

An analysis of the associations that made up the models used to define the structures of XBRL-based financial reports submitted to the SEC were as follows:

Associations 2013: (about 6,000 reports)

		2013 10-Ks LAX Model, SEC filers supported						
		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	0	0	0	0	0	0	0
	Table	1,261	1	0	0	45	230,899	24
	Axis	1	386,888	0	0	3	20	0
	Member	3	0	450,091	766,221	4	72	0
	Lineltms	183	232,181	0	0	107	217	2
	Abstract	474,310	22	0	1	113,059	144,471	546
	Concept	46	26	11	137	1,222,427	1,929,257	13,346

Associations 2014: (about 6,000 reports)

		2014 10-Ks LAX Model, SEC filers supported						
		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	0	0	0	0	0	0	0
	Table	682	0	0	0	5	211,212	11
	Axis	0	405,998	0	0	0	7	0
	Member	4	0	475,280	849,583	2	29	0
	Lineltms	41	211,712	0	0	90	152	0
	Abstract	493,480	168	0	3	100,789	147,603	425
	Concept	12	19	1	118	1,205,587	2,028,610	10,955

Associations 2015: (about 6,000 reports)

		2015 10-Ks LAX Model, SEC filers supported						
		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	0	0	0	0	0	0	0
	Table	513	0	0	4	4	212,090	11
	Axis	0	430,549	0	0	0	3	0
	Member	0	0	503,078	857,390	3	13	0
	Lineltms	29	212,570	0	0	30	104	0
	Abstract	483,334	18	0	2	101,932	141,774	314
	Concept	8	0	1	49	1,178,684	1,969,653	7,246

Notice that the RED cells are all ZEROS; that is because XBRL technical syntax validation enforces that rule. Notice how the number of entries in ORANGE cells trends DOWN; those are logical errors (not enforced by XBRL presentation relations). Notice the YELLOW is trending down; those are illogical but could be argued that they are not “wrong” per se. They certainly are not best practice.

Per the analysis of associations and per the categories of terms, the following table summarizes the allowed and disallowed associations between those different categories. Effectively, the matrix below synthesizes the rules for constructing XBRL presentation relations to represent structures used within report models.

LAX interpretation of allowed/disallowed relations:

		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL
	Table	OK	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed
	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed
	Lineltms	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	OK	Not advised
	Concept	Not advised	Disallowed	Disallowed	Disallowed	OK	OK	Not advised

Another a bit more strict interpretation of allowed/disallowed relations:

		Parent						
		Network	Table	Axis	Member	Lineltms	Abstract	Concept
Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL
	Table	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed
	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed
	Lineltms	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	OK	Not advised
	Concept	Disallowed	Disallowed	Disallowed	Disallowed	OK	OK	Not advised

The following is an evaluation of each representation example per these representation rules. The matrix is of explicitly defined associations (i.e. implied associations are not counted). The matrix represents the number of associations between a child report element of a specific category to a parent report element of a specific category to represent the structures that make up the model of a report.

The following representations are in approximate order from simple models to more complex models that are being represented.

Accounting equation:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	1	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	1	0	0	0	0	0
[Abstract]	0	0	0	0	1	0	0
[Concept]	0	0	0	0	0	3	0

The way to read the matrix is as follows. There is one report element “Table” that is a child of a parent that is a “Network”. There is one “LineItems” that is associated to a parent that is a “Table”. There is one “Abstract” child report element that is associated to a parent report element that is in the “LineItems” report element category. There are three “Concepts” that are associated to report elements that are “Abstract” which are parents.

SFAC 6 Very Basic example: (Hypercubes not used)

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	0	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	0	0	0	0	0	0
[Abstract]	3	0	0	0	0	0	0
[Concept]	0	0	0	0	0	13	0

SFAC 6 example: (Hypercubes are used to define balance sheet, income statement, and changes in equity structures)

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	3	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	3	0	0	0	0	0
[Abstract]	0	0	0	0	3	0	0
[Concept]	0	0	0	0	0	13	0

SFAC 6 PLUS example: (Hypercubes are used to define structures; multiple different models are provided for certain structures)

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	6	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	6	0	0	0	0	0
[Abstract]	0	0	0	0	7	0	0
[Concept]	0	0	0	0	0	29	0

Common elements of financial report:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	7	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	7	0	0	0	0	0
[Abstract]	0	0	0	0	9	3	0
[Concept]	0	0	0	0	0	38	0

Proof:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	9	0	0	0	0	0	0
[Axis]	0	3	0	0	0	0	0
[Member]	0	0	3	6	0	0	0
[LineItems]	0	9	0	0	0	0	0
[Abstract]	0	0	0	0	8	0	0
[Concept]	0	0	0	0	3	31	0

Trial balance:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	0	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	0	0	0	0	0	0
[Abstract]	17	0	0	0	0	17	0
[Concept]	0	0	0	0	0	128	41

Note that the 41 concepts that are children of concepts is from the definition of type-subtype associations in the XBRL presentation relations.

MINI financial reporting scheme:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	35	0	0	0	0	0	0
[Axis]	0	0	0	0	0	0	0
[Member]	0	0	0	0	0	0	0
[LineItems]	0	35	0	0	0	0	0
[Abstract]	0	0	0	0	24	15	0
[Concept]	0	0	0	0	33	142	0

XASB financial reporting scheme:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	56	0	0	0	0	0	0
[Axis]	0	189	0	0	0	0	0
[Member]	0	0	189	71	0	0	0
[LineItems]	0	56	0	0	0	0	0
[Abstract]	2	0	0	0	56	19	0
[Concept]	0	0	0	0	71	297	0

Not-for-profit prototype financial reporting scheme:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	30	0	0	0	0	0	0
[Axis]	0	5	0	0	0	0	0
[Member]	0	0	5	11	0	0	0
[LineItems]	0	30	0	0	0	0	0
[Abstract]	0	0	0	0	29	34	0
[Concept]	0	0	0	0	52	199	0

Microsoft 10-K using US GAAP financial reporting scheme:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	0	0	0	0	0	128	0
[Axis]	0	229	0	0	0	0	0
[Member]	0	0	229	264	0	0	0
[LineItems]	0	128	0	0	0	0	0
[Abstract]	128	0	0	0	26	5	0
[Concept]	0	0	0	0	428	152	0

EXAMPLES:

Expected example: What would be expected: (And this is how most XBRL-based reports are created)

Label	Report Element Class	Period	Balance	Preferred Label Role	Name
Property, Plant and Equipment, by Component [Table]	[Table]			Standard Label	pattern:PropertyPlantEquipmentByComponentTable
Legal Entity [Axis]	[Axis]			Standard Label	frm:LegalEntityAxis
Consolidated Entity [Member]	[Member]			Standard Label	frm:ConsolidatedEntityMember
Property, Plant and Equipment, by Component [Line Items]	[LineItems]			Standard Label	pattern:PropertyPlantAndEquipmentByComponentLineItems
Property, Plant and Equipment, Net [Roll Up]	[Abstract]			Standard Label	pattern:PropertyPlantAndEquipmentNetRollUp
Land	[Concept] Monetary	As Of	Debit	Standard Label	pattern:Land
Buildings, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:BuildingsNet
Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:FurnitureAndFixturesNet
Computer Equipment, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:ComputerEquipmentNet
Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:OtherPropertyPlantAndEquipmentNet
Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit	Total Label	pattern:PropertyPlantAndEquipmentNet

Pathological example: (There is NOTHING in the XBRL technical specification that says you cannot represent XBRL presentation relations like what you see below)

Label	Report Element Class	Period	Balance	Preferred Label Role	Name
Property, Plant and Equipment, by Component [Line Items]	[LineItems]			Standard Label	pattern:PropertyPlantAndEquipmentByComponentLineItems
Property, Plant and Equipment, by Component [Table]	[Table]			Standard Label	pattern:PropertyPlantEquipmentByComponentTable
Legal Entity [Axis]	[Axis]			Standard Label	frm:LegalEntityAxis
Furniture and Fixtures, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:FurnitureAndFixturesNet
Computer Equipment, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:ComputerEquipmentNet
Other Property, Plant and Equipment, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:OtherPropertyPlantAndEquipmentNet
Property, Plant and Equipment, Net, Total	[Concept] Monetary	As Of	Debit	Total Label	pattern:PropertyPlantAndEquipmentNet
Consolidated Entity [Member]	[Member]			Standard Label	frm:ConsolidatedEntityMember
Property, Plant and Equipment, Net [Roll Up]	[Abstract]			Standard Label	pattern:PropertyPlantAndEquipmentNetRollUp
Land	[Concept] Monetary	As Of	Debit	Standard Label	pattern:Land
Buildings, Net	[Concept] Monetary	As Of	Debit	Standard Label	pattern:BuildingsNet