13. Metapattern Examples

The world is full of patterns and information technology engineers and architects leverage these patterns when trying to get a computer to do something effectively and efficiently for humans. Understanding the patterns which exist can help make both building and using software easier.

Business reports, including financial reports, have patterns. Another way of saying this is that financial reports are not random. There are not an infinite number of patterns in financial reporting.

The metapattern examples in this section are distilled from the set of *Business Use Case Examples* which are provided in the next section. The metapatterns are the essence of each business use case.

Business Reporting Use Case Examples, introduces a set of approximately 30 financial reporting use cases collected over a number of years. That set of 30 business use cases was condensed from many, many different financial reporting use cases examined in order to understand how to model financial information.

> HINT: The *US GAAP Taxonomy Architecture* refers to these metapatterns as compact pattern definitions and documents a number of these metapatterns in what it refers to as style guides. These style guides were never released publicly but they are referred to in the US GAAP Taxonomy Architecture. Everything within the US GAAP Taxonomy fits into one or a combination of these metapatterns.

Metapatterns explain the business semantics and mechanics within each of these business reporting situations or use cases. These smaller metapatterns are very helpful in understanding what is going on in a digital financial report. All digital financial report information from the business use cases, the comprehensive example, the financial disclosure templates, the reference implementation, or of the thousands of SEC XBRL financial filings can be distilled into this set of metapatterns.

Perhaps other metapatterns exist. If that is the case, the list of metapatterns can simply be expanded.

You can obtain example XBRL instances and XBRL taxonomies and other information for each of these metapatterns which is helpful in understanding these metapatterns at the following URL:

http://www.xbrlsite.com/DigitalFinancialReporting/Metapatterns/2012-09-30

It is important to examine the details of these metapatterns, that is where the clues lie which provide understanding of each metapattern and the differences between the metapatterns. We now provide key information which is helpful in gaining an understanding of these financial reporting metapatterns. Each uses a financial reporting oriented example as most business users understand financial reporting to a sufficient degree.

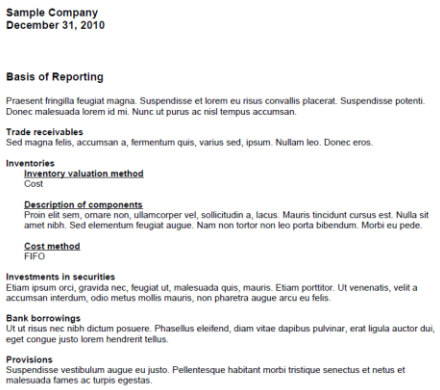
This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.1. 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 modelled as a hierarchy. It is the addition of additional relations, typically mathematical computations, which turns a hierarchy into some other metapattern.

The *hierarchy* metapattern models a hierarchy or a tree of information. A hierarchy can contain business rules such as reportability rules which helps one understand when specific information must be reported.

13.1.1. Visual Example



Sample Company
December 31, 2010

Basis of Reporting

Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.

Trade receivables
Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.

Inventories
Inventory valuation method
Cost

Description of components
Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.

Cost method
FIFO

Investments in securities
Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.

Bank borrowings
Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.

Provisions
Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

13.1.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Hierarchy/AccountingPolicies)
Table	Accounting Policies [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Accounting Policies [Line Items]	Period [Axis]
	2010-01-01 - 2010-12-31
Accounting Policies [Hierarchy]	
Basis of Presentation	Praesent fringilla feugiat magna. Suspendisse et lorem eu risus convallis placerat. Suspendisse potenti. Donec malesuada lorem id mi. Nunc ut purus ac nisl tempus accumsan.
Trade Receivables Policy	Sed magna felis, accumsan a, fermentum quis, varius sed, ipsum. Nullam leo. Donec eros.
Inventory Policies [Abstract]	
Inventory Valuation Method	Cost
Description of Inventory Components	Proin elit sem, ornare non, ullamcorper vel, sollicitudin a, lacus. Mauris tincidunt cursus est. Nulla sit amet nibh. Sed elementum feugiat augue. Nam non tortor non leo porta bibendum. Morbi eu pede.
Inventory Cost Method	FIFO
Investments in Securities Policy	Etiam ipsum orci, gravida nec, feugiat ut, malesuada quis, mauris. Etiam porttitor. Ut venenatis, velit a accumsan interdum, odio metus mollis mauris, non pharetra augue arcu eu felis.
Bank Borrowings Policy	Ut ut risus nec nibh dictum posuere. Phasellus eleifend, diam vitae dapibus pulvinar, erat ligula auctor dui, eget congue justo lorem hendrerit tellus.
Provisions Policy	Suspendisse vestibulum augue eu justo. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.1.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Hierarchy/AccountingPolicies)
Table	Accounting Policies [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Accounting Policies [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Accounting Policies [Line Items]**	[Line Items]		
5	*Accounting Policies [Hierarchy]*	[Abstract]		
6	Basis of Presentation	[Concept] String	For Period	
7	Trade Receivables Policy	[Concept] String	For Period	
8	*Inventory Policies [Abstract]*	[Abstract]		
9	Inventory Valuation Method	[Concept] String	For Period	
10	Description of Inventory Components	[Concept] String	For Period	
11	Inventory Cost Method	[Concept] String	For Period	
12	Investments in Securities Policy	[Concept] String	For Period	
13	Bank Borrowings Policy	[Concept] String	For Period	
14	Provisions Policy	[Concept] String	For Period	

13.1.4. Business Rules

A hierarchy has no mathematical computations, and therefore it has no mathematical business rules. However, each component might have business rules related to the existence of certain specific facts, dependency type relations such as "if Fact A is reported, then Fact B must also be reported".

13.1.5. Description

The example shows a *Hierarchy* of accounting policies. If you are familiar with something like the outline feature of Microsoft Word then you know what a hierarchy is. There are no explicit relationships between concepts within this type of information model because XBRL most taxonomies don't generally distinguish between the types of relations. They could, but they currently do not. As such, we make no distinction between types of relations. Again, by definition everything is a *Hierarchy* unless additional information is added which turns the hierarchy into some other metapattern.

A *Hierarchy* can always be identified by a software application by the fact that there are no XBRL calculations or other business rules expressing computations within the taxonomy.

13.1.6. Extension Points

The following are the logical extension points for a *Hierarchy* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to [Line Items] of *Hierarchy*

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.2. 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 by the equation A + B = C. All facts involved in this information model have the same set of characteristics and all must be numeric.

The *roll Up* metapattern can be thought of as a hierarchy metapattern with additional constraints. One additional constraint is that the total and the components of the total must all be numeric and of the same data type. Another constraint is that a business rule for the relations between the total and the set of concept which make up that total is expressed.

13.2.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
Property, Plant and Equipment, Net, Total	295,183	413,441

13.2.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	30000 - Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollUp/PropertyPlantAndEquipmentByComponent)
Table	Property, Plant and Equipment, by Component [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Property, Plant and Equipment, by Component [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
Property, Plant and Equipment, Net [Roll Up]		
Land	5,347,000	1,147,000
Buildings, Net	244,508,000	366,375,000
Furniture and Fixtures, Net	34,457,000	34,457,000
Computer Equipment, Net	4,169,000	5,313,000
Other Property, Plant and Equipment, Net	6,702,000	6,149,000
Property, Plant and Equipment, Net, Total	295,183,000	413,441,000

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.2.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	30000 - Property, Plant, and Equipment, by Component (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollUp/PropertyPlantAndEquipmentByComponent)
Table	Property, Plant and Equipment, by Component [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Property, Plant and Equipment, by Component [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Property, Plant and Equipment, by Component [Line Items]**	[Line Items]		
5	*Property, Plant and Equipment, Net [Roll Up]*	[Abstract]		
6	Land	[Concept] Monetary	As Of	Debit
7	Buildings, Net	[Concept] Monetary	As Of	Debit
8	Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit
9	Computer Equipment, Net	[Concept] Monetary	As Of	Debit
10	Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit
11	Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit

13.2.4. Business Rules

Roll up total = sum of the concepts which make up the roll up.

13.2.5. Description

The *Roll Up* in the example above is a set of five concepts which add up to a sixth concept: Land + Buildings, Net + Furniture and Fixtures, Net + Computer Equipment, Net + Other Property, Plant and Equipment, Net = Property, Plant and Equipment, Net, Total. A *Roll Up* can have other Roll Ups within (i.e. nested), what amount to sub totals.

A *Roll Up* can always be identified by a software application by its set of XBRL calculations within the XBRL taxonomy.

13.2.6. Extension Points

The following are extension points for a *Roll Up* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to the concepts being rolled up (i.e. a new total concept cannot be added, that would require an entirely new roll up); for example, adding "Airplanes" to the roll up above would make sense but adding another concept "Property, Plant and Equipment" would not make sense

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.3. 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 by the equation: beginning balance + changes = ending balance. In this equation, the Period [Axis] is as of two different points in time and the changes occur during the period between those two points in time.

The changes within a *roll forward* could take the form of one concept, a set of many change concepts, or one or more *roll ups* which aggregate to change concepts.

13.3.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Roll Forward of Land		
Land, Beginning Balance	1,147	1,147
Additions	1,992	400
Disposals	-193	-200
Translation difference	2,401	-200
Land, Ending Balance	5,347	1,147

13.3.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	40000 - Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollForward/RollForwardOfLand)
Table	Land Changes [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Land Changes [Line Items]	Period [Axis]	
	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31
Roll Forward of Land [Roll Forward]		
Land, Beginning Balance	1,147,000	1,147,000
Land, Period Increase (Decrease), Total [Roll Up]		
Land, Additions	1,992,000	400,000
Land, Disposals	(193,000)	(200,000)
Land, Translation Difference	2,401,000	(200,000)
Land, Period Increase (Decrease), Total	4,200,000	0
Land, Ending Balance	5,347,000	1,147,000

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.3.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	40000 - Roll Forward of Land (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/RollForward/RollForwardOfLand)
Table	Land Changes [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Land Changes [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Land Changes [Line Items]**	[Line Items]		
5	*Roll Forward of Land [Roll Forward]*	[Abstract]		
6	Land, Beginning Balance	[Concept] Monetary	As Of	Debit
7	*Land, Period Increase (Decrease), Total [Roll Up]*	[Abstract]		
8	Land, Additions	[Concept] Monetary	For Period	Debit
9	Land, Disposals	[Concept] Monetary	For Period	Credit
10	Land, Translation Difference	[Concept] Monetary	For Period	Debit
11	Land, Period Increase (Decrease), Total	[Concept] Monetary	For Period	Debit
12	Land, Ending Balance	[Concept] Monetary	As Of	Debit

13.3.4. Business Rules

Ending balance = Beginning balance +/- each change

13.3.5. Description

The *Roll Forward* above reconciles the beginning balance of Land to the ending balance of Land. The XBRL instance provides Facts for two Roll Forwards, 2010 and 2009. Land, Beginning Balance + Additions – Disposals + Translation Difference = Land, Ending Balance. In the case above, the change concept is the total of a roll up.

A *Roll Forward* can be identified by the business rule which must be used to verify the computation of the reconciliation, beginning balance + changes = ending balance with a changing Period [Axis].

13.3.6. Extension Points

The following are extension points for a *Roll Forward* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to the *Roll Up* of changes; (a new balance concept would never be added)
- Add a new *Roll Up* of changes or one or more change concepts; (i.e. a roll forward can have one or many changes)

Note that there are two approaches to modelling a roll forward. The first is to create a roll up to summarize all changes and then model only one change concept. The second is to not use a roll up and model each change separately. Semantically, the two are equivalent.

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.4. Compound fact

A *compound fact* information model is characterized by the notion that for some set of concepts expressed within some information model; that information model can be expressed over some characteristic expressed as an [Axis]. Basically, it is the [Axis] which provides additional information which further contextualizes some fact or facts which makes each information model unique.

For example, the salary information for the directors of an entity is a compound fact. The salary information is made up of salary, bonuses, director fees and such information must be associated with a specific director to be meaningful and to distinguish, say, one salary from another salary.

13.4.1. Visual Example

Sample Company
For Period Ending December 31, 2010

Director	Salary	Bonus	Director Fee	Options Granted, at Fair Value
pattern:JohnDoeMember	1,000	1,000	1,000	1,000
pattern:JaneDoeMember	1,000	1,000	1,000	1,000
frm:DirectorsAllMember	2,000	2,000	2,000	2,000

13.4.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	50000 - Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/CompoundFact/DirectorCompensation)
Table	Director Compensation [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Director Compensation [Line Items]	Director [Axis]		
	John Doe [Member]	Jane Doe [Member]	Directors, All [Member]
Director [Hierarchy]			
Director, Salary	1,000	1,000	2,000
Director, Bonuses	1,000	1,000	2,000
Director, Fees	1,000	1,000	2,000
Director, Options Granted, at Fair Value	1,000	1,000	2,000

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.4.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	50000 - Director Compensation (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/CompoundFact/DirectorCompensation)
Table	Director Compensation [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Director Compensation [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Director [Axis]**	[Axis]		
5	Directors, All [Member]	[Member]		
6	John Doe [Member]	[Member]		
7	Jane Doe [Member]	[Member]		
8	**Director Compensation [Line Items]**	[Line Items]		
9	*Director [Hierarchy]*	[Abstract]		
10	Director, Salary	[Concept] Monetary	For Period	Credit
11	Director, Bonuses	[Concept] Monetary	For Period	Credit
12	Director, Fees	[Concept] Monetary	For Period	Credit
13	Director, Options Granted, at Fair Value	[Concept] Monetary	For Period	Credit

13.4.4. Business rules

May have a business rule related to the metapattern expressed within the compound fact. May have a business rule related to the aggregation of the members of one or more axes.

13.4.5. Description

In the example above salary information is expressed for the directors of an entity. The salary information (salary, bonus, director fee, and options granted) are the concepts which make up the compound fact. The director is the axis along which the salary information is expressed, here for the members John Doe, Jane Doe, and the total salary information for all directors.

Any information model could be expressed as a compound fact. In the example above the information model is a hierarchy. This information model might have also been modelled as a roll up had a total of all salary information been provided.

13.4.6. Extension Points

The following are extension points for a *compound fact* metapattern:

- Add new [Member] to [Axis] (generally, a new [Axis] would not be added but might be to further detail the primary characteristic)
- Add new concepts to [Line Items]
- Basically, extension points are determined by the specific information model of the compound fact

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.5. 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.

The *Adjustment* metapattern shows how to model an adjustment to a prior period financial statement for a change in accounting policy or correction of an error as defined by financial reporting standards. This same approach can be used for making adjustments to other beginning balances.

13.5.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	2010	2009
Prior Period Adjustment		
Retained Earnings (Accumulated Losses), Originally Stated 2009	4,000	
Change in Accounting Policy	3,000	
Correction of an Error	-1,000	
Retained Earnings (Accumulated Losses), Restated 2009 Beginning Balance	6,000	

13.5.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Adjustment/PriorPeriodAdjustments)
Table	Prior Period Adjustments [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Prior Period Adjustments [Line Items]	Report Date [Axis]	Period [Axis] 2009-12-31
Retained Earnings (Accumulated Losses), Origionally Stated	Reported March 21, 2010 [Member]	4,000
Changes in Accounting Policy	Reported March 18, 2011 [Member]	3,000
Correction of an Error	Reported March 18, 2011 [Member]	(1,000)
Prior Period Adjustments, Period Increase (Decrease), Total	Reported March 18, 2011 [Member]	2,000
Retained Earnings (Accumulated Losses), Restated	Reported March 18, 2011 [Member]	6,000

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.5.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	50000 - Prior Period Adjustments (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Adjustment/PriorPeriodAdjustments)
Table	Prior Period Adjustments [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Prior Period Adjustments [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Report Date [Axis]**	[Axis]		
5	Reported March 21, 2010 [Member]	[Member]		
6	Reported March 18, 2011 [Member]	[Member]		
7	**Prior Period Adjustments [Line Items]**	[Line Items]		
8	*Prior Period Adjustments to Retained Earnings [Adjustment]*	[Abstract]		
9	Retained Earnings (Accumulated Losses), Origionally Stated	[Concept] Monetary	As Of	Credit
10	*Prior Period Adjustments, Period Increase (Decrease), Total [Roll Up]*	[Abstract]		
11	Changes in Accounting Policy	[Concept] Monetary	As Of	Credit
12	Correction of an Error	[Concept] Monetary	As Of	Credit
13	Prior Period Adjustments, Period Increase (Decrease), Total	[Concept] Monetary	As Of	Credit
14	Retained Earnings (Accumulated Losses), Restated	[Concept] Monetary	As Of	Credit

13.5.4. Business Rules

Restated balance = Originally stated balance +/- each adjusting concept.

13.5.5. Description

The example *Adjustment* above reconciles the Retained Earnings (Accumulated Losses), Originally Stated in 2009 to its Restated 2009 Beginning Balance via the Prior Period Adjustments which make up the change. Note that an *Adjustment* looks similar in presentation to a roll forward, however it is different in that a different [Axis] is changing.

An *Adjustment* can be identified by software applications by the business rule which computes the adjustment to verify that it is correctly articulated within the XBRL instance: originally stated + adjustment = restated balance over a changing *Report Date [Axis]*.

13.5.6. Extension Points

The following are extension points for an *Adjustment* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new adjustment concepts to [Line Items] of the adjustment; (new balance concepts cannot be added)

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.6. Variance

A *variance* information model reconciles some reporting scenario with another reporting scenario, the variance between reporting scenarios being the variance or changes between the two reporting scenarios. For example, a sales analysis which reconciles the concept sales for the reporting scenarios of actual and budgeted is a variance. The equation in this case is: actual – budget = variance. But a variance could take other forms such as a variance from forecast, variance from plan, etc.

A *variance* is distinguished by a changing *Reporting Scenario [Axis]* and the information model of a variance could take the form of any information model such as a hierarchy, roll up, roll forward, etc.

13.6.1. Visual Example

Sample Company
For Period Ending December 31, 2010

Concept	Actual	Budgeted	*Variance*
Sales	6,000	5,000	*1,000*
Cost of Goods Sold	4,000	3,000	*1,000*
Contribution Margin	1,000	2,000	*-1,000*
Distribution Costs	1,000	1,000	*0*

13.6.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Variance/VarianceAnalysis)
Table	Variance Analysis [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Variance Analysis [Line Items]	Reporting Scenario [Axis]		
	Actual [Member]	Budgeted [Member]	Reporting Scenarios, All [Member]
Variance Analysis [Hierarchy]			
Sales	6,000	5,000	1,000
Cost of Goods Sold	4,000	3,000	1,000
Contribution Margin	1,000	2,000	(1,000)
Distribution Costs	1,000	1,000	0

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.6.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	60000 - Variance Analysis (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Variance/VarianceAnalysis)
Table	Variance Analysis [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Variance Analysis [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Reporting Scenario [Axis]**	[Axis]		
5	Reporting Scenarios, All [Member]	[Member]		
6	Actual [Member]	[Member]		
7	Budgeted [Member]	[Member]		
8	**Variance Analysis [Line Items]**	[Line Items]		
9	*Variance Analysis [Hierarchy]*	[Abstract]		
10	Sales	[Concept] Monetary	For Period	Credit
11	Cost of Goods Sold	[Concept] Monetary	For Period	Debit
12	Contribution Margin	[Concept] Monetary	For Period	Credit
13	Distribution Costs	[Concept] Monetary	For Period	Debit

13.6.4. Business Rules

Variance = Actual amount – budgeted amount.

13.6.5. Description

A *Variance* reconciles two different reporting scenarios differentiated using the *Reporting Scenarios [Axis]*, in the case here *Actual [Member]* and *Budgeted [Member]*, the difference being the Variance, or *Reporting Scenarios, All [Member]*.

A *Variance* can be identified by software applications by the business rule which verifies and computes the variance, Actual [Member] + Budgeted [Member] = Reporting Scenarios, All [Member], all within the *Reporting Scenario [Axis]*.

[CSH: The Reporting Scenarios, All [Member] as the variance seems odd to me; this should probably be Variance [Member].]

13.6.6. Extension Points

The following are extension points for a *Variance* metapattern:

- Add new [Axis]
- Add new [Member] to an [Axis]
- Add new concepts to [Line Items]

What can change is determined by the information model of the concepts for which a variance is being expressed.

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.7. Complex computation

A *complex computation* information model can be thought of as a hierarchy plus a set of mathematical commutations between different concepts within that hierarchy which are more challenging to model than a *roll up* or *roll forward*. The type of computations can vary significantly, thus the challenging in modelling. For example, the computation of earnings per share is a complex computation.

Basically, any *hierarchy* can be turned into a *complex computation* by adding business rules which express relations between the concepts within the [Line Items] of that *hierarchy*.

13.7.1. Visual Example

Sample Company
For Period Ended December 31,

	2010	2009
OTHER INFORMATION		
Earnings Per Share Components		
Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	0.10	0.20

13.7.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/ComplexComputation/EarningsPerShareComponents)
Table	Earnings Per Share Components [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Earnings Per Share Components [Line Items]	Period [Axis]	
	2010-01-01 - 2010-12-31	2009-01-01 - 2009-12-31
Earnings Per Share Components [Hierarchy]		
Net Income (Loss)	10,000,000	20,000,000
Weighted Average Common Shares	100,000,000	100,000,000
Earnings Per Share	.10	.20

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.7.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	70000 - Earnings Per Share Components (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/ComplexComputation/EarningsPerShareComponents)
Table	Earnings Per Share Components [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Earnings Per Share Components [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Earnings Per Share Components [Line Items]**	[Line Items]		
5	*Earnings Per Share Components [Hierarchy]*	[Abstract]		
6	Net Income (Loss)	[Concept] Monetary	For Period	Credit
7	Weighted Average Common Shares	[Concept] Shares	For Period	
8	Earnings Per Share	[Concept] Decimal	For Period	

13.7.4. Business Rules

A complex computation can be any mathematical relation expressed between the facts which make up the complex computation. In this example, earnings per share = net income (loss) / weighted average common shares.

13.7.5. Description

A *Complex Computation* metapattern is in essence a *Hierarchy* metapattern with *Business Rules* which express complex relations between numeric values contained in that hierarchy. In the example above, Earnings Per Share is expressed in relation to Net Income and Weighted Average Common Shares. The Weighted Average Common Shares computation is also expressed as a business rule.

An *Complex Computation* metapattern can always be identified by software as it does not fit into any other metapattern category. It will have some XBRL Formula, but it will not match any of the other XBRL Formulas for the other metapatterns.

13.7.6. Extension Points

The following are extension points for a *Complex Computation* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add new concepts to [Line Items]
- Add new business rules to set of relations

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.8. 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 XHTML 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.

13.8.1. Visual Example

Duis fermentum

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.

- 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.

DONEC PULVINAR NONUMMY ERAT

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.

13.8.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/TextBlock/AccountingPolicies)
Table	Accounting Policies [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Legal Entity [Axis]	Consolidated Entity [Member]

Accounting Policies [Line Items]	Period [Axis] 2010-01-01 - 2010-12-31
Accounting Policies [Text Block]	Duis fermentum 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. • 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. Fusce gravida, ligula a placerat placerat, leo erat euismod lectus, et lacinia justo libero non pede. Vivamus ac velit vel magna nonummy pretium. 1. Etiam ut augue 2. Aliquam erat volutpat DONEC PULVINAR NONUMMY ERAT 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.

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.8.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	20000 - Accounting Policies (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/TextBlock/AccountingPolicies)
Table	Accounting Policies [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Accounting Policies [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Accounting Policies [Line Items]**	[Line Items]		
5	Accounting Policies [Text Block]	[Concept] String	For Period	

13.8.4. Business Rules

None

13.8.5. Description

Any portion of a financial report can be modelled as a [Text Block], referred to as "block tagged". Alternatively, any portion could also be "detailed tagged" using one of the other information model metapatterns.

13.8.6. Extension Points

The following are extension points for a *Text Block* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.9. Grid

A *grid* information model is a pseudo metapattern which uses the presentation format 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.

13.9.1. Visual Example

Sample Company
December 31,
(thousands of dollars)

	Common Stock	Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Equity
Balance at December 31, 2009	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			-100,000	-100,000
Common Stock Issued	25,000	25,000		50,000
Balance at December 31, 2010	175,000	75,000	300,000	550,000

HINT: In a grid, the axis are generally the columns of the grid and the concepts reported are the rows of the grid. Because the axis are unique to the grid and the rows repeat for every fact value reported, many portions of a grid cannot tie to other components of a financial report.

13.9.2. Basic Automated Semantic Rendering

Component: (Network and Table)	
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Grid/StatementOfChangesInEquity)
Table	Statement of Changes in Equity [Table]

Slicers (applies to each fact value in each table cell)

Reporting Entity [Axis]	SAMP (http://www.SampleCompany.com)
Period [Axis]	2010-01-01 - 2010-12-31
Legal Entity [Axis]	Consolidated Entity [Member]

Statement of Changes in Equity [Line Items]	Equity Component [Axis]			
	Common Stock [Member]	Additional Paid -in Capital [Member]	Retained Earnings (Accumulated Deficit) [Member]	Equity [Member]
Statement of Changes in Equity [Grid]				
Equity, Beginning Balance	150,000	50,000	200,000	400,000
Net Income (Loss)			200,000	200,000
Dividends			(100,000)	(100,000)
Common Stock Issued	25,000	25,000		50,000
Equity, Ending Balance	175,000	75,000	300,000	550,000

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/

13.9.3. Report Elements and Model Structure

Component: (Network and Table)	
Network	90000 - Statement of Changes in Equity (http://www.xbrlsite.com/DigitalFinancialReporting/Metapattern/Grid/StatementOfChangesInEquity)
Table	Statement of Changes in Equity [Table]

#	Label	Report Element Class	Period Type	Balance
1	**Statement of Changes in Equity [Table]**	[Table]		
2	**Legal Entity [Axis]**	[Axis]		
3	Consolidated Entity [Member]	[Member]		
4	**Equity Component [Axis]**	[Axis]		
5	Equity [Member]	[Member]		
6	Common Stock [Member]	[Member]		
7	Additional Paid-in Capital [Member]	[Member]		
8	Retained Earnings (Accumulated Deficit) [Member]	[Member]		
9	**Statement of Changes in Equity [Line Items]**	[Line Items]		
10	*Statement of Changes in Equity [Grid]*	[Abstract]		
11	Equity, Beginning Balance	[Concept] Monetary	As Of	Credit
12	Net Income (Loss)	[Concept] Monetary	For Period	Credit
13	Dividends	[Concept] Monetary	For Period	Debit
14	Common Stock Issued	[Concept] Monetary	For Period	Credit
15	Equity, Ending Balance	[Concept] Monetary	As Of	Credit

13.9.4. Business Rules

None

13.9.5. Description

The grid is used to model the statement of changes in equity above. The axis Equity Component [Axis] assigned to a fact indicates which column the fact belongs in. The [Line Items] determines the rows of the table. The cells of the table are the intersections between the Equity Component [Axis] and the concept of the set of [Line Items] of the fact which should go into that cell.

13.9.6. Extension Points

The following are extension points for a *Grid* metapattern:

- Add new [Axis]
- Add new [Member] to [Axis]
- Add a new concept to [Line Items]

This work is licensed under a Creative Commons License. Attribution 3.0 Unported (CC BY 3.0) http://creativecommons.org/licenses/by/3.0/