Financial Report Semantics and Dynamics Theory

An expository paper which explains the semantics and dynamics of a financial report

Resource for software vendors, accountants, internal auditors, external auditors, regulators, financial analysts, and other business professionals working with semantic, structured, model-based digital financial reports that leverage the XBRL medium

Version: March 8, 2012 (DRAFT)

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For more information see:
http://xbrl.squarespace.com/fin-report-sem-dyn-theory/

About the Authors

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Charlie was co-editor of the first US GAAP taxonomy, creator of the first usable XBRL taxonomy creation utility application, contributor to the XBRL 2.1 specification and the XBRL Dimensions specification, editor of the Financial Reporting Taxonomy Architecture and Financial Reporting Instance Standards, co-author of the US GAAP Taxonomy Architecture, part of the project team which created the US GAAP Taxonomy, and a major contributor to the IFRS XBRL taxonomy, and a number of other XBRL taxonomies.

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1. Introduction

The purpose of this document is to propose that a defined set of semantics and dynamics exists for a financial report, prove the correctness of these semantics and dynamics against SEC XBRL financial filings, and to explain these semantics and dynamics.

A theory is a tool for understanding, explaining, and making predictions about a given subject matter.

The explicit formulation of the *Financial Report Semantics and Dynamics Theory* that we propose in this document is useful because most accountants and those interpreting financial statements both take these financial report semantics and dynamics for granted and generally don't think of about an underlying formalism for financial reports when they interpret the information in such reports. The *Financial Report Semantics and Dynamics Theory* brings these semantics and dynamics back into consciousness.

This information presented in this document will also help software vendors building software applications for the creation and consumption of financial reports to understand these semantics and dynamics. It is believed that this understanding will lead to easier to use software applications. This is important as the financial report transitions from a paper-based document to a semantic, structured, model-based, digital format which is can be read by computer software applications.

The information outlined in this theory was gleaned from many years of creating and testing XBRL instances and taxonomies in order to figure out how to make use of XBRL and providing input to technology experts creating the XBRL technical specifications.

Of particular value was the experience gained while creating the US GAAP Taxonomy Architecture, creating the US GAAP Taxonomy, creating SEC XBRL financial filings, and analyzing the many thousands of publically available SEC XBRL financial filings created by public companies and submitted to the SEC.

As the proof provided with this theory shows, this theory is supported by not some SEC XBRL financial filings (10-Q and 10-K); but rather by nearly all of the approximately 8,098 filings submitted to the SEC during the period for which SEC filings were analyzed.

It is believed that outlining this information explicitly will enable a transfer of knowledge and experience to those people less skilled in using XBRL because it provides a framework that captures the experience of those that have had the opportunity to experiment with XBRL. This knowledge transfer is achieved by articulating a set of rules that are expressed in lay person terminology. The rules are easy to understand by business users such as accountants who will readily relate to and agree with the stated semantics. Furthermore, the rules are expressed in a form which technical people creating software can make use of.

1.1. Metaphors, Models, and Theories

Because most accountants and software developers are not familiar with using "formal theories" it is worth explaining what a theory is. In his book, "*Models. Behaving. Badly.*", Emanual Derman explains the differences between metaphors, models, and theories.

- A **metaphor** describes something less understandable by relating it to something more understandable.

- A **model** is a specimen that exemplifies the ideal qualities of something. Models tend to simplify. There tend to always be gaps between models and reality. Models are analogies; they tend to describe one thing relative to something else. Models need a defense or an explanation.

- A **theory** describes absolutes. Theories are the real thing. A theory describes the object of its focus. A theory does not simplify. Theories are irreducible, the foundation on which new metaphors can be built. A successful theory can become a fact. A theory describes the world and tries to describe the principles by which the world operates. A theory can be right or wrong, but it is characteristic by its intent: the discovery of essence.

This document articulates a theory. Theories can be expressed mathematically, symbolically, or in common language; but are generally expected to follow principles of logic or rational thought.

This theory can be implemented within a model which is understandable by computer software. However, expressing that computer readable model is not in the scope for this document. For information on modeling this theory see "*Modeling Business Information Using XBRL*" which can be found here:

http://xbrl.squarespace.com/creating-financial-reports/

1.2. Not a theory of financial reporting

It is the role of the FASB, IASB, and others to establish frameworks for financial reporting. The theory in no way proposes anything related to the profession of financial reporting. The theory explains the semantics and dynamics of a financial report.

[CSH: Does the term "dynamics" really even need to be used? It seems as though "semantics" would cover any "dynamics" which are expressed, it is part of the semantics.]

This theory does not specify which financial reporting frame work to use, how financial information is reported, what financial information should be reported, how to measure what is reported, what is or is not material, or any other principle related to the practice of financial reporting or accounting.

This theory relates to the report and internal truths that should hold for any financial report. The financial reporting conceptual framework articulated by the FASB and IASB is leveraged to this end.

1.3. Financial reporting conceptual framework

Financial reporting has a conceptual framework. The FASB outlines this conceptual framework in CON 1 – 7. This theory will leverage that framework but it is highly likely that it is equally applicable to other accounting frameworks.

Per the FASB, the conceptual framework for financial reporting has two primary purposes. First, it serves as a foundation upon which the FASB constructs financial reporting standards that are internally sound and consistent. Second, the conceptual framework is intended to be used by the business community reporting or consuming financial information to help them better understand and apply financial reporting standards.

The conceptual framework does this by (per the FASB Special Report, *The Framework of Financial Accounting Concepts and Standards* (1998):

- Providing a set of **common premises** as a basis for discussion

- Provide **precise terminology**

- Helping to ask the **right questions**

- **Limiting areas of judgment and discretion** and excluding from consideration potential solutions that are in conflict with it

- **Imposing intellectual discipline** on what traditionally has been a subjective and ad hoc reasoning process

As we shall see, the financial reporting conceptual framework breaks financial reporting into elements and financial statement components.

2. Axioms (self-evident principles)

Axioms describe self-evident logical principles that no one would argue with. Axioms deal with primitives and fundamentals. This section summarizes self-evident principles relating to a financial report in the form of true statements about financial reports.

2.1. Financial reports communicate facts

Financial reports communicate facts. A fact is a single, observable, reportable piece of information. Those facts have values. Those fact values might take the form of a number, textual information, or narrative/prose.

For example, the value "1000" or "first-in, first out" might be values which are communicated within a financial report.

Numeric fact values have two additional traits in order to better understand the number. First, numeric fact values have units. For example, the units might be US dollars or number of shares. Second, numeric fact values indicate the rounding used. For example' "Is the number rounded to the nearest millions or is it accurate to the cent?"

2.2. Facts reported in a financial report have characteristics

Facts have characteristics. Characteristics describe facts.

For example, the number "1000" might have the characteristics of being the concept "Cash and cash equivalents"; for the period ended "December 31, 2011"; for the legal entity which is a "consolidated entity", etc.

2.3. Financial reports have components

A component is a set of facts which go together for some specific purpose.

For example, a "balance sheet" is a component of a financial report and is made up of a specific set of facts.

2.4. Facts reported within financial reports are organized into components

While financial reports communicate facts, those facts rarely, if ever, exist on their own; they are organized into components. Facts are organized into components, rather they are organized with other facts generally for some specific purpose.

For example, the fact "Cash and cash equivalents" might exist in the balance sheet component.

2.5. Financial report facts and components can be organized using a financial reporting conceptual framework

The financial reporting conceptual framework for US GAAP and IFRS based financial reporting is created by the FASB and IASB. This conceptual framework has financial report elements and financial

statement components which are useful and which can be leveraged to identify facts and organize components.[1]

2.5.1.   Financial report elements

The financial report elements[2] articulated by the FASB are:

- Assets

- Liabilities

- Equity

- Investments by owners

- Distributions to owners

- Revenues

- Expenses

- Gains

- Losses

- Comprehensive income

While this is not a complete set of report elements, it is useful for identifying and organizing concepts which characterize a financial fact.

Other financial report elements which are not outlined by the FASB and which could exist within a financial report include:

- Policy

- Disclosure

- Document information

- Reporting entity information

2.5.2.   Financial statement components

Financial statement components[3] are defined by the FASB as:

Balance sheet

- Income statement

- Comprehensive income

- Statement of changes in equity

- Cash flow statement

- Related disclosures

Related disclosures can be further broken down into categories, for example:

- Organization

- Consolidation related disclosures

- Basis of reporting and presentation of financial statements

- Significant accounting policies

- Financial statement accounts related disclosures

- Broad transactions categories disclosures

These categorizations are used by the FASB Accounting Standards Codification (ASC). For more information see: (note that a free basic subscription is available)

https://asc.fasb.org/

2.6. Industries and reporting entities with certain activities have different reporting practices and therefore use the financial reporting conceptual framework differently

Reporting entities that belong to different industries and that have different activities may have different financial reporting practices. However, all reporting entities and all types of activities fit within the financial reporting conceptual framework under which they are reporting.

It is practice that a corporation reports "Stockholders' equity" and partnerships report "Partner capital" and that sole proprietors report "Owner's equity"; however, all three are "Equity" as defined by the financial reporting conceptual framework.

In practice a financial institution creates an unclassified balance sheet and general commercial and industrial companies create a classified balance sheet; but both types of reporting entities provide balance sheets.

While different industries and activities use components of the financial reporting framework differently, that does not change the financial reporting framework or change the fact that a financial reporting conceptual framework exists.

2.7. Common characteristics of financial facts exist

Some common characteristics that describe financial facts include:

- Reporting entity (which entity issued the report; for example Microsoft or Google)

- Legal entity (to which legal entity does the fact relate; for example consolidated entity or parent holding company)

- Report date (what is the date on which the report was issued; for example the audit report date or the filing date)

- Reporting scenario (under which scenario was a fact reported; for example actual, budgeted, etc.)

- Concept or line item (what financial reporting concept describes the fact; for example Cash and cash equivalents, Assets, Net Income, etc.)

- Period (to which period does the fact relate; for example which year or, current period, prior period, etc.)

- Business segment (to which business segment does the fact relate; for example the consolidated entity, consolidation eliminations, subsidiaries or other business components)

- Geographic area (to which geographic area does the fact relate; for example all geographic areas combined, Europe, Asia)

- Operating activities (which type of operating activity describes the fact; continuing operations, discontinued operations)

Not all financial facts have all of these characteristics, but these are common characteristics. Other characteristics may also exist. Not all reporting entities which report financial information use these precise terms, however they use some term which basically means in essence what is outlined on the list above.

2.8. Financial facts may have parenthetical explanations

Financial facts may have parenthetical explanations which provide additional descriptive information about the fact. Parenthetical explanations may take the form of footnotes, meaning an additional piece of information printed at the bottom of a page of a financial report.

2.9. Characteristics of a financial fact may be related

Characterizes which describe a financial fact may, or may not, be related to one another.

For example, the business segments of a reporting entity along with any consolidation eliminations can be identified, articulated, and aggregated to the consolidated entity. That is a type of relation.

The spectrum of relations between characteristics is:

2.9.1. Partial set

Partial sets are values of characteristics which do not comprise the full spectrum of possible options. For example, "United States" and "Europe" is a partial set of countries. The complete set of countries would be just that, a complete list of all countries.

2.9.2. Complete flat set

Complete flat set is a "flat" (meaning no sub relations) and complete list of the values of a characteristic. For example, a list of the 15 directors of an entity is a complete, flat list of a company's directors.

2.9.3. Complete hierarchical set

Complete hierarchical set is similar to a complete flat set in that it is complete; however sub relations exist. For example, this is a complete, hierarchical list of the locations of customers of a company, by region and by country:

- North America

  - United States

  - Canada

- Europe

  - United Kingdom

  - Germany

  - Spain

2.9.4. Complete complex set

Complex sets round out the possible set of possibilities and are a complete set of possible options with a complex relationships structure.

2.10. Financial report facts may be related

Financial report facts may, or may not be related. The sections below articulate the spectrum of possibilities.

For example, "Petty cash", "Cash", and "Cash equivalents" are related to "Cash and cash equivalents" and the sum of the components adds up to the aggregate.

2.10.1. Facts can relate to one another numerically

Financial facts can relate to one another numerically. For example,

- **Roll up**: Fact A + Fact B + Fact C = Fact D (a total)

- **Roll forward**: Beginning balance + changes = Ending balance

- **Adjustment**: Originally stated balance + adjustments = restated balance

- **Variance**: Actual amount – Budgeted amount = variance

- **Complex computation**: Net income / Weighted average shares = earnings per share

A roll up-type relation can also exist across characteristics other than the concept. For example, Revenues for geographic area A + Revenues for geographic area B + Revenues for geographic area C = Revenues for all geographic areas. This is similar to a roll up as described above.

2.10.2. Facts can have a non-numerical relation to another fact

Facts can have a non-numerical relation to other facts. For example; inventory policy, revenue recognition policy, and depreciation method all relate to one another in that they are all policies.

2.10.3. Facts may not relate to any other financial fact

Facts may have no relation to any other financial facts, they are unrelated. For example, a subsequent event may not be related to any other financial fact.

2.10.4. Facts have fidelity

Financial reports are detailed. Financial reports have accuracy in reporting details, a characteristic of exactness to reported facts. There exists an exactness in a fact or with a given quality, condition, or event.

2.10.5. Financial reports have integrity

While an individual fact of a financial report has fidelity; the financial report views as a whole likewise has fidelity. This holistic fidelity constitutes integrity.

For example, the concept "Cash and cash equivalents" can exist on the balance sheet in aggregate and also in the disclosures where the aggregate amount is disaggregated, providing a detailed listing of that aggregate.

Balance sheet:

	As of December 31,	
	2010	2009
ASSETS		
Current Assets		
Cash and Cash Equivalents	1,000	1,000
Receivables, Net of allowance of 1,000 and 1,000 in 2010 and 2009, respectively	1,000	1,000
Inventory	1,000	1,000
Prepaid Expenses	500	500
Investments, at Cost	500	500
Other Assets, Current	1,000	1,000

Disclosure:

Details of Cash and Cash Equivalents	As of December 31,	
	2010	2009
Cash, Unrestricted	250	250
Cash, Restricted	250	250
Petty Cash	250	250
Other Cash and Cash Equivalents	250	250
Total	1,000	1,000

2.11. Financial report components may have core facts and relations common to all reporting entities

While not all financial reports have all facts in common and different industries can have more or less in common, there are some core components which all entities have. These facts can be thought of as "key stones" or "corner stones" which hold a financial report together.

For example, these are financial reporting facts common to many financial reports issued by many type of reporting entity in many industries:

- Balance sheets always have "Assets", "Liabilities and Equity" and "Equity" reported

- On the balance sheet, assets foots

- On the balance sheet, liabilities and equity foots

- On the balance sheet, equity foots

- Balance sheets balance

- Income statements always report net income (loss)

- On the income statement, net income (loss) foots

- Cash flow statements report net cash flow

- On the cash flow statement, net cash flow foots

- Net cash flow per the cash flow statement reconciles beginning and ending cash and cash equivalents

- Cash and cash equivalents per the cash flow statement and cash and cash equivalents per the balance sheet are the same fact

- Beginning and ending balances of equity per the statement of changes in equity agree with equity balances per the balance sheet

There could be other core components and relations, but the above are certainly true, if someone reports the statements. It is possible for a reporting entity not to have a cash flow statement or income statement. It is less likely for a company to not have a balance sheet.

Different industries may have different core financial report facts common within certain components.

2.12. Financial reports have a flow

A financial report has a flow, or an ordering or sequencing of the components which make up the financial report.

Financial report creators have flexibility as to this flow, for example an income statement could come before or after a balance sheet.

The flow of a report can impact meaning in some cases, less so or not at all in other cases.

2.13. Differing sets of detailed facts for a higher-level fact does not change the definition of the higher level fact

Having different detailed line items does not change the definition of high level concepts such as assets, liabilities and equity, equity, net cash flow, net income (loss).

For example, if one financial report has the line item "Accounts receivable, net" and another report does not, the meaning of "Current assets" is not different between the two financial reports.

2.14. Financial reports may have supporting schedules

A financial report may have supporting schedules, or supplementary financial information, which is not part of the financial statements.

2.15. Reporting entities which created financial reports can be categorized into industries/activities

Industries and activities have unique financial reporting and accounting practices. The following is a summary of some reporting industries and the activities which a reporting entity may have:

- Commercial and Industrial (general, not classified into some other industry or activity)

- Agriculture

- Airlines

- Banking and Thrift

- Broadcasting

- Broker and Dealers of Securities

- Cable Television

- Casinos

- Contractors

- Development Stage Enterprises

- Extractive Activities

- Financial Services Title Plant

- Franchisor

- Health Care

- Insurance

- Investment Companies

- Motion Pictures

- Mortgage Banking

- Not for Profit

- Real Estate

- Records and Music

- Regulated Entities

- Retailers

- Software

Other industries and activities exist.

2.16. Financial analysts use certain common key financial ratios when analyzing financial report information

The following is a summary of some common key ratios used:

- Return on Investment

- Return on Equity

- Return on Total Assets

- Operating Profit

- Sales to Accounts Receivable

- Sales to Inventories

- Sales to Fixed Assets

- Inventory Days

- Debtor Days

- Corporate Liquidity

- Working Capital

- Current Ratio

- Quick Ratio

- Working Capital to Sales

- Interest Cover

- Debt to Equity

- Market Capitalization

- Dividends Per Share

- Dividends Cover Payout Ratio

- Earnings Yield

- Dividends Yield

- Price to Earnings Ratio

- Market to Book Ratio

- Capital Employed

- Working Capital Days

- Assets Employed

- Profit Margin

- Asset Turn

- Sales Margin

- Sales Turn

Other common key ratios exist.

2.17. Financial report components, facts, characteristics, parenthetical explanations, and relations have properties

Each of these primitives or fundamental building blocks of a financial report have properties. For example, a component might have a name or other such properties.

3. Theorems (deductions from axioms)

Theorems are deductions which can be proven by constructing a chain of reasoning by applying axioms in the form of if, then statements. This section summarizes deductions derived from the axioms in the preceding section in the form of true statements which relate to financial reports.

3.1. Facts of a financial report should be uniquely identifiable

If a financial report is made up of facts then financial facts should be uniquely identifiable in order to differentiate facts.

Facts of a financial report should be uniquely identifiable. No two financial report facts are exactly the same (i.e. there are no duplicate facts).

For example, a financial report would not ever need to report "Cash and cash equivalents" for the consolidated entity as of December 31, 2010 as of the same report date and the same (identical) other characteristics more than once.

3.2. Components of a financial report should be uniquely identifiable

If a financial report is made up of components then financial report components should be uniquely identifiable in order to differentiate components.

Components of a financial report should be uniquely identifiable. No two financial report components are exactly the same (i.e. there are no duplicate components). Reporting duplicate components is akin to reporting duplicate facts.

3.3. Different sets of detailed facts does not change the definition of higher level fact in general

If the axiom "Differing sets of detailed facts for a higher-level fact does not change the definition of the higher level fact" is true; then it should also be true that having different line items which detail a fact at any level should not change the definition of a fact.

For example, if the line items which make up the assets section of a balance sheet does not change the definition of the concept assets; then the line item property, plant and equipment, net should not change the definition of property, plant, and equipment, net. This same reasoning works at all levels within a financial report.

3.4. Components and facts of a financial report are comparable to the extent that the components and facts are identifiable and common

If the characteristics of a fact within one or more financial reports are the same then the facts are comparable.

Comparability is created. Comparability can be created by two or more financial reports using the same identifiable characteristic.

For example, of the component "balance sheet" is identifiable in two financial reports and if the concept characteristic "assets" is identifiable; then the two financial reports can compare the assets of both balance sheets.

4. Ethics (worldview)

Ethics is the worldview. Observation, experience, introspection, and intuition determine the worldview; not tightly reasoned arguments. This section summarizes the worldview, or ethics.

4.1. Financial reports are a true and fair representation of the reporting entities financial information

The objective of a financial report is to provide a true and fair representation of the entity which issued the financial report. A financial report is a true and fair representation if it is complete, correct, consistent, accurate, has fidelity and integrity. Below are definitions of these terms.

- **Completeness**: Having all necessary or normal parts, components, elements, or steps; entire.

- **Correctness**: Free from error; in accordance with fact or truth; right, proper, accurate, just, true, exact, precise.

- **Consistency**: Compatible or in agreement with itself or with some group; coherent, uniform, steady. Holding true in a group, compatible, not contradictory.

- **Accuracy**: Correctness in all details. Conformity or correspondence to fact or given quality, condition. Precise, exact. Deviating only slightly or within acceptable limits from a standard.

- **Fidelity**: Where accuracy focuses on the details of one fact; fidelity is accuracy of all facts considered as a whole in the reproduction of something as compared to actual facts.

- **Integrity**: Holistic accuracy, accurate as a whole. The quality or condition of being whole or undivided; completeness, entireness, unbroken state, uncorrupt. Integrity is a concept of consistency of actions, values, methods, measures, principles, expectations, and outcomes.

4.2. Financial reports have traits which impact their quality

The following list expresses the traits of a quality financial report.

- **All financial report formats convey the same message**: A financial statement can be articulated using paper and pencil, Microsoft Word, PDF, HTML, XBRL, or other format. But while the format may change, the message communicated, the story you tell, should not change. Each format should communicate the same message, regardless of the medium used to convey that message.

- **Information fidelity and integrity**: A financial statement foots, cross casts, and otherwise "ticks and ties". As accountants we understand this and many times this fact disappears into our unconsciousness because it is so ingrained. Of course things foot and cross cast; of course the pieces tie together. Said another way, a financial statement must be correct, complete, consistent, and accurate. Only trained accounting professionals who understand how the XBRL medium works can tell if all financial statement computations are properly articulated and verified to be correct.

- **Justifiable/defensible report characteristics**: Facts reported and the characteristics which describe those reported facts should be both justifiable and defensible.

- **Consistency between periods**: Generally financial information expressed within one period should be consistent with the financial information expressed within subsequent periods, where appropriate. Clearly new information will be added and information which becomes irrelevant will be removed from a financial report. Changes between report elements which existed in both periods should be justifiable/defensible as opposed to arbitrary and random.

- **Consistency with peer group**: If your company chooses one approach and a peer chooses another report element selection choice; clearly some good reason should probably exist. This is not to say differences would not or should not occur. Rather, why the differences exist should make sense. Generally financial information between two peers should be more consistent as compared to inconsistent.

- **Information renderings make logical sense**: Renderings of facts and characteristics which make up the components of a financial report should make logical sense. The financial report rendering should make logical sense without regard to the format of the financial report.

- **Clear business meaning**: A financial report should be unambiguous. The business meaning of a financial report should be clear to the creator of the financial report and likewise clear to the users of that financial report. Both the creator and users should walk away with the same message or story. A financial report should be usable by regulators, financial institutions, analysts, investors, economists, researchers, and others to desire to make use of the information the report contains.

4.3. Financial reports are used individually, compared across periods, and compared across reporting entities

Financial reports are used in different ways by users including:

- **Analysis of a single financial report**: Analysis of one financial report of one reporting entity.

- **Time series analysis of reporting entity**: Two or more financial reports of the same reporting entity are compared.

- **Comparative analysis across reporting entities**: Two or more financial reports of different reporting entities are used.

- **Ratio analysis**: An analysis of a single financial report, a time series analysis, or a comparative analysis using ratios computed from facts within a report.

4.4. Disclosures are reported, notes is a presentation related notion which refers to organization of disclosures

A reporting entity has more flexibility as to in which note of its financial statement it provides a disclosure; it has less flexibility over what it must disclose.

A note is a presentation related notion, relating to how disclosures are presented in a financial report. A disclosure is what must be disclosed. The FASB and IASB specifies what must be disclosed, and less which disclosure to use.

4.5. Reporting entity segment definitions are inconsistent in financial reporting literature

The segments into which a reporting entity can be broken down are defined inconsistently in the financial reporting literature. ASC 280 which relates to the classification of assets and sometimes liabilities uses the terms operating segments and reportable segments of the business. ASC 350 which relates to impairment uses the term reporting unit. ASC 860 which relates to special-purpose entities and the master glossary uses the term business. ASC 360 which relates to long-lived assets uses the term asset groups and disposal groups.

As such, the following terminology is proposed:

- Consolidated entity

- Parent holding company

- Operating segment (ASC 280)

- Reportable segment (ASC 280)

- Reporting unit (ASC 350)

- Business (ASC 805)

- Asset group (ASC 360)

- Disposal group (ASC 360)

4.6. Financial reports may be expressed using different medium

Financial reports may be expressed using different medium. For example,

- Paper and pencil, printed versions of electronic or digital, or photo static copies

- Electronic including HTML, PDF, word processor format, etc.

- Digital including XBRL, within a database or within some software application

The medium used to express a financial report must not change the meaning of the financial report.

4.7. Financial reports may contain non-financial information, sustainability information, or other information

A financial report is not limited to financial information. A financial report can also support disclosure of non-financial information, sustainability information, and other types of information.

4.8. Categorization of disclosures can be helpful

Breaking a set of disclosures into some categorized list can be helpful in making use of the disclosures. For example,

- Organization related disclosures

- Consolidation related disclosures

- Basis of reporting and presentation of financial statements

- Significant accounting policies

- Financial statement accounts related disclosures

- Broad transactions categories disclosures

Although this breakdown is not required, it is helpful. Also, this list of categories is not required, although it is reasonable. There are other reasonable categorizations.

4.9. Facts reported within a component may be illogical without the existence of other facts

Facts reported within a component may be illogical without the existence of other facts.

For example, reporting the date of a subsequent event without identifying the subsequent even is not logical.

5. Financial Report Semantics and Dynamics Theory

The next section summarizes many of the axioms, theroms, and ethics in a narrative that summarizes the *Financial Report Semantics and Dynamics Theory* in a more readable form. This narrative is intended to be as terse and precise as possible.

5.1. Financial report semantics

A financial report communicates facts. Facts have values. Here are two facts:

Fact Value
2000
1000

Facts reported in a financial report have characteristics. Here are two facts and their characteristic "concept" and the values for each 'concept' characteristic; "Revenues" and "Net income (loss)" which describe the facts:

Concept	Fact Value
Revenues	2000
Net income (loss)	1000

Here is a complete set of characteristics which describe two facts:

Reporting entity	Legal entity	Period	Concept	Fact Value
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Revenues	2000
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Net income (loss)	1000

Financial reports have components. Facts reported within financial reports are organized into components. Here is a set of facts that go together to make up the income statement component (only a portion of all the facts are shown):

Reporting entity	Legal entity	Period	Concept	Fact Value
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Revenues	2000
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Revenues	2500
ABC Company	Consolidated entity	January 1, 2009 to December 31, 2009	Revenues	2300
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Cost of revenues	1800
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Cost of revenues	1700
ABC Company	Consolidated entity	January 1, 2009 to December 31, 2009	Cost of revenues	1600
ABC Company	Consolidated entity	January 1, 2011 to December 31, 2011	Gross profit	200
ABC Company	Consolidated entity	January 1, 2010 to December 31, 2010	Gross profit	800

A set of facts and other information can be used to generate a rendering of the information described by the facts, characteristics, for the component. For example, below is a rendering of an income statement:

An income statement is a financial statement component articulated by the financial reporting conceptual framework. Financial report facts and components can be organized leveraging the financial reporting conceptual framework.

Industries and reporting entities with certain activities have different reporting practices and therefore use the financial reporting conceptual framework differently.

Common characteristics of financial facts exist such as reporting entity, legal entity, report date, reporting scenario, concept, period, etc.

Financial facts may have parenthetical explanations.

5.2. Financial report dynamics

Characteristics of a financial fact may be related. Characteristics could be a

- partial set,

- complete flat set,

- complete hierarchical set,

- complete complex set.

Characteristics could have no relation to one another.

Financial facts may be related. Types of numeric relationships include a

- roll up (a + b + c = total),

- roll forward (beginning balance + changes = ending balance),

- adjustment (originally stated balance + adjustment = restated balance),

- variance (for example, actual – budgeted = variance),

- other more complex computations

Other types of relations may exist for non-numeric facts.

Financial facts have fidelity. Financial reports have integrity.

Financial report components may have core facts and relations common to all reporting entities such as

- Balance sheets report assets, liabilities and equity, equity, and balance sheets balance. Assets, liabilities and equity, and equity each foot.

- Income statements report net income (loss), and they foot.

- Cash flow statements report net cash flow and they foot.

- Beginning cash plus net cash flow reconciles to ending cash on the cash flow statement

- Cash per the cash flow statement agrees with cash per the balance sheet.

Financial reports have flow. Flow is an ordering or sequencing of components.

Reporting entities which create financial reports can be categorized into industries and/or activities. Different industries and activities may report different facts, different characteristics, or have different components.

Financial analysts use certain common key financial ratios when analyzing financial report information.

5.3. Financial report component example

The following is an example of a component of a financial report expressed using various formats and in various software applications:

5.3.1. SEC HTML filing

CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per share amounts)

	Year Ended December 31,		
	2008	2009	2010
Revenues	$21,796	$23,651	$29,321
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of $41, $47, $67)	8,622	8,844	10,417
Research and development (including stock-based compensation expense of $732, $725, $861)	2,793	2,843	3,762
Sales and marketing (including stock-based compensation expense of $206, $231, $261)	1,946	1,984	2,799
General and administrative (including stock-based compensation expense of $141, $161, $187)	1,803	1,668	1,962
Total costs and expenses	15,164	15,339	18,940
Income from operations	6,632	8,312	10,381
Impairment of equity investments	(1,095)	0	0
Interest and other income, net	316	69	415
Income before income taxes	5,853	8,381	10,796
Provision for income taxes	1,626	1,861	2,291
Net income	$ 4,227	$ 6,520	$ 8,505
Net income per share of Class A and Class B common stock:			
Basic	$ 13.46	$ 20.62	$ 26.69
Diluted	$ 13.31	$ 20.41	$ 26.31

5.3.2. SEC Interactive Data Viewer

CONSOLIDATED STATEMENTS OF INCOME (USD $) In Millions, except Per Share data	12 Months Ended		
	Dec. 31, 2010	Dec. 31, 2009	Dec. 31, 2008
Revenues	$ 29,321	$ 23,651	$ 21,796
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of $41, $47, $67)	10,417	8,844	8,622
Research and development (including stock-based compensation expense of $732, $725, $861)	3,762	2,843	2,793
Sales and marketing (including stock-based compensation expense of $206, $231, $261)	2,799	1,984	1,946
General and administrative (including stock-based compensation expense of $141, $161, $187)	1,962	1,668	1,803
Total costs and expenses	18,940	15,339	15,164
Income from operations	10,381	8,312	6,632
Impairment of equity investments	0	0	(1,095)
Interest and other income, net	415	69	316
Income before income taxes	10,796	8,381	5,853
Provision for income taxes	2,291	1,861	1,626
Net income	$ 8,505	$ 6,520	$ 4,227
Net income per share of Class A and Class B common stock:			
Basic	$ 26.69	$ 20.62	$ 13.46
Diluted	$ 26.31	$ 20.41	$ 13.31

5.3.3. XBRL Viewer (Firefox add on)

105 - Statement - CONSOLIDATED STATEMENTS OF INCOME

IDENTIFIER: 0001288776 - HTTP://WWW.SEC.GOV/C

LEGAL ENTITY [AXIS]: ENTITY [DOMAIN]

(IN THOUSANDS)		DATE	12 MONTHS ENDED 2008-12-31	12 MONTHS ENDED 2009-12-31	12 MONTHS ENDED 2010-12-31
UNIT	ITEM	NOTES			
USD	REVENUES		21,796,000	23,651,000	29,321,000
	COST OF REVENUES (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF $41, $47, $67)		8,622,000	8,844,000	10,417,000
	RESEARCH AND DEVELOPMENT (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF $732, $725, $861)		2,793,000	2,843,000	3,762,000
	SALES AND MARKETING (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF $206, $231, $261)		1,946,000	1,984,000	2,799,000
	GENERAL AND ADMINISTRATIVE (INCLUDING STOCK-BASED COMPENSATION EXPENSE OF $141, $161, $187)		1,803,000	1,668,000	1,962,000
	TOTAL COSTS AND EXPENSES		15,164,000	15,339,000	18,940,000
	INCOME FROM OPERATIONS		6,632,000	8,312,000	10,381,000
	IMPAIRMENT OF EQUITY INVESTMENTS		(1,095,000)	0	0
	INTEREST AND OTHER INCOME, NET		316,000	69,000	415,000
	INCOME BEFORE INCOME TAXES		5,853,000	8,381,000	10,796,000
	PROVISION FOR INCOME TAXES		1,626,000	1,861,000	2,291,000
	NET INCOME		4,227,000	6,520,000	8,505,000
USD/SHARES	BASIC		0.01346	0.02062	0.02669
	DILUTED		0.01331	0.02041	0.02631

5.3.4.   XBRL Viewer (XBRL Cloud)

Entity				
Legal Entity	**Entity**			
Concept		Year ended 2010-12-31	Year ended 2009-12-31	Year ended 2008-12-31
Revenues		$29,321,000,000	$23,651,000,000	$21,796,000,000
Costs and expenses:				
Cost of revenues (including stock-based compensation expense of $41, $47, $67)		$10,417,000,000	$8,844,000,000	$8,622,000,000
Research and development (including stock-based compensation expense of $732, $725, $861)		$3,762,000,000	$2,843,000,000	$2,793,000,000
Sales and marketing (including stock-based compensation expense of $206, $231, $261)		$2,799,000,000	$1,984,000,000	$1,946,000,000
General and administrative (including stock-based compensation expense of $141, $161, $187)		$1,962,000,000	$1,668,000,000	$1,803,000,000
Total costs and expenses		$18,940,000,000	$15,339,000,000	$15,164,000,000
Income from operations		$10,381,000,000	$8,312,000,000	$6,632,000,000
Impairment of equity investments		$0	$0	($1,095,000,000)
Interest and other income, net		$415,000,000	$69,000,000	$316,000,000
Income before income taxes		$10,796,000,000	$8,381,000,000	$5,853,000,000
Provision for income taxes		$2,291,000,000	$1,861,000,000	$1,626,000,000
Net income		$8,505,000,000	$6,520,000,000	$4,227,000,000
Net income per share of Class A and Class B common stock:				
Basic		26.69	20.62	13.46
Diluted		26.31	20.41	13.31

5.3.5.   I-Metrix (Edgar Online)

	A	B	C	D
1	**I·Metrix.** by EDGAR Online			
2	**Name**			
3	**Symbol**			
4	**Form**			
5	Period Dates	1/1/2010 - 12/31/2010	1/1/2009 - 12/31/2009	1/1/2008 - 12/31/2008
6	CONSOLIDATED STATEMENTS OF INCOME			
7	Revenues	$29,321,000,000	$23,651,000,000	$21,796,000,000
8	Costs and expenses:			
9	Cost of revenues (including stock-based compensation expense of $41, $47, $67)	$10,417,000,000	$8,844,000,000	$8,622,000,000
10	Research and development (including stock-based compensation expense of $732, $725, $861)	$3,762,000,000	$2,843,000,000	$2,793,000,000
11	Sales and marketing (including stock-based compensation expense of $206, $231, $261)	$2,799,000,000	$1,984,000,000	$1,946,000,000
12	General and administrative (including stock-based compensation expense of $141, $161, $187)	$1,962,000,000	$1,668,000,000	$1,803,000,000
13	Total costs and expenses	$18,940,000,000	$15,339,000,000	$15,164,000,000
14	Income from operations	$10,381,000,000	$8,312,000,000	$6,632,000,000
15	Impairment of equity investments	$0	$0	-$1,095,000,000
16	Interest and other income, net	$415,000,000	$69,000,000	$316,000,000
17	Income before income taxes	$10,796,000,000	$8,381,000,000	$5,853,000,000
18	Provision for income taxes	$2,291,000,000	$1,861,000,000	$1,626,000,000
19	Net income	$8,505,000,000	$6,520,000,000	$4,227,000,000
20	Net income per share of Class A and Class B common stock:			
21	Basic	$26.69	$20.62	$13.46
22	Diluted	$26.31	$20.41	$13.31

5.3.6. Magnify (CoreFiling)

105 - Statement - CONSOLIDATED STATEMENTS OF INCOME			
	Year ended 31-Dec-2010	Year ended 31-Dec-2009	Year ended 31-Dec-2008
Income Statement [Abstract]			
Statement [Table]			
Statement [Line Items]			
Revenues	$29,321,000,000	$23,651,000,000	$21,796,000,000
Costs and expenses:			
Cost of revenues (including stock-based compensation expense of...	$10,417,000,000	$8,844,000,000	$8,622,000,000
Research and development (including stock-based compensation e...	$3,762,000,000	$2,843,000,000	$2,793,000,000
Sales and marketing (including stock-based compensation expense...	$2,799,000,000	$1,984,000,000	$1,946,000,000
General and administrative (including stock-based compensation ex...	$1,962,000,000	$1,668,000,000	$1,803,000,000
Total costs and expenses	$18,940,000,000	$15,339,000,000	$15,164,000,000
Income from operations	$10,381,000,000	$8,312,000,000	$6,632,000,000
Impairment of equity investments	$0	$0	$(1,095,000,000)
Interest and other income, net	$415,000,000	$69,000,000	$316,000,000
Income before income taxes	$10,796,000,000	$8,381,000,000	$5,853,000,000
Provision for income taxes	$2,291,000,000	$1,861,000,000	$1,626,000,000
Net income	$8,505,000,000	$6,520,000,000	$4,227,000,000
Net income per share of Class A and Class B common stock:			
Basic	$26.69	$20.62	$13.46
Diluted	$26.31	$20.41	$13.31

5.3.7. CalcBench

VIEW IN SPREADSHEET
CONSOLIDATED STATEMENTS OF INCOME - Annual →Switch to Quarterly View

EXPORT →Log in to post comments, and save data.

	Y 2010 (1/1 - 1/1/2011) <-Y	Y 2009 (1/1 - 1/1/2010) <-Y | Y->	% chg YoY	Y 2008 (1/1 - 1/1/2009) <-Y | Y->	% chg YoY
Revenues	$29,321,000,000	$23,650,563,000 23.98%		$21,795,550,000	8.51%
Costs and expenses:					
Cost of revenues (including stock-based compensation expense of $41, $47, $67)	$10,417,000,000	$8,844,115,000 17.78%		$8,621,506,000	2.58%
Research and development (including stock-based compensation expense of $732, $725, $861)	$3,762,000,000	$2,843,027,000 32.32%		$2,793,192,000	1.78%
Sales and marketing (including stock-based compensation expense of $206, $231, $261)	$2,799,000,000	$1,983,941,000 41.08%		$1,946,244,000	1.94%
General and administrative (including stock-based compensation expense of $141, $161, $187)	$1,962,000,000	$1,667,294,000 17.68%		$1,802,639,000	(7.51%)
Total costs and expenses	$18,940,000,000	$15,338,377,000 23.48%		$15,163,581,000	1.15%
Income from operations	$10,381,000,000	$8,312,186,000 24.89%		$6,631,969,000	25.34%
Operating Margin %	*35.40%*	*35.15%*		*30.43%*	
Impairment of equity investments	$0	$0		$1,094,757,000	(100.00%)
Nonoperating Income (Expense)	$415,000,000	$69,000,000 501.45%		$316,000,000	(78.16%)
Income before income taxes	$10,796,000,000	$8,381,189,000 28.81%		$5,853,596,000	43.18%
Provision for income taxes	$2,291,000,000	$1,860,741,000 23.12%		$1,626,738,000	14.38%
Net income	$8,505,000,000	$6,520,448,000 30.44%		$4,226,858,000	54.26%
Net Income Margin %	*29.01%*	*27.57%*		*19.39%*	
Net income per share of Class A and Class B common stock:					
Basic	26.69	20.62 29.44%		13.46	53.19%
Diluted	26.31	20.41 28.91%		13.31	53.34%

6. Proof (partial proof)

The following is a summary of a partial proof of the Financial Report Semantics and Dynamics Theory. This proof uses information from SEC XBRL financial filings to test this theory. These filings are appropriate for testing as they are publically available and anyone can repeat these tests. Further, SEC XBRL financial filings are significantly complex to appropriately exercise this theory. Other proofs can, and should, be create for other XBRL-based financial filings such as IFRS.

6.1. Many axioms are true by definition per the XBRL technical syntax used by SEC XBRL financial filings

Many axioms are simply true by definition for SEC XBRL financial filings. For example, consider the axiom "Financial reports communicate facts". SEC XBRL financial filings are formatted using the XBRL technical syntax. The XBRL technical syntax is enforced by the XBRL Specification and a conformance suite which software must support. As such, these facts are true and verified by automated testing of SEC XBRL financial filing upon submission. Therefore, these axioms must be true. Other axioms are true because of the fundamental nature of US GAAP. Other axioms are true due to the nature of the US GAAP Taxonomy and filer taxonomies created and used with their SEC XBRL financial filings.

The following is a summary of all axioms which make up this theory. Un-shaded axioms are true per SEC XBRL financial filings following the XBRL technical syntax. Several shaded axioms are not in scope for this proof as the test more detailed aspects of the theory and testing will be added later. The shaded and bold, section 2.13, will be the focus of this partial proof.

#	Axiom	Explanation
2.1	Financial reports communicate facts	SEC XBRL financial filings report facts as XBRL items. The XBRL specification defines the syntax and semantics of a "fact".
2.2	Facts reported in financial reports have characteristics	In the XBRL technical syntax, characteristics take the form of context entity identifiers, context period, and additional characteristics defined using XBRL Dimensions. Facts reported as XBRL items are each associated with a context. That context articulates characterises of the fact using various XBRL technical syntax.
2.3	Financial reports have components	SEC XBRL financial filings are supported by XBRL taxonomies. Taxonomies are organized by using networks and hypercubes (called [Table]s by the US GAAP taxonomy both of which are articulated using the XBRL technical syntax.
2.4	Facts reported within financial reports are organized into components	Same as 2.3 above.
2.5	Financial report facts and components can be organized leveraging the financial statement conceptual framework	The US GAAP Taxonomy is mapped to the Accounting Standards Codification (ASC) published by the FASB. The ASC has CON 1-7 as its conceptual framework.
2.6	Industries and reporting entities with certain activities have different reporting practices and therefore use the financial reporting conceptual framework differently	By definition within US GAAP. Although, this proof does not go to this level of detail but rather tests for the common practices which all reporting entities in all industries and activities have. See 2.13.
2.7	Common characteristics of financial facts exist	Each of these common characteristics are defined either by the XBRL technical syntax itself (entity, period, concept) or the US GAAP Taxonomy via the creation of specific [Axis] using XBRL Dimensions.
2.8	Financial facts may have parenthetical explanations	By definition within XBRL technical syntax and SEC filing rules; XBRL footnotes are used to articulate most parenthetical information. Concept labels are used to articulate other parenthetical information. Sometimes facts are used.

#	Axiom	Explanation
2.9	Characteristics of a financial fact may be related	Not in scope for this proof.
2.10	Financial facts may be related	By definition within the US GAAP Taxonomy. Roll Up's (XBRL calculations) and Roll Forward's are specifically identified. Hierarchies are identified as relations with no XBRL calculation or other computation.
2.11	Financial facts have fidelity	By definition within US GAAP.
2.12	Financial reports have integrity	By definition within US GAAP.
2.13	**Financial report components may have core facts and relations common to all reporting entities**	**SEE TESTING BELOW.**
2.14	Financial reports have a flow	By definition of the SEC which explains how networks should be numbered, categorized, and titled.
2.15	Differing sets of detailed facts for a higher-level fact does not change the definition of the higher level fact	Not in scope for this proof.
2.16	Financial reports may have supporting schedules	By definition within US GAAP.
2.17	Reporting entities which created financial reports can be categorized into industries/activities	By definition within US GAAP. Not likely to be disputed, however the exact industries and activities may differ in some cases
2.18	Financial analysts use certain common key financial ratios when analysing financial report information	Not in scope for this proof.

As such, the focus area of testing is axiom 2.13.

6.2. Methodology

The methodology of this proof is to look for the existence of core facts and relations common to all reporting entities within SEC XBRL financial filings. Forms 10-Q, 10-Q/A, 10-K and 10-K/A which were filed with the SEC between September 1, 2011 and December 1, 2011 were used. The number of SEC XBRL financial filings in this set amounted to 8,098 filings. The list of filings was obtained from the SEC here:

http://www.sec.gov/Archives/edgar/monthly/

Specifically, these two files containing pointers to these filings were used:

http://www.sec.gov/Archives/edgar/monthly/xbrlrss-2011-10.xml

http://www.sec.gov/Archives/edgar/monthly/xbrlrss-2011-11.xml

It was desirable to use automated processes and the entire set of 8,098 filings. As such, for this initial proof, automatable tests were used.

SEC 10-Q and 10-K filings are appropriate for this test as the financial reports follow US GAAP, and thus follow one consistent financial reporting framework within the financial report. Therefore, reported information is predictable at the level necessary. Further, SEC XBRL financial filings are verified upon submission to be compliant with the XBRL technical specification thus satisfying that the un-shaded axioms listed above are satisfied.

These tests for core financial facts are outlined here which provides the test and the fact(s) sought by the test:

#	Test	Fact(s) sought
1	Balance sheet reports assets	us-gaap:Assets
2	Balance sheet reports liabilities and equity	us-gaap:LiabilitiesAndStockholdersEquity -or- us-gaap:LiabilitiesAndPartnersCapital
3	Balance sheet reports equity	us-gaap:StockholdersEquityIncludingPortionAttributableToNoncontrollingInterest -or- us-gaap:StockholdersEquity -or- us-gaap:PartnersCapital -or- us-gaap:PartnersCapitalIncludingPortionAttributableToNoncontrollingInterest
4	Balance sheet balances	Compute the difference between the fact found for "assets" and the fact found for "liabilities and equity"
5	Cash flow statement reports net cash flow	us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease or us-gaap:CashPeriodIncreaseDecrease
7	Income statement reports net income (loss)	us-gaap:ProfitLoss -or- us-gaap:NetIncomeLoss -or- us-gaap:NetIncomeLossAvailableToCommonStockholdersBasic -or- us-gaap:IncomeLossFromContinuingOperations -or- us-gaap:IncomeLossAttributableToParent
9	Income statement reports income (loss) from continuing operations	us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesExtraordinaryItemsNoncontrollingInterest -or- us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesMinorityInterestAndIncomeLossFromEquityMethodInvestments -or- us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesDomestic -or- us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesForeign
10	Entity name reported	dei:EntityRegistrantName

Because the US GAAP taxonomy uses a number of different concepts to articulate these facts, a number of different facts could satisfy the existence of a fact in the financial report. For example, "liabilities and equity" could be either "us-gaap:LiabilitiesAndStockholdersEquity" or "us-gaap:LiabilitiesAndPartnersCapital" per the way the US GAAP Taxonomy is modeled; either concept would satisfy the test.

Further, because ambiguities exist within the US GAAP taxonomy multiple concepts could satisfy the test. For example, "net income (loss)" could be satisfied by one of four concepts; which one an SEC filer uses cannot be determined because of this ambiguity, but one of the four will exist.

Each test sought the specified fact with the specified concept or concepts for each reporting entity, for the legal entity "consolidated entity", for the report date specified in the report by the fact "dei:DocumentPeriodEndDate" which is required for all SEC XBRL financial filings.

Information was extracted from each SEC XBRL financial filing using a database application (Microsoft Access was used), algorithms were tuned, and values extracted were written to the database application, the results were summarized using database queries from the extracted data.

6.3.   Analysis performed

The analysis performed amounted to simply reading the results of the data extracted from the SEC XBRL financial filings per the algorithms explained in the methodology above.

- Did each SEC filing have a fact for "assets"?

- Did each SEC filing have a fact for "liabilities and equity"?

- Did each SEC filing have a fact for "equity"?

- Did each SEC filing a fact for "assets" equal to a fact for "liabilities and equity"?

- Did each SEC filing have a fact for "net cash flow"?

- Did each SEC filing have a fact for "net income (loss)"?

- Did each SEC filing have a fact for "income (loss) from continuing operations"?

- Did each SEC filing have a fact for "entity registered name"?

It would be expected that each of these tests would be returned with a favorable result and that the reason for the negative result could be determined. For favorable results the value of the fact was returned to the database and stored.

6.4.   Overview of results

The following is an overview of the results obtained. Note that total results for all 8,098 filings were provided with additional breakdowns for the 30 Dow industrial companies, top 100 companies by total assets and top 1,000 companies by total assets.

#	Test	All 8,098 Companies	30 Dow Industrial Companies	Top 100 Companies	Top 1,000 Companies
1	Balance sheet reports assets	100%	100%	100%	100%
2	Balance sheet reports liabilities and equity	97%	96%	99%	99%
3	Balance sheet reports equity	97%	100%	100%	99%
4	Balance sheet balances	98%	96%	99%	99%
5	Cash flow statement reports net cash flow	98%	100%	93%	98%
6	Income statement reports net income (loss)	98%	100%	98%	99%
7	Income statement reports income (loss) from continuing operations	72%	73%	76%	78%
8	Entity name reported	100%	100%	100%	100%

There are a number of possible reasons for non-positive results.

- The theory could be wrong.

- The theory needs to be tuned for specific practices of specific reporting entities and industries/activities.

- The filer could have made a mistake in their filing.

Perfect results would be 100% for each test. Test 8 is a control and known to be 100% as the entity name reported is a required fact and as expected all reports contained this fact. Test 7 is likewise a control as not all financial reports are required to contain "income (loss) from continuing operations". As expected, the results were less than 100%.

6.5.   Details of results and other observations

As 100% for each test is expected and because the success rate is so high, non-positive results could be looked at one by one to see why a favorable result was not obtained. Basically, each 1% from 100% represents about 81 SEC filings which would need to be examined manually to see why the result was not favorable.

The following is a more detailed look at the results obtained. It provides a flavor for why non-positive results existed in some cases. It highlights patterns in the non-positive results.

6.5.1.   6.5.1.Balance sheet reports assets

A number of balance sheets existed where non-positive results were experienced due to modeling approaches. For example, in the example below an SEC filer used the concept "us-gaap:AssetsCurrent" to express both current assets as well as total assets.

	June 30, 2011	December 31, 2010
	(unaudited)	(audited)
ASSETS		
CURRENT ASSETS		
Cash	$ --	$ --
Notes receivable (Note 4)	500,000	500,000
Interest receivable	51,918	27,123
Total current assets and total assets	$ 551,918	$ 527,123

Or, other balance sheets had only cash and used the concept "us-gaap:CashAndCashEquivelents" rather than "us-gaap:Assets" as below:

	June 30, 2011	December 31, 2010
	(Unaudited)	
ASSETS		
CURRENT ASSETS:		
Cash	$ 15,442	$ 3,455
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
CURRENT LIABILITIES:		
Due to Stockholders	$ 142,500	$ 117,500

 Or, a small number reported nil values per the XBRL technical syntax where the value of zero exists semantically as below:

	Unaudited 6/30/2011	Audited 12/31/10
ASSETS		
CURRENT ASSETS		
Cash	$ -	$ -
TOTAL ASSETS	-	-
LIABILITIES AND STOCKHOLDERS' DEFICIT		
CURRENT LIABILITIES		
Accrued Liabilities	1,300	3,000
Payable to Stockholder	53,694	49,863
TOTAL CURRENT LIABILITIES	54,994	52,863
STOCKHOLDERS' DEFICIT		
Preferred Stock: Par value $.01; 5,000,000 shares authorized; no shares issued and outstanding		
Common Stock: Par value $.001; 25,000,000 shares authorized; 2,647,640 shares issued and outstanding	2,648	2,648
Additional paid in capital	5,160	5,160
Deficit accumulated during the development stage	(62,802)	(60,671)
TOTAL STOCKHOLDERS' DEFICIT	(54,994)	(52,863)
TOTAL LIABILITIES AND STOCKHOLDERS' DEFICIT	$ -	$ -

The accompanying notes are an integral part of these financial statements.

Either adjustments to the required modelling techniques or adjustments to the data extraction algorithm would solve these issues.

A small number of SEC filers had amounts which did not add up due to rounding discrepancies. For example, below is the IBM balance sheet where total liabilities + total equity is off from the total by 1 (one million dollars per their scale factor).

Goodwill	25,609	25,136
Intangible assets - net	3,205	3,488
Investments and sundry assets	5,329	5,778
Total assets	113,474 [1]	113,452 [1]
Current liabilities:		
Taxes	2,363	4,216
Short-term debt	7,858	6,778
Accounts payable	7,112	7,804
Compensation and benefits	4,706	5,028
Deferred income	12,660	11,580
Other accrued expenses and liabilities	5,144	5,156
Total current liabilities	39,843	40,562
Long-term debt	21,915	21,846
Retirement and nonpension postretirement benefit obligations	16,014	15,978
Deferred income	3,641	3,666
Other liabilities	8,851	8,226
Total liabilities	90,263 [1]	90,279 [1]
IBM stockholders' equity:		
Common stock, par value $0.20 per share, and additional paid-in capital Shares authorized: 4,687,500,000 Shares issued: 2011 - 2,175,594,604 2010 - 2,161,800,054	46,975	45,418
Retained earnings	97,334	92,532
Treasury stock - at cost Shares: 2011 - 981,316,389 2010 - 933,806,510	(104,073)	(96,161)
Accumulated other comprehensive income/(loss)	(17,109)	(18,743)
Total IBM stockholders' equity	23,127	23,046
Noncontrolling interests	84	126
Total equity	23,210 [1]	23,172
Total liabilities and equity	$ 113,474 [1]	$ 113,452 [1]

[1] Amounts may not add due to rounding.

A small number of filers created a balance sheet using the net assets approach, which is appropriate and this this is not considered a violation of the model, rather it calls for a tuning of the model to take this acceptable practice into account.

Again, either modelling approaches or algorithm adjustments would increase the positive results realized.

6.5.2. Balance sheet reports equity

A small minority of SEC filers determined that it was necessary to extend the US GAAP taxonomy for the concept "member equity" rather than using an existing concept. One of two possibilities exist which can explain this need. First, the FASB defines "equity" as a financial report element, but defines concepts for both stockholder equity and partner capital. Our view that a better approach would be to simply define "equity" and adjust the label of the concept for the type of equity a flier has. The second view could be that the concept "member equity" and other equity concepts such as "owner equity" are missing from the US GAAP taxonomy and should be added. Either of these would increase the number of positive tests thus showing that balance sheets report equity.

6.5.3. Cash flow statement reports net cash flow

A small minority of SEC filers determined, for unknown reasons, that they needed to create their own concept to express net cash flow rather than using an existing concept from the US GAAP Taxonomy. For example:

- *Ford*: us-gaap:NetCashProvidedByUsedInContinuingOperations

- *Allstate Life Insurance*: alic:CashPeriodIncreaseDecrease

- *Hartford Life Insurance*: hlic:NetIncreaseDecreaseInCash

- *Allstate Corp*: all:CashPeriodIncreaseDecrease

- *Hartford Financial Services*: hig:NetIncreaseDecreaseInCash

- *General Motors*: us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease (but did not report for consolidated entity)

- *CitiGroup*: c:CashAndDueFromBanksPeriodIncreaseDecrease

Creating these concepts as opposed to using an existing concept would seem hard to justify in this case.

6.6. Conclusion

Based on the results obtained, all non-positive results obtained which were analyzed manually resulted from either (a) allowable industry practices which are different than the norm or (b) SEC filer modeling errors mostly relating to concept selection which seems hard to justify.

As such, the extraction algorithm can be more appropriately tuned to reflect specific industry practices which some filers use. Thus the positive results would increase.

The testing results without these modifications are high enough to conclude that the test was satisfied and that the predictions of the theory appear appropriate.

7. Future work

The first results of testing our *Financial Report Semantics and Dynamics Theory* shows that the theory can sucessfully predict certain aspects of financial statements. While admittedly the first rules regarding semantics and dynamics for financial statements were simple; they do indicate that the principle of defining rules for financial statement analysis and verification work.

The next steps in the development of the *Financial Report Semantics and Dynamics Theory* is to define more granular rules for financial statement semantics and dynamics that enable interpretation and verification of reported values in the various components of the financial statements.

The mechanism for expressing the semantics and dynamics of financial statements is that of patterns of financial reporting structures or shapes. These encapsulate the structure, semantics and behavior of such units of financial information reporting and they can be used to develop software applications that support creation of financial statements and business reports by following a model-based approach.

The model-based approach will at all times maintain the internal consistency and semantic validaty of the defined information by applying the *Financial Report Semantics and Dynamics Theory*.

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[1] For more information on the conceptual framework see:
http://digitalfinancialreporting.wikispaces.com/Conceptual+Framework

[2] For more information on financial report elements see:
http://digitalfinancialreporting.wikispaces.com/Elements+of+Financial+Statement

[3] For more information on financial statement components see:
http://digitalfinancialreporting.wikispaces.com/financial+statement+components