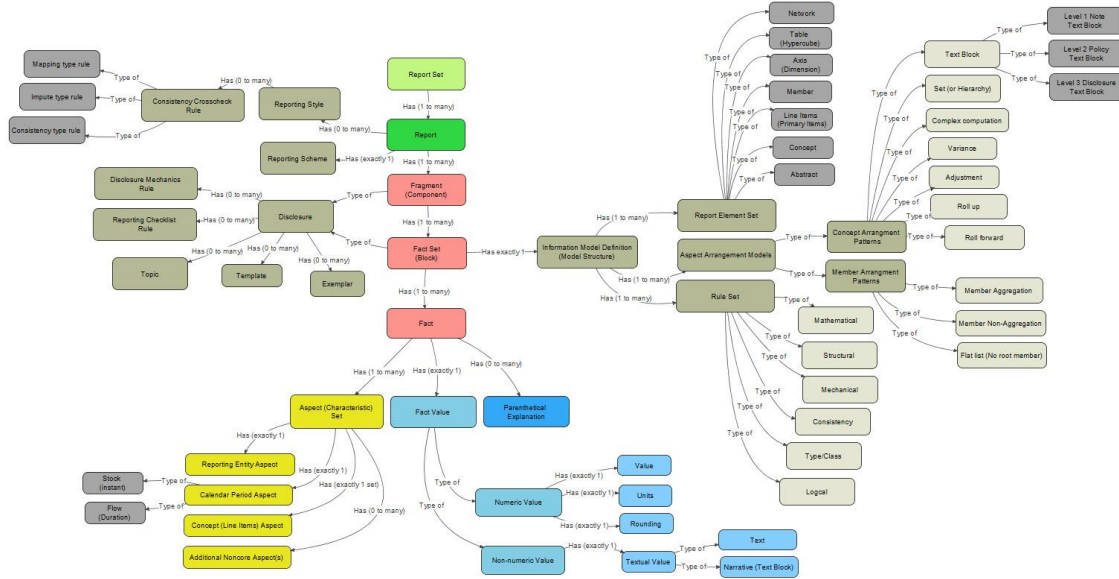


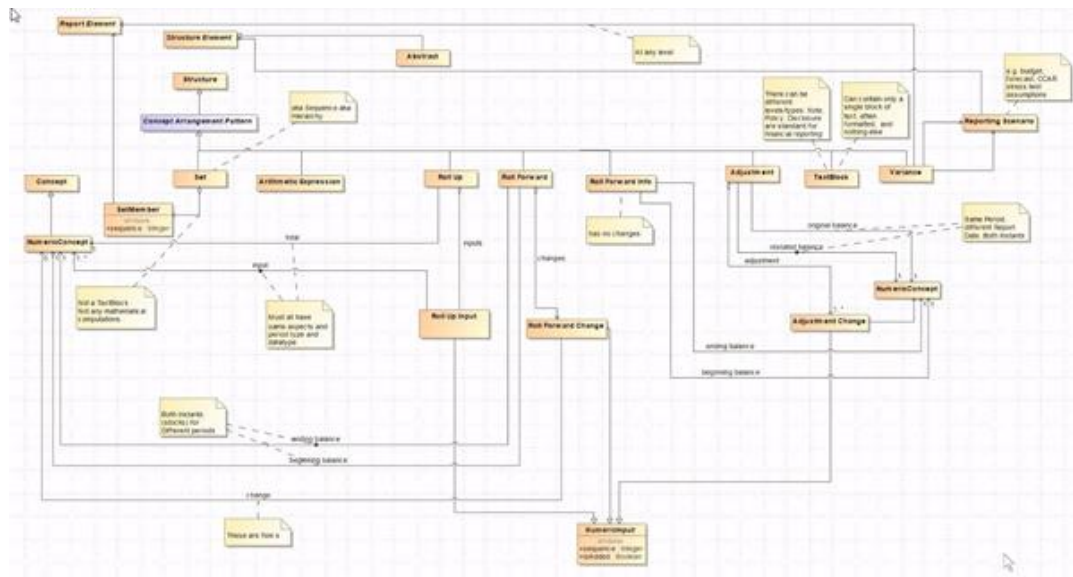
1. Financial Report Object Properties

The purpose of this section is to describe the details of logical and physical implementation objects that are used within an XBRL-based digital financial report. Please refer to the logical model of a financial report¹.



There are many other approaches to documenting the logical model of a financial report. Here are examples.

UML²:

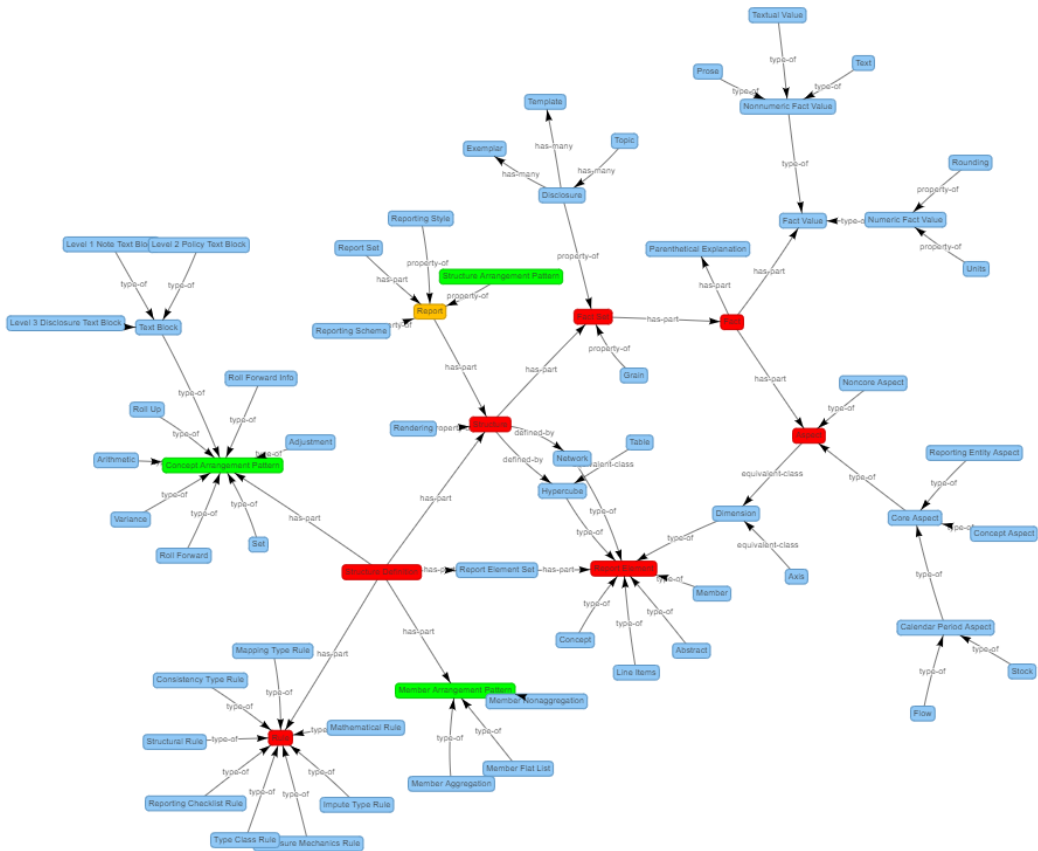


¹ Logical Model of a Financial Report, <http://xbrlsite.azurewebsites.net/2016/conceptual-model/LogicalModel-2019-03-10.jpg>

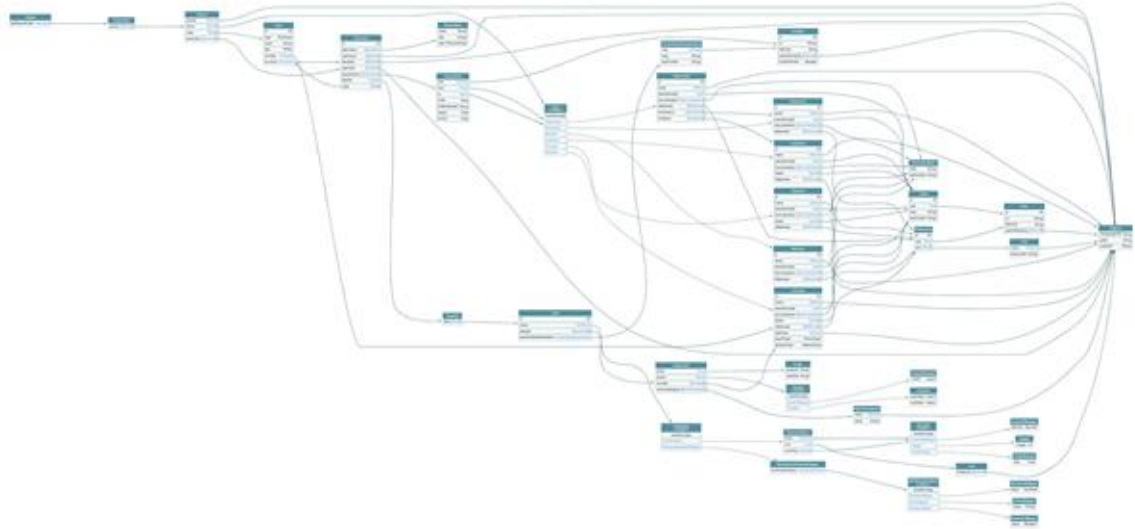
² SBRM UML Model, <https://photos.app.goo.gl/BwDSHQ1G9KMGqGKC6>



Informal graph³:



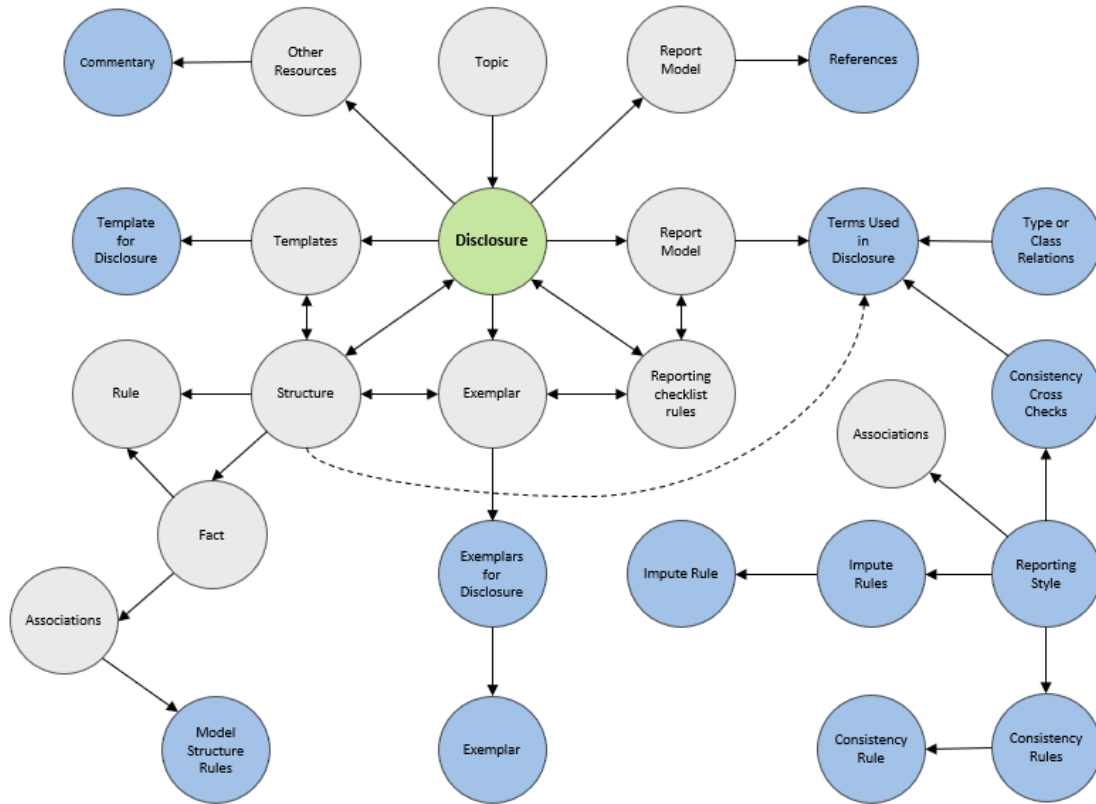
Graph Schema Definition Language⁴: (here is actual schema file⁵)



³ Informal Graph, <http://www.xbrl-site.com/2020/Theory/Associations.html>
⁴ Graph Schema Definition Language, <http://xbrl-site.azurewebsites.net/2022/Library/simplifiedSBRMSchema7.jpg>
⁵ SDL file, <http://xbrl-site.azurewebsites.net/2022/Library/simplifiedSBRMSchema7.graphql.txt>



Another informal approach⁶:



Logical Theory Describing Financial Report⁷:

This theory uses human readable statements to describe the logical pieces of a digital financial report. Those statements can be represented using an one of the previous visual approaches to describe those relationships. This documentation, particularly the section *Logical Description Narrative* is the most precise and accurate documentation of the logical model of a financial report.

I would really like to have only one model but I am not a professional modeler, every professional modeler seems far too focused on technical syntax rather than the logical model. This will be worked out over time.

The document *Reconciliation of Models*⁸ endeavours to reconcile the logical model of reports to the physical syntax used to implement report models and reports.

⁶ Logical Objects of Financial Report,
<http://www.xbrl.com/seattlemethod/proof/documentation/index.html>

⁷ Logical Theory Describing Financial Report,
http://xbrl.com/seattlemethod/LogicalTheoryDescribingFinancialReport_Terse.pdf

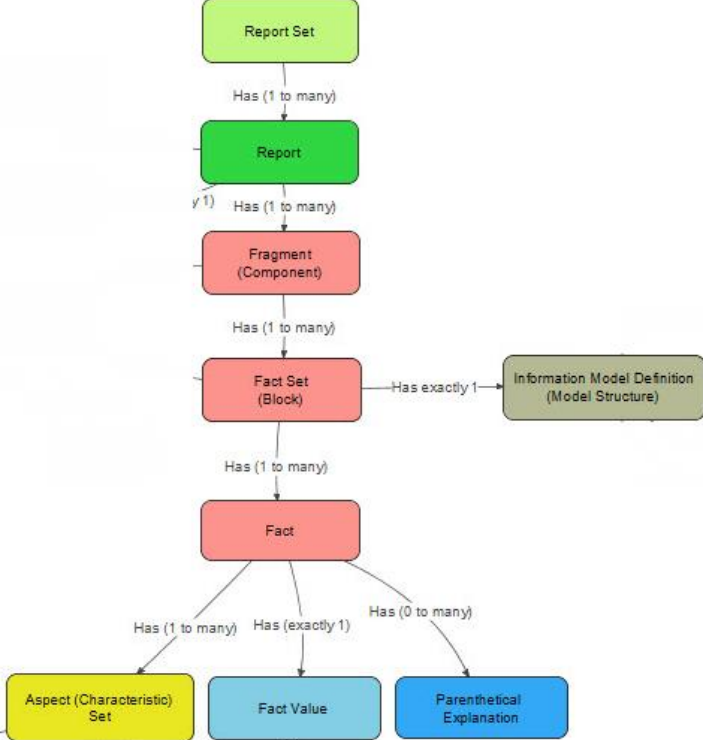
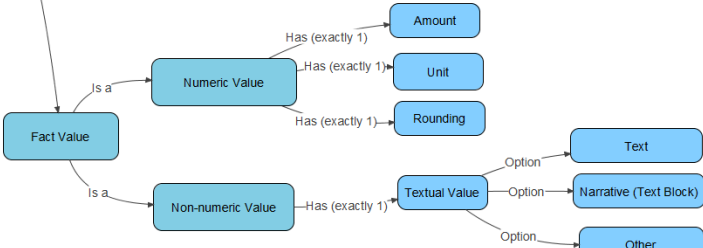
⁸ Reconciliation of Models,
http://www.xbrl.com/mastering/Part05_Chapter08.C_ReconciliationOfModels.pdf



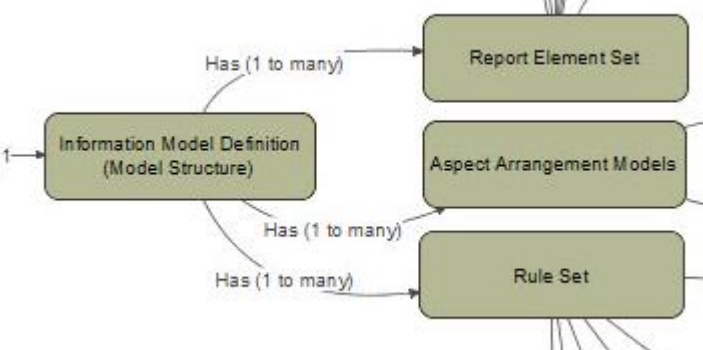
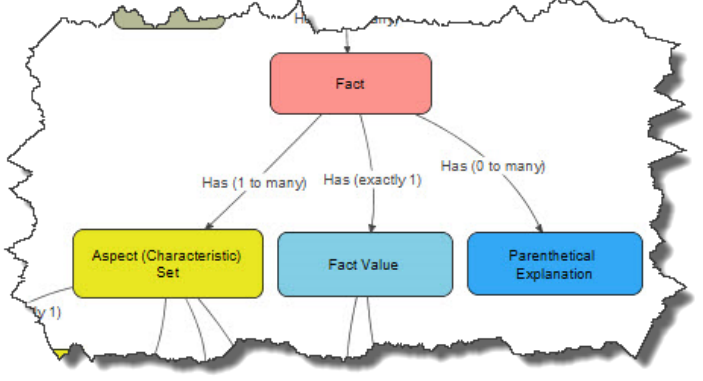
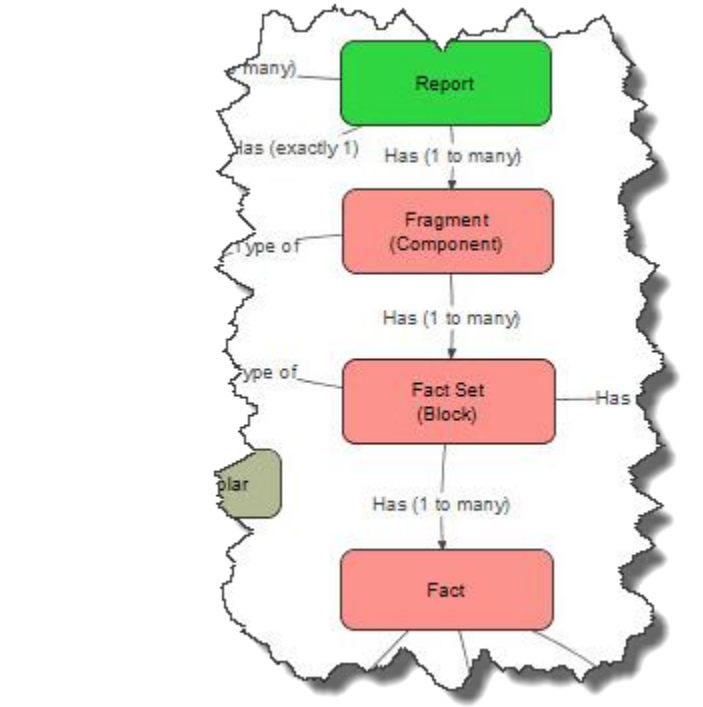
1.1. Details of logical objects and their properties

This section provides a more complete detailed explanation of the logical objects of a financial report, the relations between those logical objects, and the properties of those objects and relations.

Essentially, this looks at isolated rudimentary pieces of the overall model and focuses on the individual piece in detail.

Logical Object / Discussion	Graphical representation
<p>A report set has 1 or more reports. For example, when you compare the information of one reporting entity to the information of one or more other reporting entities; the report set is that complete set of reports being compared.</p> <p>A report communicates facts.</p> <p>A fragment is a set of fact sets which go together for some specific purpose.</p> <p>A fact set is a set of facts which go together for some specific purpose within a report.</p> <p>A fact is a single, observable, reportable piece of information. Facts have characteristics, a fact value, and they may have parenthetical explanations which further describe a fact.</p> <p>Characteristics describe facts such that facts can be distinguished from one another.</p> <p>Facts and characteristics organized within a fragment have an information model.</p>	
<p>A fact value can be numeric or non-numeric. Numeric fact values have two additional properties of unit and rounding.</p>	

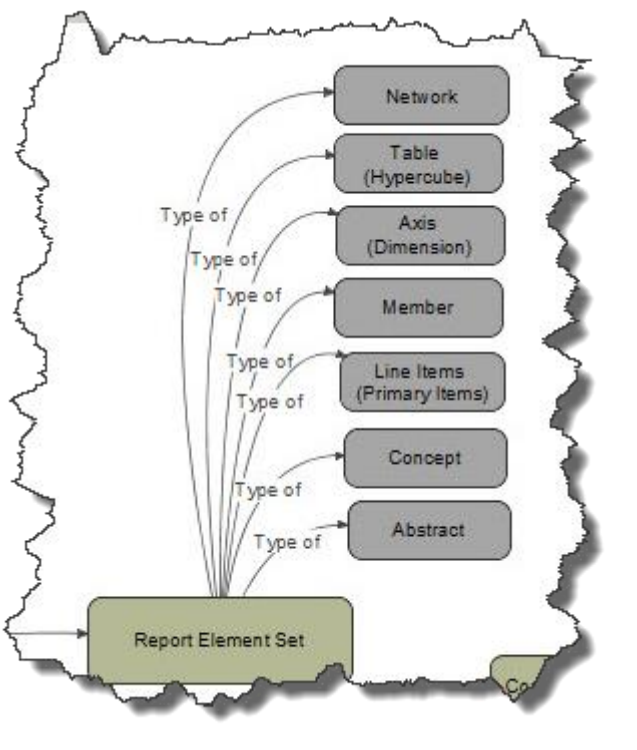


Logical Object / Discussion	Graphical representation																
<p>The information model definition says out the report elements that are used to construct the report model, the arrangement of aspects within that model, and the rules that are used to both describe the model and evaluate an instance of a report for consistency with the model.</p>	 <pre> graph TD IMD[Information Model Definition (Model Structure)] -- "Has (1 to many)" --> RES[Report Element Set] IMD -- "Has (1 to many)" --> AAM[Aspect Arrangement Models] IMD -- "Has (1 to many)" --> RS[Rule Set] </pre>																
<p>A fact is comprised of a set of aspects, a fact value, and an optional parenthetical explanation that is used to provide further descriptive information about a fact.</p>	 <pre> graph TD F[Fact] -- "Has (1 to many)" --> ACS[Aspect (Characteristic) Set] F -- "Has (exactly 1)" --> FV[Fact Value] F -- "Has (0 to many)" --> PE[Parenthetical Explanation] </pre>																
<p>A fact is a set of aspects, a fact value including the units and rounding properties which are used to describe a fact.</p>	<table border="1" data-bbox="673 1018 1372 1060"> <thead> <tr> <th>#</th> <th>Reporting Entity [Aspect]</th> <th>Period [Aspect]</th> <th>Concept [Aspect]</th> <th>Legal Entity [Aspect]</th> <th>Fact Value</th> <th>Unit</th> <th>Rounding</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>http://regulator.gov/id#1234567890</td> <td>12/31/2010</td> <td>Finished Goods</td> <td>Consolidated Entity (Member)</td> <td>600,000</td> <td>USD</td> <td>Thousands</td> </tr> </tbody> </table>	#	Reporting Entity [Aspect]	Period [Aspect]	Concept [Aspect]	Legal Entity [Aspect]	Fact Value	Unit	Rounding	1	http://regulator.gov/id#1234567890	12/31/2010	Finished Goods	Consolidated Entity (Member)	600,000	USD	Thousands
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<p>A complete report can be broken down into fragments. Fragments can further be broken down into logical fact sets. Fact sets contain facts.</p> <p>For example, a balance sheet is a fragment of a report. The fact set that represents an assets roll up and the fact set that represents the liabilities and equity roll up combine to represent the balance sheet fragment.</p> <p>The assets roll up fact set would contain the facts that represent assets such as total assets, current assets, cash and cash equivalents, inventories, and so forth.</p>	 <pre> graph TD R[Report] -- "Has (1 to many)" --> F[Fact] R -- "Has (exactly 1)" --> FR[Fragment (Component)] FR -- "type of" --> FS[Fact Set (Block)] FS -- "type of" --> F FR -- "Has (1 to many)" --> FS FS -- "Has (1 to many)" --> F </pre>																



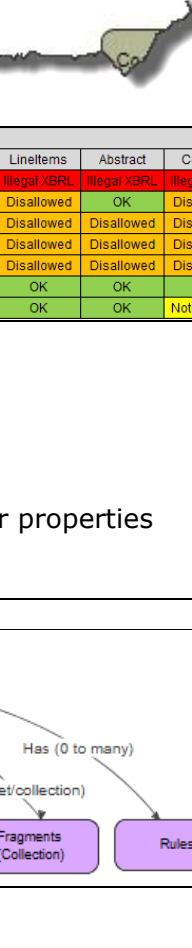
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Rules guide, control, suggest, or influence behavior. Rules cause things to happen, prevent things from happening, or suggest that it might be a good idea if something did or did not happen. Rules help shape judgment, help make decisions, help evaluate, help shape behavior, and help reach conclusions. A Report has structural Rules, mechanical Rules, logical Rules, mathematical Rules, consistency Rules, integrity Rules, and other such helpful Rules. (Common synonyms for Rule include Business Rule.) The following are the Rules related to the Fact Set shown above. These Rules articulate a Roll Up relation between the Concepts represented in the Information Model above:	<table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Report Element Class</th> <th>Weight</th> <th>Balance</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Inventory</td> <td>[Concept] Monetary</td> <td></td> <td></td> <td>gaap:Inventory</td> </tr> <tr> <td>2</td> <td>Finished Goods</td> <td>[Concept] Monetary</td> <td>+1</td> <td>Debit</td> <td>gaap:FinishedGoods</td> </tr> <tr> <td>3</td> <td>Work in Progress</td> <td>[Concept] Monetary</td> <td>+1</td> <td>Debit</td> <td>gaap:WorkinProgress</td> </tr> <tr> <td>4</td> <td>Raw Material</td> <td>[Concept] Monetary</td> <td>+1</td> <td>Debit</td> <td>gaap:RawMaterial</td> </tr> </tbody> </table>	#	Label	Report Element Class	Weight	Balance	Name	1	Inventory	[Concept] Monetary			gaap:Inventory	2	Finished Goods	[Concept] Monetary	+1	Debit	gaap:FinishedGoods	3	Work in Progress	[Concept] Monetary	+1	Debit	gaap:WorkinProgress	4	Raw Material	[Concept] Monetary	+1	Debit	gaap:RawMaterial																																										
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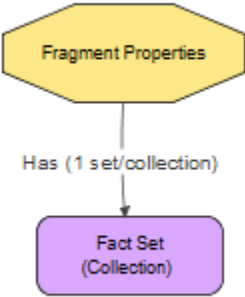
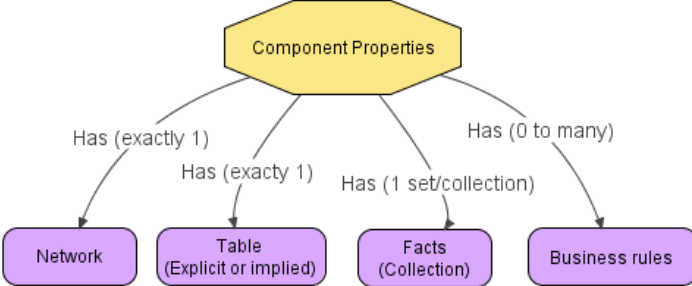
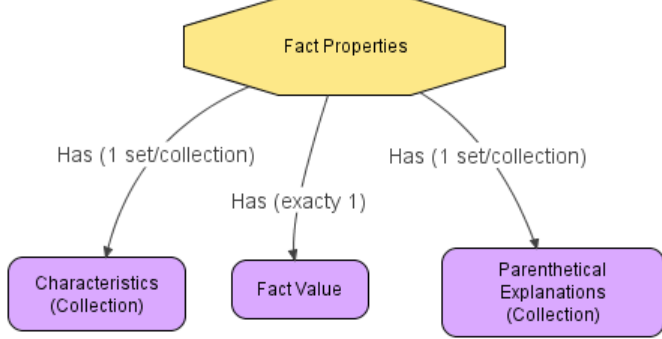
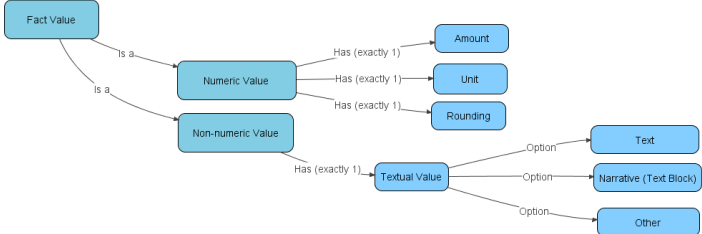
Logical Object / Discussion	Graphical representation																																																																											
<p>The information model definition is created using report elements. Report elements can be grouped into categories.</p>																																																																												
<p>Report elements in one category can be related to other report element of another category in very specific ways.</p>	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="7">Parent</th> </tr> <tr> <th colspan="2"></th> <th>Network</th> <th>Table</th> <th>Axis</th> <th>Member</th> <th>LineItems</th> <th>Abstract</th> <th>Concept</th> </tr> </thead> <tbody> <tr> <th rowspan="8">Child</th> <th>Network</th> <td>Illegal XBRL</td> <td>Illegal XBRL</td> <td>Illegal XBRL</td> <td>Illegal XBRL</td> <td>Illegal XBRL</td> <td>Illegal XBRL</td> <td>Illegal XBRL</td> </tr> <tr> <th>Table</th> <td>OK</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>OK</td> <td>Disallowed</td> </tr> <tr> <th>Axis</th> <td>Disallowed</td> <td>OK</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> </tr> <tr> <th>Member</th> <td>Disallowed</td> <td>Disallowed</td> <td>OK</td> <td>OK</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> </tr> <tr> <th>LineItems</th> <td>Disallowed</td> <td>OK</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> </tr> <tr> <th>Abstract</th> <td>OK</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>OK</td> <td>OK</td> <td>OK</td> </tr> <tr> <th>Concept</th> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>Disallowed</td> <td>OK</td> <td>OK</td> <td>Not advised</td> </tr> </tbody> </table>			Parent									Network	Table	Axis	Member	LineItems	Abstract	Concept	Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Table	OK	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed	LineItems	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	OK	OK	Concept	Disallowed	Disallowed	Disallowed	Disallowed	OK	OK	Not advised
		Parent																																																																										
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1.2. Implementation objects and their properties

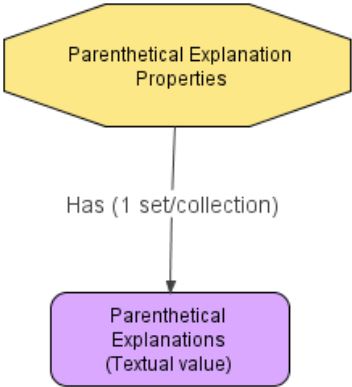
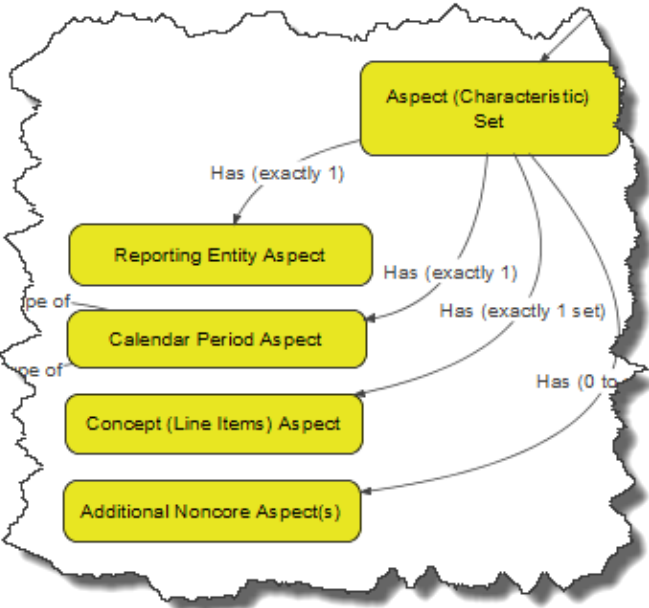
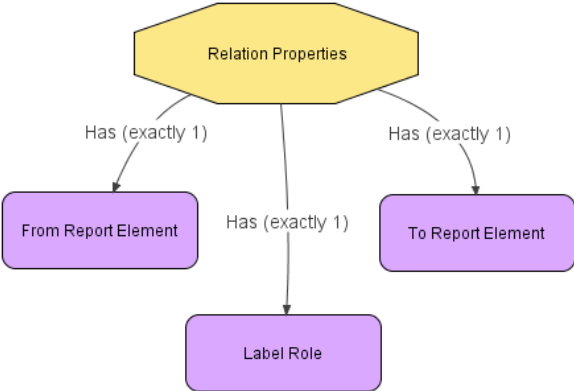
The following is a summary of the implementation objects and their properties including a graphical depiction of each object.

Implementation Details	Graphical representation
<p>Report: Financial reports communicate facts.</p> <p>A financial report is implemented as an XBRL instance and supporting XBRL taxonomies. The distinction between instance and taxonomy is a nature of XBRL, not a nature of a financial report.</p>	



<p>Fragment: A fragment is a set of one or more fact sets.</p> <p>A fragment is implemented as a network/table. Neither the US GAAP Taxonomy architecture nor the SEC defines precisely what a “network” or “table” is semantically.</p> <p>This is a notion rather than a physical thing.</p>	 <pre> graph TD FP{{Fragment Properties}} -- "Has (1 set/collection)" --> FSC(Fact Set (Collection)) </pre>
<p>Component: A component is a set of facts that exist within a Network + a [Table], whether that [Table] is explicitly provide or implied.</p> <p>A component is implemented as a network/table. Neither the US GAAP Taxonomy architecture nor the SEC defines precisely what a “network” or “table” is semantically.</p>	 <pre> graph TD CP{{Component Properties}} -- "Has (exactly 1)" --> N(Network) CP -- "Has (exactly 1)" --> T(Table (Explicit or implied)) CP -- "Has (1 set/collection)" --> F(Facts (Collection)) CP -- "Has (0 to many)" --> BR(Business rules) </pre>
<p>Fact: A fact defines a single, observable, reportable piece of information contained within a financial report, or fact value, contextualized for unambiguous interpretation or analysis by one or more characteristics.</p> <p>Numeric fact values must also provide the additional traits “units” and “rounding” to enable appropriate interpretation of the numeric fact value. Facts may have zero or many parenthetical explanations which provide additional descriptive information related to the fact.</p> <p>Facts are implemented as XBRL simple facts. Compound facts (i.e. tuples) are not allowed per the US GAAP Taxonomy Architecture.</p>	 <pre> graph TD FP{{Fact Properties}} -- "Has (1 set/collection)" --> C(Characteristics (Collection)) FP -- "Has (exactly 1)" --> FV(Fact Value) FP -- "Has (1 set/collection)" --> PE(Parenthetical Explanations (Collection)) </pre>
<p>Fact Value: Facts have a value.</p>	 <pre> graph TD FV(Fact Value) -- "Is a" --> NV(Numeric Value) FV -- "Is a" --> NNV(Non-numeric Value) NV -- "Has (exactly 1)" --> A(Amount) NV -- "Has (exactly 1)" --> U(Unit) NV -- "Has (exactly 1)" --> R(Rounding) NNV -- "Has (exactly 1)" --> TV(Textual Value) TV -- "Option" --> T(Text) TV -- "Option" --> N(Narrative (Text Block)) TV -- "Option" --> O(Other) </pre>



<p>Parenthetical explanations: Financial facts have parenthetical explanations which provide additional descriptive information about the fact.</p> <p>Parenthetical explanations are implemented as XBRL footnotes.</p>	 <pre> graph TD A{{Parenthetical Explanation Properties}} -- "Has (1 set/collection)" --> B(Parenthetical Explanations (Textual value)) </pre>
<p>Characteristics: Facts have characteristics (common synonym for characteristic is aspect, dimension, or [Axis]). Characteristics describe facts.</p> <p>Characteristics are implemented using several different technical syntax in XBRL; as axes (i.e. set of [Axis]), [Member]s, [Line Items]; reporting entity and period are part of the XBRL instance context element technical syntax, but these are clearly axis.</p>	 <pre> graph TD A(Aspect (Characteristic) Set) -- "Has (exactly 1)" --> B(Reporting Entity Aspect) A -- "Has (exactly 1 set)" --> C(Calendar Period Aspect) A -- "Has (0 to ...)" --> D(Concept (Line Items) Aspect) A -- "Has (0 to ...)" --> E(Additional Noncore Aspect(s)) B -.-> type of A C -.-> type of A </pre>
<p>Relations: Relations have properties. A relation is between two report elements. A relation has a role.</p>	 <pre> graph TD A{{Relation Properties}} -- "Has (exactly 1)" --> B(From Report Element) A -- "Has (exactly 1)" --> C(To Report Element) A -- "Has (exactly 1)" --> D(Label Role) </pre>



<p>Reporting entity: Reporting Entity is in essence a type of [Axis], just implemented as a different technical syntax in XBRL.</p>	<pre> graph TD A{{Reporting Entity Axis Properties}} -- "Has (exactly 1)" --> B[Reporting Entity Member] B -- "Has (exactly 1)" --> C[Identifier Scheme] B -- "Has (exactly 1)" --> D[Identifier] </pre>
<p>Period: Period is in essence a type of [Axis], just implemented using a different technical syntax in XBRL.</p>	<pre> graph TD A{{Period Axis Properties}} -- "Has (exactly 1)" --> B[Period Member] B -- "Option" --> C["Instant (i.e. as of)"] B -- "Option" --> D["Start Date + End Date (i.e. for period)"] B -- "Option" --> E["Forever (i.e. always)"] </pre>
<p>Concept arrangement pattern</p>	<pre> graph TD A[Concept Arrangement Patterns] -- "Type of" --> B[Text Block] A -- "Type of" --> C[Set (or Hierarchy)] A -- "Type of" --> D[Complex computation] A -- "Type of" --> E[Variance] A -- "Type of" --> F[Adjustment] A -- "Type of" --> G[Roll up] A -- "Type of" --> H[Roll forward] </pre>



<p>Member arrangement pattern</p>	<pre> graph TD MAP[Member Arrangement Patterns] -- Type of --> MA[Member Aggregation] MAP -- Type of --> MNA[Member Non-Aggregation] MAP -- Type of --> FL[Flat list (No root member)] MAP -- Type of --> M[Mathematical] MAP -- Type of --> S[Structural] </pre>
<p>Rules guide, control, suggest, or influence behavior. 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 behavior, and help reach conclusions.</p> <p>Some rules relate to the overall report such as consistency rules that make sure there are no inconsistencies or contradictions in report information.</p> <p>Other rules relate to each specific fact set, enforcing the integrity of each individual fact set.</p> <p>Rules are implemented using XBRL Formula and XBRL definition relations.</p>	<pre> graph TD RS[Rule Set] -- Type of --> MAP[Member Arrangement Patterns] RS -- Type of --> M[Mathematical] RS -- Type of --> S[Structural] RS -- Type of --> ME[Mechanical] RS -- Type of --> C[Consistency] RS -- Type of --> TC[Type/Class] RS -- Type of --> L[Logical] </pre>
<p>Label: Implementation of labels tends to be straight forward.</p>	<pre> graph TD LP{{Label Properties (Including standard label)}} -- Has (exactly 1) --> LR[Label Role] LP -- Has (exactly 1) --> L[Label] </pre>



<p>References: Implementation of references tends to be straight forward.</p>	
<p>Each report has a reporting style. Reporting styles have fundamental accounting concept relations, mapping rules, impute rules, and consistency rules to both describe and evaluate whether a report is consistent with the provided description.</p> <p>Reporting styles help control allowed report variability.</p>	
<p>Some reporting schemes allow for the use of text blocks. Sometimes text blocks have different levels.</p>	

1.3. Implementation of report elements


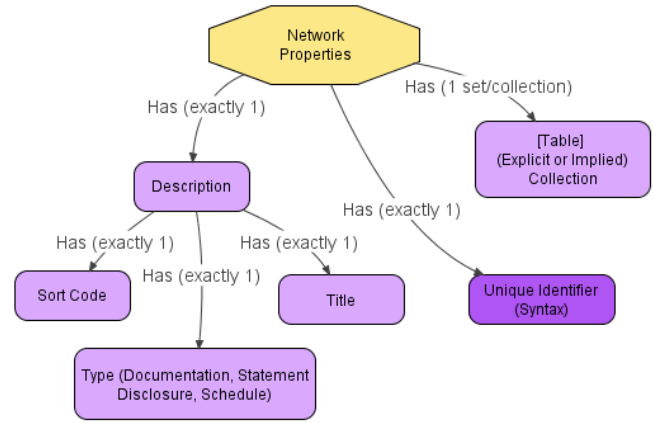
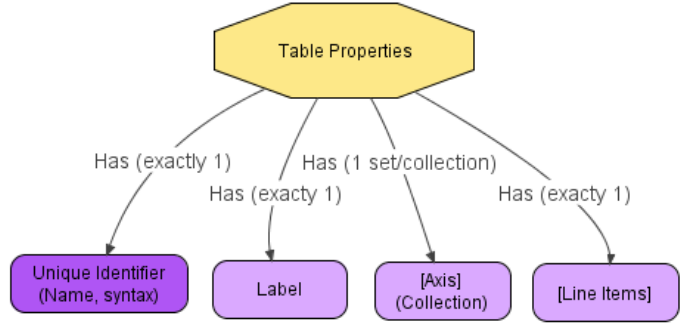
Report elements are defined as elements that make up the structure of a fragment of a report. Report elements can be grouped into the following categories: Network, Table (or Hypercube), Axis (or Dimension), Member, Line Items (or Primary Items), Concept, and Abstract.

Report elements can be related to one another in specific ways. The following table describes the allowed and disallowed between the different categories of report elements:

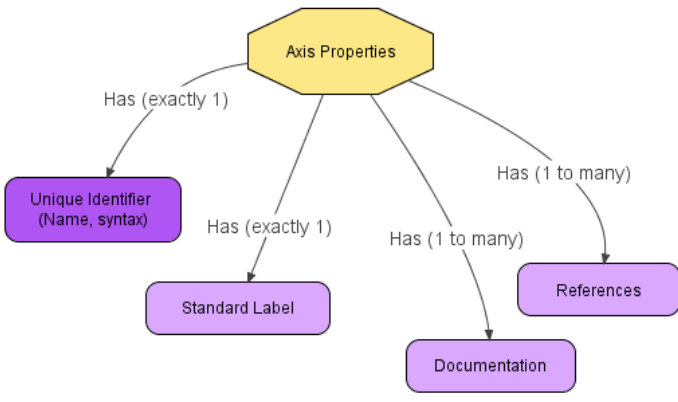
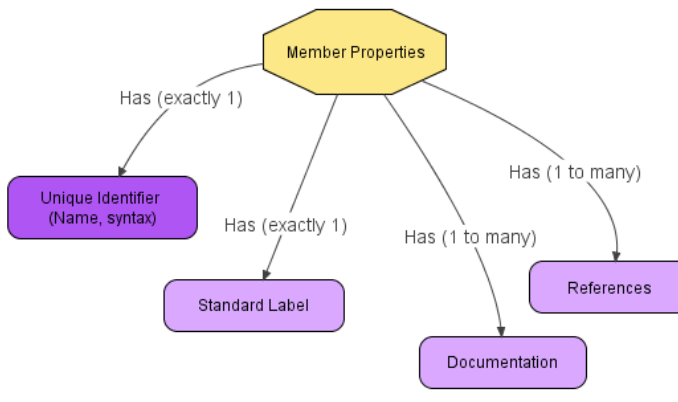
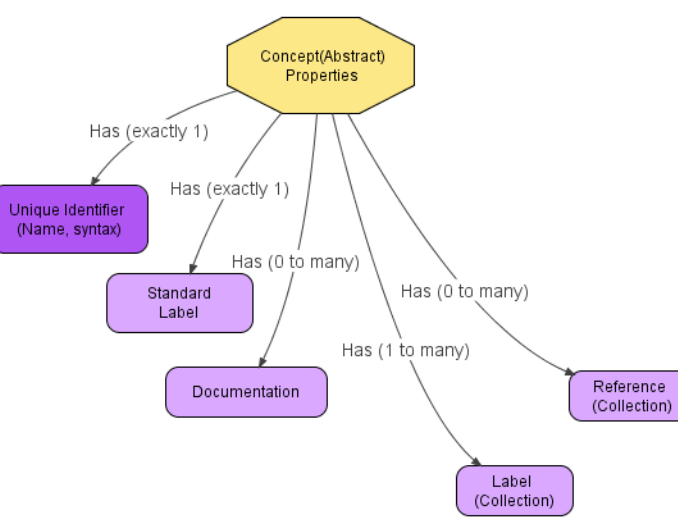


		Restrictive model (Meets EFM filing rules, but less ambiguous)						
		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL
	Table	OK	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed
	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed
	Lineltms	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	Disallowed	Disallowed
	Concept	Disallowed	Disallowed	Disallowed	Disallowed	OK	OK	Disallowed

The following table describes each report element and provides a graphical representation of the relations between the different objects that make up a report element.

Implementation Details	Graphical representation
<p>Network: Semantics of a network are undefined.</p> <p>Networks are implemented as XBRL networks.</p> 	
<p>Table: Semantics of what a table represents are undefined.</p> <p><i>HINT:</i> While the semantics of what a [Table] represents are clearly defined from a report logical model perspective, they are undefined from a domain perspective.</p> <p>Tables are implemented either explicitly as a [Table] or XBRL Dimensions hypercube or implicitly (i.e. if concepts are not associated with a hypercube) as the relations within a network.</p> <p>Said another way, the core aspects reporting entity characteristic, period characteristic, and concept characteristic are required; XBRL Dimensions can be used to create additional noncore characteristics.</p>	

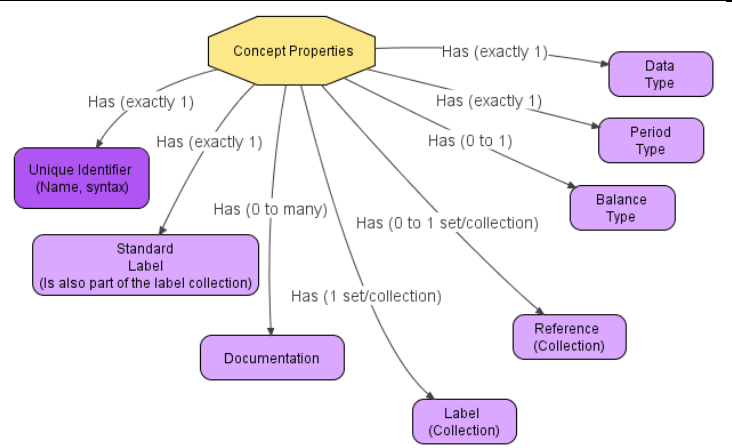


<p>Axis: An [Axis] is used to articulate a characteristic. (Axis, characteristic, and aspect are all synonyms)</p> <p>An [Axis] is abstract and therefore can never contain a value. Therefore the data type, period type, and balance have no logical meaning. SEC EFM requires specific values for these attributes.</p> <p>There are multiple ways characteristics are implemented: as an [Axis], as a context entity identifier, and as a context period.</p>	 <pre> graph TD AP{{Axis Properties}} -- "Has (exactly 1)" --> UI[Unique Identifier (Name, syntax)] AP -- "Has (exactly 1)" --> SL[Standard Label] AP -- "Has (1 to many)" --> D[Documentation] AP -- "Has (1 to many)" --> R[References] </pre>
<p>Member: A [Member] is a possible value of an [Axis]; together they are used to articulate a characteristic.</p> <p>A [Member] is abstract and therefore can never contain a value. Therefore the data type, period type, and balance have no semantic meaning. SEC EFM requires specific values for these attributes.</p> <p><i>HINT:</i> Use of the term [Domain] to represent the root member of a set of members should be avoided unless it is required for a specific reporting profile.</p>	 <pre> graph TD MP{{Member Properties}} -- "Has (exactly 1)" --> UI[Unique Identifier (Name, syntax)] MP -- "Has (exactly 1)" --> SL[Standard Label] MP -- "Has (1 to many)" --> D[Documentation] MP -- "Has (1 to many)" --> R[References] </pre>
<p>Line Items: [Line Items] which are abstract can never contain a value. Therefore the data type, period type, and balance have no semantic meaning. SEC EFM requires specific values for these attributes.</p> <p><i>HINT:</i> Abstract report elements are implemented similar to concepts, but have an attribute "abstract" whose value is "true". Note that the term "abstract" is not being used here to mean the value of the XML Schema abstract attribute.</p>	 <pre> graph TD CAP{{Concept(Abstract) Properties}} -- "Has (exactly 1)" --> UI[Unique Identifier (Name, syntax)] CAP -- "Has (exactly 1)" --> SL[Standard Label] CAP -- "Has (0 to many)" --> D[Documentation] CAP -- "Has (0 to many)" --> R[Reference (Collection)] CAP -- "Has (1 to many)" --> LC[Label (Collection)] </pre>



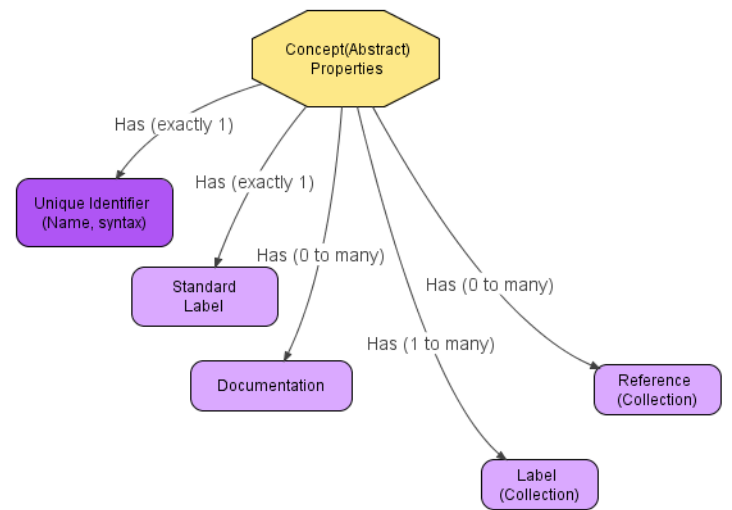
Concepts: Concepts describe facts in such a way that they can contain values. As such, concepts therefore have a data type, period type, balance type are important.

Concepts are implemented as (a) XBRL Dimensions primary items if they participate in a hypercube or if they do not participate in a hypercube (b) XBRL concepts.



Abstract: Abstracts are concepts that can never contain a value or exist in an XBRL instance. Therefore the data type, period type, and balance have no logical meaning.

HINT: Abstract report elements are implemented similar to concepts, but have an XML attribute "abstract" whose value is "true". Note that the term "abstract" is not being used here to mean the value of the XML Schema abstract attribute.



1.4. Implementation of concept arrangement patterns

A concept arrangement pattern is simply the arrangement of concept within the Concept aspect whether that set of concepts is defined within an explicit table or whether the concepts are defined within an implied table. The following graphic shows the information model of a Fact Set. The concept arrangement pattern is circled in RED. The member arrangement patterns are circled in GREEN.

#	Label	Report Element Class	Period Type	Balance	Name
1	Inventory, by Component [Table]	[Table]			gaap:InventoryByComponentTable
2	Legal Entity [Axis]	[Axis]			frm:LegalEntityAxis
3	Consolidated Entity [Member]	[Member]			frm:ConsolidatedEntityMember
4	Inventory, by Component [Line Items]	[Line Items]			gaap:InventoryByComponentLineItems
5	Inventory, by Component [Roll Up]	[Abstract]			gaap:InventoryByComponentRollUp
6	Finished Goods	[Concept] Monetary	As Of	Debit	gaap:FinishedGoods
7	Work in Progress	[Concept] Monetary	As Of	Debit	gaap:WorkInProgress
8	Raw Material	[Concept] Monetary	As Of	Debit	gaap:RawMaterial
9	Inventory	[Concept] Monetary	As Of	Debit	gaap:Inventory



The following table describes each report element and provides a graphical representation of the relations between the different objects that make up a report element.

Implementation Details	Graphical representation																																								
<p>Set: A Set is a type of concept arrangement pattern where concepts have no described mathematical relations.</p> <p><i>HINT:</i> An older synonym for Set is Hierarchy. The term Hierarchy is deprecated because essentially all concept arrangement patterns are hierarchies.</p> <p>If facts need to be reported but they do not fit into one of the other patterns described below; the facts can always be represented as a Set. You may not be able to represent the relations, but you can always represent the facts.</p>	<table border="1"> <thead> <tr> <th data-bbox="625 340 1149 407">Document Information [Line Items]</th> <th colspan="2" data-bbox="1149 340 1399 407">Period [Axis]</th> </tr> <tr> <td></td> <td colspan="2" data-bbox="1149 407 1399 436">2010-01-01 - 2010-12-31</td> </tr> </thead> <tbody> <tr> <td colspan="3" data-bbox="625 415 1149 445">Document Information [Hierarchy]</td> </tr> <tr> <td data-bbox="625 445 1149 474">Reporting Style Code</td> <td colspan="2" data-bbox="1149 445 1399 474">COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6</td> </tr> <tr> <td data-bbox="625 474 1149 504">Document Title</td> <td colspan="2" data-bbox="1149 474 1399 504">Financial Statement</td> </tr> <tr> <td data-bbox="625 504 1149 533">Balance Sheet Date</td> <td colspan="2" data-bbox="1149 504 1399 533">2010-12-31</td> </tr> <tr> <td data-bbox="625 533 1149 562">Income Statement Period</td> <td colspan="2" data-bbox="1149 533 1399 562">2010-01-01</td> </tr> <tr> <td data-bbox="625 562 1149 592">Document Identifier</td> <td colspan="2" data-bbox="1149 562 1399 592">XXXX</td> </tr> <tr> <td data-bbox="625 592 1149 621">Document Description</td> <td colspan="2" data-bbox="1149 592 1399 621"></td> </tr> <tr> <td data-bbox="625 621 1149 651">Document Creator</td> <td colspan="2" data-bbox="1149 621 1399 651"></td> </tr> <tr> <td data-bbox="625 651 1149 680">Document Language</td> <td colspan="2" data-bbox="1149 651 1399 680">English</td> </tr> <tr> <td data-bbox="625 680 1149 709">Document Fiscal Period Focus</td> <td colspan="2" data-bbox="1149 680 1399 709">FY</td> </tr> <tr> <td data-bbox="625 709 1149 739">Document Fiscal Year Focus</td> <td colspan="2" data-bbox="1149 709 1399 739">2010</td> </tr> </tbody> </table>		Document Information [Line Items]	Period [Axis]			2010-01-01 - 2010-12-31		Document Information [Hierarchy]			Reporting Style Code	COMID-BSC-CF1-ISM-IEMIB-OILY-SPEC6		Document Title	Financial Statement		Balance Sheet Date	2010-12-31		Income Statement Period	2010-01-01		Document Identifier	XXXX		Document Description			Document Creator			Document Language	English		Document Fiscal Period Focus	FY		Document Fiscal Year Focus	2010	
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Document Fiscal Period Focus	FY																																								
Document Fiscal Year Focus	2010																																								
<p>Roll Up: A Roll Up is a type of concept arrangement pattern which represents a basic roll up type mathematical relationship: Fact A + Fact B + Fact C = Fact D (a set of items and a total).</p> <p><i>HINT:</i> Roll Up relations are always easily distinguishable because XBRL calculation relations exist to represent the roll up mathematical business rules.</p> <p>A roll up has exactly one total. A roll up can be a nested set of roll ups such as an income statement.</p>	<table border="1"> <thead> <tr> <th data-bbox="625 829 1052 858">Reporting Entity [Axis]</th> <td colspan="2" data-bbox="1052 829 1399 858">http://regulator.gov/id#1234567890</td> </tr> <tr> <th data-bbox="625 858 1052 888">Legal Entity [Axis]</th> <td colspan="2" data-bbox="1052 858 1399 888">Consolidated Entity [Member]</td> </tr> </thead> <tbody> <tr> <td colspan="3" data-bbox="625 909 1399 938">Inventory, by Component [Line Items]</td> </tr> <tr> <td></td> <td colspan="2" data-bbox="1052 909 1399 938">Period [Axis]</td> </tr> <tr> <td></td> <td data-bbox="1052 938 1149 968">12/31/2020</td> <td data-bbox="1149 938 1399 968">12/31/2019</td> </tr> <tr> <td colspan="3" data-bbox="625 968 1399 997">Inventory, by Component [Roll Up]</td> </tr> <tr> <td data-bbox="625 997 1052 1026">Finished Goods</td> <td data-bbox="1052 997 1149 1026">600,000</td> <td data-bbox="1149 997 1399 1026">600,000</td> </tr> <tr> <td data-bbox="625 1026 1052 1056">Work in Progress</td> <td data-bbox="1052 1026 1149 1056">300,000</td> <td data-bbox="1149 1026 1399 1056">300,000</td> </tr> <tr> <td data-bbox="625 1056 1052 1085">Raw Material</td> <td data-bbox="1052 1056 1149 1085">100,000</td> <td data-bbox="1149 1056 1399 1085">100,000</td> </tr> <tr> <td data-bbox="625 1085 1052 1115">Inventory</td> <td data-bbox="1052 1085 1149 1115">1,000,000</td> <td data-bbox="1149 1085 1399 1115">1,000,000</td> </tr> </tbody> </table>		Reporting Entity [Axis]	http://regulator.gov/id#1234567890		Legal Entity [Axis]	Consolidated Entity [Member]		Inventory, by Component [Line Items]				Period [Axis]			12/31/2020	12/31/2019	Inventory, by Component [Roll Up]			Finished Goods	600,000	600,000	Work in Progress	300,000	300,000	Raw Material	100,000	100,000	Inventory	1,000,000	1,000,000									
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<p>Roll Forward: A Roll Forward is a type of concept arrangement pattern which represents a basic roll forward mathematical relation: Beginning balance (stock) + changes (flow) = Ending balance (stock)</p> <p><i>HINT:</i> Synonyms for roll forward include movement analysis, reconciliation, change analysis.</p> <p>Roll forward relations cannot be represented using XBRL calculations; XBRL Formula must be used.</p>	<table border="1"> <thead> <tr> <th data-bbox="625 1243 1149 1310">Product Liability Contingency [Line Items]</th> <th colspan="2" data-bbox="1149 1243 1399 1310">Period [Axis]</th> </tr> <tr> <td></td> <td data-bbox="1149 1310 1279 1339">2016-01-01 - 2016-12-31</td> <td data-bbox="1279 1310 1399 1339">2015-01-01 - 2015-12-31</td> </tr> </thead> <tbody> <tr> <td colspan="3" data-bbox="625 1318 1149 1348">Product warranty accrual [Roll Forward]</td> </tr> <tr> <td data-bbox="625 1348 1149 1377">Product warranty accrual, beginning balance</td> <td data-bbox="1149 1348 1279 1377">58,000,000</td> <td data-bbox="1279 1348 1399 1377">58,000,000</td> </tr> <tr> <td data-bbox="625 1377 1149 1407">Provision for product warranties issued</td> <td data-bbox="1149 1377 1279 1407">7,000,000</td> <td data-bbox="1279 1377 1399 1407">7,000,000</td> </tr> <tr> <td data-bbox="625 1407 1149 1436">Payments to satisfy claims</td> <td data-bbox="1149 1407 1279 1436">(6,000,000)</td> <td data-bbox="1279 1407 1399 1436">(6,000,000)</td> </tr> <tr> <td data-bbox="625 1436 1149 1465">Currency translation</td> <td data-bbox="1149 1436 1279 1465">(1,000,000)</td> <td data-bbox="1279 1436 1399 1465">(1,000,000)</td> </tr> <tr> <td data-bbox="625 1465 1149 1495">Product warranty accrual, ending balance</td> <td data-bbox="1149 1465 1279 1495">58,000,000</td> <td data-bbox="1279 1465 1399 1495">58,000,000</td> </tr> </tbody> </table>		Product Liability Contingency [Line Items]	Period [Axis]			2016-01-01 - 2016-12-31	2015-01-01 - 2015-12-31	Product warranty accrual [Roll Forward]			Product warranty accrual, beginning balance	58,000,000	58,000,000	Provision for product warranties issued	7,000,000	7,000,000	Payments to satisfy claims	(6,000,000)	(6,000,000)	Currency translation	(1,000,000)	(1,000,000)	Product warranty accrual, ending balance	58,000,000	58,000,000															
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<p>Adjustment: An adjustment is a type of concept arrangement pattern which represents a basic reconciliation between an originally stated value and a restated value usually due to a correction or error: Originally stated balance + adjustments =</p>	<table border="1"> <thead> <tr> <th data-bbox="625 1656 1052 1707">Statement of Changes in Equity, Prior Period Adjustments [Line Items]</th> <th data-bbox="1052 1656 1295 1707">Report Date [Axis]</th> <th data-bbox="1295 1656 1399 1707">Period [Axis]</th> </tr> <tr> <td></td> <td></td> <td data-bbox="1295 1707 1399 1736">2010-01-01 - 2010-12-31</td> </tr> </thead> <tbody> <tr> <td colspan="3" data-bbox="625 1715 1399 1745">Retained Earnings (Accumulated Losses), Prior Period Adjustments [Adjustment]</td> </tr> <tr> <td data-bbox="625 1745 1052 1774">Retained Earnings (Accumulated Losses), Originally Stated</td> <td data-bbox="1052 1745 1295 1774">Reported as of February 22, 2010 [Member]</td> <td data-bbox="1295 1745 1399 1774">2,000</td> </tr> <tr> <td data-bbox="625 1774 1052 1803">Retained Earnings (Accumulated Losses), Prior Period Errors</td> <td data-bbox="1052 1774 1295 1803">Reported as of March 18, 2011 [Member]</td> <td data-bbox="1295 1774 1399 1803">500</td> </tr> <tr> <td data-bbox="625 1803 1052 1833">Retained Earnings (Accumulated Losses), Changes in Accounting Policies</td> <td data-bbox="1052 1803 1295 1833">Reported as of March 18, 2011 [Member]</td> <td data-bbox="1295 1803 1399 1833">(1,500)</td> </tr> <tr> <td data-bbox="625 1833 1052 1862">Retained Earnings (Accumulated Losses), Restated</td> <td data-bbox="1052 1833 1295 1862">Reported as of March 18, 2011 [Member]</td> <td data-bbox="1295 1833 1399 1862">1,000</td> </tr> </tbody> </table>		Statement of Changes in Equity, Prior Period Adjustments [Line Items]	Report Date [Axis]	Period [Axis]			2010-01-01 - 2010-12-31	Retained Earnings (Accumulated Losses), Prior Period Adjustments [Adjustment]			Retained Earnings (Accumulated Losses), Originally Stated	Reported as of February 22, 2010 [Member]	2,000	Retained Earnings (Accumulated Losses), Prior Period Errors	Reported as of March 18, 2011 [Member]	500	Retained Earnings (Accumulated Losses), Changes in Accounting Policies	Reported as of March 18, 2011 [Member]	(1,500)	Retained Earnings (Accumulated Losses), Restated	Reported as of March 18, 2011 [Member]	1,000																		
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<p>restated balance.</p> <p>Adjustment relations cannot be represented using XBRL calculations; XBRL Formula must be used.</p>																											
<p>Variance: A variance is a type of concept arrangement pattern which represents a mathematical difference between two reporting scenarios: Amount (actual scenario) – Amount (projected scenario) = variance.</p> <p>Variance relations cannot be represented using XBRL calculations; XBRL Formula must be used.</p>	<table border="1"> <thead> <tr> <th rowspan="3">Variance Analysis, Gross Profit [Line Items]</th> <th colspan="3">2010-01-01 - 2010-12-31</th> </tr> <tr> <th colspan="3">Reporting Scenario [Axis]</th> </tr> <tr> <th>Variance [Member]</th> <th>Budgeted [Member]</th> <th>Actual [Member]</th> </tr> </thead> <tbody> <tr> <td>Gross Profit (Loss) [Roll Up]</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Revenues, Net</td> <td>5</td> <td>4,005</td> <td>4,000</td> </tr> <tr> <td>Cost of Sales</td> <td>(1)</td> <td>999</td> <td>1,000</td> </tr> <tr> <td>Gross Profit (Loss)</td> <td>6</td> <td>3,006</td> <td>3,000</td> </tr> </tbody> </table>	Variance Analysis, Gross Profit [Line Items]	2010-01-01 - 2010-12-31			Reporting Scenario [Axis]			Variance [Member]	Budgeted [Member]	Actual [Member]	Gross Profit (Loss) [Roll Up]				Revenues, Net	5	4,005	4,000	Cost of Sales	(1)	999	1,000	Gross Profit (Loss)	6	3,006	3,000
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<p>Roll Forward Info: A roll forward info is a type of concept arrangement pattern which represents a non-mathematical relation of information about a roll forward type relation.</p> <p><i>HINT:</i> If you represent a roll forward info, you probably also represented a roll forward that has the information that the roll forward info is describing.</p>	<table border="1"> <thead> <tr> <th rowspan="2">Weighted Average Grant Date Fair Value [Line Items]</th> <th>Period [Axis]</th> </tr> <tr> <th>2010-01-01/2010-12-31</th> </tr> </thead> <tbody> <tr> <td>Weighted Average Grant Date Fair Value [Roll Forward Info]</td> <td></td> </tr> <tr> <td>Nonvested Fair Value, Beginning Balance</td> <td>32.72</td> </tr> <tr> <td>Granted</td> <td>41.51</td> </tr> <tr> <td>Vested</td> <td>30.92</td> </tr> <tr> <td>Forfeited</td> <td>35.93</td> </tr> <tr> <td>Nonvested Fair Value, Ending Balance</td> <td>36.92</td> </tr> </tbody> </table>	Weighted Average Grant Date Fair Value [Line Items]	Period [Axis]	2010-01-01/2010-12-31	Weighted Average Grant Date Fair Value [Roll Forward Info]		Nonvested Fair Value, Beginning Balance	32.72	Granted	41.51	Vested	30.92	Forfeited	35.93	Nonvested Fair Value, Ending Balance	36.92											
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<p>Text Block: A text block is a type of concept arrangement pattern which represents a non-mathematical relationship in the form of prose.</p> <p><i>HINT:</i> A text block is escaped XHTML and lets you represent a list, a paragraph, an entire table of information, etc.</p>	<table border="1"> <thead> <tr> <th>Accounting Policies [Line Items]</th> <th>Fact Value</th> </tr> </thead> <tbody> <tr> <td>Accounting Policies [Text Block]</td> <td> <p>Duis fermentum</p> <p>Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.</p> <ul style="list-style-type: none"> Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. <p>Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.</p> <ol style="list-style-type: none"> Etiam ut augue Aliquam erat volutpat <p>DONEC PULVINAR NONUMMY ERAT</p> <p>Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.</p> </td> </tr> </tbody> </table>	Accounting Policies [Line Items]	Fact Value	Accounting Policies [Text Block]	<p>Duis fermentum</p> <p>Sed mauris. Nulla facilisi. Fusce tristique posuere ipsum. Nulla facilisi. Aliquam viverra risus vitae ante. Sed rhoncus mi in wisi. Nullam nibh dui, molestie vitae, imperdiet non, ornare at, elit.</p> <ul style="list-style-type: none"> Suspendisse accumsan, arcu vel ornare interdum, magna tellus porta mauris, in porta mi lacus sodales felis. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. <p>Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium.</p> <ol style="list-style-type: none"> Etiam ut augue Aliquam erat volutpat <p>DONEC PULVINAR NONUMMY ERAT</p> <p>Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis. Ut eget felis. Mauris leo nulla, sodales et, pharetra quis, fermentum nec, diam.</p>																						
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<p>Complex Computation: A complex computation is a type of concept arrangement pattern which represents any arbitrary mathematical relationship between a set of numeric facts.</p> <p><i>HINT:</i> A complex computation essentially represents some set of numeric facts and then XBRL</p>	<table border="1"> <thead> <tr> <th rowspan="2">Earnings Per Share Components [Line Items]</th> <th rowspan="2">Unit [...]</th> <th colspan="2">Period [Axis]</th> </tr> <tr> <th>2010-01-01/2010-12-31</th> <th>2009-01-01/2009-12-31</th> </tr> </thead> <tbody> <tr> <td>Earnings Per Share Components [Hierarchy]</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Net Income (Loss)</td> <td>USD</td> <td>10,000,000</td> <td>20,000,000</td> </tr> <tr> <td>Weighted Average Common Shares</td> <td>shares</td> <td>100,000,000</td> <td>100,000,000</td> </tr> <tr> <td>Earnings Per Share</td> <td>USD / shares</td> <td>0.10</td> <td>0.20</td> </tr> </tbody> </table>	Earnings Per Share Components [Line Items]	Unit [...]	Period [Axis]		2010-01-01/2010-12-31	2009-01-01/2009-12-31	Earnings Per Share Components [Hierarchy]				Net Income (Loss)	USD	10,000,000	20,000,000	Weighted Average Common Shares	shares	100,000,000	100,000,000	Earnings Per Share	USD / shares	0.10	0.20				
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Formula is used to represent the mathematical relations between that set of facts.	
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1.5. Implementation of member arrangement patterns

A member arrangement pattern is simply the arrangement of concept within any Aspect other than the Concept aspect. The concept arrangement pattern is circled in RED. The member arrangement patterns are circled in GREEN.

#	Label	Report Element Class	Period Type	Balance	Name
1	Inventory, by Component [Table]	[Table]			gaap:InventoryByComponentTable
2	Legal Entity [Axis]	[Axis]			frm:LegalEntityAxis
3	Consolidated Entity [Member]	[Member]			frm:ConsolidatedEntityMember
4	Inventory, by Component [Line Items]	[Line Items]			gaap:InventoryByComponentLineItems
5	Inventory, by Component [Roll Up]	[Abstract]			gaap:InventoryByComponentRollUp
6	Finished Goods	[Concept] Monetary	As Of	Debit	gaap:FinishedGoods
7	Work in Progress	[Concept] Monetary	As Of	Debit	gaap:WorkInProgress
8	Raw Material	[Concept] Monetary	As Of	Debit	gaap:RawMaterial
9	Inventory	[Concept] Monetary	As Of	Debit	gaap:Inventory

The following table describes each report element and provides a graphical representation of the relations between the different objects that make up a report element.

Implementation Details	Graphical representation																																		
<p>Member aggregation: A Member Aggregation is a type of member arrangement pattern which represents a basic roll up type mathematical relationship: Fact A + Fact B + Fact C = Fact D (a set of items and a total)..</p> <p><i>HINT:</i> Note that the member aggregation and the roll up are logically identical.</p> <p>If facts need to be reported but they do not fit into one of the other patterns described below; the facts can always be represented as a Set. You may not be able to represent the relations, but you can always represent the facts.</p>	<table border="1"> <thead> <tr> <th rowspan="3">Sales Analysis, by Customer [Line Items]</th> <th colspan="4">Period [Axis]</th> </tr> <tr> <th colspan="4">2020-01-01 - 2020-12-31</th> </tr> <tr> <th colspan="4">Customer [Axis]</th> </tr> <tr> <th></th> <th>Customer A [Member]</th> <th>Customer B [Member]</th> <th>Customer C [Member]</th> <th>All Customers [Member]</th> </tr> </thead> <tbody> <tr> <td>Sales Analysis, by Customer [Set]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Revenue</td> <td>2,000</td> <td>1,000</td> <td>4,000</td> <td>7,000</td> </tr> </tbody> </table>	Sales Analysis, by Customer [Line Items]	Period [Axis]				2020-01-01 - 2020-12-31				Customer [Axis]					Customer A [Member]	Customer B [Member]	Customer C [Member]	All Customers [Member]	Sales Analysis, by Customer [Set]					Revenue	2,000	1,000	4,000	7,000						
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<p>Member non-aggregation: A Member non-aggregation is a type of member arrangement pattern where concepts have no described mathematical relations; some aspect is provided specifically to distinguish one fact from another fact.</p>	<table border="1"> <thead> <tr> <th rowspan="3">Property, Plant and Equipment [Line Items]</th> <th colspan="3">Period [Axis]</th> </tr> <tr> <th colspan="3">2016-01-01 - 2016-12-31</th> </tr> <tr> <th colspan="3">Property, Plant and Equipment, Type [Axis]</th> </tr> <tr> <th></th> <th>Land [Member]</th> <th>Machinery and equipment [Member]</th> <th>Furniture and fixtures [Member]</th> </tr> </thead> <tbody> <tr> <td>Property, Plant and Equipment Policies [Hierarchy]</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Basis of valuation</td> <td>Mauris tincidunt cursus</td> <td>Mauris tincidunt cursus</td> <td>Mauris tincidunt cursus</td> </tr> <tr> <td>Depreciation methods</td> <td></td> <td>Sed elementum feugiat</td> <td>Mauris tincidunt</td> </tr> <tr> <td>Estimated useful lives</td> <td>15 years</td> <td></td> <td>5 years</td> </tr> <tr> <td>Dispositions policy</td> <td>Nam non tortor</td> <td>Nam non tortor</td> <td>Nam non tortor</td> </tr> </tbody> </table>	Property, Plant and Equipment [Line Items]	Period [Axis]			2016-01-01 - 2016-12-31			Property, Plant and Equipment, Type [Axis]				Land [Member]	Machinery and equipment [Member]	Furniture and fixtures [Member]	Property, Plant and Equipment Policies [Hierarchy]				Basis of valuation	Mauris tincidunt cursus	Mauris tincidunt cursus	Mauris tincidunt cursus	Depreciation methods		Sed elementum feugiat	Mauris tincidunt	Estimated useful lives	15 years		5 years	Dispositions policy	Nam non tortor	Nam non tortor	Nam non tortor
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