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"Opportunity Recognition as Pattern Recognition"

Academy of Management Perspectives

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Opportunity Recognition as Pattern Recognition

How do entrepreneurs identify opportunities for new business ventures? One possibility, suggested by research on human cognition, is that they do so by using cognitive frameworks they have acquired through experience to perceive connections between seemingly unrelated events or trends in the external world.

In other words, **they use cognitive frameworks they possess to "connect the dots" between changes in technology, demographics, markets, government policies, and other factors.**

The patterns they then perceive in these events or trends suggest ideas for new products or services—ideas that can potentially serve as the basis for new ventures.

This pattern recognition perspective on opportunity identification is useful in several respects.

1. First, it helps integrate into one basic framework three factors that have been found to play an important role in opportunity recognition: engaging in an active search for opportunities; alertness to them; and prior knowledge of an industry or market. In addition, it also helps explain interrelations between these factors (e.g., the fact that active search may not be required when alertness is very high).
2. Second, a pattern recognition perspective helps explain why some persons, but not others, identify specific opportunities.
3. Third, a pattern recognition framework suggests specific ways in which current or would-be entrepreneurs can be trained to be better at recognizing opportunities.

Between Seemingly Unrelated Events

In short, knowledge—especially knowledge concerning specific markets or industries— often provides a solid base for opportunity recognition, and the broader this foundation, the more opportunities present themselves, and the higher the quality of such opportunities entrepreneurs will tend to recognize.

Pattern recognition is the process through which specific persons perceive complex and seemingly unrelated events as constituting identifiable patterns. In essence, it involves recognition of links between apparently unrelated trends, changes, and events—links suggestive of patterns connecting them together. The patterns suggested by these links or connections then become figures instead of undifferentiated (and often overlooked) ground. **In essence, then, pattern recognition, as applied to opportunity recognition, involves instances in which specific individuals "connect the dots"—perceive links between seemingly unrelated events and changes. The patterns they perceive then become the basis for identifying new business opportunities.**

Highly experienced entrepreneurs (they had started more than four ventures each), uniformly mentioned engaging in an active search, and also in restricting these searches for opportunities to areas in which they already possessed considerable knowledge. In other words, they reported engaging in a process very similar to that involved in pattern recognition—a process in which they employed their existing cognitive frameworks and knowledge to notice connections between diverse events and trends.

Opportunities and Opportunity Recognition: Some Basic Propositions

While many **definitions of the term opportunity** have been proposed, most include references to **three central characteristics: potential economic value** (i.e., the capacity to generate profit), **newness** (i.e., some product, service, or technology that did not exist previously), and **perceived desirability** (e.g., moral and legal acceptability of the new product or service in society). For purposes of this paper, then, **opportunity will be defined as a perceived means of generating economic value (i.e., profit) that previously has not been exploited and is not currently being exploited by others.**

Proposition 1: Opportunities emerge from a complex pattern of changing conditions—changes in technology, economic, political, social, and demographic conditions. They come into existence at a given point in time because of a juxtaposition or confluence of conditions which did not exist previously but is now present.

Proposition 2: Recognition of opportunities depends, in part, on cognitive structures possessed by individuals—frameworks developed through their previous life experience. These frameworks, which serve to organize information stored in memory in ways useful for the persons who possess them, serve as "templates" that enable specific individuals to perceive connections between seemingly unrelated changes or events. In other words, they provide the cognitive basis for "connecting the dots" into patterns suggestive of new business opportunities.

MECE Analysis and Decision Trees

MECE, MECE, MECE

MECE is a list. It is a list of qualities lists should have.

From *The McKinsey Mind*:

[MECE] says that when data from a category is desired to be broken into subcategories, the choice of subcategories should be

1. collectively exhaustive — i.e., the set of all subcategories, taken together, should fully characterize the larger category of which the data are part ("no gaps")
2. mutually exclusive — i.e., no subcategory should represent any other subcategory ("no overlaps")

This is desirable for the purpose of analysis: mutual exclusivity avoids the risk of double counting information, and collective exhaustion avoids the risk of overlooking information.

In plain English, MECE says that a list should have

1. No overlaps
2. No gaps

MECE widely used by management consultants. In fact it seems to have acquired the status of holy writ. According to Ethan Rasiel in *The McKinsey Way*:

MECE…is a sine qua non of the problem-solving process at McKinsey. MECE gets pounded into every new associate's head from the moment of entering the Firm. Every document (including internal memos), every presentation, every email and voice mail produced by a McKinsey-ite is supposed to be MECE. Ask any number of McKinsey alumni what they remember most about the way the Firm solves problems and they will tell you, "MECE, MECE, MECE.

http://timvangelder.com/2010/06/04/what-is-mece-and-is-it-mece/

MECE Thinking

Two areas for MECE thinking are in

1. logic trees and
2. issue trees.

Logic trees help you identify components of a problem. Start at the 20,000 foot view and move progressively downward. You may want to build multiple trees, for instance by business unit (organizational hierarchy) and functionally (production, sales, marketing, etc.) to see which leads you to the next step, the hypothesis.

Form a hypothesis of what component of the logic tree may be causing the problem. Run it by the Quick and Dirty Test (QDT): ask what assumptions you are making that must be true. Are any false? If it passes the QDT, gather data and do analysis to disprove it. This is the same as the scientific method. If you fail to disprove it, you may be on to something. Predict what could happen if the identified root cause was changed.

Issue trees let you rigorously test the hypothesis. They are different from logic trees. Logic trees are a *hierarchical grouping of elements*. Issue trees are the series of *questions or issues* that must be addressed to support or disprove a hypothesis. It becomes you roadmap for analysis.

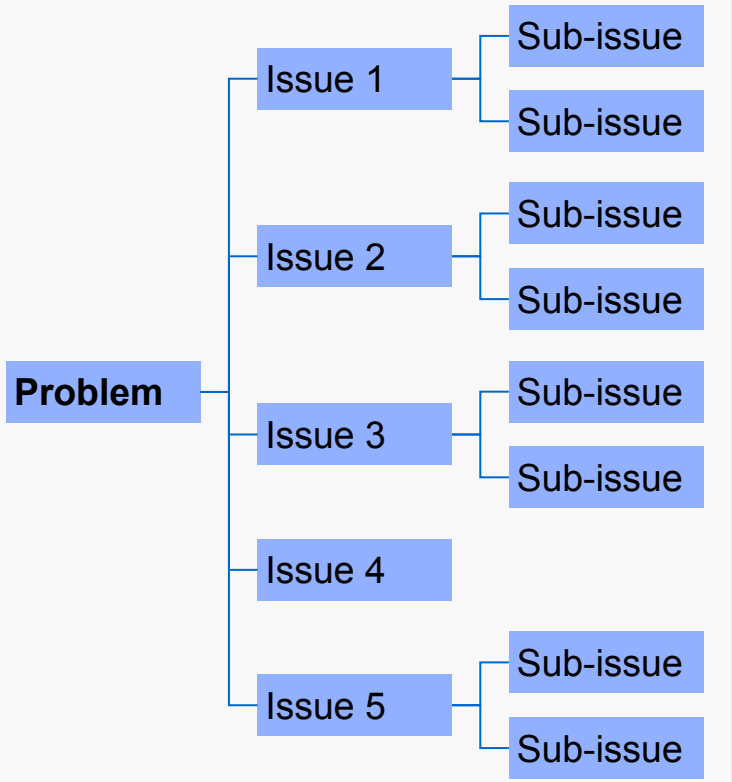
http://jawspeak.com/2011/05/01/book-review-the-mckinsey-mind-focusing-on-mutually-exclusive-collectively-exhaustive-thinking/

What is a logic tree and why is it important?

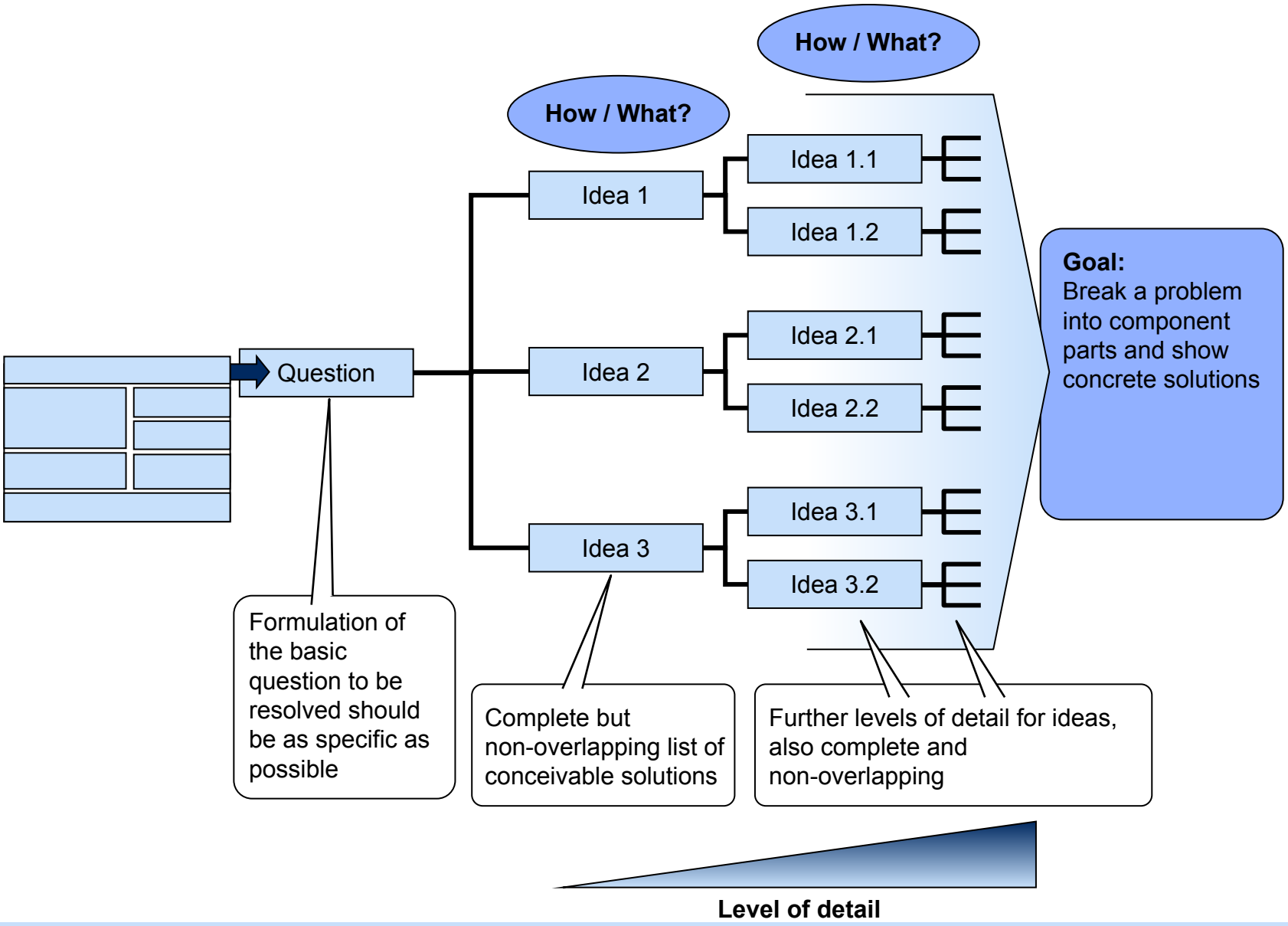
A problem solving tool that breaks a problem into discrete chunks

Why use logic trees?

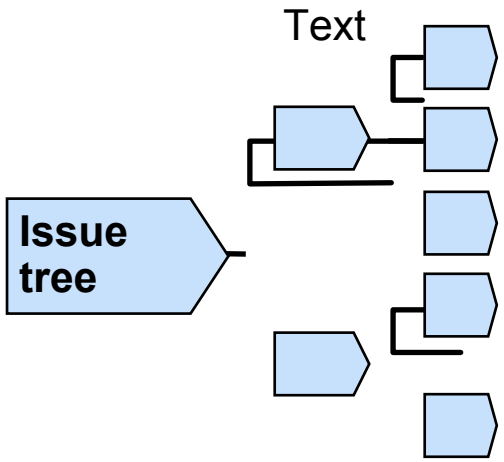
- To break a problem into component parts
- To ensure integrity of the problem solving is maintained
- To build a common under-standing within the team of the problem solving framework
- To help focus team efforts



Basic principle of the issue tree



Disaggregating a Problem



Description	Why use it?	When to use it?
▪ Decomposes an issue into smaller sub-issues **(e.g., measures, criteria)** ▪ Sub-issues answer the question "What?" or "How?"	▪ Helps disaggregate problem into individual pieces ▪ Helps divide the work among team members	▪ Early in the problem solving process, when you know little about the problem

The issue tree is a valuable tool to disaggregate a problem into core sub-questions that need to be addressed to answer the main question

Example: A MECE Issue Tree

Description

The issue tree deconstructs an issue into its sub-issues and the sub-issues into its sub-issues and so forth.

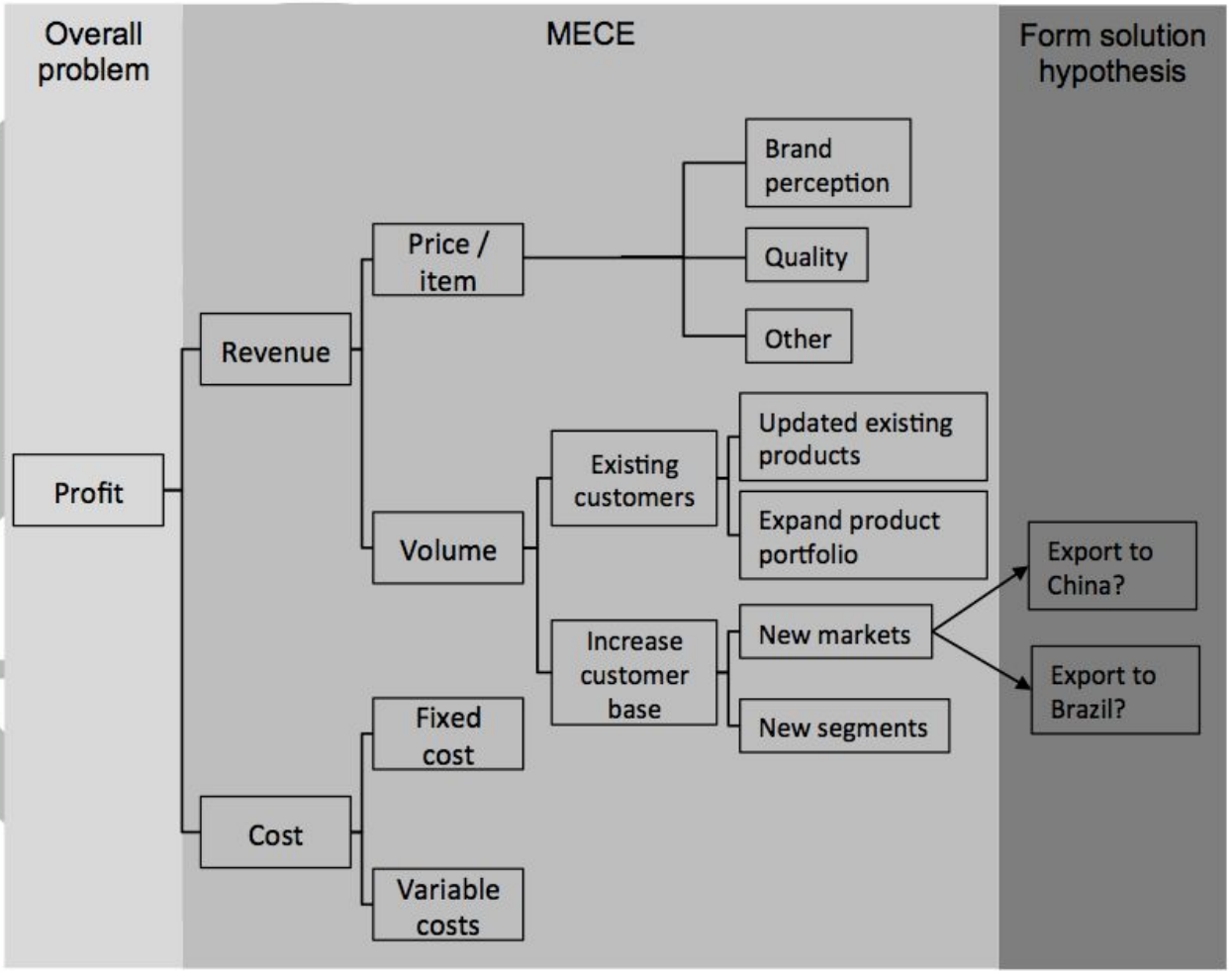
A complete issue tree makes identification of possible solutions easier and guides the problem solving process.

In this example an issue tree is constructed around a profit problem in a company, so in order to know how to fix the profit problem, a MECE issue tree can be constructed.

The overall issue is profit. On the next level, profit is deconstructed into revenue and cost. Please note that revenue and cost are the only drivers of profit and they are not overlapping - henceforth the issue tree is MECE at this level.

Looking at revenue this is deconstructed into "price / item" and "volume," again this is two MECE elements of revenue.

This issue tree is MECE but all branches are not fully developed.



Note: No issue tree is the only right way to structure a problem but many are wrong, which is why making it MECE must be top priority.

Hypothesis Driven Problem Solving

Description

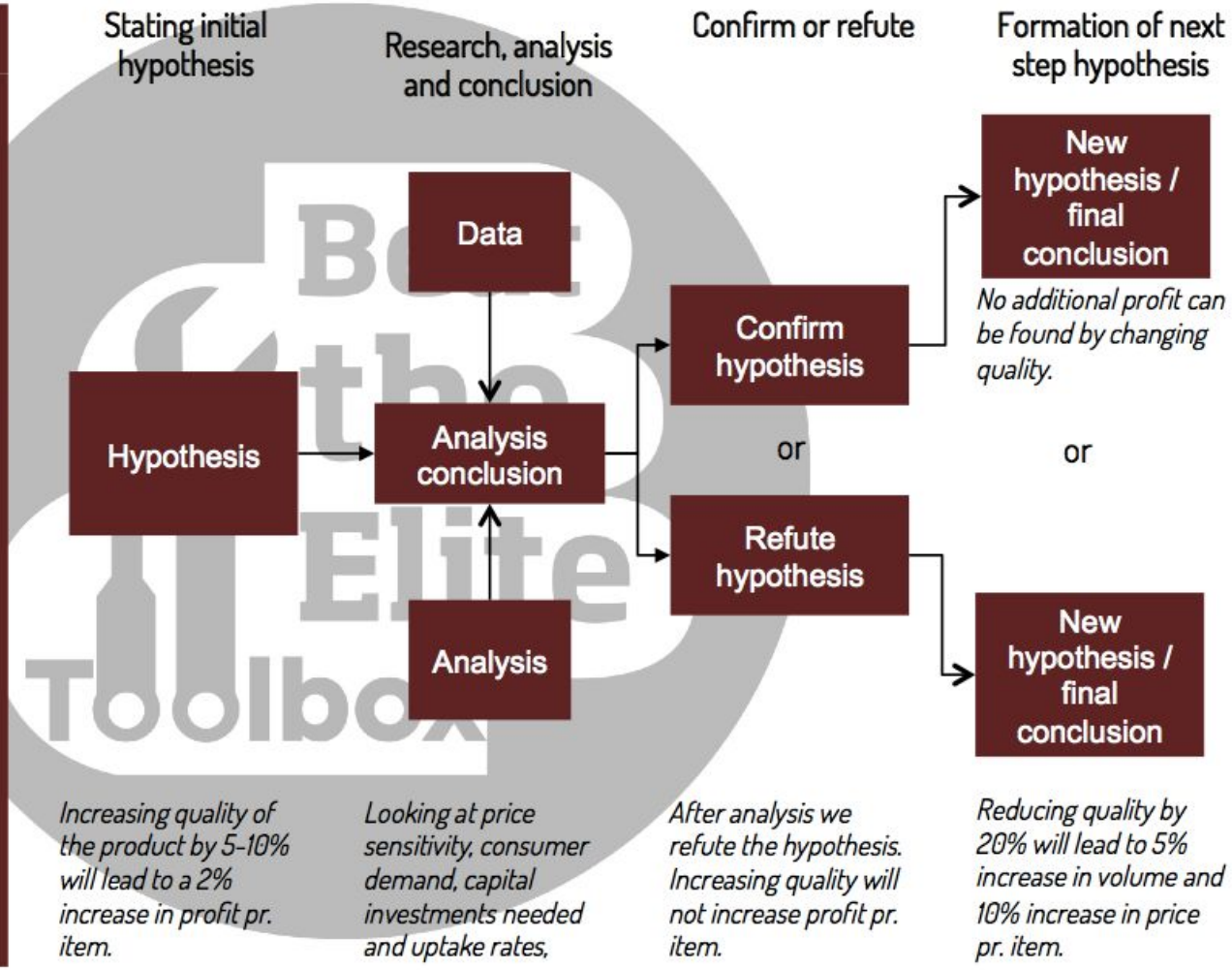
Hypothesis-driven problem solving is, as the name states, all about forming a hypothesis and then testing whether one is right or wrong about the initial hypothesis.

As an example look at the figure on the right. This example describes the hypothesis that changing the quality of the product will lead to an increase in the price and thus the profitability of the product sold.

First the initial hypothesis is stated, this is then followed by an analysis which can lead to either confirming or refuting the initial hypothesis. After this, a series of new hypothesis can then be formed, here are two examples:

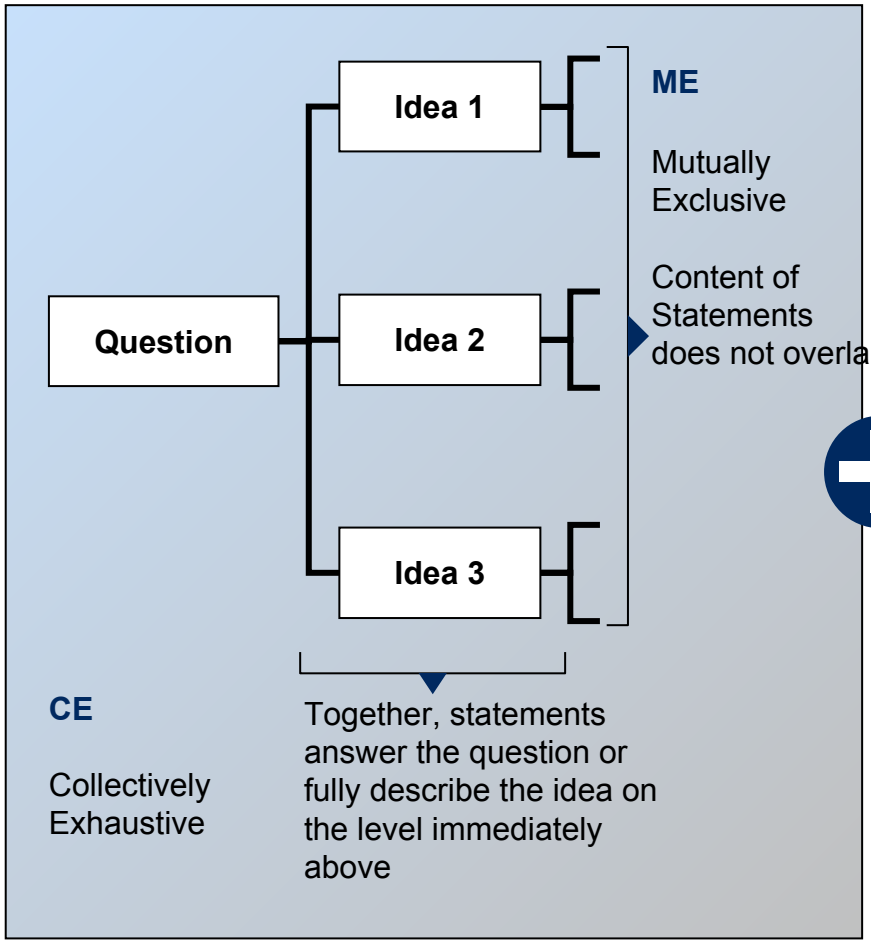
Do not look for profit by changing quality since the analysis shows that neither in- or decreasing quality will change profitability.

Or check if reduction of quality instead will lead to increased profitability.

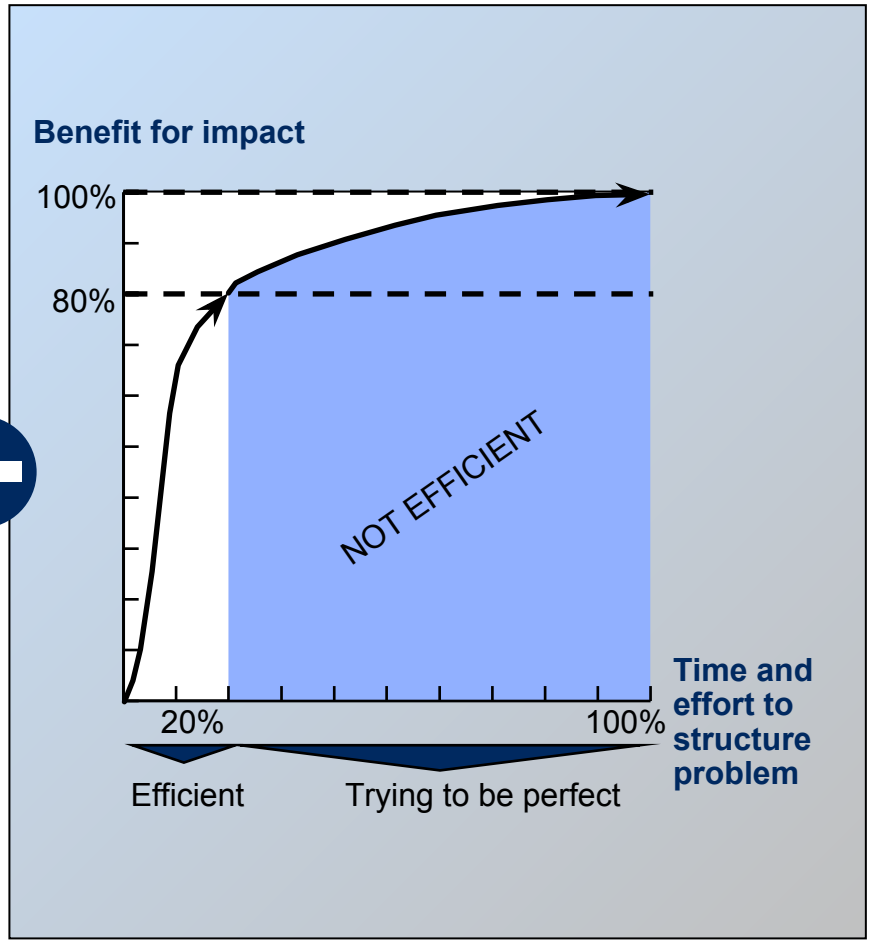


Good issue trees meet MECE and 80/20 rule requirements

Mutually Exclusive Collectively Exhaustive



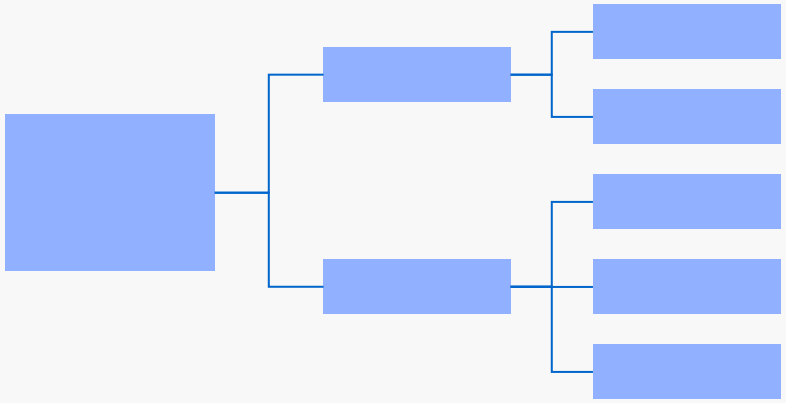
80/20 rule



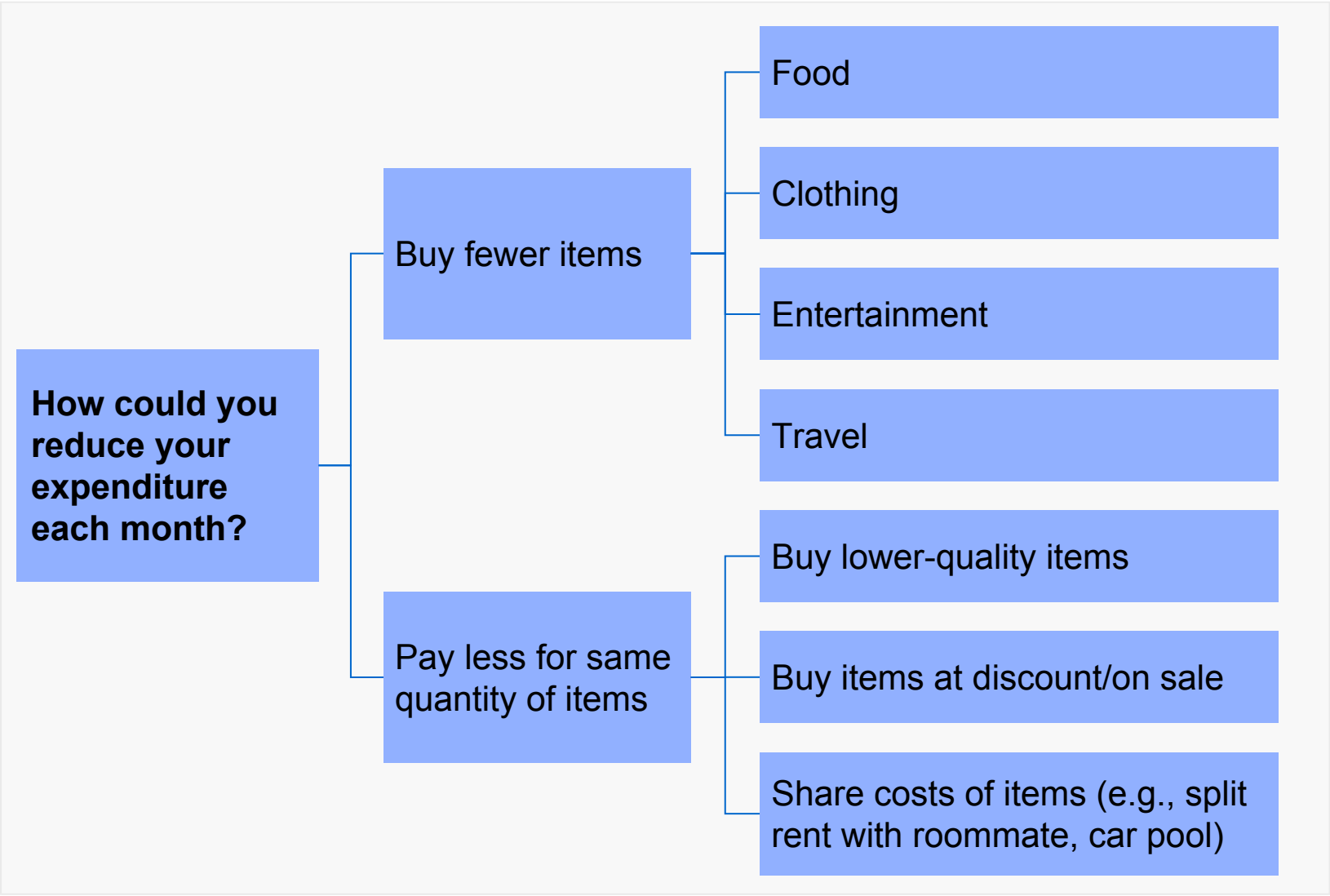
Let’s try out an example

Create an issue tree to address the following:

How can you reduce monthly shopping expenses?



Example Issue tree solution



Summary: Doing MECE

1. Small pieces cannot overlap.
2. Sum of small parts must equal the big group.
3. Small elements must parallel each other, i.e. they must be in the same class or category.
4. Stick to the magical three, in which the optimal number of bullets, ideas, and elements is always 3. Sometimes, we may use 2 or 4, but over 5 is too many.

For example:

https://www.youtube.com/watch?v=PdzH3Dfn8_g

https://www.youtube.com/watch?v=Io4RcT38D2M

Appendix:
The Pyramid Principle

Barbara Minto

(1987)

The Mind Imposes Order

That the mind automatically imposes order on everything a round it has long been recognized. Essentially, it tends to see any sequence of things that occur together as belonging together, and therefore sets a bout imposing a logical pattern on them.

The value of seeing things in logical units is, of course, immense. To demonstrate, read the following pairs of nouns,* which are normally not related to each other.

LAKE	•	SUGAR
BOOT	•	PLATE
GIRL	•	KANGAROO
PENCIL	•	GASOLINE
PALACE	•	BICYCLE
RAILROAD	•	ELEPHANT
BOOK	•	TOOTHPASTE

Now try to "organize" them by picturing a situation in which each one might be associated-such as the sugar being dissolved in the lake or the boot sitting on the plate. Then cover up the list on the right-hand side and try to remember them through reading the list on the left-hand side. Most people find that they can recall them all without hesitation.

The Magical Number Seven

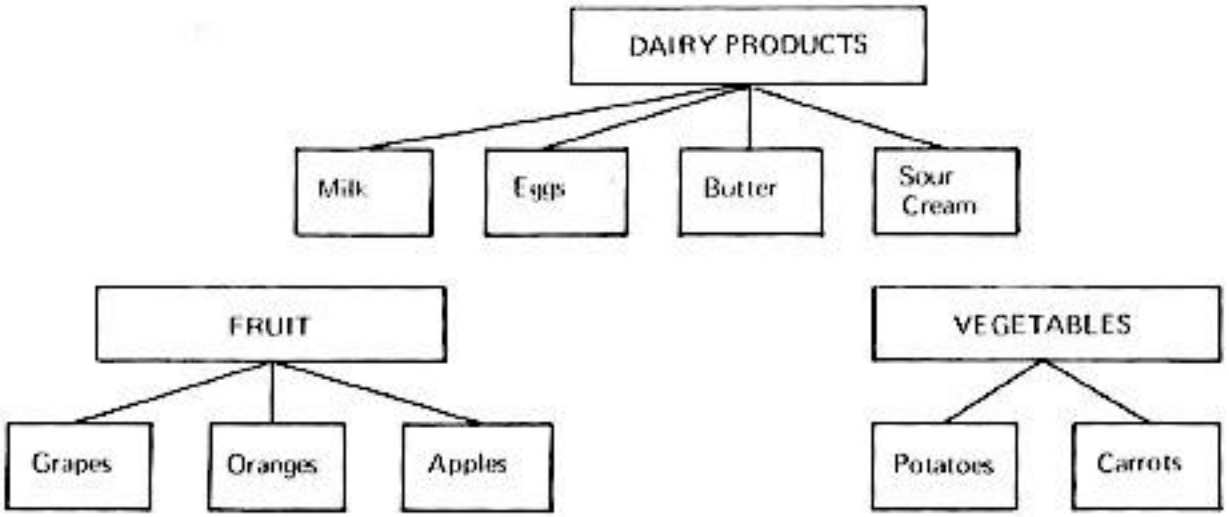
There is a limit to the number of ideas you can comprehend at any one time…. The major problem is that you've run into the magic number seven. This is a phrase coined by George A. Miller in his treatise, 'The Magical Number Seven, Plus or Minus Two."* What he points out is that the mind cannot hold more than about seven items in its short-term memory at any one time. Some minds can hold as many as nine items, while others can hold only five (I'm a five myself). A convenient number is three, but of course the easiest number is one.

What this means is that when the mind sees the number of items with which it is being presented begin to rise above four or five, it starts to group them into logical categories so that they can be retained.

To demonstrate how this helps, read the list below and categorize each idea in this way as you come to it. You will very likely find that you remember them a ll.

GRAPES ORANGES MILK POTATOES EGGS CARROTS BUTTER APPLES SOUR-CREAM

If you try to visualize this process, you will see that you have created a set of pyramids of logically related items.



The Need to State the Logic

Now clearly, **it is not enough simply to group the ideas in a logical way without also stating to yourself what the logic of the relationship is.** The point in grouping was not just to move from a set of nine items to separate sets of four, two, and three items. That still comes to nine. What you want to do is move above the nine, to three.

This means that instead of remembering each of the nine items, you remember only the three categories into which they fall. You are thinking one level of abstraction higher, but because the thought is at a higher level, it suggests the items below it. And, because the relationship is not a contrived one as was the case in the exercise about the lake and the sugar, it is much easier to keep in mind.

All mental processes (e.g., thinking, remembering, problem solving) apparently utilize this grouping and summarizing process, so that the information in a person's mind might be though t of as being organized into one giant conglomeration of related pyramids. If you think about communicating to that mind, you can see that the problem is o ne of ensuring that what you say will fit somewhere into the existing pyramids.

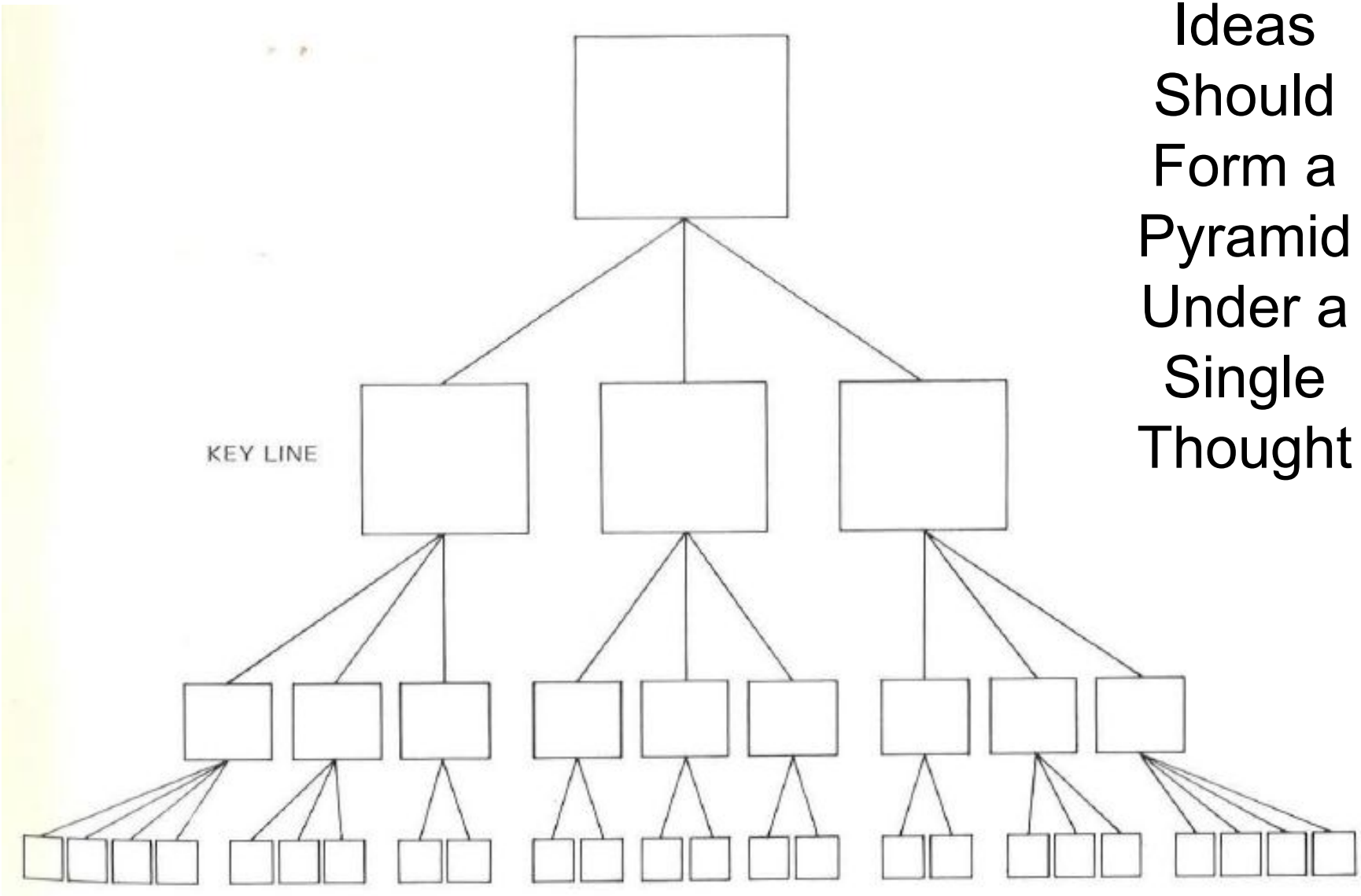
Now we come to the real problem of communicating. You can "see" these groupings of items quite clearly. To communicate them means to ensure that the other person "sees" them in the same way. But… you can only present them one by one. Surely, **the most efficient way to do this would be to present the category first and then the items. That is, to order the ideas from the top down.**

Top Down

Controlling the sequence in which you present your ideas is the single most important act necessary to clear writing. The clearest sequence is always to give the summarizing idea before you give the individual ideas being summarized. I cannot emphasize this point too much.

Remember that the reader (or listener) can only take the sentences in one at a time. You know he will assume that those ideas that appear together logically belong together. If you do not tell him in advance what the relationship is, but s imply give the ideas one at a time, he will automatically look for similarities by which he can group the points being expressed, so that he can explain to himself the significance of the groupings.

To summarize, a reader remembers from the top down as a matter of course. He also comprehends more readily if ideas are presented from the top down. All of this suggests that the clearest written documents will be those that consistently present their information from the top down, in a pyramidal structure.



Ideas Should Form a Pyramid Under a Single Thought

The Rules

1. **Ideas at any level of the pyramid must always be summaries of the ideas grouped below them.** The first rule reflects the fact that the major activity you carry out in thinking and writing is that of abstracting to create a new idea out of the ideas grouped below. As we saw above, the point of a paragraph is a summary of its sentences, just as the point of a section is a summary of the points of its paragraphs, etc.
2. **Ideas in each grouping must always be the same kind of idea**. If what you want to do is raise your thinking only one level of abstraction above a grouping of ideas, then the ideas in the grouping must be logically the same. In writing you want to state the idea directly implied by the logic of the grouping, so the ideas in the grouping must all fall into the same logical category. Thus, if the first idea in a grouping is a reason for doing something, the other ideas in the same grouping must also be reasons for doing the same thing. If the first idea is a step in a process, the rest of the ideas in the grouping must also be steps in the same process. If the first idea is a problem in the company, the others in the grouping must be related problems, and so on.
3. **Ideas in each grouping must always be logically ordered.** That is, there must be a specific reason why the second idea comes second, and cannot come first or third…. there are only four possible logical ways in which to order a set of ideas:
    a) Deductively (major premise, minor premise, conclusion)
    b) Chronologically (first, second, third)
    c) Structurally (Boston, New York, Washington)
    d) Comparatively (first most important, second most important, etc.)

The order you choose reflects the analytical process you used to form the grouping. If it was formed by reasoning deductively, the ideas go in argument order; if by working out cause-and-effect relationships, in time order; if by commenting on an existing structure, the order dictated by the structure; and if by categorizing, order of importance. Since these four activities-reasoning deductively, working out cause-and-effect relationships, dividing a whole into its parts, and categorizing- are the only analytical activities the mind can perform, these are the only orders it can impose.

Substructures Within the Pyramid

Because of the specificity of the pyramid rules, if you know what your ideas are before you begin to write, you can relatively easily form them into a proper pyramid. Most people when they sit down to write, however, have only a hazy notion of their ideas (if that). Nor should they expect much more. No one can know precisely what he thinks until he has been forced to symbolize it – either by saying it out loud or by writing it down – and even then the first statement of the idea is likely to be less precise than he can eventually make it.

Consequently, you cannot hope just to sit down and start arranging your ideas into a pyramid. You have to discover them first. But **the pyramid dictates a rigid set of substructures that can serve to speed the discovery process. These are:**

1. The vertical relationship between points and subpoints
2. The horizontal relationship within a set of subpoints
3. The narrative flow of the introduction

The Vertical Relationship

Normal prose is written one-dimensionally, in that it presents one sentence after another, more or less vertically down the page. But that vertical follow-on obscures the fact that the ideas occur at various levels of abstraction. Any idea below the main point will always have both a vertical and a horizontal relationship to the other ideas in the document.

The vertical relationship serves marvelously to help capture the reader's attention. It permits you to set up a question / answer dialogue that will pull him with great interest through your reasoning.

What you put in to each box in the pyramid structure is an idea. I define an idea as a statement that raises a question in the reader's mind because you are telling him something he does not know.

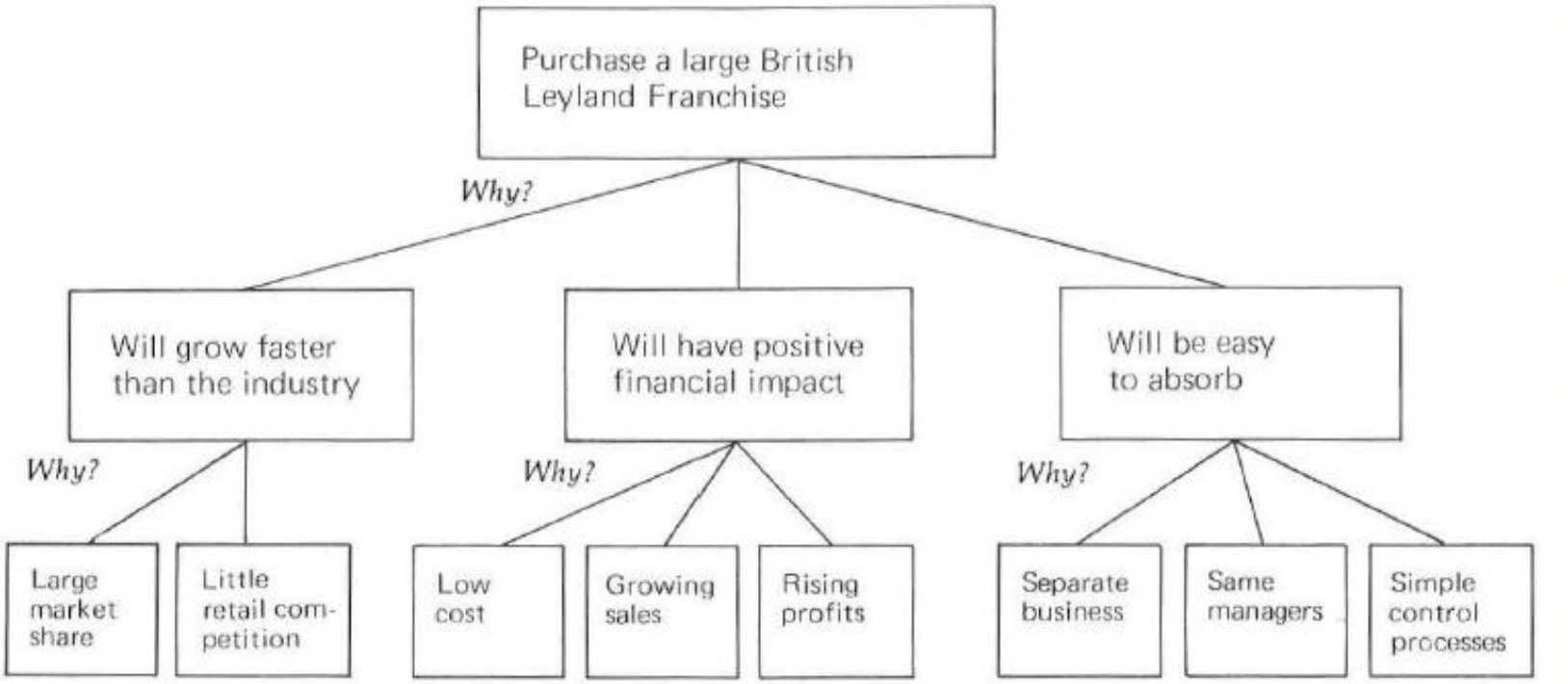
Making a statement to a reader that tells him something he does not know will automatically raise a logical question in his mind – for example, Why? or How? Or Why do you say that? The writer is now obliged to answer that question horizontally on the line below. In his answer, however, he will still be telling the reader things he does not know, so he will raise further questions that must again be answered on the line below.

The writer will continue to write, raising and answering questions, until he reaches a point at which he judges the reader will have no more logical questions.

Example

You can see this same technique at work in a piece of business writing (Exhibit 3). Here we have the structure of a 20-page memorandum recommending the purchase of a British Leyland franchise (several years ago, obviously). It is a good buy for three reasons, and underneath each reason is the answer to the further question raised in the reader's mind by making this point. The reasoning is so clearly stated that the reader is in a position to determine whether he disagrees with the writer's reasoning, and to raise logical questions concerning it.

Exhibit 3 *All documents should reflect the question/answer dialogue*



The Horizontal Relationship

In deciding what to say on the line below, not only must the points you include answer the question raised by the point above, they must also answer it logically. That is, they must present a clear inductive or deductive argument, one or the other, but not both at once. These are the only two types of logical relationships possible in a grouping.

A deductive grouping presents an argument in successive steps. That is, the first idea makes a statement about a situation that exists in the world today. The second idea comments on the subject or the predicate of that statement, and the third idea states the implication of those two situations existing in the world at the same time. Thus, the grouping would have the following form:

- Men are mortal.
- Socrates is a man.
- Therefore Socrates is mortal.

To move up a level of abstraction from a deductive grouping, you summarize the argument, with your summary resting heavily on the final point: "Because Socrates is a man he is mortal."

An inductive grouping, by contrast, will take a set of ideas that are related simply by virtue of the fact that you can describe them all by the same plural noun (reasons for, reasons against, steps, problems, etc.). The form of this argument would be:

- French tanks are at the Polish border.
- German tanks are at the Polish border.
- Russian tanks are at the Polish border.

To move upward here, you draw an inference based on your assessment of what is the same about the points – i. e., they are all warlike movements against Poland. Thus, your inference would be something like "Poland is about to be invaded by tanks."

Deductive and Inductive Relationships

In writing, if your answer is deductive you know you must have an argument in which the second point comments on the subject or predicate of the first , and the third point draws a "therefore" from the previous two.

If it is inductive, you know the ideas in the grouping must be logically alike and can be designated by a plural noun.

Given this knowledge, you can see that any one idea in the pyramid implies all the others. Consequently, you could start to build your pyramid anywhere, with a single idea, adding the other ideas as they were demanded – either up or down or sideways. But there is one more thing you need to know before you venture off to build a pyramid of your own. And that is the question to which your document must give the answer. You determine that by tracing the narrative flow of the introduction.

The Introductory Flow

We saw earlier that the pyramid structure permits you to carry on a question / answer dialogue with your reader. This question / answer dialogue cannot be counted on to engage his interest unless the statement that starts it off is relevant to him. The only way you can be confident of its relevance is to make sure that it directly answers a question you have identified as already existing in his mind.

I said earlier that you write primarily to tell people what they don't know. But a reader wants to find out what he doesn't know only if he needs to do so. If he has no need, he will have no question, and vice versa.

Thus, you make sure your document is of interest by directing it toward answering a question that already exists in the reader's mind, or that would exist if he thought for a minute about what is going on around him. The introduction identifies that question by tracing the history of its origin.

Since this history will be in the form of a narrative of events, it should follow the classic narrative pattern of development. That is, it should begin by establishing for the reader the time and place of a Situation. In that Situation something will have occurred (known as the Complication) that caused him to raise (or would cause him to raise) the Question to which your document will give him the Answer.

This classic pattern of story-telling – Situation, Complication, Question, Answer – permits you to make sure that you and the reader are "standing in the same place" before you take him by the hand and lead him through your thinking. It also gives you a clear focus for the point at the top of your document, and thus a means of judging that you are conveying the right message in the most direct way.

Summary

In summary, the introduction tells the reader, in story form, what he already knows or could reasonably be expected to know about the subject you are discussing, and thus reminds him of the question he has to which he can expect the document to give him an answer. **The story sets forth the Situation within which a Complication developed that raised the Question to which your document will now give the Answer.** Once you state the Answer (the main point at the top of your pyramid), it will raise a new question in the reader's mind that you will answer on the line below.

What does the existence of these three substructures – i.e., the vertical question / answer dialogue, the horizontal deductive or inductive logic, and the narrative introductory structure – do for you in helping you discover the ideas you need to build a pyramid? **Knowing the vertical relationship, you can determine the kind of ideas you need in each grouping (i. e., those that will answer the question). Knowing the horizontal relationship, you can judge that the ideas you bring together are of a like kind (i.e. , proper parts of an inductive or deductive argument). And – most important – knowing the reader's question will ensure that all the ideas you do bring together are relevant (i.e., exist only because they help to answer that question).**

How To Build A Pyramid Structure

The problem you generally face as you sit down to write is that you know roughly what you want to write about, but not specifically what you want to say or how you want to say it. This sense of uncertainty is hardly enhanced by knowing that the ideas you eventually put down, whatever they be, must end up forming a pyramid.

Nevertheless, there is a good deal that you do know about your end product that you can build on. **To begin with, you know that you will have a sentence at the top of the pyramid that will have a subject and a predicate. You also know that the subject of that sentence will be the subject of your document.**

In addition, **you know that the sentence will serve as the answer to a question that already exists in the reader's mind. And that question will have arisen because of a situation (with which the reader is familiar) within which a complication developed (with which he is also familiar) that raised the question that caused you to need to write in the first place.** You may even know roughly some of the points you want to make.

That is quite a bit to know. **You can use this knowledge in building your pyramid either by starting at the top and working down**, or by starting at the bottom and working up . The first way is generally easier than the second, and so should be tried first.

The Top Down Approach

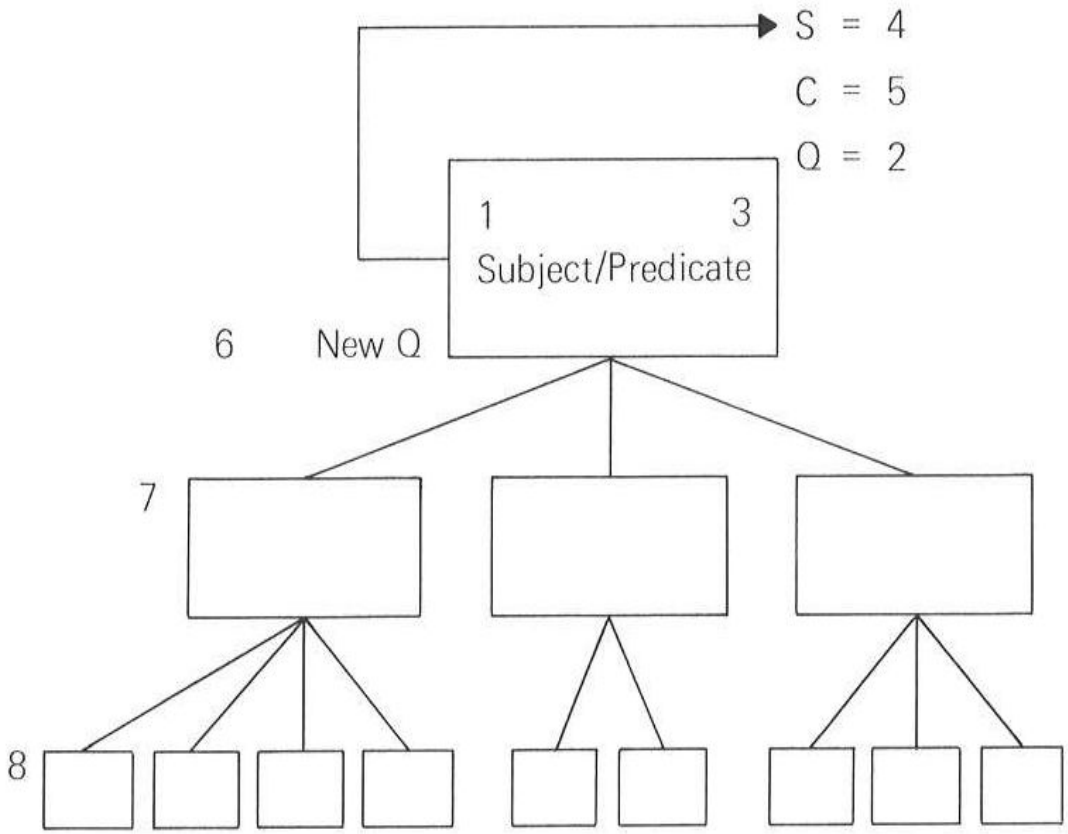
It is generally **easier to start at the top and work down** because you begin by thinking about the things that it is easiest for you to be sure of – your subject and the reader's knowledge of it, which you will remind him of in the introduction.

You don't want simply to sit down and begin writing the opening paragraph of the introduction, however. Instead, you want to use the structure of the introductory flow to pull the right points out of your head, one at a time. To do so, I suggest you follow the procedure shown in Exhibit 4 and described below.

1. **Draw a box**. This represents the box at the top of your pyramid. Write down in it the subject you are discussing.
2. **Decide the Question**. Visualize your reader. To whom are you writing, and what question do you want to have answered in his mind about the Subject when you have finished writing?
3. **Write down the Answer**, if you know it.
4. **Identify the Situation**. Next you want to prove that you have the clearest statement of the Question and the Answer that you can formulate at this stage. To do that, you take the Subject, move up to the Situation, and make the first noncontroversial statement about it you can make. What is the first thing you can say about it to the reader that you know he will agree is true-either because he knows it, or because it is historically true and easily checkable?
5. **Develop the Complication**. Now you say to yourself, "So What?" This should lead you to think of what happened in that Situation to raise the Question. Something went wrong, perhaps, some problem arose, or some logical discrepancy became apparent. What happened in the situation to trigger the question?
6. **Recheck the Question and Answer**. The statement of the Complication should immediately raise the Question you have already written down. If it does not, then change it to the one it does raise. Or perhaps you have the wrong Complication, or the wrong Question, and must think again.
7. **The answer to any Why? question is always "Reasons**," so you know that the points you need across the Key Line must all be reasons (and expressed as ideas). What might your reasons be?

After determining that in fact these points are the right points and in logical order, you can move down and spell out what you need to say to support each one. In the case of so short a document, however, you can probably get away with assuming they are easily available in your mind and will come to you as you get to each section to write it.

Exhibit 4 *The elements of the structure check each other*



Fill in the top box

1. What Subject are you discussing?
2. What Question are you answering in the reader's mind about the Subject?
3. What is the Answer?

Match the Answer to the introduction

4. What is the Situation?
5. What is the Complication?
2. Do the Question and Answer still follow?

Find the key line

6. What New Question is raised by the Answer?
7. Will you answer it deductively or inductively?
7. If inductively, what is your plural noun?

Structure the support points

8. Repeat the question/answer process at this level.

The Bottom Up Approach

There may be frequent occasions when you find that your thinking is not fully enough developed to work out the top part of the pyramid. Perhaps you can't decide precisely what your Subject is, or the Question isn't clear to you, or you can't sort out what the reader does and doesn't know for sure. In such cases, simply move down to the Key Line level.

If you can think of any Key Line points, fine; but often you won't be able to. Do not despair. **You can work out the ideas from the bottom up by following a 3-step process.**

1. List all the points you think you want to make.
2. Work out the relationships between them.
3. Draw conclusions.

Caveats for Beginners

1. **Always try top down first.**
2. **Use the Situation as the starting point for thinking through the introduction**. Once you know what you want to say in the bulk of the introduction – Situation, Complication, Question, and Answer – you can place these elements in any order you like as you write, depending on the effect you want to create.
3. **Don't omit to think through the introduction**. Very often you'll sit down to write and have the main point fully stated in your head, from which, the Question is obvious. The tendency then is to jump directly down to the Key Line and begin answering the New Question raised by the statement of the main point. Don't be tempted. In most cases, you will find that you end up structuring information that properly belongs in the Situation or Complication, and therefore forcing yourself into a complicated and unwieldy deductive argument. Sort out the introductory information first so that you leave yourself free to concentrate solely on ideas at the lower levels .
4. **Always put historical chronology in the introduction**. You cannot tell the reader "what happened" in the body of the document, in an effort to let him know the facts. The body can contain only ideas, and ideas can relate to each other only logically. This means that you can talk about events only if you are spelling out cause-and-effect relationships, since these had to be discovered through analytical thinking. Simple historical occurrences do not exist as the result of logical thought, and therefore cannot be included as ideas.
5. **Limit the introduction to what the reader will agree is true**. The introduction is meant to tell the reader only what he already knows. Sometimes, of course, you won't know whether he actually knows something; at other times, you may be certain that indeed he does not know it. If the point being made can be easily checked by an objective observer and deemed to be a true statement, then your reader can be presumed to "know" it in the sense that he will not question its truth.
6. **Be sure to support all Key Line points.** An idea has to be supported until you have answered all the questions likely to be raised by it. At the Key Line level all points must have at least one level of support. This is particularly true of the "therefore" point in a deductive argument. If you find yourself with no need to support the final point, then you have overstructured your argument and probably need only an inductive grouping.

The Introduction

The initial introduction can be thought of as a circle around the top of your pyramid, outside the structure of the ideas you are presenting. **It always tells the reader a story he already knows, in the sense that it states the Situation within which a Complication developed that raised the Question to which the document is giving the Answer.** Why does it always have to be a story, and why one that he already knows?

Consequently, you want to offer the reader a device that will make it easy for him to push his other thoughts aside and concentrate only on what you're saying . A foolproof device of this sort is the lure of an unfinished story.

That's what you want to do in an introduction. **You want to build on the reader's interest in the subject by telling him a story about it. Every good story has a beginning, a middle, and an end. That is, it establishes a situation, introduces a complication, and offers a resolution.** The resolution will always be your major point, since you always write either to resolve a problem or to answer a question already in the reader's mind.

But the story has also got to be a "good" story for the reader…. **The introduction should be long enough to ensure that you and the reader are ”standing in the same place" before you take him by the hand and lead him through your thinking.**

The key characteristic of all opening Situation sentences is that they leave you expectant for further information – and that is what qualifies them to be openers. Each one establishes the base for a story to come.

The Complication

The Complication of the introduction is not a complication in the everyday sense of the word; it is the Complication to the story. It describes an alteration to a stable situation, rather than a problem per se, although sometimes the alteration is a problem.

The situation-complication-solution form of the introduction is essential. However, the order of the parts can be varied to reflect the tone you want to establish in the document.

The Complication states an alteration to the Situation

SITUATION	COMPLICATION	QUESTION
Recognized stable Situation	Something went wrong	What do we do?
	Something could go wrong	How can we prevent it?
	Something changed	What should we do?
	Something could change	How should we react?
	Here's what you might expect to find in it	Do we find it?
	Here's someone with a different point of view	Who is right?
	In this situation we have three alternatives	Which one should we take?

The Introduction: In Summary

I hope this discussion of opening introductions has made you think that it is important to devote a good deal of thought to ensuring that you write a good introduction. For as you can gather from the examples, a good introduction does more than simply gain and hold the reader's interest. It influences his perceptions.

The narrative flow lends a feeling of plausibility to the writer's particular interpretation of the situation, which by its nature must be a biased selection of the relevant details; arid this feeling of plausibility constricts the reader's ability to interpret the situation differently. It also gives a sense of inevitable rightness to the logic of the writer's conclusion, making the reader less inclined to argue with the thinking that follows. Finally, it establishes the writer's attitude to the reader as a considerate one of wanting him clearly to understand the situation – to see behind the language to the reality it represents.

To emphasize the theory behind writing good introductions:

1. **Introductions are meant to remind rather than to inform .** This means that nothing should be included that would have to be proved to the reader for him to accept the statements of your points – i.e., no exhibits.
2. **They should always contain the three elements of a story.** These are the Situation, the Complication, and the Solution. And in longer documents you will want to add an explanation of what is to come. The first three elements need not always be placed in classic narrative order, but they do always need to be included, and they should be woven into story form.
3. **The length of the introduction depends on the needs of the reader and the demands of the subject.** Thus, there is scope to include whatever is necessary for full understanding: history or background of the problem, outline of your involvement in it, any earlier investigations you or others have made and their conclusions, definitions of terms, and statements of admissions. All these items can and should be woven into the story, however.

Deduction and Induction

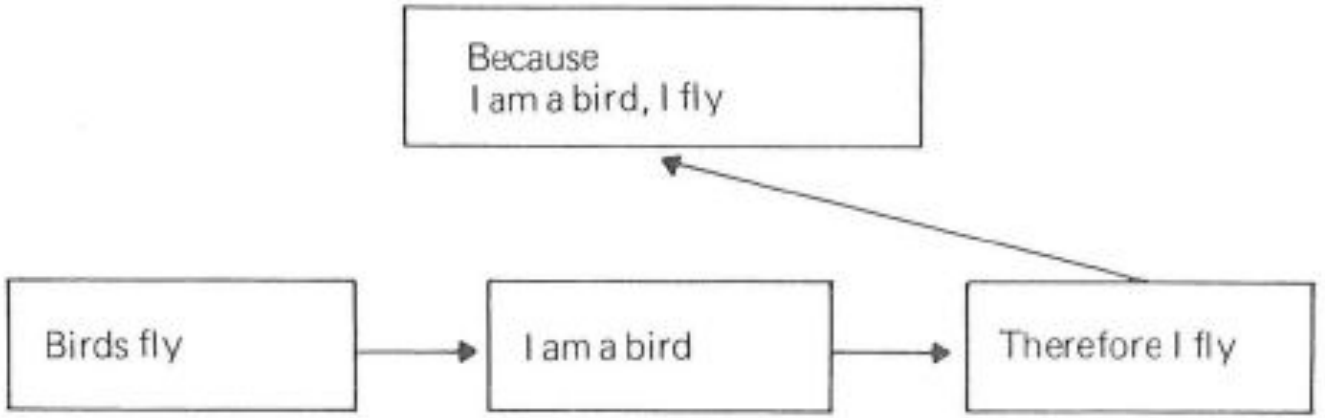
As we have demonstrated, clear writing results from a clear exposition of the exact relationships between a group of ideas on the same subject. Properly organized, these ideas will always form a pyramid, with the various levels of abstraction sorted out and related under a single thought.

Ideas in the pyramid relate in three ways-up, down, and sideways. An idea above a grouping summarizes the ideas below, while these ideas in turn explain or defend the point above. At the same time, the ideas in the grouping march sideways in logical order. What constitutes logical order differs depending on whether the pyramided group was formed deductively or inductively.

These two forms of reasoning are the only patterns available for establishing logical relationships between ideas. Consequently, an understanding of how they differ and what their rules are is essential to being able to sort out your thinking and express it clearly in writing.

Briefly, the difference is as shown in Exhibit 17. Deduction presents a line of reasoning that leads to a "therefore" conclusion, and the point above is a summary of that line of reasoning, resting heavily on the final point. Induction defines a group of facts or ideas to be the same kind of thing, and then makes a statement (or inference) about that sameness. The deductive points derive from each other; the inductive points do not.

Exhibit 17 *Deductive reasoning*



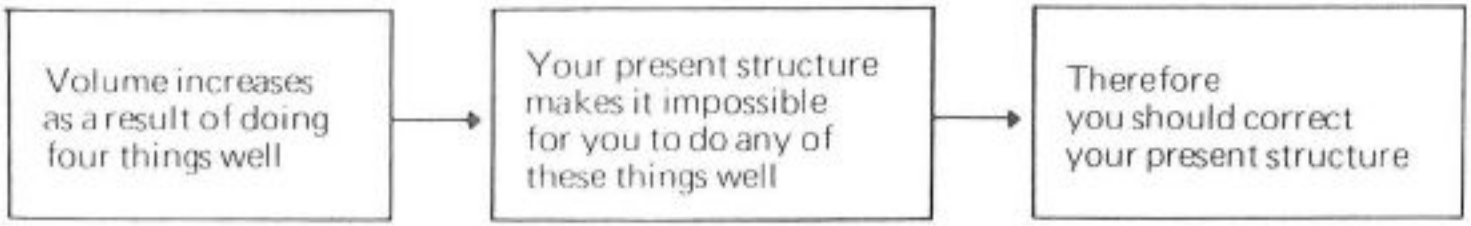
Inductive reasoning

Deductive Reasoning

First, let's understand what deductive reasoning is. It is usually described as taking the form of a syllogism – an argument in which a conclusion is inferred from two premises, one major and one minor. I find these terms confusing in explaining how deductive thinking works in writing, and so I will not use them again.

Instead, **think of a deductive argument as needing to do three things:**

1. Make a statement about a situation that exists in the world.
2. Make another statement about a related situation that exists in the world a t the same time. The second statement relates to the first if it comments on either its subject or its predicate.
3. State the implication of these two situations existing in the world at the same time.

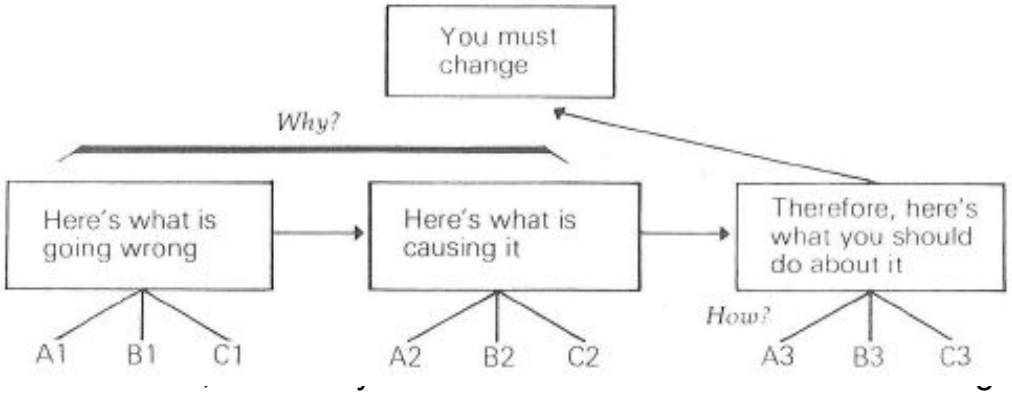


You that is my major complaint about the use of deductive arguments in writing. They are boring, primarily because they make a mystery story out of what should be a straightforward point.

The Problem with Deductive Reasoning

This leads me to urge that, on the Key Line level, you try to avoid using a deductive argument, and strive instead always to present your message inductively. Why? Because it is easier on the reader.

Let's look at what you force the reader to do when you ask him to absorb a deductively organized report. Suppose you wish to tell him that he must change in some way. Your argument would look something like this:



To ab s of what is going wrong. I agree this is not g wrong, bring it over and relate it to the second A of what is causing it, and then hold that in his head while you make the same match for the Bs and Cs. Next you ask him to repeat the process, this time tying the first A of what is going wrong to the second A of what is causing it, and hauling the whole cartload to hitch to the third A of what to do about it. And the same with the Bs and Cs.

The conclusions generally state the problem that the recommendations solve. Consequently, the effect of the recommendation is to solve the problem you concluded was there. For example, sales are off 40 percent (finding) because our competitor added a new device to his product (conclusion as to why sales are off), so you recommend that we add a similar device to ours. The effect of the recommendation is to make our product competitive.

Inductive Reasoning

Inductive reasoning is much more difficult to do well than is deductive reasoning, since it is a more creative activity. In inductive reasoning the mind notices that several different things (ideas, events, facts) are similar in some way, brings them together in a group, and comments on the significance of their similarity.

This brings us to the two major skills one must develop to think creatively in the inductive form:

1. Defining the ideas in the grouping
2. Identifying the misfits among them.

The key technique is to find one word that describes the kind of ideas in your grouping. This word will always be a plural noun (a) because any "kind of" thing will always be a noun, and (b) because you will always have more than one of the "kind of" idea in your grouping. "Warlike movements" is a plural noun in this sense, and so is "preparations for attack."

The next step is always to check your reasoning, and this is done by questioning from the bottom up.

I'm sure you can see now how very different deduction and induction are, and how easily you can tell the difference. Remember, if you are thinking deductively, your second point will always comment on the subject or predicate of the first. If it does not so comment, you should be able to classify it by the same plural noun as the first, to test that you have a proper inductive grouping.

It is interesting to note that whether you couple the ideas to form an inductive grouping or the beginning of a deductive line of reasoning, your mind automatically expects either a summarizing statement or a "therefore" point. This expectation of the mind for deductive and inductive arguments to be completed often leads the reader to project his thinking ahead, to formulate what he thinks your next point will be. If his is different from yours, he can become both confused and annoyed. Consequently, you want to make sure that he will easily recognize the direction in which your thinking is tending by giving him the top point before you state the ideas grouped below.

Summary

Structuring helps to find solutions and get things done and convince others

The Pyramid Principle is based on three tools – name, solve, show:

1. What exactly is the question?
2. What is the answer to the question?
3. How can the findings be presented?

CCQ: context, complication, question

1. Context: Environment? Paradigm? Situation?
2. Complication: Given? Set? Gap?
3. Question: How to close the gap?

Example: A battery manufacturer is reporting a decline in sales. Its batteries are best-in-class when it comes to battery life and reserve energy. What do you make of this?

1. Context: business, market paradigm, declining revenue
2. Context: given – decline; set – growth
3. Question: Can we grow revenue? If so, how?

http://www.slideshare.net/fmgoerres/fmgoerres-barbara-mintos-pyramid-principle