1. Report Element Properties

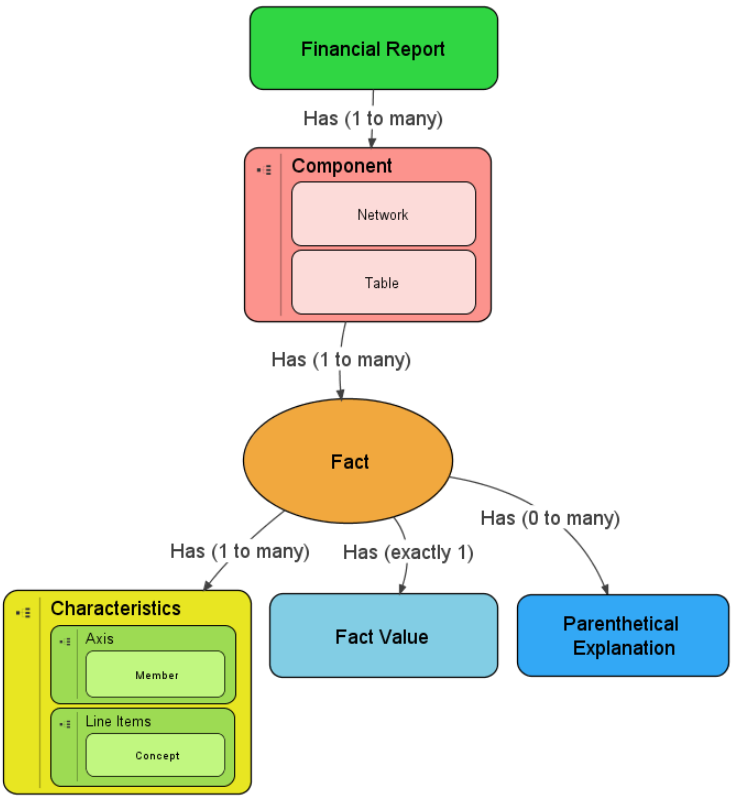
The purpose of this section is to describe the properties and implementation details of report elements.

1.1. 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:

- Report
- Network
- Table (a.k.a. hypercube)
- Axis (a.k.a. dimension)
- Member
- Line Items (a.k.a. primary items)
- Concept
- Fact

The following graphic shows the relations between report element categories:



1.2. 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 *part of a component*, 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 *part of a component*, 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.	*Assets = Liabilities + Equity; Beginning cash + net cash flows = ending cash*
Flow, uses Network {SortCode} - {Type} - {Title}	*--Does not have this level--*	**Relations between components** – Flow, or the order or sequence of components	*Balance sheet, then income statement, then statement of changes in equity, …*
Roll up, roll forward, hierarchy	*--Does not have this level--*	**Relations between concepts** – Relation between concepts within the concept characteristic	*Roll up, roll forward, hierarchy*
Member aggregation model	*--Does not have this level--*	**Relations between characteristics** – Relations between characteristic members	*North America, United States, Canada*
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	*Comparing IBM, Apple, and Microsoft*

1.3. Reconciliation of implementation model terminology to XBRL Abstract Model 2.0 terminology:

Example	US GAAP/SEC Model Object	XBRL Abstract Model 2.0 Object
Financial statement portion of a 10-Q or 10-K; financial statement issued by a private entity	**SEC XBRL financial filing**; XBRL instance + XBRL taxonomy;	Document, Manifest
See the examples from each rudimentary or primitive piece above	**Report element**: Network, [Table], [Axis], [Member], [Line Items], Concept, Abstract concept, Fact, Footnote	Model Element
Balance sheet, significant accounting policies, maturities of long-term debt	**Network**	Cube, Cube Region
Balance sheet, significant accounting policies, maturities of long-term debt	**[Table]**	Cube, Cube Region
The "Legal entity" to which a fact relates	**[Axis]**	Aspect
"Consolidated entity" is the value of "Legal Entity" characteristic	**[Member]**	Aspect Value
Assets [Roll up] of a balance sheet	**[Line Items]**	Aspect
Cash and cash equivalents; Assets; Net income (loss)	**Concept** or **Line Item**	Aspect Value
Assets for the legal entity "consolidated entity" of the reporting entity with CIK 0000000001 for December 31, 2010	**Fact**	Data Point
Note that this is …	**XBRL footnote**	Footnote
US Dollars	**Units**	Aspect, Aspect Value
-6 (rounded to millions)	**Decimals**	Aspect, Aspect Value

1.4. 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.

1.5. 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)

1.6. Sub Component (component block, disclosure block)

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.	

1.7. 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].

1.8. 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.

1.9. 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.	

1.10. 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	*Optional*. The balance type of a concept such as debit or credit. Applies only to certain monetary concepts.	Debit, credit
Documentation	*Optional*. The documentation or definition of the meaning of the concept.	Cash includes ....

Term	Meaning/Definition	Example
References	*Optional*. 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.

1.11. 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.

1.12. 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	*Optional*. Uniquely identifies the fact. (Required if footnotes are used because they connect the footnote to the fact.)	ID-0001

1.13. 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	*Optional*. Category into which the footnote fits	Reason not reported

1.14. 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.

1.15. 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.

1.16. 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_Reconciles
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.

1.17. 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.

1.18. 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.