table, domain, member, line items, other than the standard label which is required and a property of the element.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the label.	us-gaap_CashAndCashEquivalents
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "label collection" is different than the standard label.) (This is a collection)	Cash and Cash Equivalents, Beginning Balance
Language	Language of the label	en-US
Label Role	What the label is used for, for example: standard label, beginning period label, ending period label, terse label, negated label, etc.	http://www.xbrl.org/2003/role/period-start

HINT: Labels can have different roles. Common roles are the standard role, beginning period labels, ending period labels, terse labels, negated labels.



19.18. References

A concept, table, domain, member, line items may be described by a collection of references. US GAAP taxonomy concepts have references. Extension concepts will not have references.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the reference.	us-gaap_CashAndCashEquivalents
Reference Role	What the reference is used for, for example: comment, general information, measurement, etc.	
Reference part (collection)	Collection of reference parts	Chapter, page, section, line, etc.



20. APPENDIX: Analysis of 1474 SEC XBRL Filings

An analysis of 1474 SEC XBRL financial filings between 2010-07-28 and 2011-02-28 was undertaken to examine how filers were using the US GAAP Taxonomy in order to make recommendations on how to use and improve the taxonomy. Information about this analysis can be found here:

<http://www.xbrlsite.com/2011/Analysis/>

The list of filings analyzed was obtained from reading the XBRL Cloud Edgar Dashboard as of approximately February 28, 2011. The list of filers represents approximately one quarter worth of SEC XBRL filings.

For the analysis, I looked for a number of financial concepts which I would have expected to find to see if they did or did not exist.

My conclusion is that at this core level, there is a very high probability that the expected concepts were found as anticipated.

20.1. Assets

Of the 1474 filings, 1472 (99 plus percent) used the concept "us-gaap:Assets" to express total assets on the balance sheet. Of the two filings which did not, one reported "us-gaap:AssetsNet" (used a net assets approach on balance sheet) and the other was a trust.

20.2. Liabilities and Equity

Of the 1474 filings, 1470 (99 plus percent) used the concept "us-gaap:LiabilitiesAndStockholdersEquity" (1) or "us-gaap:LiabilitiesAndPartnersCapital" (2) to express total liabilities and equity on the balance sheet. Of the four filings which did not, one used the concept "us-gaap:Assets" and the concept "us-gaap:Liabilities", but created its own concept for total liabilities and equity which is rather odd. The other three were trusts.

20.3. Equity

Of the 1474 filings, 834 (57 percent) used the concept "us-gaap:StockholdersEquityIncludingPortionAttributableToNoncontrollingInterest" (1); 606 (41 percent) used the concept "us-gaap:StockholdersEquity" (2); 24 (2 percent) used the concept "us-gaap:PartnersCapital" (3); for a total of 1464 (99 percent) to express total equity on the balance sheet. Of the ten other filings which did not, 4 appear to be regulated energy companies created a concept similar to "Common Stockholders' Equity"; one was a partnership and created a concept "Total Members' Equity" and 4 were trusts.

20.4. Income from Continuing Operations before Tax

Of the 1474 filings, 1070 (73 percent) used the concept "us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesMinorityInterestAndIncomeLossFromEquityMethodInvestments" (1); The remaining 404 did a number of different things, the number is too high to analyze at this point. Of those 404, 98



had "Gross Profit" on their income statement. I have seen at least 10 filings which created a their own concept and called it something similar to "Income from continuing operations before tax" or something to that affect.

20.5. Net Income (Loss)

Of the 1474 filings, 1247 (85%) used the concept "us-gaap:ProfitLoss" and their label "Net Income (Loss)" (the US GAAP Taxonomy concept with the standard label "Net Income (Loss), Including Portion Attributable to Noncontrolling Interest" to express what amounted to "Net Income (Loss)". There were two common mistakes. The first common mistakes were to use "Net Income (Loss) Attributable to Parent" (the concept us-gaap:NetIncomeLoss) if they did not have a noncontrolling interest. The second common mistake was to use ""Net Income (Loss) Attributable to Common Stockholders" (the concept us-gaap:NetIncomeLossAvailableToCommonStockholdersBasic) which is a subtotal which should only be used should preferred dividends of other adjustments are reported.

20.6. Revenue

Of 1474 filings, 1383 (94 percent) used one of the following 8 concepts to express revenues:

- us-gaap:Revenues
- us-gaap:SalesRevenueNet
- us-gaap:SalesRevenueServicesNet
- us-gaap:SalesRevenueGoodsNet
- us-gaap:InterestAndDividendIncomeOperating
- us-gaap:HealthCareOrganizationRevenue
- us-gaap:RealEstateRevenueNet
- us-gaap:RegulatedAndUnregulatedOperatingRevenue

The remaining 91 filings (6 percent) used a wide variety of more detailed concepts to express revenues such as:

- us-gaap:RevenueOilAndGasServices
- us-gaap:ContractsRevenue
- us-gaap:AdvertisingRevenue
- us-gaap:ElectricUtilityRevenue

This appears to be two different strategies for expressing revenues.

20.7. Cost of Goods Sold

Of 1474 filings, 972 (66 percent) used one of the following concepts to express cost of goods sold:

- us-gaap:CostOfGoodsSold
- us-gaap:CostOfGoodsAndServicesSold
- us-gaap:CostOfServices
- us-gaap:CostsAndExpenses



20.8. Gross Profit

Of 1474 filings, 544 (37 percent) used us-gaap:GrossProfit. This seems to indicate that approximately one-third of filers use a multi-step income statement format and two-thirds use a single step format.

20.9. Operating Income (Loss)

Of 1474 filings, 1120 (76 percent) used us-gaap:OperatingIncomeLoss.

20.10. Net Changes in Cash

Of the 1474 filings, 1464 (99 plus percent) used the concept "us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease" to express the net changes in cash. Of the 10 which did not, one was a trust and a disproportionate number were insurance companies most of which created their own concept. One insurance company did not show net changes in cash on the cash flow statement. Two companies reported discontinued operations.

20.11. Cash and Cash Equivalents

Of 1474 filings, 1421 (96 percent) used us-gaap:CashAndCashEquivalentsAtCarryingValue to express "Cash and Cash Equivalents" on their balance sheet and cash flow statement. Of the other 53 filers, 52 of them used one of the following concepts:

- us-gaap:CashCashEquivalentsAndFederalFundsSold
- us-gaap:CashCashEquivalentsAndShortTermInvestments
- us-gaap:CashAndDueFromBanks
- us-gaap:Cash
- us-gaap:FederalFundsSoldAndSecuritiesPurchasedUnderAgreementsToResell

Interestingly, only two filer created an extension concept for cash. One filer, while they labelled their concept "Cash and Cash Equivalents", the name was aro:CashAndCashEquivalentsIncludingCreditCardReceivables. (see <http://www.sec.gov/Archives/edgar/data/1168213/000116821310000075>)

The other filer labelled their concept "Cash" and named it "dfg:RestrictedAndUnrestrictedCash" (see <http://www.sec.gov/Archives/edgar/data/859139/000095012310103206>) with the documentation "Restricted and Unrestricted cash available for day-to-day operating needs."

In 100% of all cases, the cash concept used on the balance sheet and the cash concept used on the cash flow statement appear to be the same concept which is what I would have expected.



21. APPENDIX: Top XBRL Technical Syntax Related Modeling Tips

The following is a summary of the top 10 XBRL taxonomy and XBRL instance creation tips which will help you create quality systems which make use of XBRL, helping a business domain achieve what they are striving to achieve.

Generally business users will never need to deal with these sorts of issues as software will hide the issues from users. However, today software does not hide these XBRL technical syntax related issues. As such, we point them out.

21.1. Define a clear, unambiguous, formally documented financial report model layer

Define a clear, unambiguous, formally documented financial report model layer. At a minimum the XBRL Abstract Model 2.0 should be followed. Alternatively, some model terminology which is consistent with that model should be clearly defined.

For more information see:

<http://xbrl.squarespace.com/journal/2012/6/15/xbrl-international-releases-semantic-model-public-working-dr.html>

21.2. Define a clear, unambiguous, formally documented information model

Define a clear, unambiguous, formally documented information model. One of the biggest problems XBRL taxonomies have is inconsistent information models. An information model is simply how the relations within a taxonomy are structured. This is of particular importance when extensibility is employed within your system. For example, the US GAAP Taxonomy creates structures such as [Table]s, [Roll Forward]s, and other such structures. They explain how these structures are to be created. You should do the same in order to be able to evaluate how your taxonomy is created and in order to explain how your taxonomy should be extended. Taxonomies are simply not random. Make yours clear, unambiguous, and formally document it so those extending your taxonomy can follow the rules.

21.3. Don't mix dimensional and non-dimensional models

Don't mix dimensional and non-dimensional models; personally I prefer a dimensional model. If you use XBRL Dimensions, then every concept should be attached to a hypercube thus requiring the dimensions of the concept to be explicitly identified. Mixing a dimensional model and a non-dimensional model causes headaches which can be avoided by simply using one model or the other. Since business information is inherently dimensional anyway, I personally prefer a dimensional model, using XBRL Dimensions consistently throughout your XBRL taxonomy. Mixing models also make using XBRL Formula much trickier.

21.4. Make each hypercube unique (use isomorphic hypercubes)

Make each hypercube unique. There are advantages to making each hypercube in an XBRL taxonomy unique. Take a look at this taxonomy. Search for the line items



which say "Statement [Table]". You can see what I am talking about more clearly by looking at this. What is the point of using the same hypercube for each set of dimensions and concepts? Why not use a different unique hypercube name for each hypercube? This has a number of benefits, including making the extended link as any form of semantics unnecessary. The FINREP taxonomy makes each hypercube unique.

21.5. Close all hypercubes

Be sure to require that all hypercubes be closed. All hypercubes you create which have an "all" role should be closed (and all your hypercubes which have a "notAll" role should be open if you happen to use those). Leaving a hypercube open basically lets anything exist in the context. What is the point of that? Be explicit and close all your hypercubes.

21.6. Provide dimension-defaults for each dimension

Each dimension should have a dimension-default. Much confusion exists as to what dimension-defaults actually do and software interoperability can be an issue with dimension-defaults. To achieve maximum reliability, predictability and therefore safety always provide a dimension-default.

The purpose of a dimension-default is to enable one hypercube to intersect with one or more other hypercubes.

21.7. Clearly differentiate members and concepts

Always clearly differentiate dimension values and concepts. When creating an XBRL taxonomy you don't want users of the taxonomy to mix up what is a dimension value (such as a domain or a member) and what is a concept which can be used to report a value. The US GAAP Taxonomy differentiates domains and members by appending "[Domain]" or "[Member]" to such dimension values and assigning those types of elements to a special type value of "domainItemType". You could also use the substitutionGroup to differentiate these two types of XML Schema elements. That way, users don't get confused.

21.8. Use either segment or scenario, there is no real reason to use both

Use either segment or scenario, there is no real reason to use both. Eliminating unnecessary options makes things easier. There is no semantic difference between using the segment context element and the scenario context element. Besides, if different XBRL instance creators use different elements, comparability then becomes an issue. You can avoid both of these problems by simply using one or the other. Which is as easy as tossing a coin really. Using scenario seems to be the best, but the US GAAP Taxonomy suggests segment. You can pick.

21.9. Use XBRL Dimensions or use tuples, don't use both in the same XBRL taxonomy

Tuples and XBRL Dimensions are redundant in that they are basically two syntaxes for doing what amounts to the same thing. Each has its pros and cons. Pick and use one or the other; personally I prefer XBRL Dimensions. The biggest problem with



using both tuples and XBRL Dimensions is explaining when to use one and when to use the other. The primary reason I don't like tuples is because they significantly inhibit extensibility. Basically, tuples add back the XML content model with XBRL worked to remove. XBRL Dimensions can do everything that tuples can do, but tuples are not nearly as functional as XBRL Dimensions.

21.10. *Use decimals or precision, don't allow both*

Precision and decimals are redundant, pick and use one or the other; personally I prefer decimals. The precision and decimals attribute on a fact value serves the same purpose. There is pretty much universal agreement that only one of these should have been created. Having both causes more work when working with XBRL instance information which contains both. FRTA suggests that decimals be used. So does the US GAAP Taxonomy. I agree and suggest using decimals because it is easier for business users to understand.

21.11. *Avoid complex typed members unless you really need them*

Don't use complex typed members for a dimension unless you really need them. Complex typed members allow literally any XML you can think of as a possible value, except for XBRL itself. It is way too much to ask for a software application to implement something like this. Further, using it to compare to entities effectively can be quite challenging. You can achieve the same results by using a number of simple typed members, which are much easier to build an interface for and easier to make work. Complex typed members for dimension values are far more trouble than they are worth and should be avoided.

21.12. *Be explicit, consistent and concise when expressing taxonomy information*

Don't be redundant in expressing taxonomy information. If you express things twice in two different ways, you create work in that you now have to make sure the two things you are expressing are in sync. For example, expressing information in a presentation linkbase and also in a definition linkbase causes such redundant information. The FINREP taxonomy figured this out and does not make a presentation linkbase available with its taxonomy. In the short term this can be a bit of a challenge to effectively do because most software applications rely on the presentation linkbase. Overtime and as software gets better, this will not be an issue. First, realize that you are creating redundant information. Second, if you can, you may want to consider not making this redundant information available in your XBRL taxonomy.

21.13. *Consider ditching XBRL calculations*

Give serious consideration to using XBRL Formula rather than XBRL calculations. XBRL Formula is several orders of magnitude more powerful than XBRL calculations. Also, XBRL calculations have their idiosyncrasies. More and more people are moving to XBRL Formula. You may want to give strong consideration to abandoning XBRL calculations and using XBRL Formula instead. XBRL calculations can be easier in certain situations. The trade-offs should be understood and evaluated in making your decision.



21.14. *Realize that XBRL instance contexts and XBRL Dimensions hypercubes constrain facts differently*

XBRL has two mechanisms for defining contextual information and those two ways work differently. The two ways are XBRL contexts and XBRL Dimensions hypercubes. Two specific pieces of an XBRL context, entity identifier and period, must exist on every XBRL Fact. They are unconstrained and not impacted by any context constraints defined by an XBRL Dimensions hypercube. Segment and scenario information not defined by XBRL Dimensions works this way also. XBRL Dimensions hypercubes is another way of constraining information, basically the dimensions or Measures associated with a Fact.



22. APPENDIX: Benefits and Limitations of Inline XBRL

Another approach to using XBRL is Inline XBRL (iXBRL). There are advantages to iXBRL. Here is a summary of the advantages of iXBRL:

- **Decouples presentation and data model.** Using Inline XBRL allows for the "decoupling" of two things which, when dealt with together, cause problems. Inline XBRL allows the HTML aspect to deal with presentation, and therefore the creator of the data model is free to create a good data model and not try and get the presentation they are seeking by using the XBRL taxonomy. For example, SEC XBRL filers seek a certain presentation and to get that they leverage the only thing they think they have at their disposal with is the XBRL taxonomy. Using Inline XBRL for the presentation gives one precise control of the presentation. Not having to worry about the differences in presentation and presentation nuances allows for more "freedom" in creating a sound data model.
- **Document of record.** Inline XBRL offers the possibility of having a "document of record" which is readable by both humans (i.e. the HTML aspect of Inline XBRL) and computers (i.e. the XBRL aspect of Inline XBRL). One does need to be careful to ensure that the information communicated and viewed as HTML is identical to the information a computer application reads, both should be in sync. But that does not seem that challenging and it is certainly easier than what SEC XBRL filers have to do which is keep separate HTML and XBRL documents in sync.
- **Evolutionary path.** Inline XBRL seems to offer a nice evolutionary path which a lot of people seem to need. Personally, I am very confident that most people will eventually never use that HTML rendering in favor of the dynamic or "interactive" aspects of XBRL. For example, consider what I call the "hypercube jumping" (really has more to do with dimensions) and discuss in this blog post. But Inline XBRL does not take away the possibility of these dynamic features, they are still there to use, even if the XBRL is buried in an HTML document.
- **Zero difference between XBRL and Inline XBRL.** To a computer application trying to read the information, there is zero difference between a plain ole XBRL instance and an Inline XBRL document (instance, not sure what to call it). From the computer's perspective, they are 100% interchangeable. Now, I am sure that there are probably interoperability issues and bugs which might need working through, but that is all part of the process of getting things to work on a global scale.

Because of these advantages, there is enough of a probability that the SEC could move to Inline XBRL at some point in the future. This is worth keeping in the back of one's mind.

