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Standards: XTbML Tables Beyond Mortality

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I f you have been a member of the Computer Science Section for a while you know about the Table Manager tool. You may have used it to access a storehouse of mortality, morbidity and lapse tables. You probably know this section worked with ACORD, the life insurance standards organization, to generalize the table manager format into XML (eXtensible Markup Language). This new standard is called XTbML (sometimes pronounced as "x-table").

Moving the table format to ACORD XML is sort of like sending our child into the world. The little being we nurtured to handle our mortality/morbidity tables is being asked to carry all kinds of data. Insurance companies are trying to use XTbML to carry premiums, cash values, commission rates, modal factors, dividend rates and interest rates. And these are just the uses I know about.

Beginning with this issue of CompAct, I'm going to highlight business use cases where XTbML can define the tabled data.

My first example is from the life insurance practice area. If you're willing to e-mail me a table data business case from your practice area, I would be happy to represent it using XTbML in a future CompAct newsletter.

Business Use Case: Tabular Cash Values

This table provides cash values for a 20 pay whole life insurance plan. After paying 20 annual premiums, no additional premiums are paid. The cash values are based on issue age and duration (during the premium paying period) or just attained age (after the premium paying period). Duration 1 is the first year from the policy's issue date and the cash values in this table are end of duration cash values. If you have a whole insurance contract, you will find that it contains a table of cash values. Below you'll find versions examples of these cash value tables truncated by issue age or attained age to save space.

Now let's look at how this table might be represented in XTbML. Keep in mind that XTbML is a self-defined machine-readable

Premium Payment Period Cash Values										
	Duration									
Issue Age	1	2	3	4	5	6	7	8	9	10
0	0.39	14.81	29.81	45.38	61.56	78.35	95.79	113.92	132.77	
0	0.7	15.63	31.15	47.25	63.97	81.33	99.36	118.11	137.6	
0	0.97	16.43	32.47	49.12	66.39	84.35	103	122.38	142.54	
	Duration									
Issue Age	11	12	13	14	15	16	17	18	19	20
	152.38	172.78	194.01	216.12	239.13	263.09	288.02	313.98	340.98	369.11
	157.88	178.98	200.93	223.78	247.56	272.3	298.03	324.8	352.66	381.7
	163.51	185.32	208.01	213.62	256.17	281.69	308.22	335.83	364.57	394.56
Paid-Up Period Cash Values										
Attained Age	55	56	57	58	59	60	61	62	63	64
	381.7	394.56	407.75	421.26	435.09	449.23	463.64	478.26	493.03	507.91

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format for transferring and storing tabled data. If a machine can read this format, so can you. I'll give you a few XML reading hints to help you read it:

1. XML provides opening (e.g.: <Table>) and closing (e.g.: </Table>) for each data element. A lot of child data can be represented between the opening and closing of a data element.
2. The content classification defines the type of values contained in the table. It uses a typecode (tc) lookup table where typecode '45' is cash value.
3. The cash values are represented in two stacked tables, first the premium paying period table, then the paid-up period table.
4. A low duration of 21 has been defined for the paid-up period table to clarify the first duration where it should be used. The data element <Continuous> indicates that the duration 21 cash value is used until a higher duration cash value is given.

Cash value tables are used for product pricing, financial reporting, sales and illustration and policy administration. If each such system could import and export data in the XTbML format, data transfer between any two systems would be possible.

Please send your tabled data business cases and XTbML questions to me at slytde@lidp.com.

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<?xml version="1.0" encoding="UTF-8" ?>
- <XTbML id="Table1" Version="XTbML2.9.91"
    xmlns="http://ACORD.org/Standards/Life/2"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://ACORD.org/Standards/Life/2
    XTbML2.9.91.xsd">
- <ContentClassification>
    <ContentType tc="45">Cash Value</ContentType>
    <TableName>Tabular Cash Value</TableName>
  </ContentClassification>
- <Table>
  - <MetaData>
      <ScalingFactor>0</ScalingFactor>
      <DataType tc="5">Currency</DataType>
      <CurrencyTypeCode tc="840">USD</CurrencyTypeCode>
      <TableDescription>Issue Age -
        Duration</TableDescription>
    - <AxisDef id="A_1">
        <ScaleType tc="3">Age</ScaleType>
        <AxisName>Issue Age</AxisName>
        <MinScaleValue>35</MinScaleValue>
        <MaxScaleValue>45</MaxScaleValue>
        <Increment>1</Increment>
      </AxisDef>
    - <AxisDef id="A_2">
        <ScaleType tc="4">Service</ScaleType>
      - <!--
      also known as Duration
        -->
        <AxisName>Duration</AxisName>
        <MinScaleValue>1</MinScaleValue>
        <MaxScaleValue>20</MaxScaleValue>
        <Increment>1</Increment>
      </AxisDef>
    </MetaData>
  - <Values>
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      - <Axis AxisDefID="A_2" T="1">
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        </Axis>
      - <Axis AxisDefID="A_2" T="7">
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      - <!--
        ....Continued....
        -->
     </Axis>
    - <Axis AxisDefID="A_1" T="36">
      - <Axis AxisDefID="A_2" T="1">
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        </Axis>
      - <Axis AxisDefID="A_2" T="6">
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        </Axis>
      - <Axis AxisDefID="A_2" T="7">
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        </Axis>
      <!--
        ....Continued....
        -->
     </Axis>
     <!--
        ....Continued....
        -->
    </Values>
  </Table>
- <Table>
  - <MetaData>
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      <CurrencyTypeCode
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Age</TableDescription>
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     <MaxScaleValue>99</MaxScaleValue>
        <Increment>1</Increment>
      </AxisDef>
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        <ScaleType tc="4">Service</ScaleType>
        - <!--
        also known as Duration
        -->
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    - <Axis AxisDefID="A_3" T="57">
      - <Axis AxisDefID="A_4" T="21">
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      - <Axis AxisDefID="A_4" T="21">
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      </Axis>
      <!--
        ....Continued....
        -->
    </Values>
  </Table>
</XTbML>
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