OTT Variation Conditions: Condition Value

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Contents

1 Proposed Specification Changes

Relative to ISO/IEC 14496-22 Fourth edition 2019-01, these changes modify parts of section 6.2.9 “Feature variations”

1. In “FeatureVariations Table”, note that if minorVersion is 0 then only Condition Table version 1 can be used. If minorVersion is 1 then Condition Table version 2 can also be used.

2. In the first paragraph of the “Condition Table” subpart, remove the last sentence.

3. Add new subpart between “Condition Table Format 1: Font Variation Axis Range” and “FeatureTableSubstitution Table” with this content:

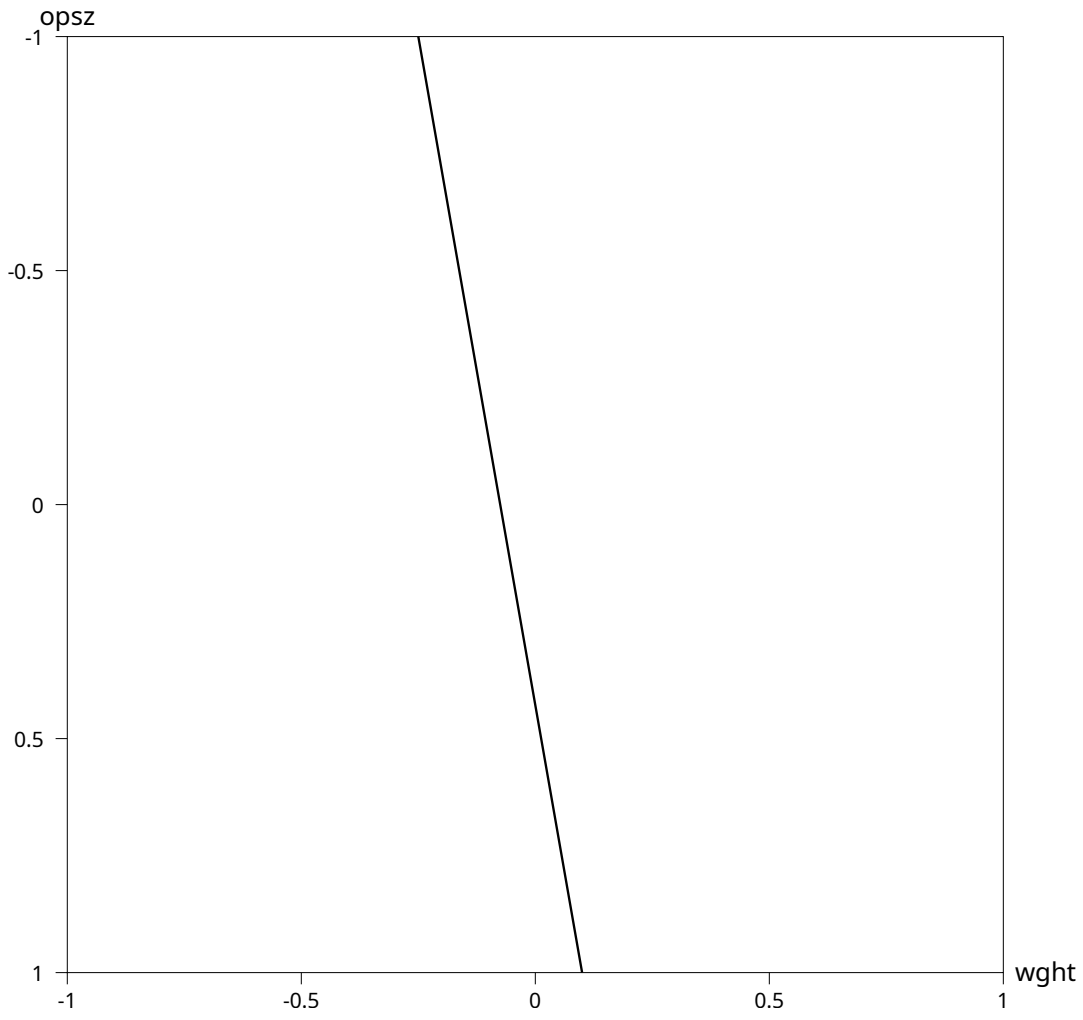
   Condition Table Format 2: Condition Value

   A condition value is an interpolated *value* interpreted as a boolean condition. Like a variable xPlacement field in a GPOS ValueRecord, it is specified as a int16 default value together with a delta set index pair. The condition is evaluated by calculating the value at the current variation instance. If that value is greater than 0 the condition is true, if the value is less than or equal to zero the condition is false.

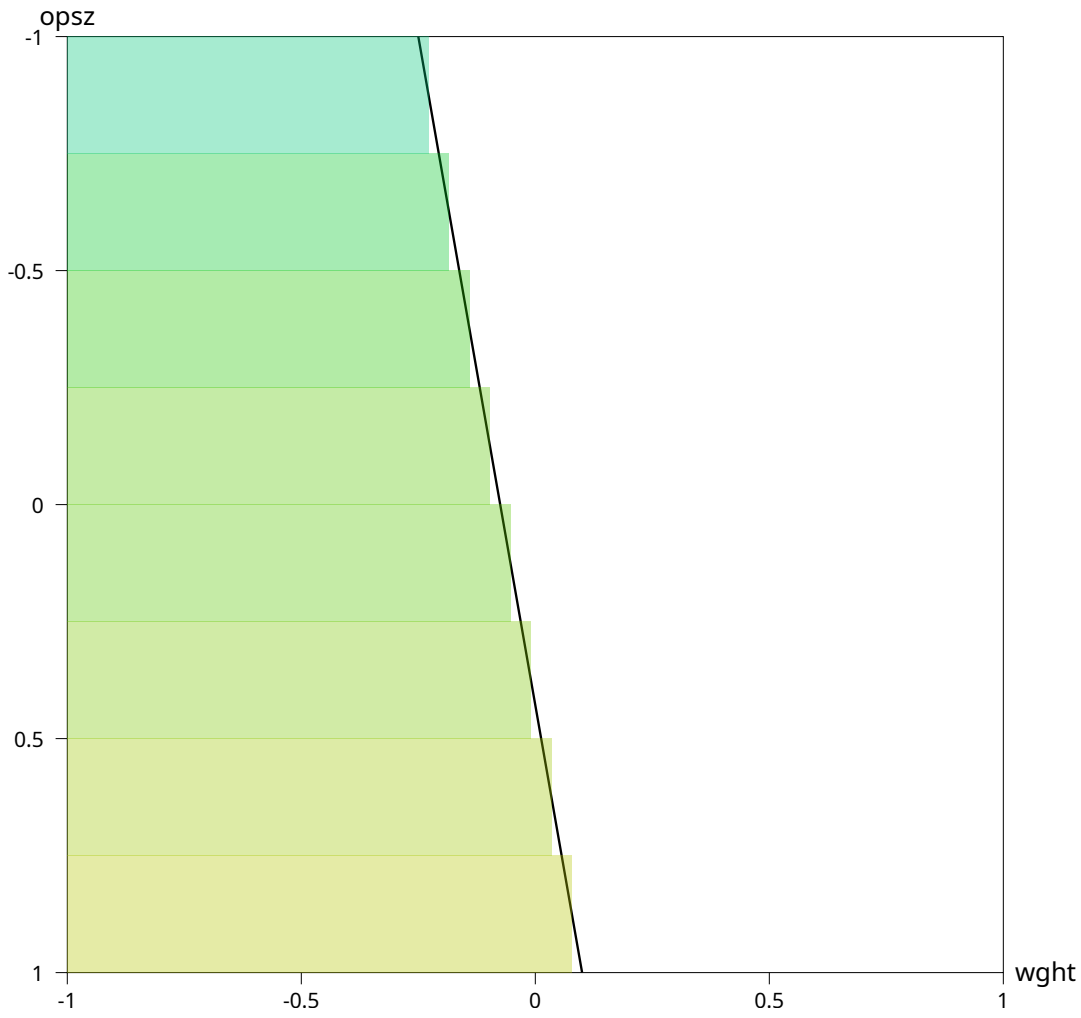
   The application of a condition value is up to the font designer, but they were added for cases when variations need to be applied across two or more *interrelated* axes.

   Consider an archetypal case of substitution: A variable font has two glyphs for the dollar sign, a main design wth two vertical strokes and an alternate with just one stroke. The designer wants to switch to the alternate the two strokes are too thick to leave room for each other.

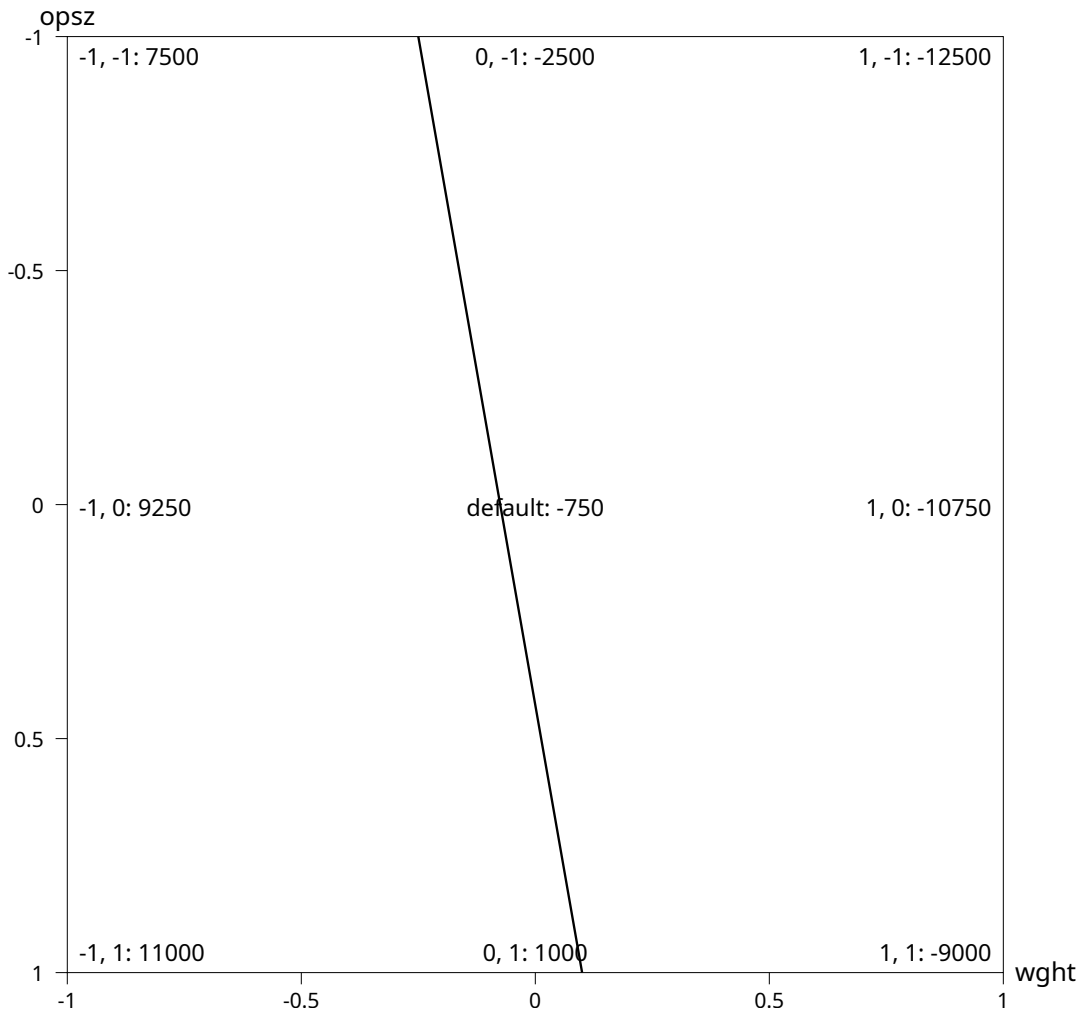
   In a font with just one axis that affects stem width, the substitution point can be chosen with a format 1 condition. Some fonts, however, have more than one axis that affects stroke width. For example, both a wght axis and an opsz axis typically do so. In a font with both of those axes a a designer’s judgment about when to substitute the alternate might look something like this, with the alternate used to the left of the line:



This is impossible to express exactly using format 1 conditions. The best you can do is a stepwise approximation, perhaps something like this:



In contrast, a condition value can express this substitution exactly, using these values at the indicated “master” positions:



Because a condition value is an interpolated int16, large magnitudes are recommended to reduce rounding error. This example was constructed from a starting value of 10,000 at one edge and -10,000 at the other. The values were then adjusted to match the zero line of the value to the substitution line.

ConditionTableFormat2

Type	Name	Description
uint16	format	Format = 2
int16	default	Value at default instance
uint16	deltaSetOuterIndex	A delta set outer index — used to select an item variation data subtable within the item variation store

Type	Name	Description
uint16	deltaSetInnerIndex	A delta set inner index — used to select a delta-set row within an item variation data subtable

As with variable GPOS values, the delta set index pair refers to the item variation data subtable in the ‘GDEF’ table.

4. Add appropriate content GSUB to the following sentences:

   On page 166: “Within the GPOS, JSTF, GDEF and BASE tables, delta-set indices are stored in VariationIndex tables.”

   On page 199, “In variable fonts, the GDEF, GPOS and JSTF tables may all reference variation data within the ItemVariationStore table contained within the GDEF table.”

   On page 201, “This same table, within the GDEF table, can also hold variation data used for X or Y values in the GPOS or JSTF tables.”

   On page 215, “The same Item Variation Store is also used for adjustment of values in the GDEF and JSTF tables.”

   In section 7.1.6, “If a font has OFF Layout tables, variation data for values from the ‘GDEF’, ‘GPOS’ or ‘JSTF’ table will be included, as needed, within the ‘GDEF’ table.”

   In the first bullet list in section 7.2.1, “Deltas for anchor positions in ‘GPOS’ lookups and other items used in ‘GDEF’, ‘GPOS’ or ‘JSTF’ tables are stored within variation data contained in the ‘GDEF’ table.”