Age distributions timeline

Version 1.0.3, by Giorgio Bianchini

Description: Plots age distributions on a timeline.

Module type: Plotting

Module ID: `b93f8a2b-8731-4658-92f5-bb80af7292a8`

This module plots age distributions in a timeline below (or above, or both) the tree. This is useful to highlight the age distribution for particular nodes, without showing it for all nodes.

The nodes for which a distribution is shown can be chosen by using the [Colour](#) parameter: if this returns a transparent colour, the distribution is not shown; otherwise it is drawn with the specified colour.

Parameters

Plot type

Control type: Drop-down list

Default value: Histogram

Possible values:

- Histogram
- Envelope

This parameter determines the kind of plot used to draw the age distributions. If the value is `Histogram`, histograms are drawn, displaying the age distributions. The bars of the histogram are centered so that the plot looks similar to a violin plot. The width of the bars of the histogram is chosen automatically.

If the value is `Envelope`, a violin plot is drawn, using the same samples that would be used to draw the histogram; instead of drawing rectangular bars, a smooth spline is interpolated between the sample points to produce a smooth-looking plot. Please note that this is not a kernel density estimation of the age distribution (as that would be too expensive to draw in real time).

Height

Control type: Number spin box

Default value: 10

Range: [0, +∞)

This parameter determines the height of each age distribution plot.

Spacing

Control type: Number spin box

Default value: 5

Range: (-∞, +∞)

This parameter determines the spacing between consecutive distributions.

Margin

Control type: Number spin box

Default value: 20

Range: (-∞, +∞)

This parameter determines the margin between the tree and the timeline plot.

Plot position

Control type: Drop-down list

Default value: Bottom

Possible values:

- Top
- Bottom
- Both

This parameter determines the position of the timeline plot relative to the tree plot.

Auto colour by node (distributions)

Control type: Check box

Default value: Checked

If this check box is checked, the colour of each age distribution is determined
algorithmically in a pseudo-random way designed to achieve an aestethically pleasing

distribution of colours, while being reproducible if the same tree is rendered multiple times.

Opacity (distributions)

Control type: Slider

Default value: 50 %

Range: [0 %, 100 %]

This parameter determines the opacity of the colour used if the [Auto colour by node (distributions)](#) option is enabled.

Colour

Control type: Colour (by node)

Default value: ■ #000000 (opacity: 100%)

Default attribute: `Color`

This parameter determines the colour used to draw each age distribution (if the [Auto colour by node (distributions)](#) option is disabled). The colour can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The default attribute used to determine the colour is `Color`.

Label position

Control type: Drop-down list

Default value: Right

Possible values:

- None
- Left
- Center
- Right

This parameter determines the position of each label, relative to the age distribution to which it is associated.

Margin

Control type: Point

Default value: (10, 0)

This parameter determines margin of the label with respect to the anchor point.

Font

Control type: Font

Default value: Helvetica-Bold 15pt

This parameter determines the font used to draw the labels.

Attribute

Control type: Attribute selector

Default value: Name

This parameter specifies the attribute used to determine the text of the labels. By default the `Name` of each node is drawn.

Attribute type

Control type: Attribute type

Default value: String

Possible values:

- String
- Number

This parameter specifies the type of the attribute used to determine the text of the labels. By default this is `String`. If the type chosen here does not correspond to the actual type of the attribute (e.g. `Number` is chosen for the `Name` attribute, or `String` is chosen for the `Length` attribute), no label is drawn. If the attribute has values with different types for different nodes, the label is only shown on nodes whose attribute type corresponds to the one chosen here.

Attribute format

Control type: Attribute formatter

This parameter determines how the value of the selected attribute is used to determine the

text of the label. By default, if the [Attribute type](#) is `String` the text of the label corresponds to the value of the attribute, while if the [Attribute type](#) is `Number` the text of the label corresponds to the number rounded to 2 significant digits.

Auto colour by node (labels)

Control type: Check box

Default value: Checked

If this check box is checked, the colour of the label for each distribution is determined algorithmically in a pseudo-random way designed to achieve an aestethically pleasing distribution of colours, while being reproducible if the same tree is rendered multiple times.

Opacity (labels)

Control type: Slider

Default value: 50 %

Range: [0 %, 100 %]

This parameter determines the opacity of the colour used if the [Auto colour by node (labels)](#) option is enabled.

Colour

Control type: Colour (by node)

Default value: ■ #000000 (opacity: 100%)

Default attribute: `Color`

This parameter determines the colour used to draw each label (if the [Auto colour by node (labels)](#) option is disabled). The colour can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The default attribute used to determine the colour is `Color`.

Further information

By combining this module with the *Scale axis* module, it is possible to obtain timeline plots such as the following:
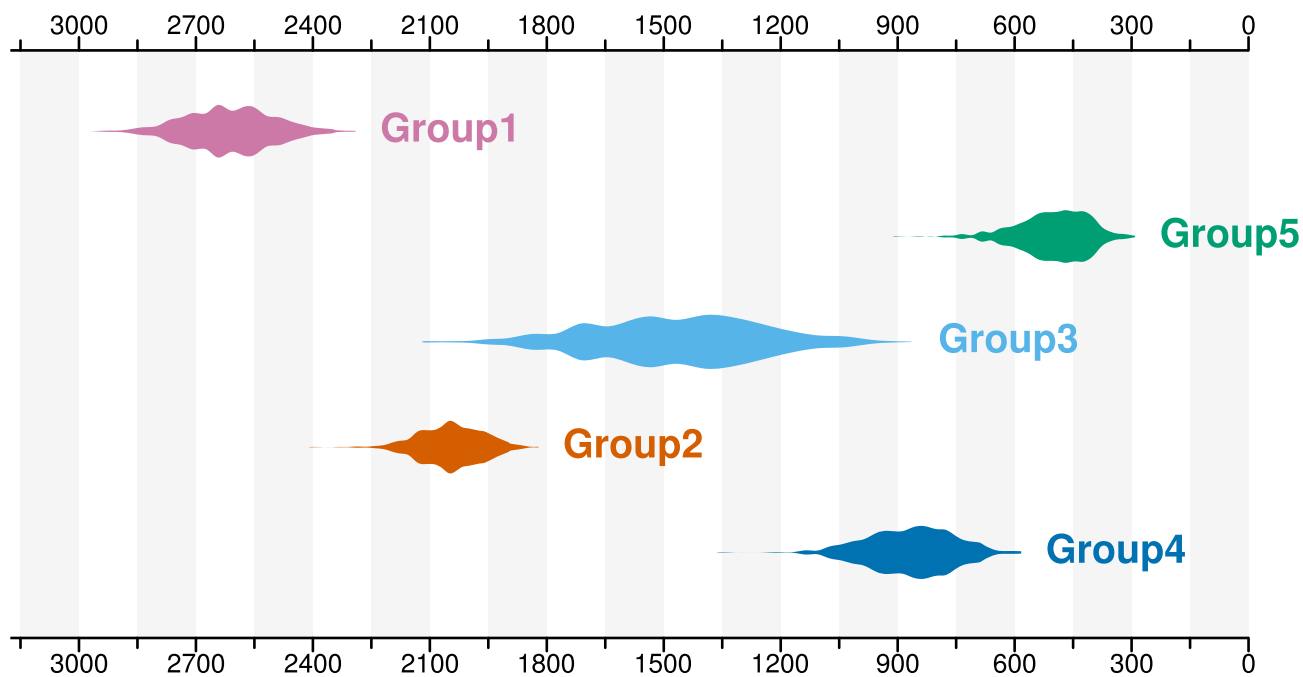
Note how there is no tree in the plot. This is because the *Branches* module was not used.