Understanding SEC XBRL Filings: A Primer

A nontechnical guide to XBRL for accountants and financial analysts

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1. Introduction

This is a primer which is helpful to accountants creating, auditing, or analyzing SEC XBRL filings.

This primer is a nontechnical guide for business users, but may also be helpful to technical people trying to understand how business users interact with SEC XBRL filings.

Establishing a logical model for something, explaining its pieces and how the pieces relate to one another, makes them easier to understand. Just like the logical model of an electronic spreadsheets with its workbooks, spreadsheets, rows, columns, and cells; SEC XBRL filings have a logical model. This primer provides a logical model, or perspective, for looking at SEC XBRL filings. Precise terminology which is generally nontechnical in nature is used.

The primer is broken down into the following sections which will provide an understanding of how you interact with an SEC XBRL filing or filings. Different business users approach things from different perspectives. We provide these perspectives:

- **Overview of an SEC XBRL Filing**: provides the big picture of the pieces, starts with the top and drills down to the bottom.
- **Details of an SEC XBRL Filing**: provides the details the pieces, starts at the bottom and then ties things together.
- **Relations between the pieces**: This section covers the relations between the pieces in more depth.
- **Financial integrity**: This section covers the relations within tables and between tables in more depths, with a focus on the financial aspects of these relations.
- **Verifying using validation**: this section covers different types of validation and how automated validation is used to keep everything correct.
- **Appendices:** Several appendices are provides which help provide background information and understand other more detailed information relating to SEC XBRL filings. This information is not required to understand SEC XBRL filings but is helpful if one wants more details, to understand how this model was arrived at, or other issues related to SEC XBRL filings.

1.1. Difference between syntax and semantics

In this document we focus on business semantics, not on technical syntax. It is the technical syntax or the physical implementation of the XBRL technology which causes complexity, confusion, and otherwise makes expressing financial information in the XBRL medium a challenge for business users. You experience with XBRL does not need to be this way.

Rather, the US GAAP Taxonomy Architecture outlines the shell of a logical model which can be used to make creating SEC XBRL filings much easier. We further enhance that model, adding missing pieces.

Just as an electronic spreadsheet is made easier to work with by defining a logical model of workbooks, worksheets, columns, rows, and cells; XBRL can be made easier if approaching it in this manner.

Keep in the back of your mind that syntax can change whereas the business semantics of financial reporting changes far less over time.

1.2. Role of software

Software can turn the complex physical implementation of XBRL into a significantly easier to use logical model, hiding and taking care of the complexity of XBRL for the user in the background. Most software today is still maturing and does not leverage the logical model of financial reporting, making it more complicated than necessary to work with XBRL.

Don't make this mistake. When you consider the longer term, software will mature and the logical model of the US GAAP Taxonomy and SEC XBRL filings will become more sound and consistent.

This document is a big step in that direction.

For example, much of the automated validation which is performed after the fact, after an SEC XBRL filing is created will eventually be performed during the filing creation process, keeping users from doing the wrong thing rendering the need for validation after the fact of less value.

1.3. Differentiating presentation from the data model

Accountants tend to take what is commonly referred to as a document centric perspective to looking at a financial report. In the world of paper documents, this perspective works fine. When one works with computers, some data model must be created to leverage what a computer may be able to offer.

Often the document centric perspective and the data model perspective appear to conflict. Other times the two perspectives do conflict.

If a proper data model is created then information can be easily rendered into any required document centric perspective desired. However, if a document centric perspective is used to model data, then that one document centric perspective becomes the data model and trying to use the data in other perspectives is not possible.

The problems of not realizing that modelling financial reports is exacerbated by poorly created data models used by poorly designed software applications. Or said another way, once a few good data models are seen and a few good software applications exist to utilize that well modelled information then those with a document centric perspective will realize the advantages of modelling data correctly. They will realize that they can still get their preferred document views plus the flexibility to utilize the data using alternative views.

There are three things which contribute to this problem currently:

1. US GAAP was built with paper in mind and has many characteristics which do not work well with more than two dimensions. For example the notion of "presented on the face of the financial statements" gets in the way of what technology can offer.
2. The creators of SEC XBRL filings have to use their company extension taxonomy to both model data and to provide rendering information to the SEC Interactive Data viewer application.
3. The SEC Interactive Data viewer tends to be document centric in nature, rather than data centric in nature.

2. Mastering the XBRL Medium is Important

Accountants are trained to create financial statements using paper. They have been doing so and no accountant would ever let a financial report be released where, say, the balance sheet does not balance, net income ties between the income statement, statement of changes in equity, and cash flow statement.

Paper is a medium. XBRL is a medium. Each medium has different characteristics. When you create an XBRL financial report you basically take all the information you want to report and you put it in little boxes called "tags". You assign characteristics to the tags.

Paper is bound, unchanging, the same for all readers, two dimensional, and only with great difficulty can paper able to highlight exceptions, complex overlapping information, and making all meaning visible with a glance. When financial reports were designed, they were designed with paper in mind.

But the world has changed. Not changed in by the way that HTML or PDF or electronic paper has changed financial reporting. XBRL is referred to as "interactive data" by the SEC for a reason. XBRL offers the ability to change views, to be dynamic, to have any number of organizations of the information.

CPAs have to become masters of the XBRL medium. We already master the paper medium, understanding how to make a financial statement foot, cross cast, and otherwise tick and tie. We take pride in that ability in fact.

To create an SEC XBRL filing, one needs to be a master of the medium. To audit a financial filing, one needs to likewise be a master of the medium. To analyze an SEC XBRL filing one needs to be a master of the medium. The right software can help you be a master of the XBRL medium.

3. Overview of an SEC XBRL Filing

In this section we will provide an overview of the key components of an SEC XBRL filing. We want to provide just the right amount of information to provide you with a sound grasp of the big picture, rather than overwhelm you with details at this juncture. Details are provided in subsequent sections.

These are the logical components of a SEC XBRL-based financial report. These components are likely familiar to you but you may not have associated formal names with these pieces.

3.1. SEC XBRL Filing

An SEC XBRL filing, or report, is a collection of **tables** which are organized within **networks** which report the values of **facts**, the characteristics, or **axis**, of those facts, attributes of those facts and footnotes relating to the facts. One special type of characteristic, or axis, of a fact is the **concept** which is reported.

For example, Net Income (Loss) of $1000 for the period ended December 31, 2010 for the consolidated entity of the reporting entity with the CIK number 1080224 may be a fact reported within an SEC XBRL filing.

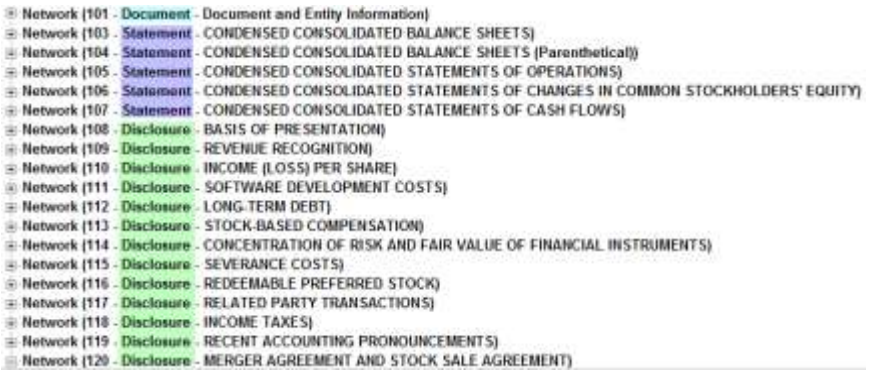
[CSH: I am struggling with when to introduce these terms. At this point it is best to read through this overview section at least twice to tie the big picture and the detailed pieces together.]

3.2. Networks

A **network** is a one approach to break an SEC XBRL financial filing into smaller pieces. There are two reasons why you might need to break a financial filing into pieces: because you want to or because you have to.

Networks you create have a direct impact on what is seen within the SEC XBRL Interactive Data viewer and other software. Consider the following screen shot of the SEC Interactive Data Previewer:

And now consider this screen shot of the XBRL taxonomy which supports the XBRL instance being viewed within the SEC XBRL Previewer:



Creating a network causes a section to appear within the left had navigation pane of the SEC XBRL Interactive Data Viewer application.

These networks have a number and a category. The category determines which section the network appears in the SEC XBRL Interactive Data viewer. The number determines the order within the section. The categories are: Document, Statement, and Disclosure.

The second reason you would create a network is because you have to. Suppose, for example, that you wanted to articulate the breakdown of trade receivables in multiple ways:

	2010	2009
TRADE AND OTHER RECEIVABLES		
Trade and Other Receivables, Net, by Component		
Trade Receivables, Net	8,790	6,431
Financing Lease Receivables, Net	2,498	1,263
Other Receivables, Net	1,305	1,096
Trade and Other Receivables, Net	12,593	8,790
Trade and Other Receivables, Net, by Net/Gross		
Trade and Other Receivables, Gross	18,280	13,472
Allowance for Doubtfull Accounts	-5,687	-4,682
Trade and Other Receivables, Net	12,593	8,790
Trade and Other Receivables, Net, by Current/Noncurrent		
Trade Receivables, Net, Current	6,340	5,701
Trade Receivables, Net, Noncurrent	6,253	3,089
Trade and Other Receivables, Net	12,593	8,790

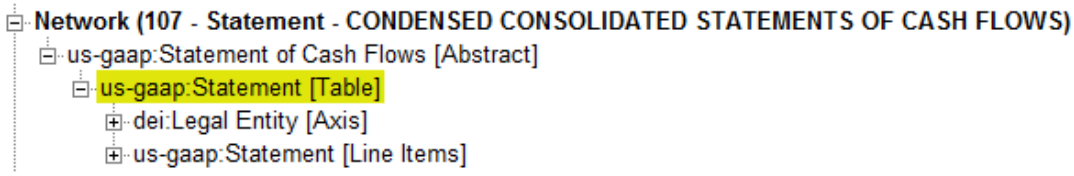
A network separates things which would otherwise collide. To avoid these three breakdowns of the same concept "Trade and Other Receivables, Net" from colliding; a network can be created for each to separate them.

NOTE: This is just like how different radio or television frequencies are separated, thus the term network.

3.3. Tables

A **table** is used to combine things which go together. There are two types of tables: explicit tables and implicit tables. Tables are comprised of axis and line items, which we will discuss in a moment. The line items of a table have common axis.

A table has one or more axis and line items.



Note the table above which has one **axis** "Legal Entity [Axis]" and one set of **line items** "Statement [Line Items].

NOTE: Defining unique, smaller, explicit tables is superior to using the implicit tables, repeating table names, and larger tables. Further, you get better control over the SEC Interactive Data viewer and probably other rendering software with smaller explicit pieces.

3.3.1. Explicit tables

You can use a table from the US GAAP taxonomy or you can define your own tables. For example, you might create the table "Debt Instruments [Table]" if you needed it but it did not exist within the US GAAP taxonomy.

3.3.2. Implicit tables

There is another way you can create a table which is to use what amounts to a default table. If you define concepts in your taxonomy and you do not explicitly put them into an existing US GAAP taxonomy table or a table which you define, you are putting that concept into an implicit table.

3.4. Axis

An **axis** is a means of providing information about the characteristics of the concepts within the line items within a table, be that table explicitly defined or implicitly defined.

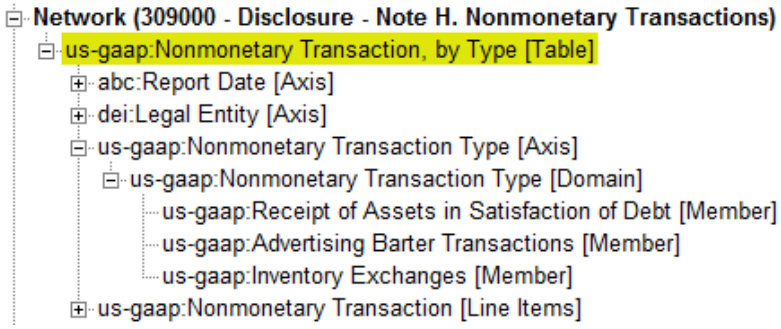
Explicitly defined [Table]s are the only tables to which you can add axes. All tables, be they explicitly defined or implicitly defined, have two axis which will always be there: entity and period.

- **Entity**: The entity axis, or entity identifier, always exists for an explicit or implicit table and the entity axis is always the SEC filer CIK number.
- **Period**: The period axis, or reporting period, always exists for an explicit or implicit table.

Using axis defined by the US GAAP taxonomy is preferred and would commonly be available; but if an axis which you need does not exist, you can create an axis to articulate the characteristics you need communicated. Other explicit axis which might be defined could include things such as:

- Class of common stock [Axis]
- Subsequent event type [Axis].

Here is an example of a [Table], its three [Axis], and its [Line Items]:



Note the **axis** "Nonmonetary Transaction Type [Axis]" above, its **domain** and its **members**.

3.4.1. Domains

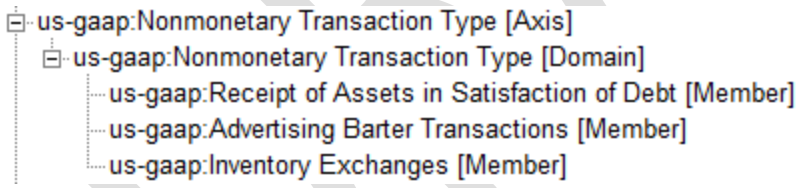
An **axis** always has exactly one **domain**. A domain is one of the possible values of an **axis**. A **domain** can have one of two meanings: total of the member or it may simply be a place holder which would never actually be used.

For example, say you have the axis "Regions [Axis]". That axis might have the domain "Regions, All [Doman]" which represents the total of all regions, the sum of all the members. That is a usable domain. Whereas, suppose you had the axis "Subsequent event types [Axis]". Subsequent events are never aggregated, so you would never use that domain. But you would still need to provide a domain such as "Subsequent event types, all types [Domain]", even though that domain would never actually be used within a report.

3.4.2. Members

A domain may, or may not, have **members**. Members are the possible values of an **axis** also (the domain is also a possible value as stated above).

Here is an example of an axis, its domain and its members:



3.5. Line items

Line items are concepts which can be reported by an entity, they can contain values. **Line items** is a special type of axis or characteristic. Because line items can report values, they have data types such as string, number, etc. They may also have a balance type (debit or credit), a period type (as of a point in time, for some period, etc), and a few other characteristic which we will get into when we cover the details.

3.5.1. Concepts

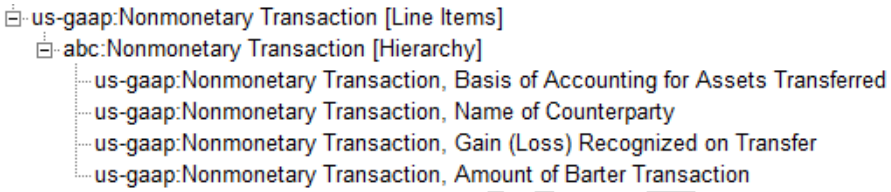
Line items contain **concepts**. Concepts can be concrete meaning that they can be reported or abstract meaning that they are never reported, they are only used to organize the concepts contained within a set of line items.

3.5.2. Information models

Concepts are not interspersed randomly within a table, they have patterns. Said another way, concepts are organized into different **information models**.

The common information models include: [Text Block], [Hierarchy], [Roll Up] (often referred to as a calculation), [Roll Forward], [Adjustment], [Grid], or [Complex Computation]. The [Text Block] information model is that of a narrative or prose reported as a block of HTML.

Here is an example of line items which contain abstract and concrete concepts organized into an information model:



3.5.3. Financial integrity (business rules)

Taking the notion that concepts are not randomly placed within a set of line items further than just the information model; certain information models have financial integrity. A balance sheet always has "Assets" and "Liabilities and Equity". A balance sheet always balances. The line items of Assets will always foot. The line items of "Liabilities and Equity" will always foot. These characteristics, or the balance sheets financial integrity, are expressed using business rules.

NOTE: Financial integrity exists within a table and also between tables.

3.6. Fact

Concepts are reported as **facts** whose characteristics are described with axis within an SEC XBRL filing. Facts have values, they have **axis** which describes its characteristics. **Facts** may be numeric or non-numeric. Numeric facts have an amount, non-numeric facts are made up of textual information.

Facts are an intersection of **axis** and **line items** (remember that line items are a special type of axis) and a value.

3.6.1. Intersection with line items (concepts)

A **fact** is associated with a concept, they reference a concept within the set of **line items**.

3.6.2. Intersection with axis

Facts are associated with axis which articulate characteristics, they reference a set of axis within an implicit or explicit table.

3.6.3. Value

Facts have a value which can be numeric or non-numeric. An important non-numeric value type is a narrative or [Text Block] which is a fragment of escaped XHTML.

3.6.4. Fact attributes

If the **fact** is numeric, it has two attributes which describe additional information needed by numeric facts: **units** and **decimals** (rounding). **Units** provides information about this units of the numeric fact such as monetary, shares, or some other units. The **decimals** (rounding) provides information as to the number of decimal places to which the number is accurate, such as to the thousands, millions, billions, hundredths, etc.

3.6.5. Footnotes

Facts may also have **footnotes** (comments, don't confuse this with notes to the financial statements) which provide addition information about the fact.

3.6.6. Example

Consider this example below which shows the "Document and Entity Information" network which contains the "Document and Entity Information" table, its axis, and its line items within the SEC XBRL Interactive Data viewer:

EDGAR ONLINE INC (Filer) CIK: 0001080224

Print Document View Excel Document

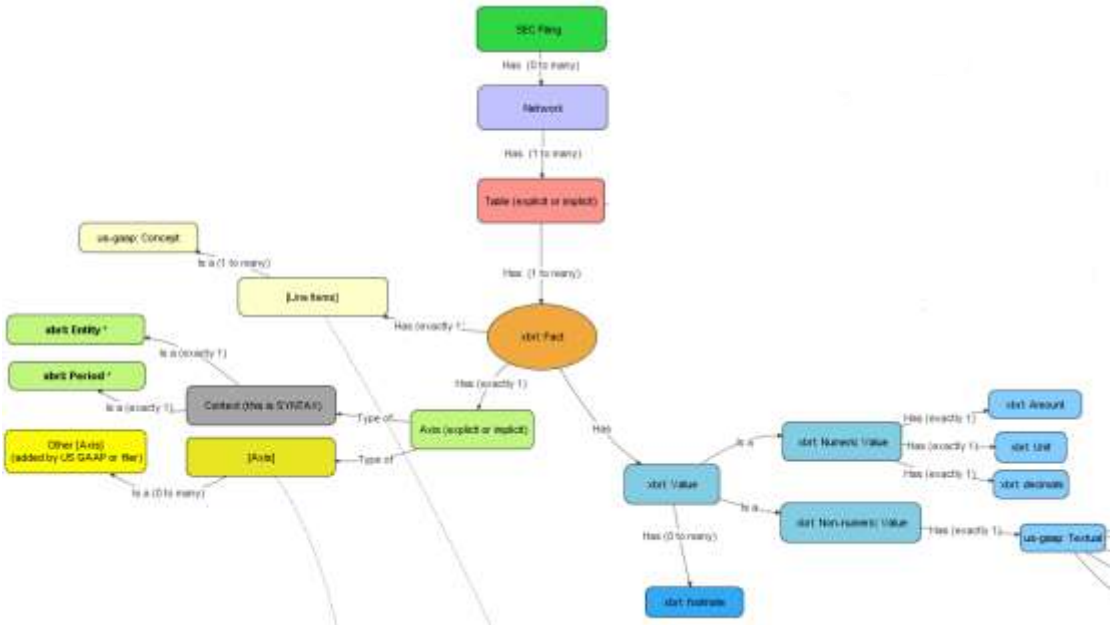
- Cover
- Document and Entity Information
- Financial Statements
- Notes to Financial Statements
- Notes Tables
- Notes Details
- All Reports

Document and Entity Information	9 Months Ended	
	Sep. 30, 2010	Nov. 12, 2010
Document Type	10-Q	
Amendment Flag	false	
Document Period End Date	2010-09-30	
Document Fiscal Year Focus	2010	
Document Fiscal Period Focus	Q3	
Trading Symbol	EDGR	
Entity Registrant Name	EDGAR ONLINE INC	
Entity Central Index Key	0001080224	
Current Fiscal Year End Date	--12-31	
Entity Filer Category	Smaller Reporting Company	
Entity Common Stock, Shares Outstanding		26,984,829

The fact values "26,984,829" is associated with the concept which has the label "Entity Common Stock, Shares Outstanding" which is part of the line items of the Document and Entity Information [Table] which is contained in the "Document and entity information" network. The fact is also associated with the axis period which has the value "Sep. 30, 2010" and the axis entity which has the value of 0001080224. The fact value is rounded to the nearest share and has the units of shares.

3.7. Summary visualization of Logical Model

This graphic depicts what we will discussed thus far, showing the relationships between the components discussed expressed as a mind map. Each component is represented as a box. The lines show the relationships between the boxes. The text on the line provides information about the relationship:



You can find a complete version of this mind map of the logical model at this URL:

http://www.xbrlsite.com/US-GAAP-2011/LogicalModel/SEC-LogicalModel-2011-02-01.pdf

NOTE: There are many different ways to depict this information, the most formal being UML (Uniform Modeling Language). UML is a standard way of depicting this information. However, we are using a less formal approach to articulating this information to make it easier for business readers to understand the relations. UML provides additional details, but is harder for business readers to understand.

3.8. Summary narrative of logical model

An **SEC XBRL filing**, or SEC XBRL-based financial report, can be logically broken down into sections. These sections are called **tables**. A **table** can be organized within a **network**. **Networks** organize where tables show up in software applications such as the SEC Interactive Data viewer application. Networks have numbers and a category. There are three categories of **networks**: Document, Statement, and Disclosure. The numbers within the network names determine the ordering of the networks within software applications.

Tables are groupings of **facts** which appear in a financial report for some specific purpose. **Facts** within a **table** have similar characteristics. **Axes** articulate characteristics. **Line items** are a special type of **axis**. **Line items** contain **concepts**. These **concepts** can contain **values**.

The value of an **axis** is a **domain** or a **member**. **Axis** always has a **domain**. A **domain** may be a total of all **members** or it may only be a placeholder and never used to report information. There are two special types of axis which do not have a domain: **entity** and **period**.

Numeric values have two additional attributes: **units** and **decimals**. **Units** explains the units of a numeric value and **decimals** explains the rounding of a numeric value. **Values** may also have **footnotes** which provide additional information about a specific value or a set of values.

Facts reported do not have random relationships, the relationships between **facts** have patterns, this is referred to as an **information model**. A **table** may contain numeric **concepts** with **information models** such as **roll up**, **roll**

forward, **grid**, **adjustment**, **complex computations**. Or if the numeric information has no relationship or textual information is reported, the information model is simply a **hierarchy**. The [Text Block] information model is that of a narrative or prose reported as a block of HTML.

4. Details of an SEC XBRL Filing

This section goes into each of the components discussed previously but in more detail.

4.1. Network

A network breaks an SEC XBRL financial filing into smaller pieces. There are two reasons why you might need to break a financial filing into pieces: because you want to or because you need to.

Property	Meaning/Definition	Example
Identifier	Uniquely identifies the Network. Used mainly by software applications.	http://xasb.org/roles/BalanceSheet
Number	Provides a way to order the network	100000
Category	A network must be either: document, statement, disclosure	Statement
Label	Human readable label for Network	"Balance Sheet"
Table (Collection)	A Network has a collection of Tables. Tables may be explicitly defined or implicitly defined.	All the Facts which are used by the "Balance Sheet" network.

SYNTAX: The number, category, and label are all combined in the extended link role definition.

SYNTAX: There are three types of networks: presentation, calculation, definition.

SYNTAX: The network of presentation, calculation, and definition networks MUST be the same.

SYNTAX: The presentation network can be used to automatically create the definition network; or the definition network can be used to automatically create the presentation network.

SYNTAX: You will only have a calculation network when you have a roll up information model.

4.2. Table

A table is used to combine a set of axis and a set of line items which go together for some purpose. There are two types of tables: explicit and implicit.

NOTE: Because of the way SEC XBRL works in that tables do not have to be unique within an extension taxonomy, the table plus the network must be used to uniquely identify a table. This is because a table of the same name such as "Statement [Table]" can be used for multiple information sets (such as the balance sheet, income statement, and cash flow statement) and therefore the combination network and table is needed to uniquely identify a specific table. One way to get around this is to implement tables uniquely within a taxonomy. This model suggests that all tables be unique within a taxonomy.

Property	Meaning/Definition	Example
Identifier	Uniquely identifies the Table. Used mainly by software applications.	Unique identifier such as http://xasb.org/roles/BalanceSheet for "Balance Sheet". Would distinguish from other Fact Groups such as the "Income Statement", "Maturities of Long term Debt", "Related Party Transactions"
Label	Human readable label for Table	"Balance Sheet"
Documentation	Explanation of the table	Reports the collection of concepts which make up the balance sheet of the reporting entity.

Property	Meaning/Definition	Example
Axis (Collection)	Collection of one to many axis which make up a table. NOTE: A table always has an entity axis. NOTE: A table always has a period axis.	Set of: Period, Entity, Legal Entity [Axis]
Line item (Collection)	A table has a collection of line items. Line items are comprised of one or more concepts.	Cash and Cash Equivalents, Receivables, Inventory, Prepaid Expenses (i.e. all concepts)

SYNTAX: Explicit tables have a substitutionGroup attribute value of "Hypercube".

SYNTAX: Line items is always an abstract element.

SYNTAX: Implicit tables don't actually don't physically exist, they virtually exist.

4.3. Axis

An axis is a means of providing information about characteristics of the line items within a table, be that table explicitly defined or implicitly defined.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Axis. Used mainly by software applications.	us-gaap:LegalEntityAxis
Label	Human readable label for axis	"Legal Entity [Axis]"
Documentation	Explanation of the axis	Used to indicate which legal entity the fact relates.
Domain (relation to)	Has exactly one domain.	"Geographic Area, All Areas [Domain]"
Member (collection), optional	A possible (i.e. allowed) value for a Measure property.	Europe Geographic Area, Asia Geographic Area, Pharmaceuticals Business Segment;

SYNTAX: An entity axis MUST exist. Entity axis does not have an explicitly defined domain, but a virtual domain can be assumed. It might be wise to actually create this notion formally within analysis applications. "All Entities".

SYNTAX: A period axis MUST exist. Period axis does not have an explicitly defined domain, but a virtual domain can be assumed. It might be wise to actually create this notion formally within analysis applications. "All periods".

NOTE: The entity and period axis are not constrained by hypercubes and therefore they operate differently than the explicit axis which are added to a table. This causes some facts to be pulled into tables where the creator or use of the business report does not want them in that specific table.

4.4. Domain

A domain may be a total, or a placeholder which may never actually be used within a report. An axis requires a domain.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the domain. Used mainly by software applications.	abc:GeographicAreaAllAreasDomain
Label	Human readable label for Table	"Geographic Area, All Areas [Domain]"
Documentation	Explanation of the domain	Used to indicate that the fact relates to the total of all geographic areas of the reporting entity.
Member (collection)	A collection of possible members	Europe Geographic Area, Asia Geographic Area, Pharmaceuticals Business Segment;

SYNTAX: The default-domain arc is REQUIRED on every domain.

SYNTAX: Data type attribute MUST exist but will ALWAYS be the value "string".

SYNTAX: Period type attribute MUST exist but the value will ALWAYS be "duration".

SYNTAX: Balance type attribute MUST NOT exist.

4.5. Member

Members are the possible values within a domain (of which there can only be one domain in SEC XBRL filings).

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Domain. Used mainly by software applications.	dei:ParentCompanyMember
Label	Human readable label for Member	Parent Company [Member]
Documentation	Explanation of the member	Used to indicate that the fact relates to the parent company of the reporting entity.

SYNTAX: Data type attribute MUST exist but will ALWAYS be the value "string".

SYNTAX: Period type attribute MUST exist but the value will ALWAYS be "duration".

SYNTAX: Balance type attribute MUST NOT exist.

4.6. Line Items

Line items are a collection of concrete and abstract concepts organized into an information model. Line items are a special class of axis.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the Line Items. Used mainly by software applications.	us-gapp:BalanceSheetLineItems
Label	Human readable label for Table	"Balance Sheet [Line Items]"
Documentation	Explanation of the line items	Contains all the line items of the balance sheet.
Concept (Collection)	Has a collection of one or more concepts.	

SYNTAX: Line items is always an abstract element.

4.7. Information models

A line items collection contains concepts. Those concepts are organized into an information model. That information model takes one of the following forms (i.e. the concepts in a set of line items is not random)

Term	Meaning/Definition	Example
Roll Up	Computation relation between numeric concepts which can only exist within any one property of a measure.	Calculations of a balance sheet (all concepts); breakdown of assets by business segment.
Roll Forward	Computation relation between a numeric concept at two instants (one Concept with a period type of instant) in time and its change (a Concept which is a duration period type, this may be a Roll Up). A computation where the period changes, but all other axis remain the same.	Movements in property, plant, and equipment; Cash flow statement; Reconciliation of the change in the number of employees.

Term	Meaning/Definition	Example
Adjustment	A computation where the period remains constant, but the report data axis changes.	Restatements: Originally stated balance + adjustments = Restated balance.
Complex computation	Some complex computation which cannot be expressed using XBRL calculations (i.e. you cannot show the computation in a tree view)	Earnings per share (Net income / shares outstanding) because it is a division
Grid	An information model where the axis and the line items communicate the grid form that a table should be rendered.	Statement of changes in equity
Hierarchy	Relation between any one measure which does not involve any computations.	Accounting policies; Miscellaneous numbers which have no computation relation to other numbers
Text Block	Narrative or prose which is reported	An accounting policy, a complex disclosure, an HTML table of information which is disclosed but not "detailed tagged."
Other information models	Some other information model	(Have no examples, from what I can see all information models fit into one of the above)

4.8. Concepts (concrete)

Concepts are may only be used within line items which may be reported as facts have the following properties.

Term	Meaning/Definition	Example
Identifier	A unique identifier of a concept, it's name. (i.e. not the id attribute)	us-gaap:CashAndCashEquivalents
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "labels collection" is different than the standard label. But, this is part of the labels collection from a syntax perspective.)	Cash and Cash Equivalents
Data type	The data type of a concept which the value must take.	String, monetary, decimals, Boolean, etc.
Period type	The period type of a concept allowed such as as of a point in time, for a period of time, or forever.	Instant, duration, forever
Balance type	The balance type of a concept such as debit or credit. Applies only to certain monetary concepts.	Debit, credit
Documentation	The documentation or definition of the meaning of the concept.	Cash includes ....
References	References to one or more external sources of documentation or definitions. This is a collection.	References to the authoritative financial reporting standards.

SYNTAX: Documentation is implemented as a label with a specific type of label role.

4.9. Concepts (abstract)

Concepts are may only be used within line items and may never be reported have the following properties.

Term	Meaning/Definition	Example
Identifier	A unique identifier of a concept, it's name. (i.e. not the id attribute)	us-gaap:BalanceSheetAbstract
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "labels collection" is different than the standard label. But, this is part of the labels collection from a syntax perspective.)	Balance Sheet [Abstract]
Documentation	The documentation or definition of the meaning of the concept.	Balance sheet includes ....
Reference (collection)	References to one or more external sources of documentation or definitions. This is a collection.	References to the authoritative financial reporting standards.

SYNTAX: Abstract attribute MUST exist and the value MUST be "true".

SYNTAX: Data type attribute MUST exist but will ALWAYS be the value "string".

SYNTAX: Period type attribute MUST exist but the value will ALWAYS be "duration".

SYNTAX: Balance type attribute MUST NOT exist.

SYNTAX: Documentation is implemented as a label with a specific type of label role.

SYNTAX: The namespace prefix is part of the name and identifies where the concept comes from.

4.10. Labels

Additional labels for a concept, axis, table, domain, member, line items, other than the standard label which is required and a property

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the label.	us-gaap_CashAndCashEquivalents
Label	The standard label of a concept. (Note that concepts MAY also have other labels, but they MUST have one standard label. The "label collection" is different than the standard label.) (This is a collection)	Cash and Cash Equivalents, Beginning Balance
Language	Language of the label	en-US
Label Role	What the label is used for, for example: standard label, beginning period label, ending period label, terse label, negated label, etc.	http://www.xbrl.org/2003/role/period-start

4.11. References

A concept, table, domain, member, line items may be described by a collection of references.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the reference.	us-gaap_CashAndCashEquivalents
Reference Role	What the reference is used for, for example: comment, general information, measurement, etc	
Reference part (collection)	Collection of reference parts	Chapter, page, section, line, etc.

4.12. Fact

A fact is a single observable, reported piece of information (numeric, string, narrative) that is described by the axis collection, fact value, fact attribute collection. A fact must exist within a table. A fact can be used on one or more table within a business report. A fact MUST exist in at least one table, they do not exist "on their on", independently of a table.

Term	Meaning/Definition	Example
Fact	Fact value is an abstract notion which is broken into two possible concrete possibilities: numeric value or non-numeric value.	11,000 rounded to the nearest thousands, expressed in US Dollars
ID	Optional. Uniquely identifies the fact. (Required if footnotes are used because they connect the footnote to the fact.)	ID-0001
Concept	A fact is associated with a concept	us-gaap:CashAndCashEquivalents
Axis (collection)	A notion that represents the collection of information properties which describe the meaning and context of a fact. The axis collection identifies the fact.	Cash and Cash Equivalents on December 31, 2010, Audited, for ACME Company, Actual, etc.
Fact attributes (collection)	Collection of fact attributes which further describe numeric facts and are not involved with dimensional processing	rounded to the nearest thousands
Fact value	Fact value is an abstract notion which is broken into two possible concrete possibilities: numeric value or non-numeric value.	11,000; Or the text "FIFO".
Table (collection)	A fact exists within a table. A fact is associated with one or more tables. A Table is a set of facts which have the same collection of axis properties and fact value properties and is used together for some purpose.	

[CSH: Not quite sure how to express the notion that a fact is the intersection of a value, its axis, and a concept in the table above.]

NOTE: The entity and period axis are not constrained by hypercubes and therefore they operate differently than the explicit axis which are added to a table. This causes some facts to be pulled into tables where the creator or use of the business report does not want them in that specific table.

4.13. Fact attributes

Fact attributes is the notion that a value may have one or more pieces of information associated with it which should not (does not) impact or not be impacted by dimensional processing.

Term	Meaning/Definition	Example
Textual (for non-numeric facts)	The value of a non-numeric fact. Could be text, narrative, prose, textual information which would be converted into an image (base 64), or other legal XBRL type. A notion that groups the properties of a value (of a fact), that apply to non numeric values.	"FIFO", a line of text, several paragraphs of text or escaped XHTML which populates a text box.
Amount (for numeric facts)	The value of a numeric fact. A notion that groups the properties of a value (of a fact), that apply to numeric values only	100,000

Term	Meaning/Definition	Example
Rounding (for numeric facts)	The rounding of a numeric fact. Applies only to facts with concepts which are numeric.	Rounded to thousands, millions, billions; rounded to hundredths
Unit (for numeric facts)	The unit of a numeric fact. Applies only to facts with concepts which are numeric.	The currency of a monetary value, "shares" for a decimal value.
Footnotes (collection)	Zero or more footnotes which can be associated with a fact to further describe the fact.	

SYNTAX: Rounding semantics = decimals syntax.

4.14. Footnote

A footnote provides additional information about a fact. Footnotes are optional. Footnotes can be associated with any number of facts.

Term	Meaning/Definition	Example
Identifier	Uniquely identifies the footnote.	FN-00001
Footnote Role	Category into which the footnote fits	
Footnote	The actual footnote	For additional information see Note B to the financial statements.

5. Relation between Components

There are relations between the components which we have discussed which you should be aware of. This is a discussion of these important relations.

5.1. Relation between presentation, calculation, and definition networks is syntax.

SEC XBRL filings have three different types of networks: presentation, calculation, and definition. These different types of networks are syntax and users should generally not be concerned with these different networks for the following reasons.

- **Presentation and definition are 100% interchangeable**. When the US GAAP Taxonomy is created, the presentation networks are modelled and then the definition network is automatically generated from the presentation relations. Likewise, the definition networks could be used to automatically generate the presentation relations. Problems occur when software reads the presentation or definition relations and they are inconsistent. Which is the computer to believe as the accurate articulation of the information?
- **Calculation networks are 99% interchangeable with presentation networks**. If balance attributes exist on concepts, then presentation networks and calculation networks are interchangeable because the balance attribute helps determine the weight of calculation relations. Calculation networks will only exist if a [Roll Up] information model exists; that is what the calculation network communicates, those relations.
- **If calculation networks are interchangeable with presentation networks, then calculation networks are interchangeable with definition networks**. By induction.
- **Definition networks constrain relations far better than presentation networks**. Each type of relation articulated within a definition network has its own role. For articulating XBRL Dimensional information, these roles are specified and enforced by an XBRL processor. By contrast, presentation networks have only one role that it uses "parent-child". As such, there is only one type of relation presentation networks can express.

There are two important messages here. First, problems will be encountered if there are inconsistencies between the "message" articulate by a presentation network, a calculation network, and a definition network which work together to articulate meta data about a component of a financial report. Second, to minimize these problems, let software manage these relations. They are 99% interchangeable anyway, software users can deal with the remaining 1%, rather than grapple with trying to keep the three types of networks consistent manually.

5.2. Networks have no ordering or hierarchy.

Networks, per XBRL rules, have no order or official way to articulate an order. Nor can networks be expressed in a hierarchy (i.e. like concepts have parent-child relations). The US GAAP Taxonomy and SEC have created a scheme of ordering networks and creating a hierarchy using the numbers and categories (Document, Statement, Disclosure).

NOTE: There are other possible approaches to ordering. For example, a presentation network can be created, adding the categories "Document", "Statement", "Disclosure" or other such categories and then relations could be created between a category and a table, organizing the information within an SEC XBRL filing.

5.3. XBRL Formulas expresses relationships between components in a global standard way.

Not all relations which exist within an SEC XBRL filing can be expressed using the mechanisms provided by the US GAAP Taxonomy; but this does not mean that they cannot be, or should not be, expressed. For example, a [Roll Forward] relationship cannot be expressed using XBRL calculations (i.e. beginning balance + changes = ending balance) and a dimensional aggregation (Sales for Asia + Sales for Europe + Sales for America + Sales for Africa = Total Sales for all geographic areas). However, these relations do exist, they do need to be checked, and XBRL Formulas can express these relations.

XBRL Formulas is not allowed to be submitted to the SEC. That is not a reason for not expressing the relations and not verifying that the relation is correctly expressed with your SEC XBRL filing.

5.4. Relations exist between tables, as well as within tables.

Business users tend to understand the relations within a table better than they understand that relations also exist between tables. For example, a balance sheet has many line items which are detailed within the disclosures. The balance sheet is one table, a summary table. The balance sheet ties to many, many disclosure tables which provide additional details. There are many other such examples.

These relations need to be properly expressed. These relations can be tested using XBRL Formulas which prove that the relations are expressed correctly.

See the section on financial integrity which explores this topic in more detail.

6. Financial Integrity

A special type of relationship exists between financial statement reported fact values which is called **financial integrity**. This financial integrity exists within a table and between tables.

Financial integrity is a foundation upon which a financial statement is constructed. The notion of financial integrity is so ingrained in the minds of CPAs that they don't even realize that they are using it when they create a financial statement. Of course the balance sheet balances. Of course net income per the statement of changes in equity agrees with the net income shown on the cash flow statement and on the income statement. CPAs know how to build a financial statement using the medium of paper or the mediums which look like paper which are expressed electronically, Word, Excel, PDF or HTML.

But when we work with XBRL, which is basically a different medium, we need to master that medium to express that same financial integrity. Because most CPAs don't currently grasp how the XBRL medium works and because the current software available to express financial information using XBRL is of little or no help in making sure financial information expressed in XBRL is correct; CPAs have a hard time expressing financial information within the XBRL medium or reviewing XBRL created by others which articulates financial information which they must sign off.

Eventually software will help express financial information in the XBRL medium which has the same financial integrity and the same meaning of the information CPAs express today using paper. In fact, that computer software will make creating that financial information easier because it will enforce all those characteristics I am summarizing here as the term "financial integrity". But until they do, CPAs and others creating financial statements such as SEC XBRL filings have to enforce that financial integrity in other ways.

When you build a boat you start by building laying the keel. When you build a house you start by laying the foundation of the house. If the keel of the boat is sound or the foundation of the house is sound, then you are off to a good start. But if you don't lay that keel correctly or lay a "true" foundation to a house, you will never be able to create a good boat or an architecturally sound house. Your boat will likely fall apart in rough weather or your house may fall down if the wind blows too hard. The point is that it seems that the bulleted list above is the "keel" or "foundation" of a financial statement.

Does every financial report issued by all the different companies within a class, say SEC filers, have the exact same foundation? Clearly the details will not be the same, for example the line items of a balance sheet of companies will be different. Consider that balance sheet; do all companies even have the same type of balance sheet? Some most use classified balance sheets but some industries use order of liquidly balance sheets not breaking out current assets or liabilities. Some entities are corporations and have stockholders' equity and some entities are partnerships and have partners' capital.

Can there possibly be any common foundation? Well, let's assume for a minute that we cannot find any common foundation. If that is true, then how will a computer software application ever be able to take two financial statements and compare them? Computers need some sort of structure in order to have even a remote chance to create useful automated comparisons. That is how computers work. Now, software developers could overcome the differences by writing software which take all the differences, distil them down into some common framework somehow, and create comparisons. Each software vendor would likely

do this in slightly different ways. The software would be more complex to use because it has a lot of sophisticated code which is used to take something which has no framework and create some framework so that the analysis can be performed.

Software vendors are going to have to create some foundation or framework to work within. That is how software is created.

6.1. Financial integrity framework

This is one proposed foundation of a financial report under US GAAP for general commercial and industrial companies (i.e. no specific industry).

[CSH: It would be better if the FASB or SEC articulated this foundation. Until thta occurs, every software vendors is going to have to come up with their own foundation.]

6.2. Balance sheet

The balance sheet of a corporation always has the concepts "Assets" and "Liabilities and Equity". The value of both of those concepts MUST have the same value (i.e. the balance sheet balances.). Depending on the industry you might have "Current Assets" and "Current Liabilities" (i.e. a classified balance sheet). The computations for "Assets" and "Liabilities and Equity" foot.

Reporting entities can hang other concepts from "Assets" and from "Liabilities and Equity"; but you definitely have those two concepts and anything that does hang off those concepts adds up correctly. (i.e. the line items add up to the totals for "Assets" and "Liabilities and Equity".

In the US GAAP Taxonomy, a different concept is provided for the equity of a partnership: "Partners' Capital". When the US GAAP Taxonomy is expanded to include proprietor ships, it is likely that a concept such as "Owners' Equity" will be added. The US GAAP taxonomy could have used one concept for all types of equity, "Equity", and then differentiating the equity via the line items of equity for corporations, partnerships, proprietorships, etc. But, that choice was not made and thus the total amount of "Liabilities and Equity" could be represented by a finite number of different concepts.

Summary of specific business semantics (rules) for the balance sheet:

ID	Business Rule
FI-BS-0001	The balance sheet MUST use the "Balance Sheet [Table]" (or something to that affect as the US GAAP Taxonomy does not provide this [Table], "Statement [Table]" should not be used). [CSH: It would be better if the US GAAP Taxonomy defined these [Table]s, but they don't and we have to live with that until they do. Doing so would allow comparisons of, for example, a "balance sheet" by a computer application simply grabbing the "Balance Sheet [Table]" which provides the entire balance sheet.]
FI-BS-0002	The US GAAP Taxonomy concept "Assets" MUST exist.
FI-BS-0003	Either the US GAAP Taxonomy concept "Liabilities and Equity" or "Liabilities and Partner's Capital" MUST exist.
FI-BS-0004	The US GAAP Taxonomy concept "Assets" MUST equity the liabilities and equity account which exists, see 3 above.
FI-BS-0005	ONLY line items are used in the balance sheet. (i.e. different [Axis] must not be used on the balance sheet items to indicate the different classes of stock, rather an item concept is used,

	that item is included in the XBRL calculations, and the balance sheet foots.)
FI-BS-0006	There is an XBRL calculation for "Assets", "Liabilities and Equity" or "Liabilities and Partners' Capital" and every line item must appear in the calculations linkbase which proves that the line items foot.
FI-BS-0007	"Commitments and Contingencies" is an exception to rule "5".
FI-BS-0008	All information shown on the balance sheet which does not fit into the above is shown in the "Balance Sheet Parenthetical" [Table].
FI-BS-0009	Whether a company has a noncontrolling interest or not, the concept "Stockholders' Equity, Including Portion Attributable to Noncontrolling Interest" is the total for equity (i.e. NOT the concept "Stockholders' Equity Attributable to Parent" which is ONLY used when there is a noncontrolling interest)
FI-BS-0010	The [Axis] "Legal Entity [Axis]" must always exist on the balance sheet. (The "Class of Stock [Axis]" is never appropriate.
FI-BS-0011	The cash account used on the cash flow statement MUST appear on the balance sheet.

6.3. Income statement

It seems that there are two concepts what every company will always have: (1) "Income (Loss) from Continuing Operations before Equity Method Investments, Income Taxes, Extraordinary Items, Cumulative Effects of Changes in Accounting Principles, Noncontrolling Interest", (2) "Earnings Per Share, Basic". There is a "step down" in the income statement, companies only have the steps if they have that component. The components are: Income from Equity Method Investments, Discontinued Operations, Extraordinary Items, Cumulative Effect of Change in Accounting Principle. If you have a noncontrolling interest, then net income is also broken down by what goes to the parent and what goes to the noncontrolling interest. If you have preferred dividends you need to break those out. You may, or may not, break Income from Continuing Operations out for Gross Profit. But, it seems that (a) one always has Income from Continuing Operations (i.e. if they don't, are they a viable business?), (b) some easy to figure out step down of net income, and (c) earnings per basic share. (If I am wrong on this, this is the statement where I am probably making a mistake. There may be a better way of explaining this.)

Summary of specific business semantics (rules) for the income statement:

ID	Business Rule
FI-IS-0001	The income statement MUST use the "Income Statement [Table]" (or something to that affect as the US GAAP Taxonomy does not provide this [Table], "Statement [Table]" should not be used).
FI-IS-0002	The concept "Income (Loss) from Continuing Operations before Equity Method Investments, Income Taxes, Extraordinary Items, Cumulative Effects of Changes in Accounting Principles, Noncontrolling Interest" MUST exist in the "Income Statement [Table]" and a fact value must exist for each period presented.
FI-IS-0003	The concept "Earnings Per Share, Basic" MUST exist in the "Income Statement [Table]" and a fact value must exist for each period presented. [CSH: The XBRL US consistency checks specifies this, not sure if

	this is true in 100% of all cases.]
FI-IS-0004	The income statement has a number of income "steps", for example "Income (Loss) before Extraordinary Items and Cumulative Effect of Change in Accounting Principle" and "Income (Loss) before Cumulative Effect of Change in Accounting Principle". Associated with each step is a concept which delineates the step, for example "Extraordinary Item, Gain or Loss, Net of Tax, Including Portion Attributable to Noncontrolling Interest" and "Cumulative Effect of Change in Accounting Principle Presented on Income Statement, Net of Tax, Including Portion Attributable to Noncontrolling Interest". If the concept which delineates a portion of income exists within an income statement then the income step must also be present, they must exist as a pair. [CSH: I may need to explain this, there may be a better way to articulate this.]
FI-IS-0005	A US GAAP taxonomy concept MUST only exist within the tree of concepts in which it is presented within the US GAAP taxonomy. For example, the concept "Gross Profit" exists in the US GAAP taxonomy within the tree "Operating Income (Loss)"; therefore it MUST only exist within that same tree within an SEC XBRL filer taxonomy, it cannot be used within for example the "Nonoperating Income (Expense)" or "Operating Expenses" trees of concepts. [CSH: I may need to explain this.]

6.4. Cash flow statement

Every company has the concept "Cash and Cash Equivalents, Period Increase (Decrease)" (per the US GAAP Taxonomy) or I call it "Net Cash Flows". That concept can be broken down into three other concepts: Net cash flows from operating activities, Net cash flows from investing activities, and Net cash flows from financing activities.

Companies will highly likely have operating cash flows, it could be that they have no financing or investing cash flows. It is conceivable that they don't have operating cash flows because they are not operating companies. There are two other things which could be included in "Net Cash Flows": Effect of exchange rate on Cash and Net Cash Flows from discontinued operations. Now, discontinued operations could be configured in a number of different ways, but it is always a part of "Net Cash Flows". Effect of exchange rate on cash is a different story, I am getting two different messages. Fine, one must be true. Either it is ALWAYS part of "Net Cash Flows" (this is what I see in 99% of filings) or it could be part of the reconciliation of cash (i.e. not part of "Net Cash Flow"). Whatever concept is used for "cash" in the cash flow statement must be the same concept used on the balance sheet.

This business rule is ALWAYS true: "Beginning Cash + Net Cash Flows = Ending Cash". (Or, alternatively, if exchange gain is NOT part of "Net Cash Flows"; then: "Beginning Cash + Net Cash Flows + Effect of Exchange Rate on Cash = Ending Cash")

Net cash flows from operating activities could be broken down using one of two approaches: the indirect method which is used by most entities and the direct method which is used less often.

There are two approaches to expressing information about Net Cash Flows from Discontinued Operations. One approach is to include cash flow information

relating to discontinued operations as sub components of operating, investing, and financing cash flows. The alternate approach is to combined all net cash flows from discontinued operations as an additional sibling to net cash flows from operating, investing, and financing activities, "Net cash flows from discontinued operations".

Summary of specific business semantics (rules) for the cash flow statement:

ID	Business Rule
FI-CF-0001	The cash flow statement MUST use the "Cash Flows [Table]" (or something to that affect as the US GAAP Taxonomy does not provide this [Table], "Statement [Table]" should not be used).
FI-CF-0002	The concept "Cash and Cash Equivalents, Period Increase (Decrease)" MUST exist in the "Cash Flow Statement [Table]" and a fact value must exist for each period presented.
FI-CF-0003	One of the following two rules MUST ALWAYS be true: "Beginning Cash + Net Cash Flows = Ending Cash". Or, alternatively if exchange gain is NOT part of "Net Cash Flows"; then: "Beginning Cash + Net Cash Flows + Effect of Exchange Rate on Cash = Ending Cash")
FI-CF-0004	There is an XBRL calculation for "Net cash flows from operating activities", "Net cash flows from financing activities" and "Net cash flows from financing activities" and every line item must appear in the calculations linkbase which proves that the line items foot.
FI-CF-0005	Net Cash Flows from Discontinued Operations MUST exist as either (a) a child of Net Cash Flows or (b) be delineated as part of each component of cash flows.
FI-CF-0006	The concept for cash which is being reconciled on the cash flow statement MUST exist on the balance sheet.

6.5. Statement of Changes in Equity

The beginning and ending balances of the statement of changes in equity tie to the balance sheet. Net income shown in this [Roll Forward] ties to the income statement (the statement of changes in equity is a collection of [Roll Forward]s for each balance sheet equity account). (All the statement of changes in equity is, is a bunch of [Roll Forward]s.

There is a [Roll Forward] for every equity account and shares and there is a [Roll Forward] for all the periods shown on the balance sheet.

[CSH: The US GAAP Taxonomy uses a "grid" approach to articulating the statement of changes in equity which is fundamentally flawed because the [Axis] component of equity requires SEC XBRL filers to create duplicate concepts. If the SEC does not explicitly require this approach, then the statement of changes in equity should be created just like any other [Roll Forward], because that is what it is…a [Roll Forward]. If, however, the SEC requires the use of the "grid" approach, then I can create a [Grid] pattern which specifies exactly how this "grid" is to be created, using the components of equity [Axis] as the columns and the line items as the rows. This needs to be decided before we can articulate the business rules below.]

Summary of specific business semantics (rules) for the statement of changes in equity:

ID	Business Rule
FI-SE-0001	The statement of changes in equity MUST use the "Changes in Equity [Table]" (or something to that affect as the US GAAP Taxonomy does not provide this [Table], "Statement [Table]" should not be used).
FI-SE-0002	All beginning balances must properly roll forward to the ending balances (Beginning balance + changes = Ending balance)
FI-SE-0003	All equity component changes MUST sum to total equity changes (i.e. the roll forward must cross cast)
FI-SE-0004	All originally stated balances must properly reconcile to restated balances (Originally stated balance + adjustments = Restated balance) (this is specifically for prior period adjustments for accounting changes and corrections of a prior period error)

6.6. Basis of Reporting

The basis of reporting provides information about the entity and over arching reporting and presentation issues used by the financial report.

[CSH: We need to analyze this more. This might be an "optional" section as many reporting entities combine this information within the significant accounting policies. However, it really seems to be a separate section.]

Summary of specific business semantics (rules) for the basis of reporting:

ID	Business Rule
FI-OI-0001	The "Basis of Reporting [Table]" MAY exist, it is optional.
FI-OI-0002	Differences between the legal entity and the business/economic entity MUST be explained using the concept "Differences Between Legal and Business Entity".

6.7. Significant Accounting Policies

Some policies relate to financial statement line items. Some don't. If they do tie to a line item, the fact that it does tie should be expressed.

Summary of specific business semantics (rules) for the information about organization:

ID	Business Rule
FI-AP-0001	The "Significant Accounting Policies [Table]" MUST exist. (or something to that affect as the US GAAP Taxonomy does not provide this [Table], "Statement [Table]" should not be used).
FI-AP-0002	The following policies are required to be provided: Revenue recognition policy, principals of consolidation.
FI-AP-0003	The "Accounting Changes [Table]" MUST exist if the reporting entity reports any accounting changes.

6.8. Disclosures

NOTE: Jon Rowden and Mike Willis make the following statement in their white paper Making Sense of XBRL In the US and the UK, "The accountants' skill and expertise can then be applied to and focused on disclosures where there is a problem, rather than turning each disclosure note into something resembling the accounting equivalent of a hand-crafted work of art."

Financial statement disclosures, in some cases should be a hand-crafted work of art. But not in most cases. Most accountants do not desire to be artists, rather they endeavour to comply with financial reporting rules and XBRL can help accountants achieve this desire. There are some required disclosures. Other disclosures are required if you have certain financial statement line items. Other financial statement disclosures are required if the financial statement line item has certain specific characteristics. Other financial statement disclosures are common practice or purely optional. This information can be organized in different ways. Financial statement disclosures are not random.

As there are price differences between hand-crafted furniture and the furniture which you might purchase at IKEA or at a high end furniture store, there are different prices or costs incurred to taking different approaches to creating financial statement disclosures.

Some disclosures relate to financial statement line items. Some don't. The ones that do tie to those line items (i.e. they are the same XBRL concept in the statement and in the disclosure). If the disclosure is supposed to foot, some business rule exists to show that (either an XBRL calculation or an XBRL formula). Things that should be tied together are tied together, be they because they relate to the same class of stock, same entity, same class of some other line item, or in some other thing which should be tied together.

[CSH: People seem to confuse the notion of a "note" and a "disclosure". They are not the same. "Disclosures" are things which need to be disclosed. "Notes" is a presentation related idea and is an organization of the disclosures preferred by a SEC reporting entity. So, a note is an instance of one or more disclosures provided by a reporting entity. How disclosures are organized within the notes is up to a reporting entity. But many of the things which are disclosed are required by US GAAP. There are also common practice disclosures and additional disclosures which an entity chooses to provide. There seems to be three classes of disclosures: (a) always required, (b) required if you have a certain line item on the primary financial statements or if the disclosure is otherwise applicable or (c) other disclosures an entity chooses to make. Within those sets of disclosures, an entity may also provide additional information beyond what is required. The notion of what is disclosed and how those disclosures are organized are different and should be kept in the back of one's mind.]

Summary of specific business semantics (rules) for the disclosures:

ID	Business Rule
FI-AD-0001	The following [Table]s MUST exist if these disclosures are applicable for a reporting entity (i.e. the SEC XBRL filer cannot create a new concept for any of the following): Related Parties [Table], Related Party Transactions [Table], Contingencies and Commitments [Table], Risks and Uncertainties [Table], Nonmonetary Transactions [Table], Subsequent Events [Table], Variable Interest Entities [Table].
FI-AD-0002	If a line item exists, then the disclosures related to that line item must also exist.
FI-AD-0003	If a disclosure exists because a line item exists, then if certain specific characteristics exist for that line item, then disclosures for those characteristics must also exist.

[CSH: Basically, it appears as though an entire disclosure checklist of "if, then" statements needs to be created similar to a manually prepared disclosure checklist used today. If you have this line item, then these disclosures are required. If you are in a specific industry which requires additional disclosures, then you need to provide those. If a line item has these specific characteristics,

then these additional disclosures are required. If you want to add more stuff beyond these, go for it.]

[CSH: Not totally sure how to approach this. What might work is to provide a list of "shell" [Table]s with required components (i.e. that [Table] and the shell of concepts are REQUIRED), then other pieces can be added in addition to those minimum pieces of the specified component.)

6.9. Document Information

The US SEC requires a "Document Information [Table]" to be reported by every SEC XBRL filer.

Summary of specific business semantics (rules) for the document information:

ID	Business Rule
FI-DI-0001	The "Document Information [Table]" MUST exist.
FI-DI-0002	The following [Line Items] MUST exist within the Document Information [Table]: Entity Registrant Name, Entity Central Index Key, Entity Filer Category, Entity Current Reporting Status, Entity Voluntary Filers, Entity Well-known Seasoned Issuer, Entity Public Float, Document Type, Amendment Flag, Document Fiscal Period Focus, Document Fiscal Year Focus, Document Period End Date, Current Fiscal Year End Date, Entity Common Stock, Shares Outstanding, Trading Symbol. [CSH: Personally, I believe that the SIC code should be required.]

7. Verifying SEC XBRL Filings using Automated Validation

It is easy to validate a financial report which is created on paper. All you need to do is give it to a competent accountants and they will make sure the report is correct.

With SEC XBRL reports this changes. The reason that it changes is that a computer can read your financial report. Both the paper report and the XBRL report need to communicate the same information. The big difference between the two is that a computer can read a report and detect errors that only a human could detect if the report where printed on paper or expressed in HTML or PDF.

7.1. Automated verification a computer can perform

The following are the automated verification or validation which XBRL can perform. Humans still play a role in some of these. I will cross reference the type of validation to a set of four categories which I have heard automated validation placed into: **correctness**, **completeness**, **consistency**, and **accuracy**. I will also provide examples of this validation where I can.

- **Edgar filer manual (EFM) validation**. This is the only validation required to pass a filing into the SEC. But this is far from what is necessary to tell whether your financial information is correct.
- **XBRL Cloud validation**. There are different interpretations in SEC EFM validation. That is why XBRL Cloud validation is different than SEC XBRL validation required for submission. Here is the validation results for the reference implementation for the XBRL Cloud EFM validation, provided complements of XBRL Cloud. This covers XBRL syntax validation, SEC specific validation requirements which includes meta data related, some light semantics. (Relates to: correctness, consistency, completeness)
- **Information model validation**. Tests to be sure you are creating things such as your [Table]s, [Roll Forward]s, roll ups, and hierarchies consistent with the US GAAP Taxonomy. Doing so is specified in the US GAAP Taxonomy Architecture. This helps make sure your extension taxonomies are consistent with the US GAAP Taxonomy and with other SEC XBRL filers. For example, section 4.5 covers how [Table]s are to be created. I don't have a validation report for this, but this shows what the reference implementation taxonomy looks like which follows the US GAAP Taxonomy information model. (Relates to: consistency)
- **Extension points and extensibility rules validation**. Tests to see if where you are extending the US GAAP Taxonomy is appropriate and if you are creating logical extensions. For example, putting an income statement line item on the balance sheet is illogical. Or, adding a concept at the same level as "Assets" and "Liabilities and Equity" on the balance sheet might not make much sense. (Relates to: consistency)
- **Financial integrity validation within a [Table]**. Tests to be sure that each [Table], be that [Table] explicitly defined or implied, is "internally consistent and correct". Financial integrity is discussed here. For example, does your balance sheet have "Assets", "Liabilities and Equity", does your balance sheet balance, and do all the line items add up correctly? That is financial integrity, just like a paper based financial statement. (Relates to: correctness, consistency, completeness, accuracy)

- **Financial integrity validation between [Table]s**. Tests to be sure that explicit/implicit [Table]s are properly related to one another. For example, the balance sheet ties to the statement of changes in equity. The cash flow statement cash account needs to tie to the balance sheet. Disclosure details need to tie the financial statement line items. (Relates to: correctness, consistency, accuracy)
- **Internal consistency**. When I originally created my reference implementation I did not have access to the XBRL US consistency suite. I asked that model be run through that suite of tests and the consistency suite pointed out that the reported issued shares was less than the reported authorized shares, which is impossible. Internal consistency relates to the consistency between reported facts within an XBRL report.
- **Computations validation**. A type of consistency is whether all the numbers foot, cross cast or otherwise tick and tie. XBRL calculations offers some help here, for example here is the validation report for the reference implementation which shows that things add up. But there are things that XBRL calculations cannot test, something else must be used. For example, [Roll Forwards], dimensional aggregations, and other more complex computations. Need to be verified whether the SEC tests these or not. This XBRL Formula linkbase is used to test the reference implementation, here are the passing results. (Relates to: accuracy)
- **Consistency with prior period filings**. The ending balances in your period 1 filing will become the beginning balances in your period 2 filing. Automated validation tests to see if the current period filing beginning balances tie to the prior period filing ending balances are possible. (Relates to: correctness, consistency, completeness, accuracy)
- **Disclosure checklist validation**. Also sometimes referred to as reportability rules, these tests help to make sure your disclosures are complete. For example, if PPE is reported, you have to include your PPE policies and PPE disclosures. This has less value for a financial which is already complete, when making modifications for new disclosures this can add value. (Relates to: completeness)
- **Industry standards validation**. Are industry practices being followed if the applicable industry is different than US GAAP for commercial and industrial companies. (Relates to: correctness, consistency, completeness)
- **Rendering validation**. Does your SEC filing render correctly, using the SEC previewer for SEC filings. Test to see how the XBRL instance renders within the SEC previewer. (Relates to: consistency)
- **Comparability validation**. Tests to see how well an XBRL filing can be compared to a similar XBRL filing. (Relates to: consistency)
- **Key performance indicators validation**. Tests for wild fluctuations against internal benchmarks and industry averages. Much like an auditor's variance analysis. (Relates to: correctness, consistency, accuracy)
- **Best practices validation**. Other common practices. (Relates to: correctness, consistency, completeness, accuracy)
- **Style, spelling and grammar checking**. The US GAAP taxonomy uses a specific style. For example, "Long term debt" could be spelled "Long-term Debt" or "Long-Term Debt". Automated style, spelling, and grammar checking can help in creating SEC XBRL filings.

8. Appendix: Overcoming known ambiguities in the FASB US GAAP taxonomy logical model and SEC XBRL filings

There are a number of ambiguities which you will need to overcome in your SEC XBRL filings. Overcoming these ambiguities can help your renderings look better in the SEC XBRL viewer, enhance comparability of your reported information, help you improve the integrity of the information you report.

Further, if software vendors take advantage of these ideas they can implement easier to use software because the business users don't have to deal with these issues because the applications deal with the ambiguities for you behind the scenes.

Here is a list of the biggest issues which cause ambiguity and how to overcome the issue:

- **Lack of clarity of extended link and hypercube semantics**. What is the business semantics of an XBRL extended link? How about the business semantics of an XBRL Dimensions hypercube? What is the relationship between an extended link and XBRL Dimensions hypercube? There are no real rules articulated in the US GAAP Taxonomy as to exactly when you need to use an extended link and where, when you need to use a hypercube and where. How to overcome. The safest way to overcome this issue is to create one hypercube per extended link and to always use hypercubes. Basically, you will end up with a lot of small consistent pieces. Name and label the extended links and hypercubes so that they are the same or very similar. Another reason this is good is that you can get the most predicable representation of your information in the SEC XBRL viewer.
- **Inconsistent information models**. The concepts of an XBRL taxonomy are articulated in what amounts to a tree view in most software applications. For example, the US GAAP Taxonomy has [Table]s, [Roll Forward]s, [Axis], [Line Items], and other pieces of the XBRL taxonomy organized in a specific manner. There are other things in the taxonomy which are organized but not explicitly identified such as roll ups (calculations) and general hierarchies. There are two things which provide information about this organization which I refer to as the information model: the US GAAP Taxonomy Architecture document and the US GAAP Taxonomy itself. For example, section 4.5 of the document discusses how to build [Table]s. Or, looking at the US GAAP Taxonomy can provide clues. The US GAAP Taxonomy itself and the SEC don't require that the information models be followed. How to overcome. The best way to overcome this issue is to simply follow the information models consistently within your extension taxonomy.
- **Inconsistency between presentation, calculation, and definition linkbases**. There are three different hierarchies of concepts (information models) that you can create. What does it mean if you have inconsistencies between your presentation, calculation, and definition linkbases? If they are inconsistent, which one is correct? For example, if you have a concept in your presentation relations but that does not exist but SHOULD exist in the calculation relations; how should determine which

one is correct? How to overcome. The best way to overcome this issue is to make sure your presentation, calculation, and definition linkbases are consistent. Clearly this does not mean that they will look the same, rather it means that if you build your presentation information model in a certain way then you can predict what the calculations and definition relations look like.

- **Extension points**. What areas of the US GAAP Taxonomy are you allowed to extend and what areas are best not extended? For example, certain higher level areas of the US GAAP Taxonomy probably should not be changed. Lower levels of hierarchies are more likely to be appropriately modified. How do you know the difference? How to overcome. When you are making changes to higher levels in the US GAAP Taxonomy be able to explain why you are making the change. If you can rationalize the change to yourself, you can probably rationalize it to others. If you cannot, you probably have not thought through the modification thoroughly enough.
- **Extending as an concept or a dimension of a concept**. There are two ways that new information can be articulated within the US GAAP Taxonomy: create a new concept or create a new [Member]. The US GAAP Taxonomy does both, in fact they do both for exactly the same information. Go to the US GAAP Taxonomy and look up the subclasses of Property, Plant and Equipment (Land, Buildings, Furniture, etc.). You will find the exact same information articulated as concepts and as [Members] within an [Axis] of those concepts. Why would you need both? How to overcome. First off, if you don't understand what I am talking about here, you need to learn. Being unconscious of this issue is a good recipe for making a mistake. After you understand the issue, pick one approach and stick with it consistently.
- **Information integrity of numeric values**. Your numbers need to add up correctly. All of them, whether the US GAAP Taxonomy contains the relations or not. XBRL calculations cannot achieve this result. Roll forwards, dimensional aggregations, and other such computations cannot be verified using XBRL calculations. Not checking the numeric relations will lead to errors. How to overcome. Every numeric value which has a relation with another numeric value should be checked in some manner. One way to do this is using XBRL Formulas. But the SEC does not allow you to submit XBRL Formulas with your SEC XBRL filing. No problem, create the XBRL Formulas to verify you XBRL instance and don't submit it to the SEC. You will need these XBRL Formulas to also be sure your current period numbers tie to your prior period filing. Using a calculator and a human to do this is both too costly and insufficient and will lead to errors. If your information model is consistent, most of the XBRL Formulas can be auto-generated by software.

Following these recommendations can lead to better renderings of filed information and better comparability both between filing periods and with other public companies. Further, if software vendors implement ways to hide these issues from users, it can make the software and dealing with XBRL significantly easier.

9. Appendix: Common misconceptions about SEC XBRL filings

The following is a summary of the more common misconceptions and areas of confusion those not familiar with modelling SEC XBRL financial reports seem to have.

9.1. I can just use whatever concepts I want, it really does not matter. Right?

Actually, you cannot use whatever concept you want and it does matter. Just as your paper financial statement is a quality financial statement, having financial integrity so to speak; your SEC XBRL filing must also have financial integrity. Both your paper/HTML financial and your SEC XBRL financial should convey the same information. To do that all the pieces will need to fit together correctly, all the computations will need to validate correctly, and the information in your filing needs to be internally consistent.

SEC XBRL filings are available for the world to see. There is a lot of consistency between filings. If you do something which is not consistent, you will likely be called into question by someone, maybe the SEC, maybe analysts.

It is a very good idea to use the appropriate concepts from the US GAAP Taxonomy when you can. If you simply cannot find the concept you need you can create your own concept. But beware, people are looking and will ask questions which you will likely have to answer. It is very easy to analyze the SEC XBRL filings and compare them using computer applications. These computer applications will point out these inconsistencies between your filing and the filings of others.

While there is probably more flexibility today than you need, we don't anticipate that the SEC will be so flexible at some future point.

9.2. Different software vendors and others seem to offer different forms of validation. What is up with that? Who is right?

Different validation results from different sources are caused by two things. First, they are caused by differences between the Edgar Filer Manual and the validation tests provided by the SEC. Second, they are determined by additional validation rules created by someone which are correct so people pay attention to them, but they go beyond what the SEC validation process performs when you submit an SEC XBRL filing.

XBRL Cloud's Edgar Dashboard believes that they have implemented the Edgar Filing Manual correctly, and because the results seem reasonable people pay attention to the results.

The XBRL US Consistency suite also appears to be good and accurate tests of SEC XBRL instances and people also pay attention to that.

Both XBRL Cloud and XBRL US charge fees for their validation.

If all this sounds confusing and if it seems better if there were one set of validation tests that everyone complies with, you would be right. The SEC could, and we believe should, be the referee but until they do, which set of validation

you should use can be a little confusing. But that is not the way it is today. This will all be sorted out eventually, but yes; this is confusing today.

9.3. My financial report does not have dimensions, so why do I need to use dimensions?

Business information is inherently dimensional. Using the multidimensional model and dimensions is just an approach to modelling information which SEC XBRL uses. So, you probably do have dimensions in the vast majority of cases. Using dimensions in your SEC XBRL filing really is determined by the needs of your data model than anything else. This can be quite complex if you don't understand the fundamentals of the multidimensional model. So, if you want to delve in and decide whether you need to use dimensions or not, you need to get that foundation or you will likely not create a sound data model.

We, and others, believe that eventually the entire US GAAP Taxonomy will be expressed using only dimensions. That is why we use dimensions for everything in the filings we create. This approach also makes every area of the report consistent and easier to understand and software easier to create.

9.4. I want some things presented as a negative number but I have to put the number in the SEC XBRL report as a positive number. What's the deal?

Whether a number is put into an SEC XBRL report as a negative value or as a positive value has little, if anything, to do with whether the number is rendered as a positive or negative on a report. The actual value is used by computers and therefore the polarity of the number (i.e. whether it is negative or positive) must be the consistent for all SEC XBRL filings. Each computer application can the render the information as positive or negative as it may desire. The SEC Interactive Data viewer presents information using certain specific taxonomy information which we will discuss in the next paragraph.

But first, when the computations are validated using XBRL calculations or XBRL Formulas, whether the computation is or is not valid will determine if you put the numbers in with the appropriate polarity.

Presenting that number is another matter altogether. You can indicate in your taxonomy if you want any number rendered as positive or negative using the "negated" label role, you have complete control how the SEC Interactive Data viewer will render a value.

So, if you separate the modelling of the information and the rendering of the information and all your computations validate correctly, then you put all the values into the XBRL instance correctly. Then, upon rendering, that number will be shown as a positive or negative based on how you created your taxonomy.

9.5. Calculation errors are a bad thing. So why do I have calculation errors in my filing?

Generally you do not want calculation inconsistencies (they are really called inconsistencies, not errors) in your SEC XBRL filing. Many SEC filers can avoid all calculation inconsistencies. Sometimes though you cannot. The technical reason for this is that certain facts reported with certain periods sometimes get included in calculations which they should not actually be included in. This is a known situation in XBRL and is unavoidable. This is not the same thing as calculations which should add up but don't.

Some people think that using dimensions causes calculation errors. This is not the case. Using dimensions or not using dimensions does not cause calculation errors. Using dimensions incorrectly can lead to calculation errors.

These are the following reasons that a calculation linkbase error (actually the more correct term is calculation inconsistencies) might show up:

1. Because there truly are calculation inconsistencies.
2. Because of a taxonomy modelling error such as erroneously mixing two dimensional models together.
3. Due to SEC constraints imposed upon XBRL instance creation.
4. Due to "stray facts" being used by an XBRL processor in computations of a network where there is no intension that the fact value should be used. (This is a known issue with XBRL and caused by the lack of constraints on typically the period context, but it could also be caused by the entity identifier context.)

If "1" is the case, then the calculation inconsistency should clearly be fixed and this would resolve any issue of calculation inconsistencies showing up.

An example of "2" is on the balance sheet, modelling all balance sheet line items as concepts and then switching to model the classes of stock as [Axis] of a concept, for example if a company has two classes of stock, Class A common and Class B common. The way to avoid calculation inconsistencies is to create a concept for Class A common and a concept for Class B common; then there would be no calculation inconsistency. But see the discussion on point "3".

The SEC states that if information is not shown on the HTML financial statement then it should not be present in the XBRL instance. Using the classes of stock example where a company has two classes of stock, from a data modelling perspective, the class of stock breakdown would be something like:

Class A Common	100
Class B Common	200
Total Common	300

The value "300" is never really reported on a financial statement. However, from a data modelling perspective it is the true link between two [Table]s, the "Balance Sheet [Table]" and the "Classes of Common Stock [Table]". Class of stock information other than the value of each class of stock is shown such as par value, shares authorized, shares issued, shares outstanding, etc. That information does not fit into a balance sheet model, it fits into the class of stock model. If one things of all this from a "presentation" perspective, one reaches different conclusions as to how the information should be modelled. From a data modelling perspective, the conclusions reached would be different. If the information is modelled correctly from a data modelling perspective, it is a trivial task for a computer application to take the information needed from the Class of Stock [Table] and render it correctly on the Balance Sheet [Table]. However, if the information is modelled from a presentation perspective, the connection between the balance sheet and the class of stock information does not exist.

The bottom line for points "2" and "3" are that how people think about the information in an XBRL instance, from a presentation perspective or from a data modelling perspective will highly likely mature when users realize that modelling information from a data modelling perspective really does not hurt their ability to present the information how they desire to present it; but modelling information from a presentation perspective hurts the ability to analyze the information.

There is a known issue with XBRL which point "4" shows. Say a company shows a balance sheet with two periods, December 31, 2010 and 2009. There are concepts relating to each balance sheet for those periods and the calculations for both of those periods work correctly. But, in another area of the financial statement, "Cash and cash equivalents", "Receivables", and "Current Assets" is disclosed for 2008. What an XBRL processor will try to do is put the concepts together and try and create a balance sheet and validate that balance sheet for the period 2008, but the calculations will not be consistent because there is no "Inventory" or "Prepaid expenses" disclosed which would be needed to actually confirm that the "Current Assets" value is correct. This is a known problem which occurs in XBRL which is due to the lack of a way to constrain the period (and also the entity identifier) from a network of concepts (i.e. an extended link of a specific role), and therefore calculation inconsistencies may occur which you cannot remove from your XBRL instance.

9.6. Things that add up on your financial (i.e. foot, cross cast, tick, tie) cannot add up in your SEC XBRL filings. Things like dimensions cause things not to add up correctly.

Creating situations where you cannot get something to compute in your SEC XBRL filing which do compute in your HTML filing are caused by data modeling errors or poor data modelling choices. It is not the case that XBRL has an inherent problem with not being able to make things add up. You will need two tools to prove that all your computations add up correctly. XBRL calculations will not do the trick alone. As such, the best option is using XBRL Formulas to validate computations which XBRL calculations cannot validate. But validate you should, even if the SEC does not let you submit your XBRL Formulas. If you think about it, how else would you verify that all the computations are expressed correctly in your SEC XBRL filing? It is impossible to simply look at the XBRL filing like you do a paper filing to make sure that everything computes correctly, it is simply too complex for a human to read. That is why computers are used. So as you can see, it is in your interest to be sure that everything in your XBRL filing computes correctly. We use both XBRL calculations and XBRL formulas to achieve this goal.

10. Appendix: Technical Things Business Users May be Interested In

The following is a summary a few technical considerations some more advanced business users tend to be interested in.

10.1. US GAAP Taxonomy Architecture

Much of the information used in this document is explained in more detail in the US GAAP Taxonomy Architecture which can be found here:

Origional:http://xbrl.us/Documents/SECOFM-USGAAPT-Architecture-20080428.pdf

FASB 2011 Version: http://goo.gl/AUwrO

10.2. Understanding why linkbases are not relevant to you

The logical model hides the linkbases, you get the linkbases automatically, the software applications do all this for you.

The presentation linkbase and definition linkbase are two different ways of saying exactly the same thing. The US GAAP Taxonomy auto-generates the definition linkbase from the presentation linkbase. The definition linkbase contains more precise relationship-type information and is superior to the presentation linkbase in communicating this information because the relations are enforced at the XBRL level so you cannot make mistakes like you can in the presentation linkbase.

10.3. What is a logical model?

A logical model provides an abstraction layer or level and is used to hide the more complex physical model (i.e. the syntax) from the user. The SEC does not provide a succinct (i.e. it is ambiguous in a number of areas) logical model, however it provides enough to allow one to build a logical model. The problem is that different software vendors can all create legal logical models, but those logical models can be slightly different.

10.4. Disciplined extensions

The FASB US GAAP Taxonomy Architecture (Version 2011), Section 1.3, states in part:

- **Disciplined Extensions** – The architecture internally enforces design rules to ensure that the base taxonomy from which others will need to extend is internally consistent. It is beyond the scope of the architecture to create a formal expression of extension rules to facilitate "disciplined" or "channeled" or "managed" extensions within systems that use it. We encourage systems that make use of the architecture to build such formal expressions for use within their systems. The Compact Patterns Declarations (CPD) is an example of such formalized expressions for the purpose of managing extension by filers.

Basically, what this says is that extensions of the US GAAP Taxonomy should be consistent with the US GAAP Taxonomy. The FASB does not provide rules to enforce this.

10.5. Application profile

The FASB US GAAP Taxonomy Architecture (Version 2011), Section 1.4, states in part:

- **Application profile -** These voluntary restrictions followed by the architecture form an "application profile" for the use of XBRL features within the taxonomy. It is strongly recommended that extensions to the architecture stay within this application profile. Systems using the architecture may, at their option, set rules which force extension taxonomies to stay within this application profile.

Basically, what this says is that the US GAAP Taxonomy architecture creates a specific are of XBRL which it stays within. Software applications can leverage these limitations and create applications which are easier to use as a result.

11. Appendix: Prototype Reorganized US GAAP Taxonomy

This section provides information on a prototype version on a number of sections of the US GAAP Taxonomy which was remodel to be consistent with the logical model used in this primer. This reorganized taxonomy can be found at this URL:

http://www.xbrlsite.com/US-GAAP-2011/Reorganize/Viewer.html

[CSH: Note that this is a draft at this time.]

This prototype remodels about 57 sections of the US GAAP taxonomy relating to commercial and industrial companies to be consistent with the logical model used in this document.

12. Appendix: Reference Implementation

This section provides information on a reference implementation of the concepts articulated within this document. While any SEC XBRL filing is actually an implementation of this model, the reference implementation applies these concepts correctly and consistently and with all automated validation showing that the SEC XBRL filing is correct in all aspects.

The reference implementation can be found at the following URL:

http://www.xbrlsite.com/US-GAAP/ReferenceImplementation/2010-12-15/Landing.html

[CSH: Note that this is a draft at this time, a few things still need to be worked out but the vast majority of the reference implementation show this model properly applied.]

In addition, two other prototype SEC XBRL filings were created creating the possibility of comparing filings. This allows for testing how comparisons would work under this model. The three prototype filings can be found at this URL:

http://www.xbrlsite.com/US-GAAP/ReferenceImplementation/Comparison/Index.html

13. Appendix: Why SEC May Move to Inline XBRL

Another approach to using XBRL is Inline XBRL (iXBRL). There are advantages to iXBRL. Here is a summary of the advantages of iXBRL:

- **Decouples presentation and data model**. Using Inline XBRL allows for the "decoupling" of two things which, when dealt with together, cause problems. Inline XBRL allows the HTML aspect to deal with presentation, and therefore the creator of the data model is free to create a good data model and not try and get the presentation they are seeking by using the XBRL taxonomy. For example, SEC XBRL filers seek a certain presentation and to get that they leverage the only thing they think they have at their disposal with is the XBRL taxonomy. Using Inline XBRL for the presentation gives one precise control of the presentation. Not having to worry about the differences in presentation and presentation nuances allows for more "freedom" in creating a sound data model.
- **Document of record**. Inline XBRL offers the possibility of having a "document of record" which is readable by both humans (i.e. the HTML aspect of Inline XBRL) and computers (i.e. the XBRL aspect of Inline XBRL). One does need to be careful to ensure that the information communicated and viewed as HTML is identical to the information a computer application reads, both should be in sync. But that does not seem that challenging and it is certainly easier than what SEC XBRL filers have to do which is keep separate HTML and XBRL documents in sync.
- **Evolutionary path**. Inline XBRL seems to offer a nice evolutionary path which a lot of people seem to need. Personally, I am very confident that most people will eventually never use that HTML rendering in favor of the dynamic or "interactive" aspects of XBRL. For example, consider what I call the "hypercube jumping" (really has more to do with dimensions) and discuss in this blog post. But Inline XBRL does not take away the possibility of these dynamic features, they are still there to use, even if the XBRL is buried in an HTML document.
- **Zero difference between XBRL and Inline XBRL**. To a computer application trying to read the information, there is zero difference between a plain ole XBRL instance and an Inline XBRL document (instance, not sure what to call it). From the computer's perspective, they are 100% interchangeable. Now, I am sure that there are probably interoperability issues and bugs which might need working through, but that is all part of the process of getting things to work on a global scale.

Because of these advantages, there is enough of a probability that the SEC could move to iXBRL at some point in the future. This is worth keeping in the back of ones mind.