1. Disclosure Mechanics

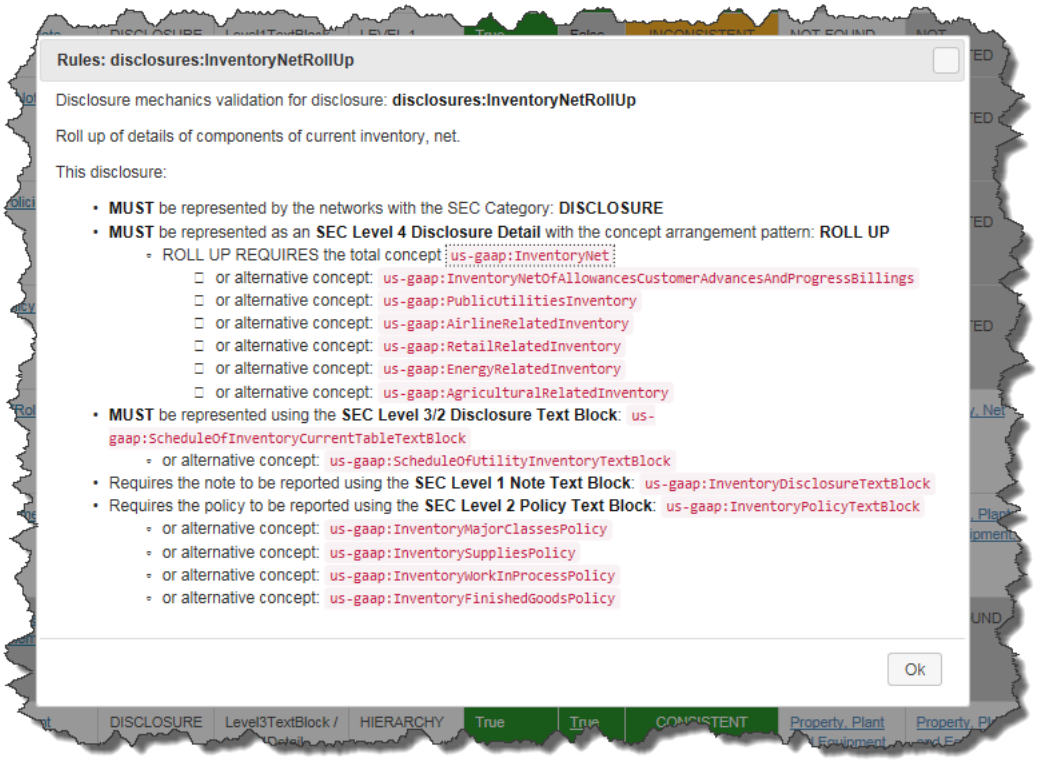
The purpose of this section is to explain the notion of disclosure mechanics. Before you try and understand disclosure mechanics, it is important to understand structures, blocks, and disclosures.

By "mechanics" we mean the basic mechanics of a financial report, we simply mean the basic important real-world things that make up a financial report and the basic important logical, mechanical, structural, and mathematical relations between those real-world things, the essence of a financial report. This is done so that we can then explain how a financial report works to a machine, such as a computer, so that the machine can help us create and make use of the information contained within financial reports. The machine needs to be able to interact with these report characteristics.

With paper-based reports understanding these mechanical pieces and describing them is not nearly as important because tools used to create such paper-based reports are presentation oriented and have no knowledge of a financial report. Further, these reports are structured for presentation of the information rather than the meaning of information. Humans interact with these software tools used for creating financial reports by interacting with things such as paragraphs, tables, rows, columns, and cells.

1.1. Basic Example of Disclosure Mechanics

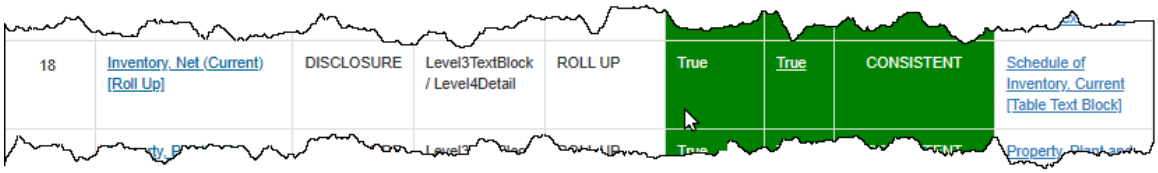
The following is a basic example of the disclosure mechanics rules that describes one specific disclosure:



In that basic example of a set of disclosure mechanics rules you can see the name of a disclosure being described (disclosures:InventoryNetRollUp) and characteristics of that disclosure. The rule states that:

- The disclosure must be contained in the SEC category "Disclosure"
- The disclosure is a roll up.
- The roll up total must be "us-gaap:InventoryNet" of one of the other alternative concepts listed.
- If the disclosure is present, it must also be represented as a text block using the specified name.

Other such information is specified, you can read the disclosure rules in that screen shot or you can have a look using this cloud based resource[1]:



The actual disclosure mechanics rules are specified using the XBRL technical syntax[2]. If you read the XBRL, it would say something that looks like the following:

From	Arcrole (predicate)	To
disclosures:InventoryNetRollUp	drules-arcroles:disclosure-hasConceptArrangementPattern	cm:RollUp
cm:RollUp	drules-arcroles:conceptArrangementPattern-requiresConcept	us-gaap:InventoryNet
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:InventoryNetOfAllowancesCustomerAdvancesAndProgressBillings
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:PublicUtilitiesInventory
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:AirlineRelatedInventory
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:RetailRelatedInventory
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:EnergyRelatedInventory
us-gaap:InventoryNet	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:AgriculturalRelatedInventory
disclosures:InventoryNetRollUp	drules-arcroles:disclosure-equivalentTextblock	us-gaap:ScheduleOfInventoryCurrentTableTextBlock
us-gaap:ScheduleOfInventoryCurrentTableTextBlock	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:ScheduleOfUtilityInventoryTextBlock
disclosures:InventoryNetRollUp	drules-arcroles:disclosure-relatedPolicy	us-gaap:InventoryPolicyTextBlock
us-gaap:InventoryPolicyTextBlock	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:InventoryMajorClassesPolicy
us-gaap:InventoryPolicyTextBlock	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:InventorySuppliesPolicy
us-gaap:InventoryPolicyTextBlock	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:InventoryWorkInProcessPolicy
us-gaap:InventoryPolicyTextBlock	drules-arcroles:concept-allowedAlternativeConcept	us-gaap:InventoryFinishedGoodsPolicy
disclosures:InventoryNetRollUp	drules-arcroles:disclosure-relatedLevel1NoteTextBlock	us-gaap:InventoryDisclosureTextBlock

Let's look at how these disclosure mechanics rules are specified.

1.2. Specifying Disclosure Mechanics Rules

Disclosure mechanics rules enforce structural, mechanical, mathematical, logical, and some accounting type relations within a specific reported disclosure[3]. Disclosure mechanics rules summarize the essential information about a disclosure, the essence of the disclosure. Reporting entities work within that framework when representing a disclosure.

For example, the disclosure "Inventory components" is always required to be a roll up, the total concept of the roll up is always to be "us-gaap:InventoryNet" or some

[1] Disclosure Mechanics and Reporting Checklist, XBRL Cloud, http://xbrlsite.azurewebsites.net/2017/Prototypes/Microsoft2017/Disclosure%20Mechanics%20and%20Reporting%20Checklist.html

[2] Example of disclosure mechanics rules specified in an XBRL definition linkbase, http://xbrlsite.azurewebsites.net/2020/reporting-scheme/us-gaap/disclosure-mechanics/517-rules-def.xml

[3] Understanding Disclosure Mechanics, http://xbrlsite.azurewebsites.net/2016/Analysis/UnderstandingDisclosureMechanics.pdf

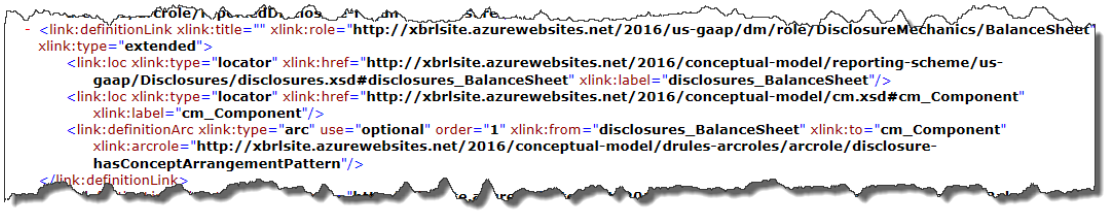
alternative concept; if the inventory components is provided then an inventory policy is also expected to be found, etc.

Disclosure mechanics rules are identifiable via the extended link role URI fragment "/DisclosureMechanics/" or by the arcroles which are used to represent the rules.

The following are the currently supported arcrole[4] used to represent the relations which are used to represent the disclosure mechanics rules.

ArcRole
disclosure-hasConceptArrangementPattern
disclosure-equivalentTextblock
disclosure-requiresConcept
concept-allowedAlternativeConcept
disclosure-oftenContainsConcept
disclosure-requiresAxis
conceptArrangementPattern-requiresConcept
disclosure-relatedLevel1NoteTextBlock
concept-allowedAlternativeConcept
disclosure-relatedPolicy
disclosure-requiresMember
reportedDisclosure-requiresDisclosure
disclosure-oftenContainsConcept
disclosure-hasMemberArrangementPattern

Machine readable example[5]:

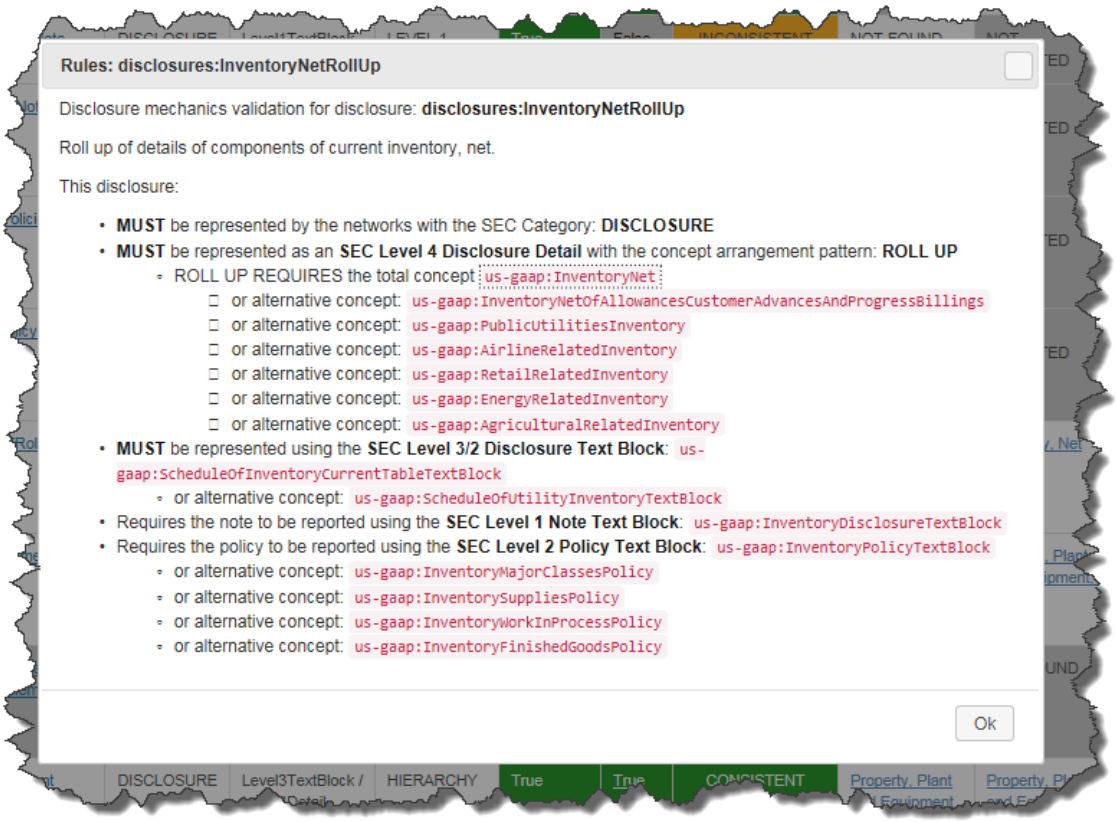


Human readable example[6]:

[4] Disclosure mechanics arcroles, http://xbrlsite.azurewebsites.net/2016/conceptual-model/drules-arcroles.xsd

[5] Disclosure mechanics, machine readable example, http://xbrlsite.azurewebsites.net/2016/conceptual-model/reporting-scheme/us-gaap/disclosure-mechanics/1-rules-def.xml

[6] Disclosure mechanics, human readable example, http://xbrlsite.azurewebsites.net/2017/Prototypes/Microsoft2017/Disclosure%20Mechanics%20and%20Reporting%20Checklist.html



2. APPENDIX: Deconstructing the Mechanics of an SEC Style XBRL-based Digital Financial Report Disclosure

This information is for those who want to understand how disclosure mechanical rules are understood and created. This detail is not necessary for using disclosure mechanics rules, but it does help you understand how they work.

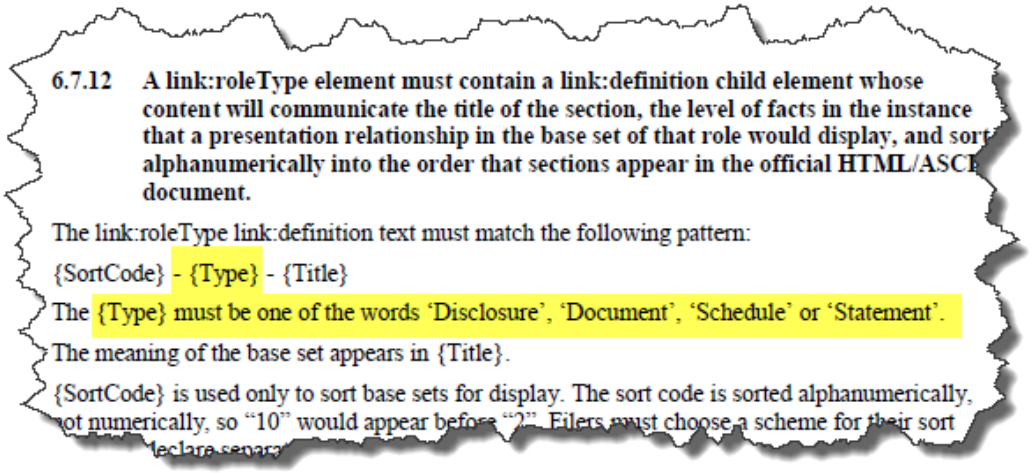
The U.S. Securities Commission's Edgar Filer Manual[7] (EFM) specifies rules for creating XBRL-based digital financial reports. Another source for understanding how to create these reports comes from the empirical evidence offered by the reports themselves.

First I will deconstruct the pieces which make up an XBRL-based digital financial report and then put the pieces back together and in doing so describe the logical, mechanical, and mathematical relations of these report fragments which make up such reports.

[7] I am using Version 37 of the Edgar Filer Manual, https://www.sec.gov/info/edgar/edgarfm-vol2-v37.pdf

2.1. Understanding the notion of type

The EFM defines the "Type" in section 6.7.12:



6.7.12 **A link:roleType element must contain a link:definition child element whose content will communicate the title of the section, the level of facts in the instance that a presentation relationship in the base set of that role would display, and sort alphanumerically into the order that sections appear in the official HTML/ASCI document.**

The link:roleType link:definition text must match the following pattern:

{SortCode} - {Type} - {Title}

The {Type} must be one of the words 'Disclosure', 'Document', 'Schedule' or 'Statement'.

The meaning of the base set appears in {Title}.

{SortCode} is used only to sort base sets for display. The sort code is sorted alphanumerically, not numerically, so "10" would appear before "2". Filers must choose a scheme for their sort declare separa

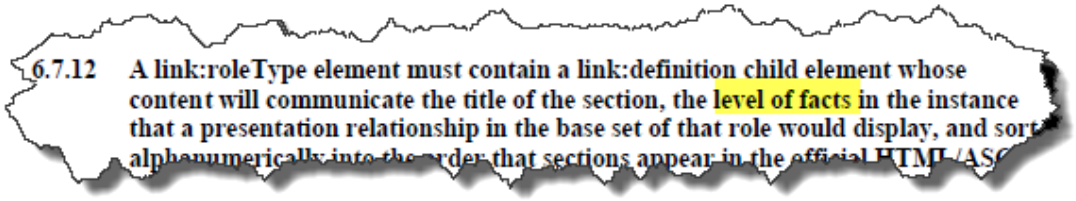
Put simply, each Network label[8] MUST contain one of the following terms to identify the "Type" of the Network:

- **Document**
- **Statement**
- **Disclosure**
- **Schedule**

The type is used to organize the report fragments in software applications such as the SEC Interactive Data Viewer[9].

2.2. Understanding the notion of level

That same EFM section conveys the meaning of the term "Level" of a disclosure based on its usage in that section and in previous sections.



6.7.12 **A link:roleType element must contain a link:definition child element whose content will communicate the title of the section, the level of facts in the instance that a presentation relationship in the base set of that role would display, and sort alphanumerically into the order that sections appear in the official HTML/ASC**

Again, put simply, a level relates to the "tagging level" of facts that are included within an XBRL-based financial report. Levels are always one of the following:

- **Level 1 Note Text Block**: an entire note of the financial report.
- **Level 2 Policy Text Block**: an individual policy within a financial report.

[8] A Network label is articulated by the link:definition of the extended link role.

[9] Here is the SEC Interactive Data Viewer for the 10-K filing by Microsoft, https://www.sec.gov/cgi-bin/viewer?action=view&cik=789019&accession_number=0001193125-15-272806&xbrl_type=v

- **Level 3 Disclosure Text Block**: an entire individual disclosure that is contained within a note.
- **Level 4 Disclosure Detail**: a set of individual facts that make up an entire individual disclosure.

The focus of this document is Level 3 Disclosure Text Blocks and Level 4 Disclosure Detail. Here is an example of each:

Level 3 Disclosure Text Block:

Statement [Line Items]	Period [Axis] 2014-07-01 - 2015-06-30
Components of Property and Equipment us-gaap:PropertyPlantAndEquipmentTextBlock	The components of property and equipment were as follows: (In millions)

June 30,	2015	2014
Land	$ 769	$ 541
Buildings and improvements	10,800	8,867
Leasehold improvements	3,577	3,560
Computer equipment and software	13,612	11,430
Furniture and equipment	3,579	3,406
Total, at cost	32,337	27,804
Accumulated depreciation	(17,606)	(14,793)
Total, net	$ 14,731	$ 13,011

Level 4 Disclosure Detail:

Component: (Network and Table)	
Network	1076 - Disclosure - **Components of Property and Equipment (Detail)** (http://www.microsoft.com/taxonomy/role/DisclosureComponentsOfPropertyAndEquipment)
Table	Property, Plant and Equipment [Table]

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

Reporting Entity [Axis]	0000789019 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Entity [Domain]

Property, Plant and Equipment [Line Items]	Period [Axis] 2015-06-30	2014-06-30
Land	769,000,000	541,000,000
Buildings and improvements	10,800,000,000	8,867,000,000
Leasehold improvements	3,577,000,000	3,560,000,000
Computer equipment and software	13,612,000,000	11,430,000,000
Furniture and equipment	3,579,000,000	3,406,000,000
Total, at cost	32,337,000,000	27,804,000,000
Accumulated depreciation	(17,606,000,000)	(14,793,000,000)
Total, net	14,731,000,000	13,011,000,000

us-gaap:PropertyPlantAndEquipmentNet

2.3. Understanding the difference between a note and a disclosure

For this discussion, understanding the difference between a note and a disclosure is important. There is a significant difference between a note and a disclosure. A note is a presentation related artifact. A disclosure is an informational artifact. Disclosures are presented with a note or a statement. In this discussion a balance sheet, income statement, statement of comprehensive income, cash flow statement, and statement of changes in equity are all considered disclosures. So the term "statement" is similar to the term "note" in that a statement is a presentation artifact into which a disclosure, such as the balance sheet information, goes.

2.4. Ordering of report fragments

The EFM specifies the ordering of the fragments of an XBRL-based financial report. XBRL uses what it calls a Network to organize fragments of a report. Each Network has two traits: Type and Level. Networks must be in the following order per the EFM:

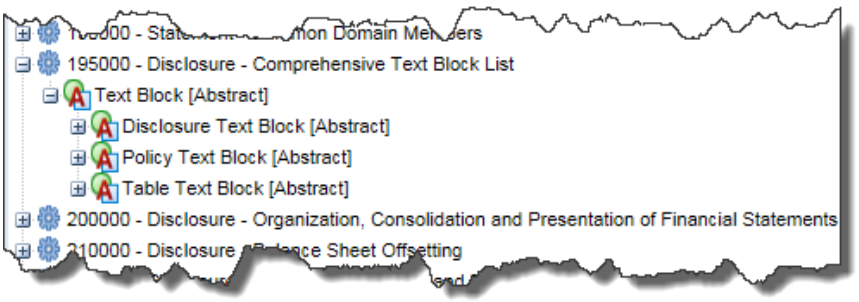
1. Document types (all of which are Level 4 detail)
2. Statement types (all of which are Level 4 detail)
3. Disclosure types which are Level 1 (note level) text blocks
4. Disclosure types which are Level 2 (policy) text blocks
5. Disclosure types which are Level 3 (disclosure) text blocks.
6. Disclosure types which are Level 4 (disclosure) details.

The EFM is vague when it comes to the "Schedule" types. It seems to me that the type "Schedule" is interchangeable with the type "Disclosure". However, the type "Schedule" is not explained well, not used that often, generally interchangeable with Disclosure type, and in my opinion are best avoided until how they should be used is more clear.

2.5. Basic mechanical rule: don't use Level 3 Disclosure Text Blocks to represent Level 4 Note Text Block information

An easy to understand idea is that XBRL-based reports need to use Level 1 Note Text Blocks to represent information that goes into slot #3 from the ordering of report fragments above. Occasionally, a public company filings uses what is defined as a Level 3 Disclosure Text Block[10] to represent a Level 1 Note Text Block. That is an example of a mechanical rule.

[10] The US GAAP XBRL Taxonomy calls these "Table Text Blocks"; see the comprehensive list of each type of Text Block here, http://xbrlview.fasb.org/yeti/resources/yeti-gwt/Yeti.jsp#tax~(id~156*v~4370)!con~(id~3498213)!net~(a~3063*l~749)!lang~(code~en-us)!path~(g~89174*p~0)!rg~(rg~32*p~12)



2.6. Basic mechanical rule: put Level 1 Note Text Blocks in networks of the time "Disclosure"

Another basic mechanical rule is that a Level 1 Note Text Block must go into an XBRL Network that has the type of "Disclosure". They don't go into Networks of type "Document" or "Statement".

Very few public companies violate this rule. Those two basic examples helps you understand the idea of disclosure mechanics. Now we will get into some disclosure mechanics which are less understood but true none-the-less.

2.7. Understanding the relation between Level 1 Note Text Blocks and Level 3 Disclosure Text Blocks

Every financial report is broken into the presentation artifacts "statements" and "notes". A note is a presentation related artifact. Disclosures go into notes. Which note a disclosure is presented in varies widely between reporting entities, although there can be some common patterns public companies use. However, these rules are not really enforceable because there is nothing in the accounting literature that states precisely where a disclosure must be presented. For example, the estimated useful lives of classes of property, plant, and equipment disclosure could be presented in the note "significant accounting policies" or "property, plant and equipment". Both make sense. Future minimum lease payments might go into "leases" note or "commitments and contingencies" note some other note.

Different reporting entities could have policies for which specific note a disclosure is placed. And so a business rule can be created which is unique to a reporting entity or reporting entities that have the same policies as to how they construct their financial report.

All the above said, every Level 3 Disclosure Text Block is also reported within some Level 1 Note Text Block. But there is not necessarily a specific relation between which Level 1 Note Text Block contains which specific Level 3 Disclosure Text Block.

Further, while it is true that every Level 3 Disclosure Text Block report fragment is also within some Level 1 Note Text Block; it is NOT THE CASE that every part of a Level 1 Note Text Block also has a Level 3 Disclosure Text Block.

For example, the Level 1 Note Text Block "Nature of Operations" and "Basis of Reporting" do not have a corresponding Level 3 Disclosure Text Block.

So for now, I am pretty much ignoring which Level 1 Note Text Block filers use, I may leverage these mechanics and logic later in specific ways.

2.8. Understanding the relation between Level 3 Disclosure Text Blocks and Level 4 Disclosure Detail

There is generally an extremely high correlation, if not a one-to-one correlation, between a Level 3 Disclosure Text Block report fragment and a Level 4 Disclosure Detail report fragment. It is likewise true that there is a high correlation between a Level 4 Disclosure Detail and a Level 3 Disclosure Text Block. The relations go both ways. Exceptions will be covered in another section. This section examines the relationship between Level 3 Disclosure Text Blocks and Level 4 Disclosure Details.

Below you see a Level 3 Disclosure Text Block provided by a public company. The Level 3 Text Block provides the disclosure components of inventory and it uses the US GAAP XBRL Taxonomy concept: **us-gaap:ScheduleOfInventoryCurrentTableTextBlock**.

Further, note the type of the network which is "Disclosure". As mentioned, every Level 3 Disclosure Text Block is always contained in a Network that has a type "Disclosure" or "Schedule".

Component: (Network and Table)	
Network	1040 - Disclosure - **INVENTORIES (Tables)** (http://www.microsoft.com/taxonomy/role/NotesToFinancialStatementsInventoryDisclosureTextBlockTables)
Table	Statement [Table]

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

Reporting Entity [Axis]	0000789019 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Entity [Domain]

Statement [Line Items]	Period [Axis] 2014-07-01 - 2015-06-30
Components of Inventories	The components of inventories were as follows:

us-gaap:ScheduleOfInventoryCurrentTableTextBlock

(In millions)

June 30,	2015	2014
Raw materials	$ 1,100	$ 944
Work in process	202	266
Finished goods	1,600	1,450
Total	$ 2,902	$ 2,660

In the next graphic below you can see the Level 4 Disclosure Detail for the exact same information contained in the Level 3 Disclosure Text Block shown above. While there are some presentation related differences such as the text block is shown "in millions" (e.g. $2,902) and the detail is shown as the actual reported value (2,902,000,000); the information is exactly the same.

Further, note the concept used as the total of the components of inventory which is "**us-gaap:InventoryNet**".

Component: (Network and Table)	
Network	1075 - Disclosure - **Components of Inventories (Detail)** (http://www.microsoft.com/taxonomy/role/DisclosureComponentsOfInventories)
Table	Inventory, Current [Table]

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

Reporting Entity [Axis]	0000789019 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Entity [Domain]

Inventory [Line Items]	Period [Axis] 2015-06-30	2014-06-30
Raw materials	1,100,000,000	944,000,000
Work in process	202,000,000	266,000,000
Finished goods	1,600,000,000	1,450,000,000
Total	2,902,000,000	2,660,000,000

us-gaap:InventoryNet

And so, the Level 3 Disclosure Text Block and the Level 4 Disclosure Detail report exactly the same information. The information reported is the components of inventory roll up.

There is a correlation between the Level 3 Disclosure Text Block concept (**us-gaap:ScheduleOfInventoryCurrentTableTextBlock**) and the Level 4 Disclosure Detail concept (**us-gaap:InventoryNet**).

Examining 100% of the 10-Ks of public companies as of March 1, 2016 (basically, the 2015 10-K filing) the following results were obtained:

DisclosureFound	DisclosureConsistent	RepresentationConcept_TextBlock	RepresentationConcept_Detail	Count	Percent	
FALSE	CONSISTENT	NOT-FOUND	NOT-FOUND	3,612	56%	1
TRUE	CONSISTENT	us-gaap:ScheduleOfInventoryCurrentTableTextBlock	us-gaap:InventoryNet	1,721	27%	2
TRUE	INCONSISTENT	NOT-FOUND	us-gaap:InventoryNet	1,061	16%	3
TRUE	INCONSISTENT	us-gaap:ScheduleOfInventoryCurrentTableTextBlock	NOT-FOUND	46	1%	4
TRUE	CONSISTENT	us-gaap:ScheduleOfUtilityInventoryTextBlock	us-gaap:InventoryNet	19	0%	5
TRUE	INCONSISTENT	us-gaap:ScheduleOfUtilityInventoryTextBlock	NOT-FOUND	7	0%	6
				6,466	100%	7
			Consistent with expectation	5,352	83%	
			Inconsistent with expectation	1,114	17%	
			Total	6,466	100%	

This analysis reiterates the correlation between the Level 3 Disclosure Text Block and the Level 4 Disclosure Detail. There are 5,352 reporting entities, 83% of all entities, that either report no remnants of the components of inventory roll up because they don't have inventory; or they report both the Level 3 and Level 4 concepts that are expected.

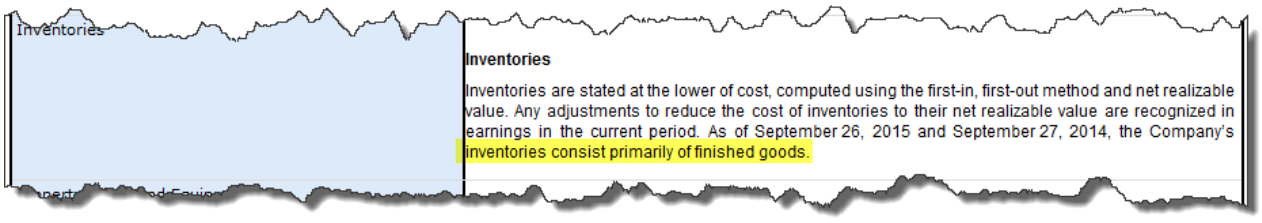
Interpreting each line (indicated by the RED circles to the right):

- **Line #1** indicates that NEITHER the Level 3 Disclosure Text Block nor the Level 4 Disclosure Details were found, meaning this disclosure is not present and is consistent with expectations should the disclosure not exist in the report. Basically, 56% of public companies do not report inventory.

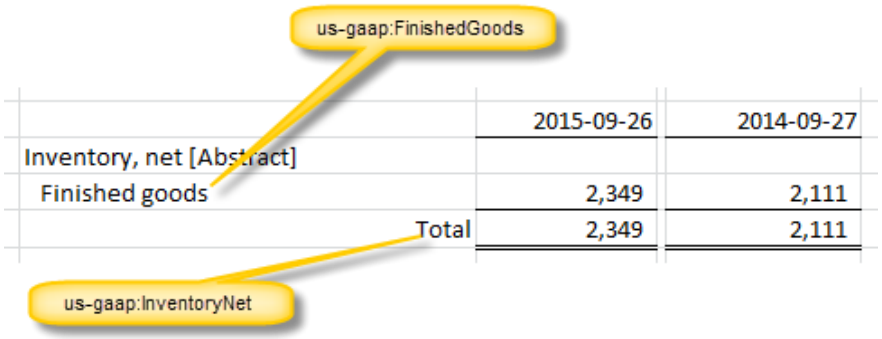
- **Line #2** indicates that BOTH the Level 3 Disclosure Text Block AND the Level 4 Disclosure Detail line items WERE found. This is as expected. A total of 27% of public companies report using these two specific concepts.
- **Line #3, Line #4, and Line #7** indicates an inconsistency because either the Level 3 Disclosure Text Block was found OR the Level 4 Disclosure Detail was found but NOT BOTH.
- **Line #5** indicates that 19 companies used an ALTERNATIVE Level 3 Disclosure Text Block to report the inventory components roll up (us-gaap:ScheduleOfUtilitiesInventoryTextBlock), but the same Level 4 Disclosure Detail concept.
- **Line #7** indicates the total population of public company financial reports analyzed, which is 6,466 10-K filings as of March 31, 2016.

Further analysis of this example revealed that as per **Line #3** in the above table; 1,061 or 16% of public companies reported the detailed line item "inventory" and reported the components breakdown ON THE BALANCE SHEET. It seems that the SEC does not require the Level 3 Disclosure Text Block to be reported if the inventory components breakdown is reported within the balance sheet. The specific number of economic entities which report the components of inventory on the balance sheet is not currently known.

A second reason public companies might report "us-gaap:InventoryNet" but not provide a Level 3 Disclosure Text Block is because the breakdown of the components of inventory is done in narrative form within the inventory policy. For example, this is how Apple indicates that the components of inventory are "finished goods":



Note that Apple could have reported the components of inventory as below and a machine can safely and reliably understand the components of inventory:



2.9. Mathematical relations of a Level 4 Disclosure Detail

Note that the Level 4 Disclosure Detail for the disclosure in the prior section, components of inventory, is a roll up and contrast to a roll forward. A specific disclosure is either a roll up or a roll forward, not both. Be careful not to misinterpret what I am saying. What I am saying is that a specific instantiation of a disclosure cannot be a roll up and a roll forward at the same time; it has to be one or the other. Now, a reporting entity in many cases can choose to disclosure detailed information in the form of a roll up or in the form of a roll forward. I consider those two different disclosures. A public company might have one, it might have the other, or it might provide both the roll up and the roll forward.

The point is, a disclosure might have mathematical relations. For example, the disclosure above is a roll up. If it is a roll up, that roll ups is expected to have (a) a set of XBRL calculation relations provided by the public company and (b) that set of XBRL calculations is expected to roll up correctly per the rules of how XBRL conveys information. To not provide the XBRL calculation relations is an error. To not have the XBRL calculations show that the mathematical relations actually roll up is likewise an error.

The exact same thing is true about the mathematical relations of a roll forward or any other mathematical relation in a Level 4 Disclosure Detail. It is NOT OK if the math does not work. While it is true that the SEC does not require that, say, XBRL Formulas be provided within a report; it does not mean that a roll forward in a report is OK if it doesn't roll forward correctly. Again, the mathematical relations and enforcement of the rule by the SEC are two completely different things.

There tend to be three very common patterns of mathematical relations in disclosures and all must work correctly: roll ups, roll forwards, adjustments, and member aggregations. While it might be convenient to not test these mathematical relations to make sure the numbers in a report "cross cast" and "foot", and otherwise "tick" and "tie"; it is likewise sloppy accounting.

2.10. Property, plant and equipment example

Similarly, the Level 3 Disclosure Text Block and the Level 4 Disclosure Detail correspond to one another whether the Level 4 Disclosure Detail is represented using [Line Items] or represented using [Axis]/[Member]s to represent the disclosure.

Level 3 Disclosure Text Block:

Statement [Line Items]	Period [Axis] 2014-07-01 - 2015-06-30
Components of Property and Equipment us-gaap:PropertyPlantAndEquipmentTextBlock	The components of property and equipment were as follows: (In millions)

June 30,	2015	2014
Land	$ 769	$ 541
Buildings and improvements	10,800	8,867
Leasehold improvements	3,577	3,560
Computer equipment and software	13,612	11,430
Furniture and equipment	3,579	3,406
Total, at cost	32,337	27,804
Accumulated depreciation	(17,606)	(14,793)
Total, net	$ 14,731	$ 13,011

Level 4 Disclosure Detail (using Line Items):

Component: (Network and Table)	
Network	1076 - Disclosure - **Components of Property and Equipment (Detail)** (http://www.microsoft.com/taxonomy/role/DisclosureComponentsOfPropertyAndEquipment)
Table	Property, Plant and Equipment [Table]

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

Reporting Entity [Axis]	0000789019 (http://www.sec.gov/CIK)
Legal Entity [Axis]	Entity [Domain]

Property, Plant and Equipment [Line Items]	Period [Axis] 2015-06-30	2014-06-30
Land	769,000,000	541,000,000
Buildings and improvements	10,800,000,000	8,867,000,000
Leasehold improvements	3,577,000,000	3,560,000,000
Computer equipment and software	13,612,000,000	11,430,000,000
Furniture and equipment	3,579,000,000	3,406,000,000
Total, at cost	32,337,000,000	27,804,000,000
Accumulated depreciation	(17,606,000,000)	(14,793,000,000)
Total, net	14,731,000,000	13,011,000,000

us-gaap:PropertyPlantAndEquipmentNet

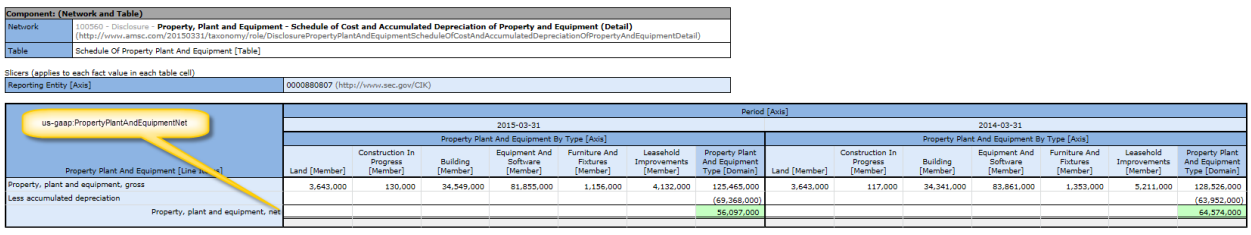
Level 3 Disclosure Text Block:

Property Plant And Equipment [Abstract]	Period [Axis] 2014-04-01 - 2015-03-31
Property Plant And Equipment [Abstract]	
Schedule of Cost and Accumulated Depreciation of Property and Equipment	The cost and accumulated depreciation of property and equipment at March 31, 2015 and 2014 are as follows (in thousands):

us-gaap:PropertyPlantAndEquipmentTextBlock

	March 31, 2015	March 31, 2014
Land	$ 3,643	$ 3,643
Construction in progress - equipment	130	117
Buildings	34,549	34,341
Equipment and software	81,855	83,861
Furniture and fixtures	1,156	1,353
Leasehold improvements	4,132	5,211
Property, plant and equipment, gross	125,465	128,526
Less accumulated depreciation	(69,368)	(63,952)
Property, plant and equipment, net	$ 56,097	$ 64,574

Level 4 Disclosure Detail (using [Axis]/[Member]s):



Again, note the mathematical relations. In the Line Items (the first approach), the roll up of property, plant and equipment can be handled by XBRL calculation

relations. In the second [Axis]/[Member]s approach to representing this disclosure, XBRL calculations will not work. However, XBRL Formulas can be used to test the roll up relationship which I refer to as a member aggregation because it is an aggregation of information across a set of members. Clearly, picking one representation approach as contrast to another does not change the fact that a roll up rolls up.

2.11. Results of testing 55 different disclosures Level 3 Disclosure Text Block and Level 3 Disclosure Details relations

The examples thus far represent just that, examples of something that is applicable to the entire set of public company XBRL-based financial filings. The previous examples are simply a few examples were shown to help understand the relation between Level 3 Disclosure Text Blocks and Level 3 Disclosure Detail.

Below is a list of approximately 55 different disclosures where the relationship between the Level 3 and Level 4 information is analyzed[11].

Note that this is only the first pass at this analysis but already the correlation is quite high. The next step is to examine why inconsistencies exist and then to modify the business rules to better tune the rules.

Summary Table: (First Pass at Disclosures)

Disclosure	Consistent with expectations	Comments
Document and entity information	100%	
Balance sheet	99%	
Cash flow statement	93%	
Significant accounting policies	98%	
Basis of reporting	93%	Is this a REQUIRED disclosure?
Nature of operations	81%	Is this a REQUIRED disclosure?
Revenue recognition policy	77%	Is this a REQUIRED disclosure?
Inventory components	83%	One issue here is if inventory components are reported on the balance sheet; inventory components are present, but Level 3 Disclosure Text Block is generally not provided
Property, plant and equipment components (using Line Items)	85%	One issues here is if PPE components are reported on the balance sheet; then PPE components are present, but Level 3 Disclosure Text Block is generally not provided
Property, plant and equipment components	85%	One issues here is if PPE

[11] For the full analysis, please see, http://xbrlsite.azurewebsites.net/2016/Analysis/SummaryTable.pdf

(using [Axis]/[Member]s)		components are reported on the balance sheet; then PPE components are present, but Level 3 Disclosure Text Block is generally not provided
Goodwill roll forward	79%	
Finite-lived intangible assets	75%	
Estimated future amortization of finite-lived intangible assets	81%	
Infinite-lived intangible assets	85%	
Deferred tax assets and liabilities	72%	
Product warranty liability	95%	
Future minimum rental payments due for operating leases	83%	
Future minimum rental payments receivable for operating leases	52%	It appears that the text block is missing for this disclosure or for payments due (able), cannot determine which
Present value of future minimum lease payments payable for capital lease obligations	86%	
Future minimum lease payments receivable from capital leases	99%	
Long-term debt instruments	74%	
Long-term debt maturities (with total or no total)	88%	This is not correct, double counting disclosures.
Reconciliation of statutory tax rate to effective rate (percent or amount)	85%	Currently covers both percent approach and amount approach, need to separate perhaps
Restructuring reserve roll forward	93%	
Earnings per share summary	59%	
Share-based compensation roll forward (one of many, need more detail)	80%	
Share-based compensation award assumptions	82%	
Long-lived assets by geographic area	87%	
Revenues from external customers by geographic area	100%	
Property, plant and equipment estimated useful lives	78%	
Finite-lived intangible assets estimated useful lives	73%	
Unrecognized tax positions roll forward	65%	
Restructuring reserve roll forward	94%	
Accumulated other comprehensive income roll forward	68%	
Environmental exit costs roll forward	99%	
Extended product warranty reserve roll forward	100%	
Benefit obligation roll forward	84%	
Net periodic benefit costs	94%	
Allocation of plan assets	93%	
Fair value assets measured on recurring	94%	

basis, unobservable input reconciliation		
Defined benefit plan assumptions used	92%	
Income tax expense components	80%	
Past due receivables	98%	
Share-based compensation (various, needs to be unbundled)	88%	