Vertical Pango

Behdad Esfahbod

joint work with Mathrick
HELLO
HELLO
HELLO
ويلى
HELLO
سلام
'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

'Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!'
It was bright, and the sky moves
I don't care, and I don't care
And they move, too, the grey ones.
And they move, too, the grey ones.

Beware the JABBERWOCK — my son.
The jaws that bite, the claws that catch.
The fruited Barrens catch.
It was brillig, and the slithy toves,
AABD the mimsy wereera the borogoves,
And the mome raths outgrabe.

The frumious Bandersnatch!

Beware the Jabberwock, my son!

The jaws that bite, the claws that catch!
Twas brillig, and the slithy toves,
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

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The frumious Bandersnatch!
The frumious Bandersnatch!'  
Beware the Jubjub bird, and shun  
The jaws that bite, the claws that catch!  
'Beware the Jabberwock, my son!  

And the mome raths outgrabe.  
All mimsy were the borogoves,  
Did gyre and gimble in the wabe;  
'Twas brillig, and the slithy toves
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Rosas are Red,
Grass is Green.

Arabic

이

2006

白日依山尽，
Summary
• User sets base gravity, gravity hint, and rotation on PangoContext.

• `pango_itemize` uses base gravity, gravity hint, and script information to assign a gravity to each item.

• It also uses the assigned gravity to adjust the bidi level of the item.

• and to disable shaping if its a `vertical` gravity (East or West).
• When loading fonts, FC_VERTICAL_LAYOUT is set for vertical gravities and PANGO_FC_GRAVITY is set on the FcPattern.

• When loading font for a FcPattern, adjust cairo font_matrix rotation to adjust for the requested font gravity.

• In cairo, if the pattern has FC_VERTICAL_LAYOUT set, vertical metrics are chosen.
• In pango_shape(), if glyph x advance is negative, negate it and shift the glyph right by that amount. (re-base the origin)

• When getting item extents and rendering runs, center the run vertically if base gravity was vertical.

• Adjust line alignment depending on gravity.