

# Understanding Minimum Processing Steps for Effective Use Of SEC XBRL Financial Filing Information

By

Charles Hoffman, CPA (charleshoffman@olywa.net)

Dr. Hussein Issa, Ph.D. (hussein.issa@rutgers.edu)

February 14, 2014

This document walks a reader<sup>1</sup> through the logical steps of a process of automated reuse of financial information which is reported in a company's XBRL-based financial reports filed with the US Securities and Exchange Commission (SEC). The goal of the document is twofold: First to explain that process and show the minimum steps necessary to make use of a minimal set of this information using automated processes. Second to point out apparent mistakes which are made that cause the information contained in SEC XBRL financial filings to be ambiguous, to not be decipherable by automated computer processes, to yield "red flags" which indicate the information may not be trustworthy to automated computer processes, or to be unusable by such processes.

It is possible that these process rules are perhaps not 100% appropriate. Specific process rules are not the point of this document. However, process rules for this process are confirmed by empirical evidence to be true by a vast majority of SEC XBRL financial filings. Further, by examining filing which do not follow these rules why the process malfunctions can be clearly determined. The desired state is system balance or equilibrium. There is some process and there is some set of process rules which work together as a system to offer automated reuse of financial information reported by SEC XBRL financial filings. Adjusting the rules of this process, adjusting SEC XBRL financial filings, or by adjusting software algorithms would yield 100.0% passing scores for each processing step category and arguably a system which provides safe, reliable, predictable, automated reuse of reported financial information.

Toward the benefit of being clear and accepting the risk of perhaps being redundant, the most succinct statement is this: *Prudence dictates that using financial information in SEC XBRL financial filings should not be a guessing game.*

It is important to establish a grounding of understanding this process to understand its importance. The process or task of effective information reuse of the basic information contained in an SEC XBRL financial filing can be broken down into the following groups or families of process rules. The following is a summary of the goal or desired state, process tests which contribute to that state, and the current state which can be observed in SEC XBRL financial filings tested using the process tests:

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<sup>1</sup> The audience for this document is business users and software developers who are familiar with XBRL and SEC XBRL financial filings.

#	Goal or Desired State	Process tests	Current State
1	Consistent XBRL technical syntax	Automated XBRL technical syntax error checks	<b>99.9%</b> pass XBRL technical syntax rules and are therefore fundamentally usable
2	Consistent EDGAR Filer Manual (EFM) syntax/semantics	Automated EFM syntax and semantics error checks	<b>86.1%</b> pass Automated SEC EDGAR Filer Manual (EFM) rules
3	Consistent report level structure	Automated model structure error checks	<b>97.9%</b> of filings have unambiguous report level model structures
4	Identification of the "root" reporting entity or "entity of focus"	Successful and unambiguous identification of the "entity of focus"	<b>99.2%</b> provide a detectable "root of reporting entity" so that information can be properly discovered using automated processes
5	Identifiable current period balance sheet and income statement period dates	Successful and unambiguous identification of the current balance sheet date and income statement period	<b>99.1%</b> of filings have current balance sheet periods which are detectable and unambiguous
6	Identification of fundamental reported facts and intact relations between those fundamental facts which prove trustworthy nature of information	Automated verification checks to be sure fundamental accounting concepts are distinguishable/decipherable and the relations between those fundamental concepts are intact/sound	<b>97.9%</b> report 51 fundamental accounting concepts and those concepts adhere to 21 unchangeable relationships
7	Basic primary financial statement roll up computations are intact which prove trustworthy nature of information	Automated verification checks for existence of business rules which articulate these basic primary financial statement relations and successful passing of these business rules	<b>85.9%</b> provide Roll up rules for balance sheet, income statement, cash flow statement

If one were to think about it this process is logical and rational: (1) computer reads the information, (2) computer decipheres structures in information, (3) computer decipheres basic report information, (4) computer finds the entity of focus, (5) computer finds period of focus in this case the current balance sheet date and year to date income statement period, (6) computer verifies trustworthiness of fundamental concepts and that relations between those concepts are intact/sound, (7) computer verifies that primary financial statement relations are intact/sound.

Which of these steps can be excluded and still allow the reliable, safe use of information contained in an SEC XBRL financial filing?

This process is not subjective, it is objective. In the table organizes sets of processing rules into groupings or families. The rules are agreed upon technical specifications, common and agreed upon understanding of US GAAP and financial reports, logical/rational deductions based on empirical evidence from thousands of SEC XBRL financial filings which comply with this process, and common sense. Such a high percentage of SEC XBRL financial filings possess these properties that a more appropriate way to look at this might be, "Why should SEC XBRL financial filings not follow this process?" In other words, what justification exists for the inconsistency of the small minority of SEC XBRL financial filings that deviate from the very significant majority, preventing it from being deciphered by computer software applications? What benefit, if any, is provided by the existence of such outliers?

And finally, each SEC XBRL financial filing which does not comply with this process can be observed and each for each deviation one of the following two things must be true: Is the SEC filing incorrect or is a process rule incorrect? Then, the rule can be adjusted or the SEC filing can be adjusted and equilibrium is achieved.

Further, it is not desirable for this process to be subjective. This is especially true for any subjectivity involved at the level of fundamental effective use of this information, as software developers writing applications to make use of the information would interpret this information in different ways. This, in turn, would lead to different results for exactly the same questions related to the same information. In fact, objectivity in this sense is crucial for computers to automatically read and make effective use of this financial information contained in SEC XBRL financial filings.

In order to use additional information, additional processing is necessary. For example, this process makes use of information reported for the current balance sheet date and the year-to-date income statement and cash flow period. To use other periods, the software requires the ability to distinguish between different periods. To use reported facts which disaggregate core reported fact such as a breakdown of income statement information by business segment or geographic area or the details of long-term debt instruments additional processing is necessary. That additional processing is not in scope for this analysis. Only core financial information contained within the current balance sheet date or year-to-date income statement period is even considered. For if this core information is not usable, additional details will certainly not be useable.

Making sure that all of the pieces of information above are logical, rational, sensible, consistent and identified to exist is not sufficient as proof that all that is necessary is in place for all the information in an SEC XBRL financial filing to be usable. This is the minimum hurdle. This is the lowest possible bar which can be set and passed for the financial information in such digital financial reports to be usable at all. This minimum process hurdle is necessary to use any information, but it is not sufficient to use all reported information.

If all the steps of this process are not satisfied, the information reported in an SEC XBRL financial filing being read by a computer application is not trustworthy or ambiguous at best and fundamentally unusable in the worst cases.

The remainder of this document details each of these processing categories and provides information about how well SEC XBRL financial filings stand up to these objective hurdles. That is, how fundamentally useful the financial information reported in such digital financial reports is.

There is one final but very important item to understand which is that while it is critical that a clear process must exist to fundamentally use reported information, it is impossible to automate the process of ensuring the correctness of the reported information. Only humans can assure that reported information is 100% correct. For example, while automated processes can check to see if, say, the concept “Assets” is reported and that “Liabilities and equity” is reported and that “Assets = Liabilities and equity”; it is impossible for software to determine if, say, two concepts which contribute to the total “Current Assets” such as “Accounts receivable” and “Inventory” have values which have been transposed. On the other hand, if detailed breakdowns of “Accounts receivable” and “Inventories” exist and the values were transposed, then automated processes could catch this error because the summary information would not match the detailed breakdowns. The point to remember is that this process cannot guarantee that all reported information is 100% correct. Instead it can simply contribute to verifying correctness.

## **1. Consistent XBRL technical syntax**

The first step in using SEC XBRL financial information is to have some consistent syntax which is agreed to and utilized by all those creating information and those consuming information. For SEC XBRL financial filings, that consistent syntax comes in the form of the global standard XBRL.

For the first hurdle of consistent XBRL technical syntax, SEC XBRL financial filings do extremely well. In fact, 99.9% of the latter pass automated XBRL technical syntax rules and are therefore fundamentally usable. The question remains: What causes the .1% of errors? The explanation is straightforward: inconsistent implementation of the XBRL technical syntax validation rules between the SEC and software vendors. This inconsistency can be seen in the validation results of XBRL Cloud’s EDGAR Dashboard. It is the lack of complete consistency between XBRL Cloud, the SEC, and other software vendors in terms of the XBRL technical syntax.

A good question is how was the 99.9% success rate achieved? The answer is a high quality XBRL technical syntax conformance suite<sup>2</sup> maintained by XBRL International which most software vendors use

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<sup>2</sup> For more information about the XBRL conformance suite see <http://specifications.xbrl.org/work-product-index-group-base-spec-base-spec.html>.

to tune their software applications to the XBRL technical syntax<sup>3</sup>. The conformance suite contains hundreds of tests whose purpose is to create consistency.

Because the XBRL technical syntax error rate is so low and because discussions of these errors are extremely technical, no further analysis of this category is deemed necessary.

## 2. Consistent EDGAR Filer Manual (EFM) syntax/semantics

The SEC publishes a set of rules as to how SEC XBRL financial filings are to be created. These rules are documented within the EDGAR Filer Manual (EFM)<sup>4</sup>. The EFM contains approximately 200 rules, which can be broken down into four categories, as explained below:

- **Automatable syntax rules**, approximately 99, for example how to name files submitted to the SEC.
- **Automatable semantics rules**, approximately 4, for example the entity registrant name is required to be reported using the concept “dei:EntityRegistrantName”.
- **Un-automatable syntax rules**, approximately 15, for example standard unit references must be used when available.
- **Un-automatable semantics rules**, approximately 80, for example a reported fact must never have a scale factor applied, so the value 100,000,000 must be reported as such and never 100 with a statement somewhere that the value is in millions.

Not all the different EFM rules contribute to the fundamental usability of reported information. As a matter of fact, some rules have absolutely no impact. For instance, the name of the file submitted by a filer does not affect information usability. On the other hand, the formatting of HTML within text blocks is very important for being able to read the text block information; however, we are not looking at text block type information in this analysis. Key EFM rules are covered in specific processing categories which are covered later.

While EFM rules are important, only certain specific EFM rules are critical for fundamental information use. Automatable syntax or semantics rules that lack the verification that software vendors implement the rules consistently certainly cause confusion when trying to interpret information. Nonetheless, it may or may not impact information usability.

86.1% of filings submitted to the SEC pass automated SEC EDGAR Filer Manual (EFM) rules. Why wouldn't 100% of filings pass automated EFM rules? There are two reasons. First, there are missing EFM tests from the SEC system, and consequently not all rules are validated when they are submitted; however software vendors such as XBRL Cloud have automated these rules and do test SEC XBRL financial filings against these automatable rules. Second, there are different interpretations of tests

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<sup>3</sup> Here is an example of compliance to the XBRL 2.1 specification, <http://reportingstandard.com/conformance.xhtml>

<sup>4</sup> For more information on the Edgar Filer Manual see <http://www.sec.gov/info/edgar/edmanuals.htm>.

because of missing tests. For example, XBRL Cloud reports EFM errors on submitted XBRL financial filings however software vendors submitting information clearly consciously or unconsciously have a different interpretation of the rule. Theoretically, the SEC and software vendors should agree on all these automatable EFM rules and no inconsistencies would exist. Contrast this to the 99.9% consistent XBRL technical syntax of SEC XBRL financial filings in process step 1. There is no reason automatable EFM rules could not reach that level of consistency.

Of the 13.9% SEC submissions which violate these automatable EFM rules, the majority of violations relate to the formatting of the escaped HTML within [Text Block]s. Therefore the impact on the fundamental use of reported financial information from EFM rules is not that significant.

So, there are two primary messages to be gleaned from understanding EFM rules. First, clearly if these EFM rules and the supporting conformance tests which support the rules did not exist the quality of SEC filings could be significantly lower. On the other hand, it is missing EFM tests which cause the issues articulated in this document. The SEC could improve their inbound validation processes and/or software vendors could improve their validation processes, either would solve the problem.

Imagine if the EFM contained all the rules articulated in this document and the SEC inbound validation enforced these rules for all SEC filings. Information usability would be improved and the system would be brought into equilibrium.

Again as a reminder, key EFM rules will be covered in later sections.

### **3. Consistent report level structure**

Computers work with specific structures or report elements<sup>5</sup>, which can be categorized into groups. For example, an Excel spreadsheet is comprised of structures such as workbooks, spreadsheets, columns, rows, and cells. That is a scheme for working with an electronic spreadsheet which is understandable by both the computer and humans using the computer.

A similar scheme can be created for the pieces which make up an SEC XBRL financial filing. For example, the US GAAP XBRL Taxonomy Architecture<sup>6</sup> uses the following report element categories: Network, Table, Axis, Member, Lineltems, Concept and Abstract. These categories of report elements make up a scheme for working with the pieces of an SEC XBRL financial filing. Other schemes exist such as the XBRL International XBRL Abstract Model 2.0<sup>7</sup>. You could create any scheme you want really, the exact scheme does not matter. What matters is the consistency of the report element categories and the

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<sup>5</sup> The video How XBRL Works (<http://www.youtube.com/watch?v=nATJBPOiTxM>) explains why computers need structured information.

<sup>6</sup> For more information on the US GAAP XBRL Taxonomy Architecture see <http://xbrl.us/Documents/SECOFM-USGAAPT-Architecture-20080428.pdf>

<sup>7</sup> For more information on the XBRL International XBRL Abstract Model 2.0 see <http://xbrl.org/Specification/abstractmodel-primary/PWD-2012-06-06/abstractmodel-primary-pwd-2012-06-06.html>

understandability of the relations between those categories. The point is to avoid and even to eliminate ambiguity.

97.9% of SEC XBRL financial filings have unambiguous report level model structures which follow specific patterns. As a result, the vast majority of SEC XBRL financial filings follow consistent patterns for use of these report elements of a financial report and the relations between those report elements<sup>8</sup>.

Report level model structure can best be understood by looking at an example. A set of SEC XBRL financial filings analyzed show 271,721 report elements which are clearly identifiable as an [Axis]. An [Axis] is intended to articulate a set of [Member]s which are used to characterize a reported fact. When looking at the models created by SEC filers, the table below summarizes the children report elements which were found for the [Axis] found in the SEC XBRL financial filings analyzed: (basically, this is the number of each category of report elements which were found to be a child of an [Axis] in SEC XBRL financial filings)

Report element category	Number of children found	Comments
Network	0	<i>CORRECT:</i> A network would never be expected as a child of an [Axis].
Table	0	<i>CORRECT:</i> A Table would never be expected as a child of an [Axis].
Axis	0	<i>CORRECT:</i> An [Axis] would never be expected as a child of another [Axis].
Member	325,159	<i>CORRECT:</i> [Member]s are expected to be a child of an [Axis]
LineItems	0	<i>CORRECT:</i> [Line Items] would never be expected as a child of an [Axis].
Concept	10	<b>ERROR:</b> A Concept would NEVER be the child of an [Axis]. A Concept is only used within a set of [Line Items].
Abstract	0	<i>CORRECT:</i> An [Abstract] would never be expected as a child of an [Axis].

Basically, every category is as expected, with the exception of the 10 Concepts which were found to exist within an [Axis]. [Member]s are expected and in fact in 99.9% of all cases [Member]s is what were found as children of an [Axis] which is what one would expect. However, 10 Concepts were found as children of an [Axis]. What does it mean for a Concept to be found to be a child of an [Axis]? How should software interpret that representation of information?

The following list is a summary of the 14 most ambiguous relations found in a set of 5262 analyzed SEC XBRL financial filings. Of the approximately 4,608,745 relations in SEC XBRL financial filings, only 306 relations were deemed odd and the interpretation of their relationships was ambiguous:

- 3 SEC filers have an [Axis] as the child of a Network.

<sup>8</sup> For information related to the scheme used see <http://xbrl.squarespace.com/journal/2014/2/5/improved-information-about-model-structure.html>.

- 2 SEC filers have a [Member] as the child of a Network. [Member]s are generally children of an [Axis] or another [Member].
- 1 SEC filer has a [Table] that is the child of another [Table]. What is the meaning of this?
- 25 SEC filers have a Concept as a child of a [Table]. [Table]s generally have [Axis] and [LineItems] as children. What does it mean if a Concept is a child of a [Table]?
- 10 SEC filers have an [Abstract] as a child of a [Table]. [Table]s generally have [Axis] and [LineItems] as children. What does it mean if a Concept is a child of a [Table]?
- 10 SEC filers have a Concept which is a child of an [Axis]. Only [Member]s should be children of an [Axis]
- 115 SEC filers have a Concept which is the child of a [Member]. Generally [Member]s are the only children of other [Member]s
- 1 SEC filer has an Abstract as the child of a [Member]. Generally [Member]s are the only children of other [Member]s
- 34 SEC filers have a [Table] as a child of a set of [LineItems]. Generally [LineItems] are children of [Table]s, not the other way around.
- 3 SEC filers have an [Axis] which is child of a set of [LineItems]s. Generally Concepts and [Abstract]s are found in 99.99% of SEC filings.
- 1 SEC filer had a [Member] which is the child of a Concept. How should this be interpreted?
- 2 SEC filers had [LineItems] which were the child of a Concept. How should this be interpreted?
- 17 SEC filers had an [Axis] which is the child of an [Abstract]. How should this be interpreted?
- 82 SEC filers had a [Member] as the child of an [Abstract]. How should this be interpreted?

While other odd relations existed, one could come up with a reasonable interpretation which would yield what is likely the correct result.

These 306 relations are inconsistent with the vast majority of SEC XBRL financial filings and are not defined by any known rule. On the other hand 97.9% of all filings contained no such odd relations at all. The 97.9% represents strong evidence of correct report element relations. The SEC could end the guessing game by explicitly specifying an EFM rule which clarifies allowed and un-allowed report level relations.

The bottom line is that for the set of 2.1% of filings caused by the lack of a test and software vendors making mistakes, each relation above will need a software developer or someone to interpret what the relationship means and how their computer software will process the report element in, say, a rendering of the reported information.

It is important to understand that if there are structure errors in a document; the relations which make sense can be processed. Although the ambiguous ones can also be processed, decisions need to be made as to how they are to be processed. Further, consistency between relations expressed can likewise be an issue. If the XBRL presentation relations say one thing and the XBRL definition relations say something different, those inconsistencies must also be resolved by software developers implementing software. Software vendors can guess as to what to do, but what is best is that unambiguous and nonsensical relationships should never be allowed by using validation.

#### 4. Identification of the “root” reporting entity or “entity of focus”

One crucial EFM rule which does exist relates to the identification of the “entity of focus” or the “root” reporting entity. By default, the legal entity is assumed to be the consolidated entity unless otherwise specified. SEC filers can specify the entity of focus to be something else as they deem appropriate.

99.2% of all SEC XBRL financial filings provide a detectable "root of reporting entity" or “entity of focus” so that information can be properly discovered using automated processes<sup>9</sup>. This is done by not specifying anything and therefore implying the entity of focus, per EFM rules, to be the consolidated entity; or the SEC filer explicitly specifies some other entity of focus. However, 0.8% of SEC filers report their information where more than one entity could be the entity of focus which makes it necessary to manually determine the entity of focus of reported information.

To make this more clear, consider the following balance sheet reported by an SEC filer. Which is the legal entity of focus for this financial report and how would software understand which is the focus? You would think that the “Parent Company [Member]” is the entity of focus and you would be correct. However, this balance sheet is represented contrary to the EFM filing rules. The Parent Company [Member] should be the root of the Legal Entity [Axis], not how it is represented here. This will cause problems for the software when it interprets the information.

Reporting Entity [Axis]	0001070750 (http://www.sec.gov/CIK)		
	Period [Axis]		
	2012-12-31		
	Legal Entity [Axis]		
Statement [Line Items]	Parent Company [Member]	Host Hotels Resorts Limited P...	Entity [Domain]
<b>ASSETS</b>			
Property and equipment, net	11,588,000,000	11,588,000,000	11,588,000,000
Due from managers	80,000,000	80,000,000	
Advances to and investments in affiliates	347,000,000	347,000,000	347,000,000
Deferred financing costs, net	53,000,000	53,000,000	
Furniture, fixtures and equipment replacement fund	154,000,000	154,000,000	
Other	319,000,000	319,000,000	
Restricted cash	36,000,000	36,000,000	
Cash and cash equivalents	417,000,000	417,000,000	
Total assets	12,994,000,000	12,994,000,000	
<b>LIABILITIES, LIMITED PARTNERSHIP INTERESTS OF THIRD PARTIES AND CAPITAL</b>			
<b>Debt</b>			
Senior notes, including \$531 million and \$902 million, respectively, net of discount, of Exchangeable Senior Debentures	3,569,000,000	3,569,000,000	3,569,000,000
Credit facility, including the \$500 million term loan	763,000,000	763,000,000	

<sup>9</sup> For more information about detecting the entity of focus see

<http://xbrl.squarespace.com/journal/2013/4/7/issues-related-to-discovery-of-root-of-reporting-entity-of-s.html>

There are specific and identifiable reasons in the 0.8% of SEC financial filings as to why the root entity or entity of focus is not readily discoverable for this minority of reporting entities. To correct that 0.8% minority of SEC XBRL financial filings each submission can be examined, determine why the entity of focus was not detected, correct the filing, and then re-run the process to see if the entity of focus is then properly detected. Alternatively, if the reporting entity has some situation which is not covered by EFM reporting rules, the EFM rules can be adjusted to reflect the filers situation. Either way, this process rules is easily brought into equilibrium.

## 5. Identifiable current period balance sheet and income statement period dates

Another crucial EFM rule relates to the detection of the current balance sheet date and the period of the income statement. Although this EFM rule is pretty clear, neither SEC inbound verification/validation detects errors. Incidentally, the XBRL Cloud Edgar Dashboard likewise does not detect this error.

99.1% of SEC XBRL financial filings have current balance sheet dates and current income statement periods which are unambiguously detectable.

The scheme for filers to articulate this information can be found in the required report element “dei:DocumentPeriodEndDate” and EFM rule 6.5.19 which reads in part:

**6.5.19 An instance covering a reporting period must contain a Required Context that is an xbrli:context having xbrli:startDate equal to 00:00:00 on the first day of the reporting period and xbrli:endDate equal to 24:00:00 on its last day.**

This rule defines “Required Context”. For example, this rule applies to Form 10-Q filings for a company with a June 30, 2009 fiscal year end as follows:

Quarter	xbrli:startDate	xbrli:endDate
1	2009-07-01	2009-09-30
2	2009-07-01	2009-12-31
3	2009-07-01	2010-03-31

Many submissions require a second Required Context; see 6.5.21 below. Required contexts are distinguished by having no xbrli:segment elements.

But how do 0.9% of filers end up not following these rules? Again, the SEC inbound validation apparently does not verify these EFM rules because there are a small minority of submitted filings which violate this scheme. There are other rules that specify somewhat less important information related to the articulation of the fiscal year focus of the financial report and the fiscal period focus.

Again to clarify, an example helps. Below is an example where the fiscal year focus is incorrect. However, the balance sheet date correctly provided in the context of the document information, for the Document Period End Date which is generally reported within document information:

Document and Entity Information (USD \$)		12 Months Ended Dec. 31, 2011	Mar. 07, 2012	Jun
Document and Entity Information [Abstract]				
Entity Registrant Name	PROVECTUS PHARMACEUTICALS INC			
Entity Central Index Key	0000315545			
Document Type	10-K			
Document Period End Date	Dec. 31, 2011			
Amendment Flag	false			
Document Fiscal Period Focus	FY			
Document Fiscal Year Focus	2012			
Current Fiscal Year End Date	12-31			
Entity Well-known Seasoned Issuer	No			
Entity Voluntary Filers	No			
Entity Current Reporting Status	Yes			
Entity Filer Category	Accelerated Filer			
Entity Public Float				
Entity Common Stock, Shares Outstanding	110,935,981			

Consolidated Balance Sheets (USD \$)	Dec. 31, 2011	Dec. 31, 2010
<b>Current Assets</b>		
Cash and cash equivalents	\$ 7,705,773	\$ 8,086,200
<b>Total Current Assets</b>	<b>7,705,773</b>	<b>8,086,200</b>
Equipment and furnishings, less accumulated depreciation of \$416,798 and \$409,442	20,111	21,320
Patents, net of amortization of \$6,118,377 and \$5,447,257, respectively	5,597,068	6,268,188
Other assets	27,000	27,000
<b>Total Assets</b>	<b>13,349,952</b>	<b>14,402,708</b>
<b>Current Liabilities</b>		
Accounts payable - trade	101,102	418,477
Accrued compensation and payroll taxes	0	781,262
Accrued consulting expense	71,000	110,000

Where do these dates you see in the SEC previewer rendering of the document information come from? This is a fragment of the XBRL which shows these dates which must be synchronized. In the example, the <endDate> of the <period> must agree with the value of the reported fact <dei:DocumentPeriodEndDate>:

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- <context id="Jan-01-2011-Dec-31-2011">
  - <entity>
    <identifier scheme="http://www.sec.gov/CIK">0000315545</identifier>
  </entity>
  - <period>
    <startDate>2011-01-01</startDate>
    <endDate>2011-12-31</endDate>
  </period>
</context>

<dei:DocumentFiscalYearFocus contextRef="Jan-01-2011-Dec-31-2011">2012</dei:DocumentFiscalYearFocus>
<dei:DocumentPeriodEndDate contextRef="Jan-01-2011-Dec-31-2011">2011-12-31</dei:DocumentPeriodEndDate>
<dei:DocumentType contextRef="Jan-01-2011-Dec-31-2011">10-K</dei:DocumentType>
<dei:EntityCentralIndexKey contextRef="Jan-01-2011-Dec-31-2011">0000315545</dei:EntityCentralIndexKey>
<dei:EntityCommonStockSharesOutstanding contextRef="BalanceAsOf_07Mar2012" decimals="INF" unitRef="Shares">

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If inconsistencies exist between the information articulated, problems will arise at a later stage when trying to understand the information reported and use this information to extract data from the financial report. At best, ambiguity can result and human involvement is required to untangle the meaning of the digital financial report. At worst, the information would be unusable.

Again, there is such a small number of violations of this process rule that each SEC XBRL financial filing which cannot be processed can be observed to see if the filing is in fact correct or incorrect or whether EFM rules need to be adjusted for some unanticipated reporting situation.

## **6. Identification of fundamental reported facts and intact relations between those fundamental facts**

Every accountant knows the accounting equation: Assets = Liabilities and Equity. Balance sheets must balance. Other similar fundamental concepts and relations between those concepts exist, such as:

- Assets = Current assets + Noncurrent assets (*classified balance sheet*)
- Equity = Equity attributable to parent + Equity attributable to noncontrolling interest
- Assets = Liabilities + Commitments and Contingencies + Temporary Equity + Equity
- Gross Profit = Revenues - Cost of revenue (*Multi-step income statement approach*)
- Net income (loss) = Net income(loss) attributable to parent + Net income (loss) attributable to noncontrolling interest
- Net Cash Flow = Net cash flows, operating + Net cash flows, investing + Net cash flows, financing + exchange gains (losses)

While SEC XBRL financial filings are not required to contain some fundamental accounting concepts like total noncurrent assets, all of these fundamental accounting concepts can either be detected as being reported or can be imputed from other reported values. For example, while noncurrent assets might not be directly reported, assets and current assets are always reported within a classified balance sheet and therefore it becomes a simple task to compute noncurrent assets such that: noncurrent assets = Assets – current assets. If these fundamental concepts are not reported or imputed and if software cannot successfully discover or derive this information or if information is derived and the fundamental relations between these concepts cannot be verified; then information is not trustworthy, is likely ambiguous, or potentially not usable at all.

97.9% of SEC XBRL financial filings satisfy this processing rule and these fundamental accounting concepts are correctly detected or imputed and all relations between these reported or imputed concepts are verifiably intact. For the 2.1% where these fundamental concepts are not reported or cannot be successfully imputed, very specific reasons exist for not being able to find or impute these values.

There are two primary reasons for not being able to detect or impute these fundamental accounting concepts. The first is an SEC filer creating an extension concept. Extending a concept such as “assets”, “equity”, “net income (loss)” or “net cash flow” is very hard for any SEC filer to justify. Yet, these

situations exist in practice. The second reason is an SEC filer not providing a subtotal or total, which is provided by SEC filers in most cases. Two examples of omitted totals which make it extremely challenging to detect these fundamental accounting concepts are “equity” and “revenues”.

Fundamental concepts and unchangeable relations between these fundamental concepts exist<sup>10</sup>. While empirical evidence within SEC XBRL financial filings indicates that it is common practice to provide some subtotals and totals, others are perhaps not common practice. It is in these cases where a practice cannot be considered common practice that it is left up to the external reporting managers’ discretion whether to make safe automated reuse of this information possible or to cause reuse to be either unsafe or even a guessing game.

While these concepts and relations are only the tip of a much larger iceberg, they are important for a number of reasons. First, if filers change these fundamental relations for some reason, it makes using the information across reporting entities anywhere from ambiguous to impossible. If there is a doubt that these relations exist, it is enough to consider the fact that 97.9% of all SEC XBRL financial filings follow these rules. The following graphic shows the breakdown of these relations<sup>11</sup> and the number of SEC XBRL financial filings which satisfy these fundamental accounting concept relations:

Test	Fundamental accounting relationship (business rule)	Total set	No root entity	Exclude	Total set	Pass test	Percent	Comments	Fail test
BS1	Equity = EquityAttributableToParent + EquityAttributableToNoncontrollingInterest	7,160	58	0	7,102	7,003	98.6%		99
BS2	Assets = LiabilitiesAndEquity	7,160	58	0	7,102	7,061	99.4%		41
BS3	Assets = CurrentAssets + NoncurrentAssets	7,160	58	1,631	5,471	5,469	100.0%	Not all filers have classified balance sheets. Unclassified balance sheets excluded.	2
BS4	Liabilities = CurrentLiabilities + NoncurrentLiabilities	7,160	58	1,631	5,471	5,467	99.9%	Not all filers have classified balance sheets. Unclassified balance sheets excluded.	4
BS5	LiabilitiesAndEquity = Liabilities + CommitmentsAndContingencies+ TemporaryEquity+ Equity	7,160	58	0	7,102	6,807	95.8%		295
IS1	GrossProfit = Revenues - CostOfRevenue	7,160	412	3,403	3,345	2,946	88.1%	Not all filers use multi-step income statement. Exclude developing stage and going concerns.	399
IS2	OperatingIncomeLoss = GrossProfit - OperatingExpenses + OtherOperatingIncome	7,160	412	3,403	3,345	2,670	79.8%	Not all filers use multi-step income statement. Exclude developing stage and going concerns.	675
IS3	IncomeBeforeEquityMethodInvestments = OperatingIncomeLoss + NonoperatingIncomeLoss + InterestAndDebtExpense	7,160	58	0	7,102	6,508	91.6%		594
IS4	IncomeFromContinuingOperationsBeforeTax = IncomeBeforeEquityMethodInvestments + IncomeFromEquityMethodInvestments	7,160	58	0	7,102	6,775	95.4%		327
IS5	IncomeFromContinuingOperationsAfterTax = IncomeFromContinuingOperationsBeforeTax - IncomeTaxExpenseBenefit	7,160	58	0	7,102	6,681	94.1%		421
IS6	NetIncomeLoss = IncomeFromContinuingOperationsAfterTax + IncomeFromDiscontinuedOperations + ExtraordinaryItemsGainLoss	7,160	58	0	7,102	6,750	95.0%		352
IS7	NetIncomeLoss = NetIncomeAttributableToParent + NetIncomeAttributableToNoncontrollingInterest	7,160	58	0	7,102	6,724	94.7%		378
IS8	NetIncomeAvailableToCommonStockholdersBasic = NetIncomeAttributableToParent - PreferredStockDividendsAndOtherAdjustments	7,160	58	0	7,102	6,661	93.8%		441
IS9	ComprehensiveIncome = ComprehensiveIncomeAttributableToParent + ComprehensiveIncomeAttributableToNoncontrollingInterest	7,160	58	0	7,102	6,934	97.6%		168
IS10	ComprehensiveIncome = NetIncomeLoss + OtherComprehensiveIncome	7,160	58	0	7,102	7,029	99.0%		73
CF1	NetCashFlow = NetCashFlowsContinuing + NetCashFlowsDiscontinued + ExchangeGainsLosses	7,160	58	142	6,960	6,662	95.7%	Total of 142 use alternate approach of not including ExchangeGainsLosses in NetCashFlow.	298
CF2	NetCashFlowsContinuing = NetCashFlowsOperatingContinuing + NetCashFlowsInvestingContinuing + NetCashFlowsFinancingContinuing	7,160	58	0	7,102	6,962	98.0%		140
CF3	NetCashFlowsDiscontinued = NetCashFlowsOperatingDiscontinued + NetCashFlowsInvestingDiscontinued + NetCashFlowsFinancingDiscontinued	7,160	58	0	7,102	7,119	100.2%		-17
CF4	NetCashFlowsOperating = NetCashFlowsOperatingContinuing + NetCashFlowsOperatingDiscontinued	7,160	58	0	7,102	7,069	99.5%		33
CF5	NetCashFlowsInvesting = NetCashFlowsInvestingContinuing + NetCashFlowsInvestingDiscontinued	7,160	58	0	7,102	7,106	100.1%		-4
CF6	NetCashFlowsFinancing = NetCashFlowsFinancingContinuing + NetCashFlowsFinancingDiscontinued	7,160	58	0	7,102	7,147	100.6%		-45
								Total failed information points	4,674
								No information found at all	2,958
								Total errors in information	7,632
								Total number of information points (7,160 filers X 51 information points)	365,160
								Percent of information incorrect:	2.1%
								Percent of information CORRECT:	97.9%

<sup>10</sup> For more information on these fundamental accounting concepts and relations please see <http://fundamentalaccountingconcepts.wikispaces.com/>

<sup>11</sup> For more information see <http://xbrl.squarespace.com/journal/2013/5/13/accuracy-rate-of-98-achieved-for-fundamental-accounting-conc.html>

Examining the empirical evidence offered by the many thousands of SEC XBRL financial filings offers clues as to the existence and nature of fundamental accounting concepts, in addition to the relations between these concepts. If a significant majority of SEC XBRL financial filings shows the existence of these concepts and relations, that offers strong evidence for support of these process rules. Even stronger evidence is offered by examining the 2.1% of SEC XBRL financial filers who do not follow common patterns. Probing each of the situations where a concept is not reported or imputed or if a relation does not follow common patterns offers an opportunity to judge whether how an SEC XBRL financial filer represented their information is appropriate or not. It would also offer evidence which might lead to tweaking the fundamental accounting concepts and relations. Either fixing the SEC XBRL financial filing or tweaking the fundamental accounting concepts and relations would bring this process step into equilibrium.

The real information to be derived here is what contributes to the safe reuse of reported information provided by SEC XBRL financial filings. Again, is it really desirable to create what amounts to an “Easter egg hunt” or a guessing game? In other words, there should not be any room for multiple interpretations.

### 7. Basic primary financial statement roll up computations are intact

Similar to the fundamental accounting concept relations are basic roll up relations between sets of concepts within the primary financial statements, such as:

- Assets foots
- Liabilities and equity foots
- Net income (loss) foots
- Net cash flow foots

For example, consider the following balance sheet fragment:

Balance Sheet [Line Items]	Period [Axis]	
	2010-12-31	2009-12-31
<b>ASSETS [Roll Up]</b>		
<b>CURRENT ASSETS [Roll Up]</b>		
Cash and cash equivalents	11,000,000	10,000,000
Restricted cash	1,000,000	1,000,000
Short term investments	1,000,000	2,000,000
Accounts receivable, net of allowance for doubtful accounts of \$1,000 and \$1,000	29,000,000	29,000,000
Inventories	4,000,000	4,000,000
Prepaid expenses	8,000,000	8,000,000
Other current assets	2,000,000	2,000,000
<b>Total current assets</b>	<b>56,000,000</b> ✓	<b>56,000,000</b>
<b>NONCURRENT ASSETS [Roll Up]</b>		
Property, plant and equipment, net	9,000,000	9,000,000
Other noncurrent assets	82,000,000 <sup>1</sup>	82,000,000
<b>Total noncurrent assets</b>	<b>91,000,000</b> ✓	<b>91,000,000</b>
<b>Total assets</b>	<b>147,000,000</b> ✓	<b>147,000,000</b>
<b>LIABILITIES AND EQUITY [Roll Up]</b>		

How many balance sheets would not have a roll up of some sort which ultimately aggregates to the total “Assets”?

85.9% of all SEC XBRL financial filings provide roll up rules for their balance sheet, income statement, and cash flow statement in the form of XBRL calculation relations or business rules. Verifying that these relations are sound is trivial when the information is tested against those business rules.

It is interesting that Edgar Filer Manual (EFM) rules require SEC XBRL financial filings to provide such relations expressed as XBRL calculation relations. However, as pointed out, only 85.9% of all SEC XBRL financial filings provide such relations. Why are 14.1% of SEC XBRL financial filings missing these required relations? This is because the validation process which is run by the SEC upon submission of XBRL financial filings does not check for the existence of such relations. Verification of the presence of these basic primary financial statement computations is a trivial task. If inbound SEC validation of XBRL-based submissions did check for the existence of these business rules and if the same process checked to see if the computations in fact were indeed correct, which is likely a primary reason why the rules are required; the usage of the information provided by these SEC XBRL financial filings would be improved, most likely.

### **Conclusion and basic proof**

Admittedly this process is not a scientific experiment which follows formal protocol. It is more an informal practical exercise grounded in common sense, logic, experimentation, which yielded sound empirical evidence which helps one understand how to make use of information contained within SEC XBRL financial filings. A conclusion and a proof in the form of a working software algorithm which makes use of this process are offered to both help solidify an understanding of this fairly basic process and prove that the process does, in fact, work. In reality, the process was created by actually attempting to make use of information contained in an SEC XBRL financial filing and then simply writing down the steps required. And so it is the successful use of information which contributed to defining this process. Consider the following scenario:

1. **Consistent XBRL technical syntax:** An SEC XBRL financial filing is successfully read by a computer software application.
2. **Consistent EDGAR Filer Manual (EFM) syntax/semantics:** Additional syntactic restrictions are satisfied and semantics are discovered and understood.
3. **Consistent report level structure:** The structure of the report or basic relations between the report elements within the report are unambiguously understood by the software and the software is now ready to begin using the report information.
4. **Identification of the “root” reporting entity or “entity of focus”:** The “entity of focus” is successfully and automatically identified by the software without any report specific algorithms or metadata.

5. **Identifiable current period balance sheet and income statement period dates:** The “period of focus” is successfully and automatically identified by the software without any report specific algorithms or metadata.
6. **Identification of fundamental reported facts and intact relations between those fundamental facts:** The base financial facts are discovered or successfully imputed and all relations are examined and appear logical, rational, and sensible based on what is expected per process rules.
7. **Basic primary financial statement computations are intact:** All primary financial statement computations are sound, as expected, and intact, which provides evidence that the information is likely to be correct<sup>12</sup>. These computations are the direct descendants of fundamental reported concepts and are obtained by looking for these fundamental concept in the XBRL calculation relations.

Exactly which of these steps could be removed from the process without jeopardizing the successful and unambiguous interpretation of the information? Given that none can be removed, by deduction all these steps are necessary in order to fundamentally use any information within an SEC XBRL financial filing.

Can the process be simplified even more by eliminating some steps? We think not. Others might think of ways to simplify this process. In fact, we provide an Excel spreadsheet<sup>13</sup> which allows for two things. First, you can work with a set of 685 SEC XBRL financial filings which comply with all the rules specified by this process to see that, in fact, this process works. You can also examine SEC XBRL financial filings that do not pass all of these process rules and determine if you feel that the process rules are inappropriate or if the SEC XBRL financial filing is in error. Finally, if you can write basic VBA code and you can try your process out which might perhaps prove that simplify this minimal process even more is possible. The point here is that the moving pieces here are all clearly specified: (a) the SEC XBRL financial filings, (b) the process rules, and (c) the software code which extracts information. Bringing this into equilibrium consists of changing filings, changing process rules, or changing the process algorithm. Nothing about this is subjective.

It is worth noting that a subset of these process steps are demonstrated by a prototype software application created in Excel and provided below. We are not using an XBRL processor to test primary financial statement computations; we are simply checking fundamental accounting concept relations.

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<sup>12</sup> Similar to how an Excel formula checks for the correctness of numbers in a spreadsheet.

<sup>13</sup> Download the Excel spreadsheet here and try to simplify the process  
<http://www.xbrlsite.com/2014/Library/GetFundamentalAccountingConcepts-2014-02-01.zip>.

	A	B	C	D	E	F	G	H
1		Open Selection Form						
2		Link to XBRL Instance:				<a href="#">Go to XBRL Instance</a>		
3		Link to XBRL Cloud Viewer:				<a href="#">Go to XBRL Cloud Viewer</a>		
5	<b>General Information</b>							
6	Entity Registrant Name	ACE MARKETING & PROMOTIONS INC	Reported	OK	dei:EntityRegistrantName			
7	CIK	0001084267	Reported	OK	dei:EntityCentralIndexKey			
8	Entity Filer Category	Smaller Reporting Company	Reported	OK	dei:EntityFilerCategory			
9	Trading Symbol	Not provided	Not found	OK	dei:TradingSymbol			
10	Fiscal Year End	-12-31	Reported	OK	dei:CurrentFiscalYearEndDate			
11	Fiscal Year Focus	2012	Reported					
12	Fiscal Period Focus	FY	Reported					
13	Document Type	10-K	Reported					
14	Balance Sheet Date	2012-12-31	Reported					
15	Income Statement Start Period (Year to Date)	2012-01-01	Imputed					
17	<b>Balance Sheet</b>							
18	Current Assets (if classified balance sheet)	1,070,435	Reported					
19	Noncurrent Assets (if classified balance sheet)	775,735	Imputed					
20	Assets	1,846,170	Reported					
21	Current Liabilities (if classified balance sheet)	508,810	Reported					
22	Noncurrent Liabilities (if classified balance sheet)	298,376	Imputed					
23	Liabilities	807,186	Imputed					
24	Commitments and Contingencies	0	Reported					
25	Temporary Equity	0	Not found					
26	Equity Attributable to Parent	1,038,984	Reported					
27	Equity Attributable to Noncontrolling Interest	0	Not found					
28	Equity	1,038,984	Reported					
29	Liabilities and Equity	1,846,170	Reported					
31	<b>Income Statement</b>							
32	Revenues (single-step alternative)	2,890,652	Reported					
33	Costs of Revenues (single-step alternative)	2,170,265	Reported					
34	Operating Expenses (single-step alternative)	4,667,122	Reported					
35	Costs and Expenses (single-step alternative)	6,837,387	Imputed					
36	Other Operating Income (Loss) (single-step alternative)	0	Imputed	OK	CostsAndExpenses = CostOfRevenue + OperatingExpenses			
37	Operating Income (Loss) (single-step alternative)	-3,946,735	Reported	OK	OtherOperatingIncome = OperatingIncomeLoss - (GrossProfit - OperatingExpenses)			
38					us-gaap:OperatingIncomeLoss			
39	Revenues (multi-step alternative)	2,890,652	Reported	OK	us-gaap:SalesRevenueNet			
40	Costs of Revenue (multi-step alternative)	2,170,265	Reported	OK	us-gaap:CostOfRevenue			
41	Gross Profit (multi-step alternative)	720,387	Reported	OK	us-gaap:GrossProfit			

## Further steps required to make use of other report information

Finally, it is important to note that this minimal process does not allow for making use of all the information within an SEC XBRL financial filing or comparison of information between reporting entities. This process only makes very minimal use of reported information for the current period of the entity of focus takes into consideration what is necessary to compare information across SEC XBRL financial filings at the level of the fundamental accounting concepts used within this minimal process.

And so, while these minimal process steps are not sufficient for making use of all the information contained within an SEC XBRL financial filing, they are necessary for the utilization of any information. As such, it is useful to understand this process.

This process can then be expanded or built upon to move from the primary financial statements into the disclosures of the financial report which disaggregates primary financial statement information or rolls forward account balances from one period to the next:

- By business segment, by geographic area, or by some other entity related breakdown.
- For a prior period or quarter or some other period breakdown other than the current period focus of this process
- By instrument or class or some other breakdown of the aggregated item shown on the primary financial statements within the disclosures
- Roll forwards which reconcile beginning account balances to ending account balances and show all changes between those periods

While a big part of the information contained in the disclosures ties to the primary financial statements, other disclosures do not. Consequently, these stand-alone disclosures may not directly tie to the primary financial statements but to other information instead. For example,

- Estimated useful life information for property, plant, and equipment does not tie to the line items of the balance sheet; however the information should tie to the classes of property, plant, and equipment.
- Significant accounting policies don't tie to the primary financial statements, but they should tie to the income statement date.
- Policies and disclosures provided might not directly tie to the primary financial statements, however the concepts which are provided on the primary financial statements directly determine, many times, the disclosures which are required to be provided within a financial report.

Finally, there are other aspects which fit into this framework in other ways. For example,

- Every Concept in the US GAAP XBRL Taxonomy should be a subclass of some base or fundamental concept. And then when extensions are created by filers, each extension is identified to be extending either some base or some subclass concept. So for example, if the US GAAP XBRL Concept "us-gaap:ProfitLoss" is associated with the fundamental accounting concept "NetIncomeLoss"; and then an SEC filer creates an extension concept "my:NetIncome", then users of the filing would understand that the extension concept added related to NetIncomeLoss.
- Every [Axis] contains some set of [Member]s. Those [Member]s are related to other [Member]s in specific ways, patterns. Those [Member] arrangement patterns can be leveraged.
- Every Concept within a set of [LineItems] likewise are related to other Concepts in patterns. For example, a roll up pattern or a roll forward pattern are two examples. These Concept arrangement patterns can be leveraged.

In essence this minimal process serves as a base framework or skeleton for processing the entire digital financial report. The minimal required information is not the end goal; it is only to expose that skeleton. In other words, it is a means to a greater end.