

1.Reconciliation of Models

This section reconciles various models to each other which can be very useful when implementing software.

1.1. OMG’s Forthcoming Standard Business Report Model to XBRL technical syntax

The following is a reconciliation between the logical conceptualization terminology used to describe a report by the forthcoming OMG Standard Business Report Model (SBRM) and the XBRL syntax used to implement that logical object.

OMG SBRM (Not yet published) and Logical Theory Describing Business Report Term/Object ¹	XBRL Technical Syntax Term/Object ²
Report: Information published by a reporting entity at some point in time for some purpose. For example a financial report is a type of report. A report can be broken down into information fragments.	Not explicitly defined; implied to be XBRL instance + XBRL taxonomy (Note that XBRL taxonomy includes the taxonomy schema and all linkbases)
Fragment: A fragment is a set of one to many Fact Sets which go together some specific purpose within a report.	No explicitly defined term for fragment, but you can use Networks or Hypercubes to essentially break a full report into fragments.
Fact Set: A fact set is a set of facts which go together (tend to be cohesive and share a certain common nature) for some specific purpose within a report. (Common synonym for Fact Set is Fact Table)	No explicitly defined term; Network + Hypercube or if there are concepts outside of a hypercube, then Network + set of all concepts not within a hypercube (i.e. implied hypercube of all concepts not within an explicit hypercube).
No explicitly defined term, but a fragment can be used to describe any portion of a report. Made up of facts which go together for some specific purpose. Informally, I refer to this as a component .	No explicitly defined term; Network + Hypercube or if there are concepts outside of a hypercube, then Network + set of all concepts not within a hypercube (i.e. implied hypercube of all concepts not within an explicit hypercube).
Aspect: An aspect describes a fact (an aspect is a property of a fact). An aspect or distinguishing aspect provides information necessary to describe a fact or distinguish one fact from another fact within a report. A fact may have only the three core aspects (entity, calendar period, concept) or zero to many additional distinguishing aspects. (Common synonyms for aspect are characteristic, dimension, and [Axis].)	Aspect as defined by XBRL Formula: Dimension + Member is one approach used; Primary Items (defined as XML schema element with the substitutionGroup value of "xbrli:item"; a specific type, a specific period, and a specific balance; must NOT be abstract) is another approach; entity identifier portion of an XBRL instance context is how reporting entity is implemented; period portion of XBRL instance context is how period is implemented
Relation: The relation from one object of a report to another object or objects. Is-A; Has-A; Part-Of; Class-SubClass	Relation: Presentation relations, calculation relations, definition relations, XBRL Formula; "essence-alias"; "general-special".
Aspect Set: Set of aspects that are used to describe a fact within a fact set.	Undefined
Fact: A fact is reported. A fact defines a single, observable, reportable piece of information contained within a business report, or fact value, contextualized for unambiguous interpretation or analysis by one or more distinguishing aspects (properties of the fact). A fact value is one property of a fact. Every fact has exactly one fact value.	Simple fact: Defined by XBRL 2.1; note that compound facts, or tuples, are not allowed by US GAAP Taxonomy Architecture.
Parenthetical explanation: A parenthetical explanation provide additional descriptive information about a fact.	XBRL Footnote: Implements what amounts to a comment.
Information Model: Combination of Concept Arrangement Pattern and Member Arrangement Pattern.	--Does not have this term--
Concept Arrangement Pattern: Relation between concepts within the concept aspect.	--Does not have this term--

¹ OMG, *Standard Business Report Model*, <http://xbrl.azurewebsites.net/2019/Library/LogicalTheoryDescribingBusinessReport.pdf>

² XBRL International, *XBRL 2.1 Technical Specification*, <https://specifications.xbrl.org/work-product-index-group-base-spec-base-spec.html>

OMG SBRM (Not yet published) and Logical Theory Describing Business Report Term/Object¹	XBRL Technical Syntax Term/Object²
Member Arrangement Pattern: Relations between members within an aspect other than the concept aspect.	--Does not have this term --
Fragment Arrangement Pattern: Relationship between fragments or the order or sequence of fragments within a report.	--Does not have this term --
Property: A property is a trait or quality of an object.	Property: Generally an XBRL, XML schema, or XLink element or attribute.
This is <i>part of a component</i> , but because different taxonomies use network, hypercube, or combinations of network/hypercube; this cannot be mapped to one physical technical syntax	Network expressed using the XLink extended link with an XBRL extended link role
Implementation of a fact set. A hypercube/Table is used to group together facts by defining XBRL presentation relations, XBRL calculation relations, XBRL definition relations and XBRL Formulas that related to a specific fact set.	Hypercube: XML schema element with the substitutionGroup value of "xbrldt:hypercubeItem"
Implementation of an Aspect. A dimension/Axis is the name of the aspect.	Dimension: 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"
Implementation of an Aspect. A member or [Member] is the value of the aspect.	Member: XBRL Dimensions Member
Implementation of an Aspect. A primary item or [Line Items] is essentially a dimension of which the Concept is the member.	Primary Items: The term primary items is defined by XBRL Dimensions.
Concept: Implementation of an Aspect. A core abstract. A Concept or Abstract is essentially the member or value of the Primary Item or [Line Items] dimension.	Primary 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.
Set: Type of Concept Arrangement Pattern. (no mathematical relation or undescribed mathematical relation)	Can be implied to exist, set of presentation relations which have no mathematical relations.
Roll Up: Type of Concept Arrangement pattern. Fact A + Fact B + Fact C = Fact D (a total) (mathematical relation)	XBRL Calculation relations implies the definition of the term Roll Up.
Roll Forward: Type of Concept Arrangement Pattern. Beginning balance (stock) + changes (flow) = Ending balance (stock) (mathematical relation)	Can be implied to exist, specific pattern of XBRL Formula relations. A roll forward is defined by the US GAAP and IFRS XBRL Taxonomies.
Adjustment: Type of Concept Arrangement Pattern. Originally stated balance + adjustments = restated balance (mathematical relation)	Can be implied to exist as the relation between an originally stated balance plus adjustments to that balance which yields a restated balance (instant) as of the same calendar period as the originally stated balance; what changes is the report date.
Variance: Type of Concept Arrangement Pattern. Amount (actual scenario) – Amount (projected scenario) = variance (mathematical relation)	Can be implied to exist as the relation between an amount (actual scenario) – another amount (projected scenario) which yields a variance; actual, projected, and variance all exist within the same period.
Complex Computation: Type of Concept Arrangement Pattern. (mathematical relation)	Can be implied to exist as any mathematical relation that can be described using XBRL Formula but is not any of the other explicitly defined mathematical computations.
Text Block: Type of Concept Arrangement Pattern.	Can be implied to exist, escaped XHTML data type. Term is defined by US GAAP and IFRS XBRL Taxonomies.
Roll Forward Info: Type of Concept Arrangement Pattern.	Can be implied to exist as being similar to a Roll Forward in terms of showing a beginning and ending balance; however, there is no mathematical relation between the reported values in this fact set.
Rule: Rules guide, control, suggest, or influence behaviour. Rules cause things to happen, prevent things from happening, or suggest that it might be a good idea if something did or did not happen. Rules help shape judgment, help make decisions, help evaluate, help shape behaviour, and help reach conclusions.	Implied to exist.
Stock: Fact as of a specific point in time.	Instant: Fact as of a specific point in time. A stock.
Flow: Fact for a period of time.	Duration: Fact for a period of time. A flow.
Grain: Grain is the level of depth of information or granularity.	Not explicitly defined, can be implied; Grain is the level of depth of information or granularity.

1.2. Financial Report Semantics and Dynamics Theory perspective

This section reconciles the terminology of the Financial Report Semantics and Dynamics Theory terminology to the US GAAP XBRL Taxonomy, SEC model term, and XBRL technical syntax terminology.

Financial Report Semantics and Dynamics Theory Term	Example	US GAAP/SEC Model Term	XBRL Technical Syntax Term
Financial report – A financial statement plus supplementary financial information. Financial report can be broken down into components.	<i>Financial statement portion of a 10-Q or 10-K; financial statement issued by a private entity</i>	SEC XBRL financial filing; instance document; XBRL instance	XBRL instance + XBRL taxonomy
Financial report rudiments – One of the primitive building blocks of a financial report: financial report, component, characteristic, fact, relations	<i>See the examples from each rudimentary or primitive piece above</i>	Report element	Uses various technical syntax terms from XML, XML Schema, XLink, XBRL, XBRL Dimensions, XBRL Formula
Component – A portion of a financial report. Made up of facts and characteristics.	<i>Balance sheet, significant accounting policies, maturities of long-term debt</i>	Network + [Table]; Fact Table	Network + Hypercube
Characteristic – Describes a fact. Made up of a characteristic and the value of that characteristic.	<i>Legal entity of "consolidated entity"; Period of "2011-21-31"</i>	[Axis] + [Member] or [Line Items] (the concept is just another characteristic)	Dimension + Member; Primary Items (defined as XML schema element with the substitutionGroup value of "xbrli:item", a specific type, a specific period, and a specific balance; must NOT be abstract)
Relations – The relation from one concept to another concept.	<i>Assets = Liabilities + Equity; Beginning cash + net cash flows = ending cash</i>	Business rules, Domain partition aggregation model, Information model	Presentation relations, calculation relations, definition relations, XBRL Formula
Fact – Intersection of characteristics, a value, traits of the value if numeric, and parenthetical information	<i>Value of 1000 for the concept "Cash and cash equivalents" for the legal entity "consolidated entity" for the period ended "December 31, 2010" expressed in US Dollars rounded to millions</i>	Fact	Simple fact (compound facts are not allowed by US GAAP Taxonomy Architecture)
Relations between concepts – Relation between concepts within the concept characteristic	<i>Roll up, roll forward, hierarchy</i>	Roll up, roll forward, hierarchy	--Does not have this level--
Relations between characteristics – Relations between characteristic members	<i>North America, United States, Canada</i>	Domain partition aggregation model	--Does not have this level--
Relations between components – Flow, or the order or sequence of components	<i>Balance sheet, then income statement, then statement of changes in equity, ...</i>	Flow, uses Network {SortCode} - {Type} - {Title}	--Does not have this level--
Parenthetical explanation – provide additional descriptive information about a fact.	<i>Parenthetical explanation on the bottom of a page, a footnote to a financial fact</i>	Footnote	XBRL Footnote

1.3. From Perspective of US GAAP/SEC Model

From the perspective of the US GAAP XBRL Taxonomy and SEC model perspective.

Financial Report Semantics and Dynamics Theory Term	Example	US GAAP/SEC Model Term	XBRL Technical Syntax Term
-- Undefined, uses specific report element name rather than this general term --	<i>Network, Table, Axis, Member, Line Items, Concept, Fact</i>	Report element	XML Schema element with specific attributes; different sets of attributes and attribute values define report elements to be different things
This is <i>part of a component</i> , but because different taxonomies use network, hypercube, or combinations of network/hypercube; this cannot be mapped to one physical technical syntax	<i>Balance sheet</i>	Network (must have a unique URI, must have a number, must have a sort group, must have a title)	Network expressed using the XLink extended link with an XBRL extended link role
This is <i>part of a component</i> , but because different taxonomies use network, hypercube, or combinations of network/hypercube; this cannot be mapped to one physical technical syntax	<i>Balance sheet</i>	[Table] (period must be "duration", must not have a balance attribute, must be abstract)	XML schema element with the substitutionGroup value of "xbrldt:hypercubeItem"
Characteristic description – This is part of a characteristic; the description of the characteristic	<i>The "Legal entity" to which a fact relates</i>	[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 value – The value of a characteristic.	<i>"Consolidated entity" is the value of "Legal Entity" characteristic</i>	[Member]	XBRL Dimensions Member
Line items – Set of concepts	<i>Assets [Roll up] of a balance sheet</i>	[Line Items]	Primary Items
Line Item – This is the concept characteristic	<i>Cash and cash equivalents; Assets; Net income (loss)</i>	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.
Fact – Intersection of characteristics, a value, traits of the value if numeric, and parenthetical information	<i>Value of 1000 for the concept "Cash and cash equivalents" for the legal entity "consolidated entity" for the period ended "December 31, 2010" expressed in US Dollars rounded to millions</i>	Fact	Simple fact (compound facts are not allowed)
Relations – The relation from one concept to another concept.	<i>Assets = Liabilities + Equity; Beginning cash + net cash flows = ending cash</i>	Business rules, Domain partition aggregation model, Information model	Presentation relations, calculation relations, definition relations, XBRL Formula
Relations between components – Flow, or the order or sequence of components	<i>Balance sheet, then income statement, then statement of changes in equity, ...</i>	Flow , uses Network {SortCode} - {Type} - {Title}	--Does not have this level--

Financial Report Semantics and Dynamics Theory Term	Example	US GAAP/SEC Model Term	XBRL Technical Syntax Term
Relations between concepts – Relation between concepts within the concept characteristic	<i>Roll up, roll forward, hierarchy</i>	Roll up, roll forward, hierarchy	--Does not have this level--
Relations between characteristics – Relations between characteristic members	<i>North America, United States, Canada</i>	Domain partition aggregation model	--Does not have this level--
Set of financial reports which are being worked with; reading one, comparing across period for same reporting entity; comparing one or more financial reports from multiple reporting entities	<i>Comparing IBM, Apple, and Microsoft</i>	De facto standard is the RSS Feed provided by SEC	--Does not have this level--

1.4. Reconciliation of Financial Report Semantics and Dynamics Theory Terminology to XBRL Abstract Model 2.0

Reconciles the Financial Report Semantics and Dynamics Theory conceptual model to the XBRL Abstract Model 2.0.

Example	<u>Financial Report Semantics and Dynamics Theory Object</u>	<u>XBRL Abstract Model 2.0 Object</u>
<i>Financial statement portion of a 10-Q or 10-K; financial statement issued by a private entity</i>	Financial report – A financial statement plus supplementary financial information. Financial report can be broken down into components.	Document or Manifest
<i>See the examples from each rudimentary or primitive piece above</i>	Financial report rudiments – One of the primitive building blocks or objects of a financial report: financial report, component, characteristic, fact, parenthetical explanation, relation	Model Element
<i>Balance sheet, significant accounting policies, maturities of long-term debt</i>	Component – A portion of a financial report. Made up of facts which go together for some specific purpose and the relations between facts and relations between characteristics. (Common terms for this are array, matrix, hypercube, cube)	Cube, Cube Region
<i>Reporting entity with CIK number 1234567890; Legal entity of "consolidated entity"; Period of "2011-21-31"; Property, plant and equipment class of "Land"</i>	Characteristic – Describes a fact. Made up of a characteristic and the value of that characteristic.	Aspect
<i>Assets = Liabilities + Equity; Beginning cash + net cash flows = ending cash</i>	Relation – The relation from one object of a financial report to another object or objects. (Business rules, model structure, report sequence or ordering are types of relations)	Relation
<i>Value of 1000 for the concept "Cash and cash equivalents" for the legal entity "consolidated entity" for the period ended "December 31, 2010" expressed in US Dollars rounded to millions</i>	Fact – A single, observable, reported piece of information. Intersection of characteristics, a value, traits of the value if numeric, and parenthetical information	Data Point
<i>Parenthetical explanation on the bottom of a page, a footnote to a financial fact</i>	Parenthetical explanation – provide additional descriptive information about a fact.	Footnote
<i>Roll up, roll forward, hierarchy</i>	Relation between concepts within the concept characteristic	Relation
<i>North America, United States, Canada</i>	Relations between values of a characteristic	Relation
<i>Balance sheet, then income statement, then statement of changes in equity, ...</i>	Relationship between components or the order or sequence of components	Relation
<i>Units, rounding, balance type, period type</i>	Property – Property or trait of an object.	Attribute

1.5. Reconciliation of US GAAP/SEC Model Terminology to XBRL Abstract Model 2.0

US GAAP XBRL Taxonomy and SEC model to XBRL Abstract Model 2.0.

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