Create CDISC pilot tables

mja@statgroup.dk

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Contents

Setup

This script creates RDF data cubes from .csv files.

```
library(rrdfancillary)
library(rrdfcdisc)
library(rrdfqb)
library(rrdfqbcrnd0)
devtools::load_all(pkg="../..")
```

```
## Loading rrdfqbcrndex
```

All files are stored in the directory

```
targetDir<- system.file("extdata/sample-rdf", package="rrdfqbcrndex")
(targetDir)
```

```
## [1] "/home/ma/projects/rrdfqbcrnd0/rrdfqbcrndex/inst/extdata/sample-rdf"
```

Create from demo data PhUSE scripting program

The files are generated by a SAS program - extdata/sample-workflow/adsl1.sas. The input files are read directly from .csv files instead of using the workbook, to avoid the extra step with the workbook, as the input files may be updated by running the SAS program.

```
tab1x01ObsDataCsvFn<- system.file("extdata/sample-cfg", "TAB1X01.csv", package="rrdfqbcrndex")
# tab1x01ObsDataCsvFn<- "TAB1X01.csv"
tab1x01ObsData <- read.csv(tab1x01ObsDataCsvFn,stringsAsFactors=FALSE)

##TODO add measurefmt; quick hack - affects vignettes/cube-from-workbook.Rmd and
##TODO inst/data-raw/create-qb-examples-as-ttl.Rmd
if (!( "measurefmt" %in% names(tab1x01ObsData))) {
tab1x01ObsData$measurefmt<- "%6.1f"
tab1x01ObsData$measurefmt[ tab1x01ObsData$procedure %in% c("n", "nmiss", "count") ]<- "%6.0f"
## sprintf( tab1x01ObsData$measurefmt, tab1x01ObsData$measure)
}

tab1x01MetaDataCsvFn<- system.file("extdata/sample-cfg", "TAB1X01-Components.csv", package="rrdfqbcrnde
# tab1x01MetaDataCsvFn<- "TAB1X01-Components.csv"
tab1x01MetaData <- read.csv(tab1x01MetaDataCsvFn,stringsAsFactors=FALSE)


tab1x01.cube.fn<- BuildCubeFromDataFrames(tab1x01MetaData, tab1x01ObsData )
```

```
## [1] "prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>\nprefix skos: <http://www.w3.org/2004/
##    DataStructureDefinition                dimension
## 1           ds:dsd-TAB1X01  crnd-dimension:comp24fl
## 2           ds:dsd-TAB1X01  crnd-dimension:comp24fl
## 3           ds:dsd-TAB1X01  crnd-dimension:comp24fl
## 4           ds:dsd-TAB1X01  crnd-dimension:comp24fl
## 5           ds:dsd-TAB1X01  crnd-dimension:disconfl
## 6           ds:dsd-TAB1X01  crnd-dimension:disconfl
## 7           ds:dsd-TAB1X01  crnd-dimension:disconfl
## 8           ds:dsd-TAB1X01     crnd-dimension:efffl
## 9           ds:dsd-TAB1X01     crnd-dimension:efffl
## 10          ds:dsd-TAB1X01     crnd-dimension:efffl
## 11          ds:dsd-TAB1X01     crnd-dimension:efffl
## 12          ds:dsd-TAB1X01    crnd-dimension:factor
## 13          ds:dsd-TAB1X01    crnd-dimension:factor
## 14          ds:dsd-TAB1X01    crnd-dimension:factor
## 15          ds:dsd-TAB1X01    crnd-dimension:factor
## 16          ds:dsd-TAB1X01     crnd-dimension:ittfl
## 17          ds:dsd-TAB1X01     crnd-dimension:ittfl
## 18          ds:dsd-TAB1X01     crnd-dimension:ittfl
## 19          ds:dsd-TAB1X01 crnd-dimension:procedure
## 20          ds:dsd-TAB1X01 crnd-dimension:procedure
## 21          ds:dsd-TAB1X01     crnd-dimension:saffl
## 22          ds:dsd-TAB1X01     crnd-dimension:saffl
## 23          ds:dsd-TAB1X01     crnd-dimension:saffl
## 24          ds:dsd-TAB1X01    crnd-dimension:trt01p
## 25          ds:dsd-TAB1X01    crnd-dimension:trt01p
## 26          ds:dsd-TAB1X01    crnd-dimension:trt01p
```

```
## 27          ds:dsd-TAB1X01    crnd-dimension:trt01p
## 28          ds:dsd-TAB1X01    crnd-dimension:trt01p
## 29          ds:dsd-TAB1X01    crnd-dimension:trt01p
##                    cprefLabel                                cl
## 1   Codelist scheme: comp24fl                 code:comp24fl-N
## 2   Codelist scheme: comp24fl                 code:comp24fl-Y
## 3   Codelist scheme: comp24fl              code:comp24fl-_ALL_
## 4   Codelist scheme: comp24fl          code:comp24fl-_NONMISS_
## 5   Codelist scheme: disconfl                 code:disconfl-Y
## 6   Codelist scheme: disconfl              code:disconfl-_ALL_
## 7   Codelist scheme: disconfl          code:disconfl-_NONMISS_
## 8      Codelist scheme: efffl                    code:efffl-N
## 9      Codelist scheme: efffl                    code:efffl-Y
## 10     Codelist scheme: efffl                 code:efffl-_ALL_
## 11     Codelist scheme: efffl             code:efffl-_NONMISS_
## 12    Codelist scheme: factor                code:factor-_ALL_
## 13    Codelist scheme: factor            code:factor-_NONMISS_
## 14    Codelist scheme: factor           code:factor-proportion
## 15    Codelist scheme: factor             code:factor-quantity
## 16     Codelist scheme: ittfl                    code:ittfl-Y
## 17     Codelist scheme: ittfl                 code:ittfl-_ALL_
## 18     Codelist scheme: ittfl             code:ittfl-_NONMISS_
## 19 Codelist scheme: procedure             code:procedure-count
## 20 Codelist scheme: procedure           code:procedure-percent
## 21     Codelist scheme: saffl                    code:saffl-Y
## 22     Codelist scheme: saffl                 code:saffl-_ALL_
## 23     Codelist scheme: saffl             code:saffl-_NONMISS_
## 24    Codelist scheme: trt01p                    code:trt01p-
## 25    Codelist scheme: trt01p              code:trt01p-Placebo
## 26    Codelist scheme: trt01p code:trt01p-Xanomeline_High_Dose
## 27    Codelist scheme: trt01p  code:trt01p-Xanomeline_Low_Dose
## 28    Codelist scheme: trt01p                code:trt01p-_ALL_
## 29    Codelist scheme: trt01p            code:trt01p-_NONMISS_
##             clprefLabel        vn  vct                      vnop
## 1                     N  comp24fl DATA rrdfqbcrnd0:ADSL_COMP24FL
## 2                     Y  comp24fl DATA rrdfqbcrnd0:ADSL_COMP24FL
## 3                 _ALL_  comp24fl DATA rrdfqbcrnd0:ADSL_COMP24FL
## 4             _NONMISS_  comp24fl DATA rrdfqbcrnd0:ADSL_COMP24FL
## 5                     Y  disconfl DATA rrdfqbcrnd0:ADSL_DISCONFL
## 6                 _ALL_  disconfl DATA rrdfqbcrnd0:ADSL_DISCONFL
## 7             _NONMISS_  disconfl DATA rrdfqbcrnd0:ADSL_DISCONFL
## 8                     N     efffl DATA    rrdfqbcrnd0:ADSL_EFFFL
## 9                     Y     efffl DATA    rrdfqbcrnd0:ADSL_EFFFL
## 10                _ALL_     efffl DATA    rrdfqbcrnd0:ADSL_EFFFL
## 11            _NONMISS_     efffl DATA    rrdfqbcrnd0:ADSL_EFFFL
## 12                _ALL_    factor DATA                      <NA>
## 13            _NONMISS_    factor DATA                      <NA>
## 14           proportion    factor DATA                        ==
## 15             quantity    factor DATA                        ==
## 16                    Y     ittfl DATA    rrdfqbcrnd0:ADSL_ITTFL
## 17                _ALL_     ittfl DATA    rrdfqbcrnd0:ADSL_ITTFL
## 18            _NONMISS_     ittfl DATA    rrdfqbcrnd0:ADSL_ITTFL
## 19                count procedure DATA                        ==
## 20              percent procedure DATA                        ==
```

```
## 21                    Y     saffl DATA    rrdfqbcrnd0:ADSL_SAFFL
## 22                _ALL_     saffl DATA    rrdfqbcrnd0:ADSL_SAFFL
## 23            _NONMISS_     saffl DATA    rrdfqbcrnd0:ADSL_SAFFL
## 24                          trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
## 25              Placebo     trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
## 26 Xanomeline High Dose     trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
## 27  Xanomeline Low Dose     trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
## 28                _ALL_     trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
## 29            _NONMISS_     trt01p DATA   rrdfqbcrnd0:ADSL_TRT01P
##                    vnval
## 1                      N
## 2                      Y
## 3                   <NA>
## 4                   <NA>
## 5                      Y
## 6                   <NA>
## 7                   <NA>
## 8                      N
## 9                      Y
## 10                  <NA>
## 11                  <NA>
## 12                  <NA>
## 13                  <NA>
## 14            proportion
## 15              quantity
## 16                     Y
## 17                  <NA>
## 18                  <NA>
## 19                 count
## 20               percent
## 21                     Y
## 22                  <NA>
## 23                  <NA>
## 24
## 25              Placebo
## 26 Xanomeline High Dose
## 27  Xanomeline Low Dose
## 28                  <NA>
## 29                  <NA>
## crnd-dimension:comp24fl crnd-dimension:comp24fl crnd-dimension:comp24fl crnd-dimension:comp24fl crnd
```

```
cat("TAB1X01 cube stored as ", normalizePath(tab1x01.cube.fn), "\n")
```

```
## TAB1X01 cube stored as  /tmp/Rtmp6EpyEA/DC-TAB1X01-R-V-0-0-0.ttl
```

Now look at the generated cubes by loading the turtle files.

```
dataCubeFile<- tab1x01.cube.fn
```

The rest of the code only depends on the value of dataCubeFile.

```
checkCube <- new.rdf()  # Initialize
temp<- load.rdf(dataCubeFile, format="TURTLE", appendTo= checkCube)
summarize.rdf(checkCube)
```

```
## [1] "Number of triples: 1501"
```

Get the values in the cube

First set values for accessing the cube.

```
dsdName<- GetDsdNameFromCube( checkCube )
domainName<- GetDomainNameFromCube( checkCube )
forsparqlprefix<- GetForSparqlPrefix( domainName )
```

The next statement shows the first 10 triples in the cube.

```
observations1Rq<- paste( forsparqlprefix,
'
select *
where {?s ?p ?o .}
limit 10
',
"\n"
)
observations1<- sparql.rdf(checkCube, observations1Rq  )
knitr::kable(head(observations1))
```

s	p	o
rdfs:domain	rdfs:domain	rdf:Property
rdfs:domain	rdfs:range	rdfs:Class
rdfs:comment	rdfs:range	rdfs:Literal
rdf:first	rdf:type	rdf:Property
rdf:first	rdfs:domain	rdf:List
rdf:first	rdfs:subPropertyOf	rdf:first

The next statement shows the first 10 triples in the cube, where the subject is a qb:Observation.

```
observations2Rq<-  paste( forsparqlprefix,
'
select *
where { ?s a qb:Observation ; ?p ?o .}
limit 10
',
"\n"
)
observations2<- sparql.rdf(checkCube, observations2Rq)
knitr::kable(head(observations2, 10))
```

s	p	o
ds:obs49	rdfs:label	49
ds:obs49	qb:dataSet	ds:dataset-TAB1X01
ds:obs49	crnd-dimension:ittfl	code:ittfl-*ALL*
ds:obs49	crnd-attribute:denominator	
ds:obs49	crnd-dimension:saffl	code:saffl-*ALL*
ds:obs49	crnd-dimension:efffl	code:efffl-*ALL*
ds:obs49	crnd-attribute:unit	NA
ds:obs49	rdfs:comment	Statistic for number of records/Statistics for factor with the dimensions XX
ds:obs49	crnd-dimension:factor	code:factor-quantity
ds:obs49	crnd-dimension:disconfl	code:disconfl-*ALL*

Get cube components

The cube components are shown in the next output.

```
componentsRq<- GetComponentSparqlQuery( forsparqlprefix, dsdName )
components<- as.data.frame(sparql.rdf(checkCube, componentsRq), stringsAsFactors=FALSE)
components$vn<- gsub("crnd-dimension:|crnd-attribute:|crnd-measure:","",components$p)
knitr::kable(components[,c("vn", "label")])
```

vn	label
comp24fl	comp24fl
disconfl	disconfl
efffl	efffl
factor	Type of procedure (quantity, proportion. . .)
ittfl	ittfl
procedure	Statistical Procedure
saffl	saffl
trt01p	Treatment Arm

The codelists are shown in the next output.

```
codelistsRq<- GetCodeListSparqlQuery( forsparqlprefix, dsdName )
codelists<- as.data.frame(sparql.rdf(checkCube, codelistsRq), stringsAsFactors=FALSE)
codelists$vn<- gsub("crnd-dimension:|crnd-attribute:|crnd-measure:","",codelists$dimension)
codelists$clc<- gsub("code:","",codelists$cl)
knitr::kable(codelists[,c("vn", "clc", "clprefLabel")])
```

vn	clc	clprefLabel
comp24fl	comp24fl-N	N
comp24fl	comp24fl-Y	Y
comp24fl	comp24fl-*ALL*	*ALL*
comp24fl	comp24fl-*NONMISS*	*NONMISS*
disconfl	disconfl-Y	Y
disconfl	disconfl-*ALL*	*ALL*
disconfl	disconfl-*NONMISS*	*NONMISS*
efffl	efffl-N	N

vn	clc	clprefLabel
efffl	efffl-Y	Y
efffl	efffl-*ALL*	*ALL*
efffl	efffl-*NONMISS*	*NONMISS*
factor	factor-*ALL*	*ALL*
factor	factor-*NONMISS*	*NONMISS*
factor	factor-proportion	proportion
factor	factor-quantity	quantity
ittfl	ittfl-Y	Y
ittfl	ittfl-*ALL*	*ALL*
ittfl	ittfl-*NONMISS*	*NONMISS*
procedure	procedure-count	count
procedure	procedure-percent	percent
saffl	saffl-Y	Y
saffl	saffl-*ALL*	*ALL*
saffl	saffl-*NONMISS*	*NONMISS*
trt01p	trt01p-	
trt01p	trt01p-Placebo	Placebo
trt01p	trt01p-Xanomeline_High_Dose	Xanomeline High Dose
trt01p	trt01p-Xanomeline_Low_Dose	Xanomeline Low Dose
trt01p	trt01p-*ALL*	*ALL*
trt01p	trt01p-*NONMISS*	*NONMISS*

The dimensions are shown in the next output.

```
dimensionsRq <- GetDimensionsSparqlQuery( forsparqlprefix )
dimensions<- sparql.rdf(checkCube, dimensionsRq)
knitr::kable(dimensions)
```

p

crnd-dimension:disconfl
crnd-dimension:saffl
crnd-dimension:trt01p
crnd-dimension:factor
crnd-dimension:procedure crnd-dimension:comp24fl
crnd-dimension:ittfl
crnd-dimension:efffl

Then the attributes as shown in the next output.

```
attributesRq<- GetAttributesSparqlQuery( forsparqlprefix )
attributes<- sparql.rdf(checkCube, attributesRq)
knitr::kable(attributes)
```

p

crnd-attribute:denominator crnd-attribute:unit

Get observations

And finally the SPARQL query for observations, showing only the first 10 observations.

```
observationsRq<- GetObservationsSparqlQuery( forsparqlprefix, domainName, dimensions, attributes )
cat(observationsRq)
```

```
## prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
## prefix skos: <http://www.w3.org/2004/02/skos/core#>
## prefix prov: <http://www.w3.org/ns/prov#>
## prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
## prefix dcat: <http://www.w3.org/ns/dcat#>
## prefix owl: <http://www.w3.org/2002/07/owl#>
## prefix xsd: <http://www.w3.org/2001/XMLSchema#>
## prefix pav: <http://purl.org/pav>
## prefix dc: <http://purl.org/dc/elements/1.1/>
## prefix dct: <http://purl.org/dc/terms/>
## prefix mms: <http://rdf.cdisc.org/mms#>
## prefix cts: <http://rdf.cdisc.org/ct/schema#>
## prefix cdiscs: <http://rdf.cdisc.org/std/schema#>
## prefix cdash-1-1: <http://rdf.cdisc.org/std/cdash-1-1#>
## prefix cdashct: <http://rdf.cdisc.org/cdash-terminology#>
## prefix sdtmct: <http://rdf.cdisc.org/sdtm-terminology#>
## prefix sdtm-1-2: <http://rdf.cdisc.org/std/sdtm-1-2#>
## prefix sdtm-1-3: <http://rdf.cdisc.org/std/sdtm-1-3#>
## prefix sdtms-1-3: <http://rdf.cdisc.org/sdtm-1-3/schema#>
## prefix sdtmig-3-1-2: <http://rdf.cdisc.org/std/sdtmig-3-1-2#>
## prefix sdtmig-3-1-3: <http://rdf.cdisc.org/std/sdtmig-3-1-3#>
## prefix sendct: <http://rdf.cdisc.org/send-terminology#>
## prefix sendig-3-0: <http://rdf.cdisc.org/std/sendig-3-0#>
## prefix adamct: <http://rdf.cdisc.org/adam-terminology#>
## prefix adam-2-1: <http://rdf.cdisc.org/std/adam-2-1#>
## prefix adamig-1-0: <http://rdf.cdisc.org/std/adamig-1-0#>
## prefix adamvr-1-2: <http://rdf.cdisc.org/std/adamvr-1-2#>
## prefix qb: <http://purl.org/linked-data/cube#>
## prefix rrdfqbcrnd0: <http://www.example.org/rrdfqbcrnd0/>
## prefix code: <http://www.example.org/dc/code/>
## prefix dccs: <http://www.example.org/dc/tab1x01/dccs/>
## prefix ds: <http://www.example.org/dc/tab1x01/ds/>
## prefix crnd-dimension: <http://www.example.org/dc/dimension#>
## prefix crnd-attribute: <http://www.example.org/dc/attribute#>
## prefix crnd-measure: <http://www.example.org/dc/measure#>
##
## select * where {
## ?s a qb:Observation  ;
##     qb:dataSet ds:dataset-TAB1X01 ;
##     crnd-dimension:disconfl ?disconfl;
##     crnd-dimension:saffl ?saffl;
##     crnd-dimension:trt01p ?trt01p;
##     crnd-dimension:factor ?factor;
##     crnd-dimension:procedure ?procedure;
##     crnd-dimension:comp24fl ?comp24fl;
##     crnd-dimension:ittfl ?ittfl;
##     crnd-dimension:efffl ?efffl;
```

```
##     crnd-attribute:denominator ?denominator;
##     crnd-attribute:unit ?unit;
##     crnd-measure:measure ?measure .
## optional{ ?disconfl skos:prefLabel ?disconflvalue . }
## optional{ ?saffl skos:prefLabel ?safflvalue . }
## optional{ ?trt01p skos:prefLabel ?trt01pvalue . }
## optional{ ?factor skos:prefLabel ?factorvalue . }
## optional{ ?procedure skos:prefLabel ?procedurevalue . }
## optional{ ?comp24fl skos:prefLabel ?comp24flvalue . }
## optional{ ?ittfl skos:prefLabel ?ittflvalue . }
## optional{ ?efffl skos:prefLabel ?effflvalue . }
## }
## order by ?s
```

```
observations<- as.data.frame(sparql.rdf(checkCube, observationsRq ), stringsAsFactors=FALSE)
knitr::kable(observations[ 1:10 ,
   c(paste0(sub("crnd-dimension:|crnd-attribute:|crnd-measure:", "", dimensions), "value"),sub("crnd-di
```

disconflvalue	safflvalue	trt01pvalue	factorvalue	procedurevalue	comp24flvalue	ittflvalue	effflvalue
ALL	*ALL*	Placebo	quantity	count	*ALL*	Y	*ALL*
ALL	*ALL*	Placebo	proportion	percent	*ALL*	Y	*ALL*
ALL	*ALL*	Xanomeline High Dose	quantity	count	*ALL*	Y	*ALL*
ALL	*ALL*	Xanomeline High Dose	proportion	percent	*ALL*	Y	*ALL*
ALL	*ALL*	Xanomeline Low Dose	quantity	count	*ALL*	Y	*ALL*
ALL	*ALL*	Xanomeline Low Dose	proportion	percent	*ALL*	Y	*ALL*
ALL	*ALL*	NA	quantity	count	*ALL*	Y	*ALL*
ALL	*ALL*	NA	proportion	percent	*ALL*	Y	*ALL*
ALL	Y	Placebo	quantity	count	*ALL*	*ALL*	*ALL*
ALL	Y	Placebo	proportion	percent	*ALL*	*ALL*	*ALL*

Get observations with labels

The SPARQL query for observations with labels for variables, showing only the first 10 observations.

```
observationsDescriptionRq<- GetObservationsWithDescriptionSparqlQuery( forsparqlprefix, domainName, dim
cat(observationsDescriptionRq)
```

```
## prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
## prefix skos: <http://www.w3.org/2004/02/skos/core#>
## prefix prov: <http://www.w3.org/ns/prov#>
## prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
## prefix dcat: <http://www.w3.org/ns/dcat#>
## prefix owl: <http://www.w3.org/2002/07/owl#>
## prefix xsd: <http://www.w3.org/2001/XMLSchema#>
## prefix pav: <http://purl.org/pav>
## prefix dc: <http://purl.org/dc/elements/1.1/>
## prefix dct: <http://purl.org/dc/terms/>
## prefix mms: <http://rdf.cdisc.org/mms#>
## prefix cts: <http://rdf.cdisc.org/ct/schema#>
## prefix cdiscs: <http://rdf.cdisc.org/std/schema#>
```

```
## prefix cdash-1-1: <http://rdf.cdisc.org/std/cdash-1-1#>
## prefix cdashct: <http://rdf.cdisc.org/cdash-terminology#>
## prefix sdtmct: <http://rdf.cdisc.org/sdtm-terminology#>
## prefix sdtm-1-2: <http://rdf.cdisc.org/std/sdtm-1-2#>
## prefix sdtm-1-3: <http://rdf.cdisc.org/std/sdtm-1-3#>
## prefix sdtms-1-3: <http://rdf.cdisc.org/sdtm-1-3/schema#>
## prefix sdtmig-3-1-2: <http://rdf.cdisc.org/std/sdtmig-3-1-2#>
## prefix sdtmig-3-1-3: <http://rdf.cdisc.org/std/sdtmig-3-1-3#>
## prefix sendct: <http://rdf.cdisc.org/send-terminology#>
## prefix sendig-3-0: <http://rdf.cdisc.org/std/sendig-3-0#>
## prefix adamct: <http://rdf.cdisc.org/adam-terminology#>
## prefix adam-2-1: <http://rdf.cdisc.org/std/adam-2-1#>
## prefix adamig-1-0: <http://rdf.cdisc.org/std/adamig-1-0#>
## prefix adamvr-1-2: <http://rdf.cdisc.org/std/adamvr-1-2#>
## prefix qb: <http://purl.org/linked-data/cube#>
## prefix rrdfqbcrnd0: <http://www.example.org/rrdfqbcrnd0/>
## prefix code: <http://www.example.org/dc/code/>
## prefix dccs: <http://www.example.org/dc/tab1x01/dccs/>
## prefix ds: <http://www.example.org/dc/tab1x01/ds/>
## prefix crnd-dimension: <http://www.example.org/dc/dimension#>
## prefix crnd-attribute: <http://www.example.org/dc/attribute#>
## prefix crnd-measure: <http://www.example.org/dc/measure#>
##  select * where {
##  ?s a qb:Observation  ;
##  qb:dataSet ds:dataset-TAB1X01  ;
##  crnd-dimension:disconfl ?disconfl;
## crnd-dimension:saffl ?saffl;
## crnd-dimension:trt01p ?trt01p;
## crnd-dimension:factor ?factor;
## crnd-dimension:procedure ?procedure;
## crnd-dimension:comp24fl ?comp24fl;
## crnd-dimension:ittfl ?ittfl;
## crnd-dimension:efffl ?efffl;
##  crnd-attribute:denominator ?denominator;
## crnd-attribute:unit ?unit;
##  crnd-measure:measure      ?measure .
##  optional{ ?disconfl skos:prefLabel ?disconflvalue . }
## optional{ ?saffl skos:prefLabel ?safflvalue . }
## optional{ ?trt01p skos:prefLabel ?trt01pvalue . }
## optional{ ?factor skos:prefLabel ?factorvalue . }
## optional{ ?procedure skos:prefLabel ?procedurevalue . }
## optional{ ?comp24fl skos:prefLabel ?comp24flvalue . }
## optional{ ?ittfl skos:prefLabel ?ittflvalue . }
## optional{ ?efffl skos:prefLabel ?effflvalue . }
##  optional{ crnd-dimension:disconfl rdfs:label ?disconfllabel . }
## optional{ crnd-dimension:saffl rdfs:label ?saffllabel . }
## optional{ crnd-dimension:trt01p rdfs:label ?trt01plabel . }
## optional{ crnd-dimension:factor rdfs:label ?factorlabel . }
## optional{ crnd-dimension:procedure rdfs:label ?procedurelabel . }
## optional{ crnd-dimension:comp24fl rdfs:label ?comp24fllabel . }
## optional{ crnd-dimension:ittfl rdfs:label ?ittfllabel . }
## optional{ crnd-dimension:efffl rdfs:label ?efffllabel . }
##  BIND( IRI(crnd-dimension:disconfl) as ?disconflIRI)
## BIND( IRI(crnd-dimension:saffl) as ?safflIRI)
```

```
## BIND( IRI(crnd-dimension:trt01p) as ?trt01pIRI)
## BIND( IRI(crnd-dimension:factor) as ?factorIRI)
## BIND( IRI(crnd-dimension:procedure) as ?procedureIRI)
## BIND( IRI(crnd-dimension:comp24fl) as ?comp24flIRI)
## BIND( IRI(crnd-dimension:ittfl) as ?ittflIRI)
## BIND( IRI(crnd-dimension:efffl) as ?effflIRI)
##  BIND( IRI( ?s ) AS ?measureIRI)
##  }
```

```
observationsDesc<- as.data.frame(sparql.rdf(checkCube, observationsDescriptionRq ), stringsAsFactors=FA
knitr::kable(observationsDesc[ 1:10 ,
     c(paste0(rep(sub("crnd-dimension:|crnd-attribute:|crnd-measure:", "", dimensions),each=3),
       c("label", "value", "IRI")),
       sub("crnd-dimension:|crnd-attribute:|crnd-measure:", "", attributes), "measure", "measureIRI"
       )]
       )
```

disconfllabel	disconflvalue	disconflIRI	saffllabel	safflvalue	safflIRI	trt01plabel	trt0
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Pla
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Pla
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	NA
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Xa
disconfl	Y	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Xa
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Xa
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Xa
disconfl	Y	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Xa
disconfl	Y	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	NA
disconfl	*ALL*	crnd-dimension:disconfl	saffl	*ALL*	crnd-dimension:saffl	Treatment Arm	Pla

Reproduce the metadata for the workbook from cube

Here is an example of roundtripping: make the metadata used for the workbook from RDF data cube.

First get the dimensions, measure and attribute

```
workbookDimAttrMeasRq<- GetDimAttrMeasInWorkbookFormatSparqlQuery( forsparqlprefix )
dimensionsattr<- sparql.rdf(checkCube, workbookDimAttrMeasRq )
knitr::kable(dimensionsattr)
```

compType	compName	codeType	nciDomainValue
dimension	crnd-dimension:disconfl	NA	NA
dimension	crnd-dimension:saffl	NA	NA
dimension	crnd-dimension:trt01p	NA	NA
dimension	crnd-dimension:factor	NA	NA
dimension	crnd-dimension:procedure	NA	NA
dimension	crnd-dimension:comp24fl	NA	NA
dimension	crnd-dimension:ittfl	NA	NA
dimension	crnd-dimension:efffl	NA	NA
attribute	crnd-attribute:denominator	NA	NA
attribute	crnd-attribute:unit	NA	NA
measure	crnd-measure:measure	NA	NA

Secondly, get the metadata for the workbook. To get the metadata element “cubeVersion” a workaround is needed. The cubeversion is not directly available but from dcat:distribution derived as the result of paste0(“DC-”, domainName,“-R-V-”,cubeVersion,“.ttl”).

```
workbookMetadataRq<- GetMetaDataInWorkbookFormatSparqlQuery( forsparqlprefix )
metadata<- sparql.rdf(checkCube, workbookMetadataRq)
cubeVersion<- gsub("-",".", gsub("DC-.*-R-V-([^\\.]+).ttl", "\\1", metadata[ metadata[,2]="distributio
metadataX<- rbind(metadata, cbind(compType="metadata", compName="cubeVersion", compLabel=cubeVersion))
knitr::kable(metadataX)
```

	compType	compName	compLabel
	metadata	title	Demographics Analysis Results
	metadata	distribution	DC-TAB1X01-R-V-0-0-0.ttl
	metadata	comment	
	metadata	label	Table 14-1.01 Summary of Populations
	metadata	description	Data from adsl1.sas program
	metadata	obsFileName	tab1x01.csv
compLabel	metadata	cubeVersion	0.0.0

Session information

```
sessionInfo()
```

```
## R version 3.2.3 (2015-12-10)
## Platform: x86_64-redhat-linux-gnu (64-bit)
## Running under: Fedora 23 (Workstation Edition)
##
## locale:
##  [1] LC_CTYPE=en_GB.UTF-8          LC_NUMERIC=C
##  [3] LC_TIME=en_GB.UTF-8           LC_COLLATE=en_GB.UTF-8
##  [5] LC_MONETARY=en_GB.UTF-8       LC_MESSAGES=en_GB.UTF-8
##  [7] LC_PAPER=en_GB.UTF-8          LC_NAME=en_GB.UTF-8
##  [9] LC_ADDRESS=en_GB.UTF-8        LC_TELEPHONE=en_GB.UTF-8
## [11] LC_MEASUREMENT=en_GB.UTF-8    LC_IDENTIFICATION=en_GB.UTF-8
##
## attached base packages:
## [1] methods   stats     graphics  grDevices utils     datasets  base
##
## other attached packages:
##  [1] rrdfqbcrndex_0.2.2  rrdfqbcrnd0_0.2.2   rrdfqb_0.2.2
##  [4] xlsx_0.5.7          xlsxjars_0.6.1      rrdfcdisc_0.2.2
##  [7] devtools_1.11.0     RCurl_1.95-4.8      bitops_1.0-6
## [10] rrdfancillary_0.2.2 rrdf_2.1.2          rrdflibs_1.4.0
## [13] rJava_0.9-8
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_0.12.4     knitr_1.12.3    magrittr_1.5    roxygen2_5.0.1
##  [5] highr_0.5.1     stringr_1.0.0   tools_3.2.3     withr_1.0.1
##  [9] htmltools_0.3.5 yaml_2.1.13     digest_0.6.9    formatR_1.3
## [13] memoise_1.0.0   evaluate_0.8.3  rmarkdown_0.9.5 stringi_1.0-1
```