

FontLab Studio 5

OpenType: the fusion of design and technology

OpenType technology has revolutionised the way designers work with type. **Nick Cooke** explains how to get maximum benefit from OpenType and enrich your creative output

OpenType has become the new industry standard font format, offering countless new creative options to everyone working with type. Type designers have been freed from the shackles of PostScript's restrictive character set, enabling them to include alternates, small caps, swashes, ligatures and additional languages within one single feature-rich (Pro) font. Furthermore, fonts can be 'programmed' to behave contextually, automatically inserting a stylistic alternate, ligature or end glyph into OT-savvy applications when the relevant feature is activated.

In this project we look at how advanced type features can be programmed in FontLab Studio using G-Type's Houschka Rounded font. We'll also focus on how to make OpenType Pro fonts work hard for you when designing layouts in InDesign CS3.



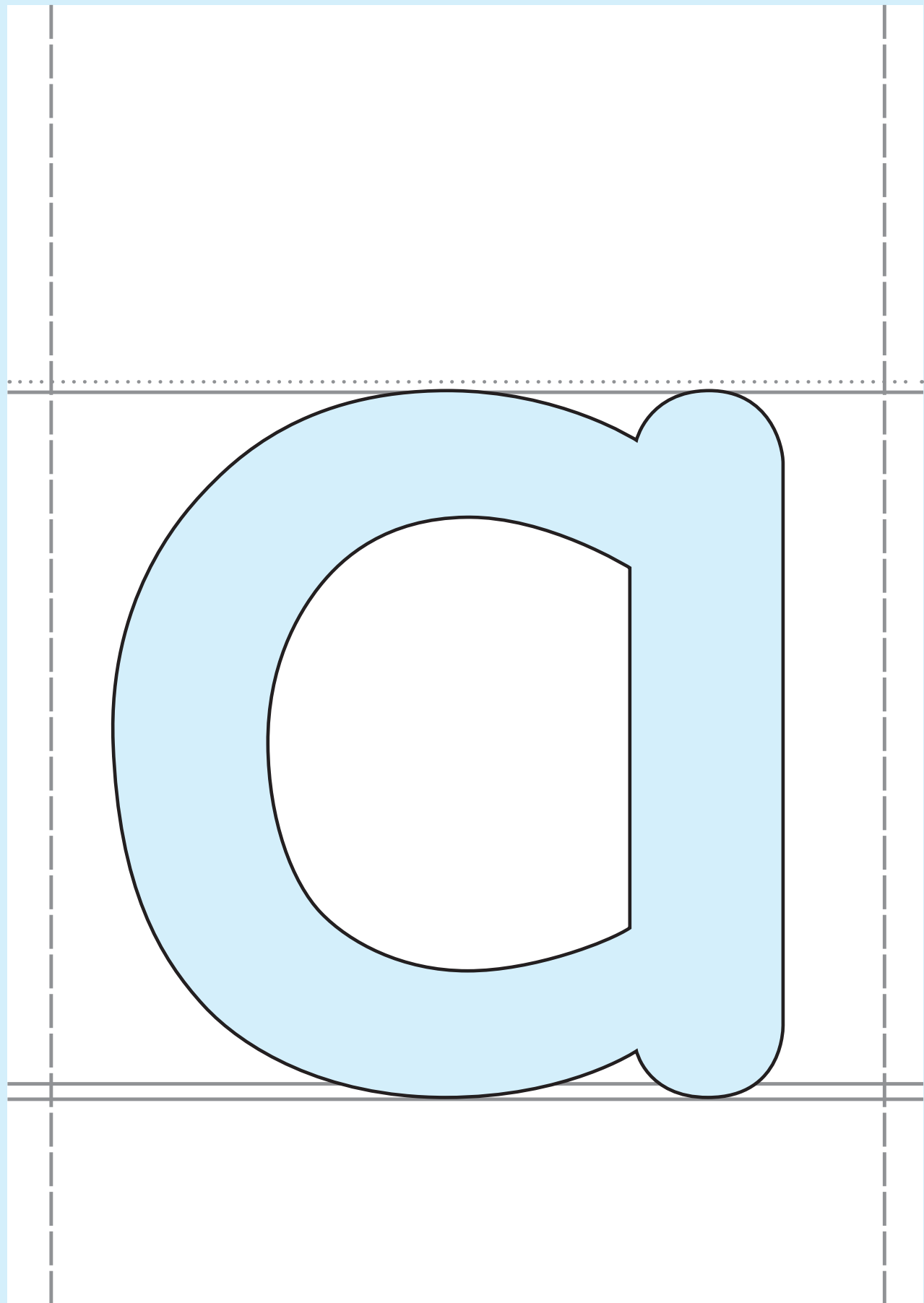
Designer

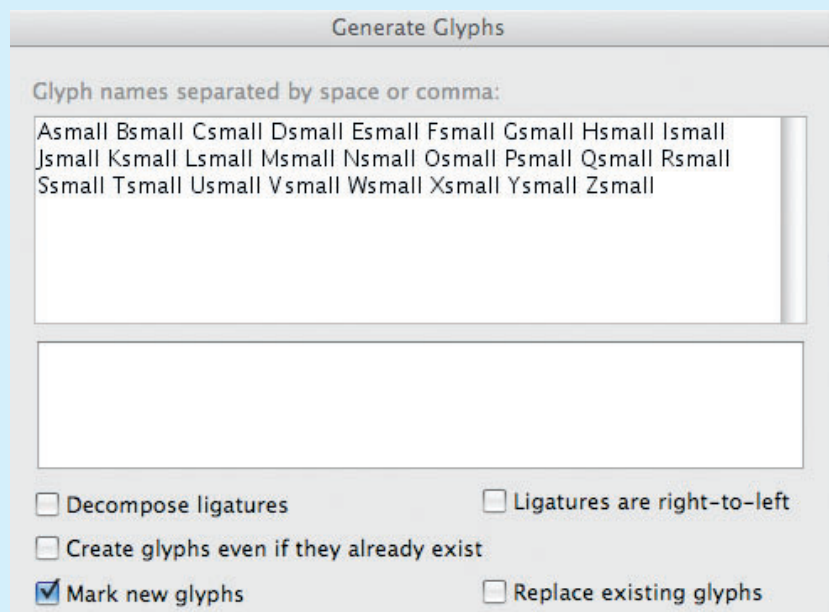
Nick Cooke released his first collection of typefaces under the G-Type banner in 1999. He has also designed many well-known custom typefaces for the likes of Vauxhall, Laura Ashley and

The Mail on Sunday. His six-weight Chevin family has been adopted as Royal Mail's corporate font. G-Type fonts are available from Fontworks UK, www.type.co.uk

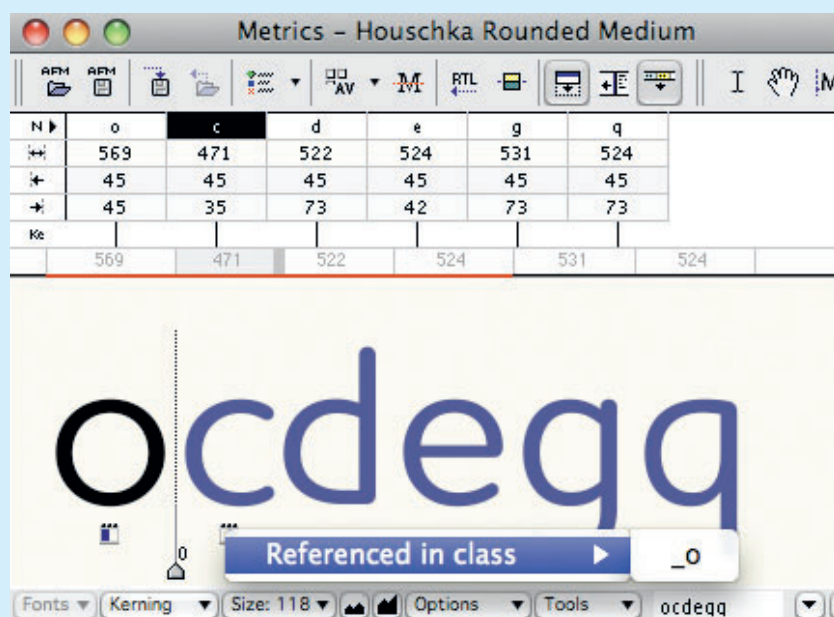
Skills

- Create and edit glyphs
- Set up classes
- Additional character sets
- Use alternate glyphs and stylistic sets in InDesign

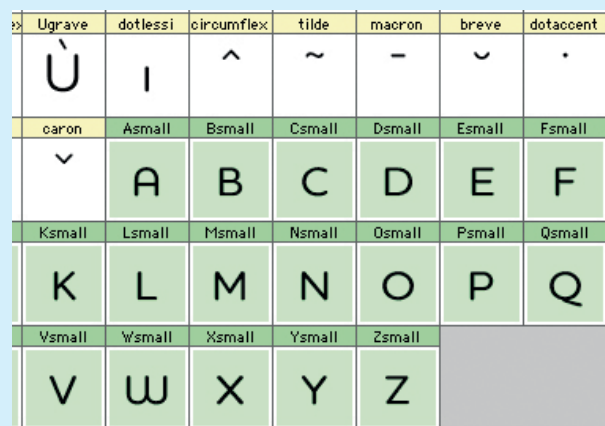




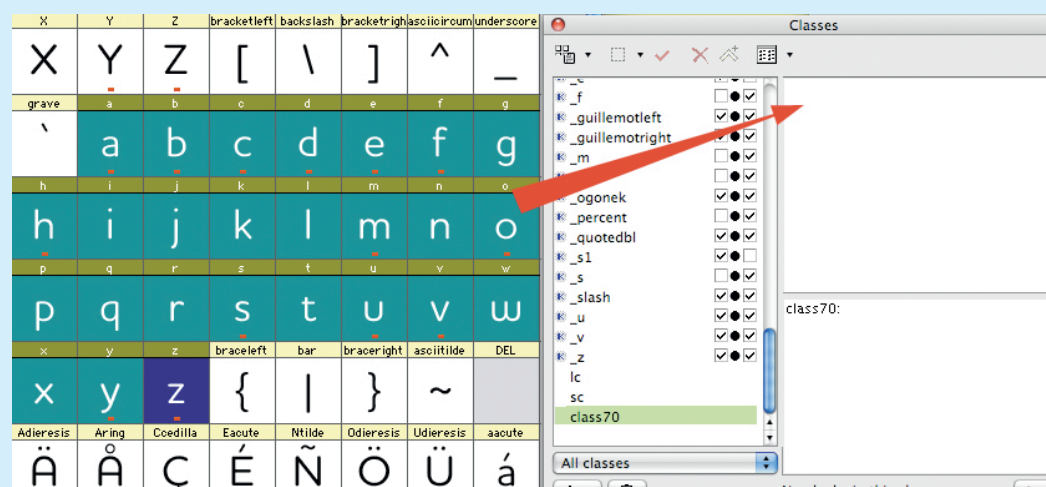
01— Once you've got a basic character set, you can start adding OpenType 'features' to the font. To add a feature that replaces lower case with small caps, for example, go to Glyph>Generate Glyphs (Ctrl/Cmnd+G). Type upper case A to Z letters in the field, and add the suffix 'small' after each letter, separated by a space. Tick the Mark new glyphs box and click OK.



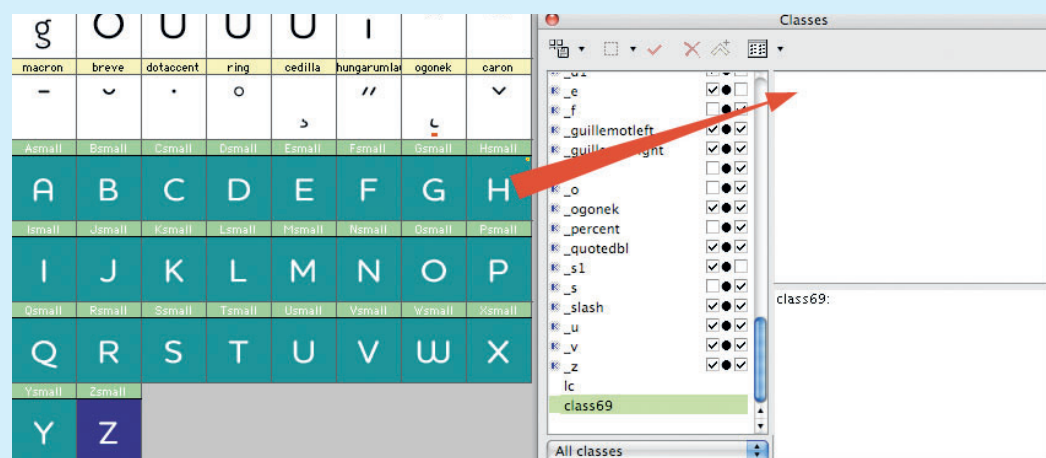
03— There are three types of class: Kerning, Metrics and OpenType. Kerning and Metrics classes have a similar functionality in that they apply 'values' to glyphs. Metrics classes apply sidebearing values to glyphs – that is, the space on either side of a glyph. Classes work by having a 'base' glyph with an assigned value that other glyphs follow. For example, if a sidebearing or kerning value is assigned to the left side of a curved 'base' character like a lower case 'o', that value will be applied to other glyphs in the class. So the class may contain the glyphs 'c', 'd', 'e', 'g', 'q', and so on, as they have a curved left side. The class for the right side of the 'o' (named differently as 'o1') would contain 'b', 'p', and so on. Classes are a time-saving device that apply changes across a range of glyphs in an instant. Lower case 'o' (pictured above) is the 'base' character for both Metrics and Kerning classes. The left side of each glyph has a sidebearing value of 45. The blue colour of the glyphs following 'o' shows they share the same left-side kerning.



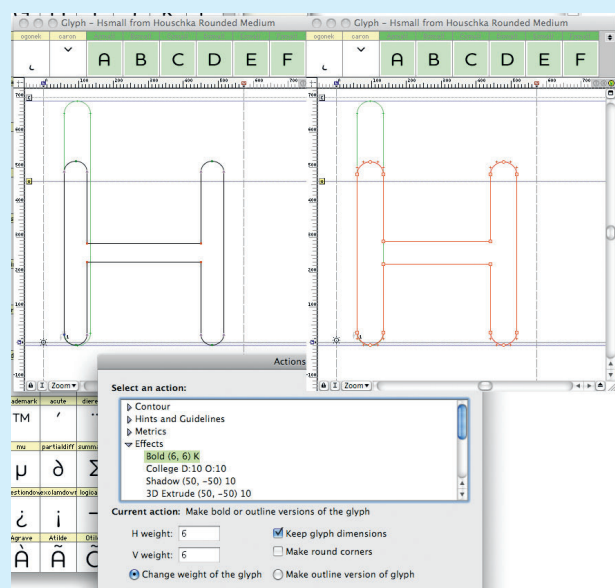
02— The character boxes are then added to the Font window and are marked with a colour. Scroll over A to Z, copy and paste into A small to Z small. Uncheck 'Keep replaced symbols under new names' box, and click Replace. Re-colour the boxes. Then make sure that 'Add all glyph classes to OpenType feature definition code' is checked in Preferences>General Options>Unicode and OpenType. This will ensure any class names like 'smcp', 'lc' or 'sc' are recognised when generating an OpenType font.



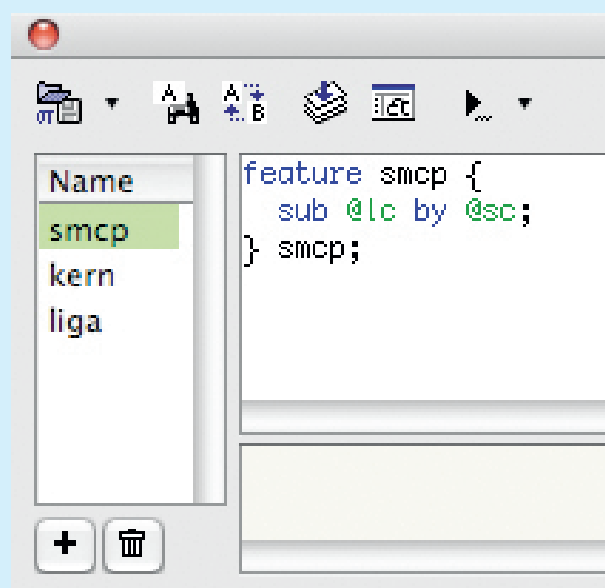
04— Go to Window>Panels>Classes (or click the Classes panel icon). In the Classes panel click the '+' symbol in the bottom-left corner and select 'New OpenType class'. On the right there are two panels. The bottom one will have class#: (class followed by number). Here you can type 'a', 'b', 'c', 'd', and so on, but the quickest way to add classes is to scroll over a to z in the font window and drag them into the top panel where they appear as icons, and appear as text after class1: in the bottom panel. Now scroll over class# and type 'lc' (for lower case). Select Accept. This renames the class as 'lc'.



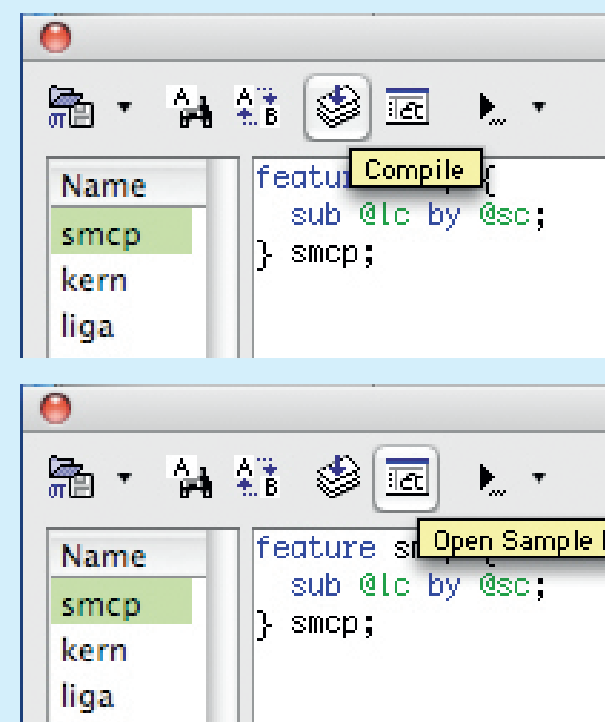
05— Now repeat the above step, but drag the small cap glyphs into the top-right panel. Scroll over class# and type 'sc'. Select Accept. One of the main reasons for OpenType failure when generating the font is not having the same number of glyphs in each class. For replacement classes to work, the number of glyphs has to be equal in each class. You can see in the panel that both classes have 26 glyphs when clicking on 'lc' or 'sc' on the left of the Classes panel.



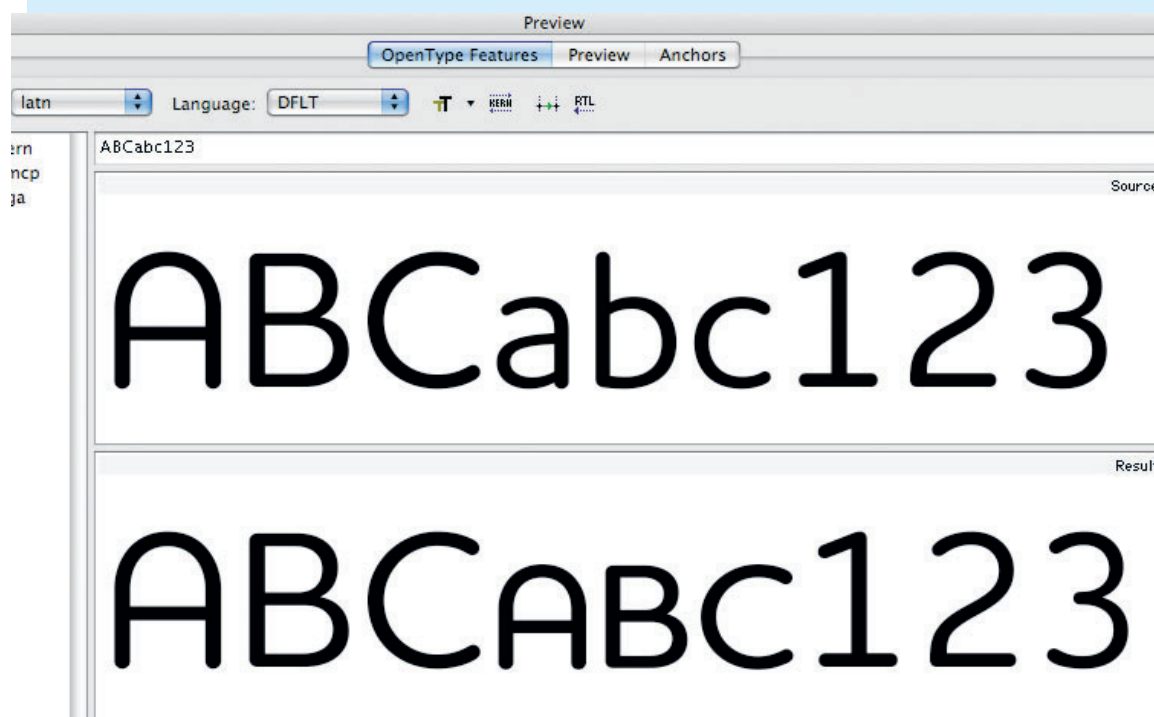
06 Now edit the small caps glyphs. Double-click on Asmall in the Font window to open the Glyph window. In Houschka Rounded the small cap is exactly the same as the cap 'A' glyph. Scroll over the small caps in the Font window to select them all. Go to Tools>Action>Contour>Scale. You could try Horizontal scale 80% and Vertical scale 75%. You then need to adjust the stem weights to match the lower case glyph weight: Tools>Action>Effects>Bold. Try 'H' and 'V' weight values of 6. Some cleaning up of the glyphs may be needed, and also re-spacing as they'll be too tight. In the 'before' and 'after' characters above, I've pasted a lower case 'l' in the Mask layer (in green) to match the weight.



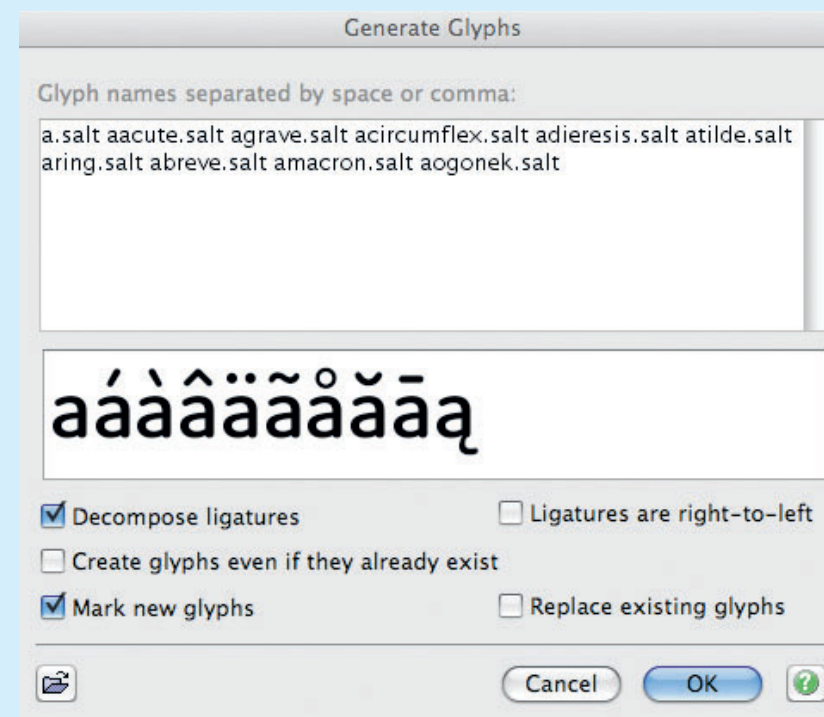
07 Now you've created the classes you're ready to create the feature that makes the small caps replace the lower case. Click the OT Panel icon in the menu bar and add a new feature by clicking the + button. Replace xxx with smcp in both instances and complete the panel exactly as shown above.



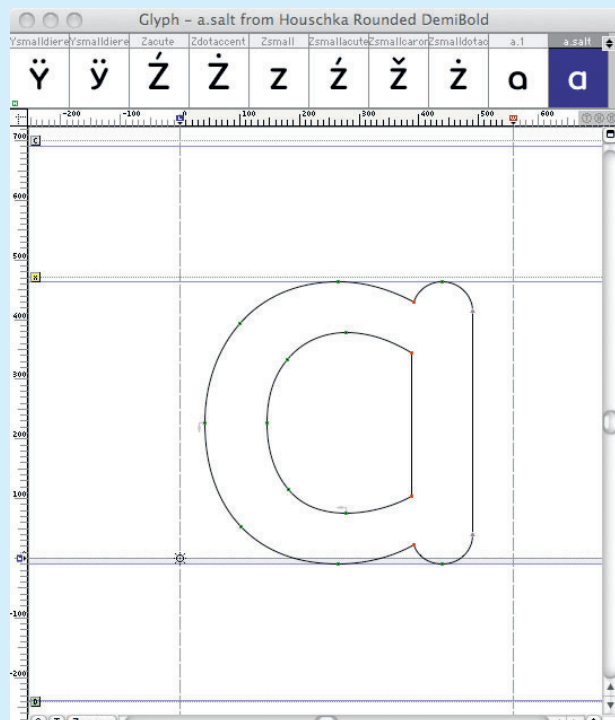
08 Click the Compile button to create the feature and make sure it works. Then click the Open Sample Panel button to view the Source and the Result when clicking the smcp button.



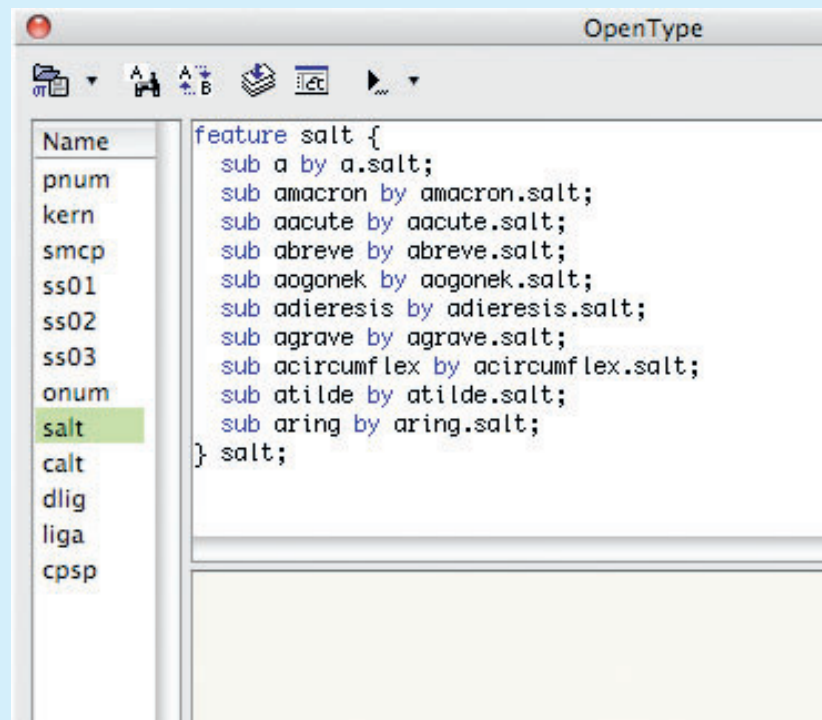
09 You may have a character in your font that has two styles. Use the Stylistic Alternates feature to replace one style with the other. Houschka Rounded has two styles of lower case 'a'. The Stylistic Alternates feature replaces the standard lower case 'a' with an infant 'a'.



10 Now we'll show you how to create the alternate glyphs. Go to Glyph>Generate Glyphs (Ctrl/Cmnd+G). Type in the lower case 'a' plus all the accented glyphs in your font. Add the suffix .salt after each. Tick the boxes shown and click OK.



11 Double-click the a.salt glyph in the Font Window to open it. Delete the existing 'a' that has been placed there automatically. Design your new 'a'. Replace the 'a' in the remaining .salt glyphs but keep the accents and reposition as necessary. As there are only a few glyphs in this feature, there's no need to create classes, so you can go straight to making the feature.

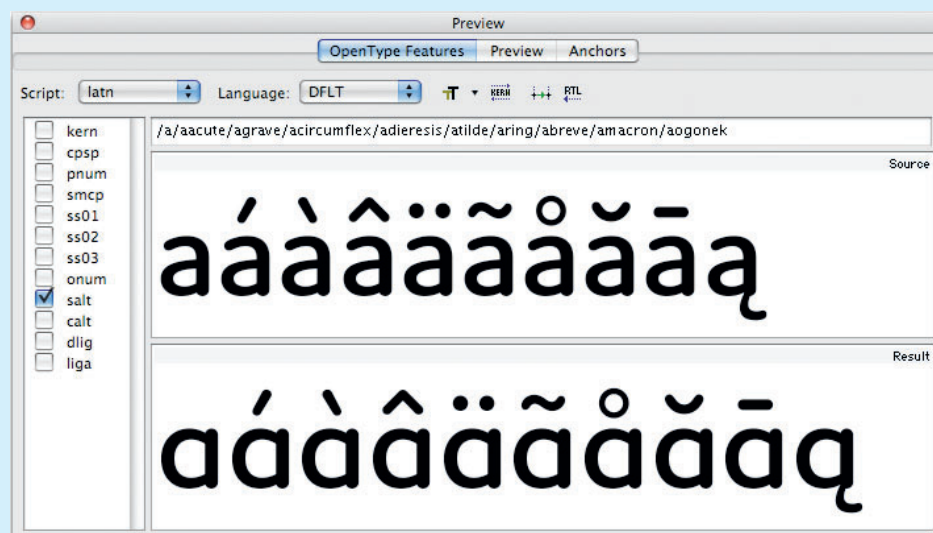


12 Now create the substitution feature. Click the OT Panel icon in the menu bar and add a new feature by clicking the + button. Replace xxx with salt in both instances and complete the panel as shown above using the characters in your font.

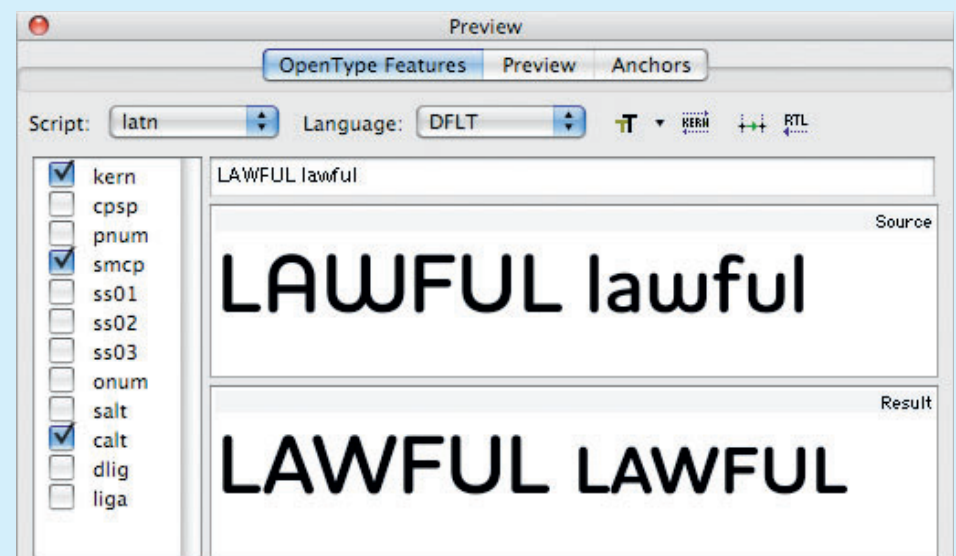
Favourite flavour

OpenType fonts come in two flavours: PostScript (CFF outlines) or TrueType (TTF). Both will work perfectly well but, as a rough rule of thumb, Corporate and MS Office users should probably veer towards TTF flavour for better compatibility with PowerPoint in particular.

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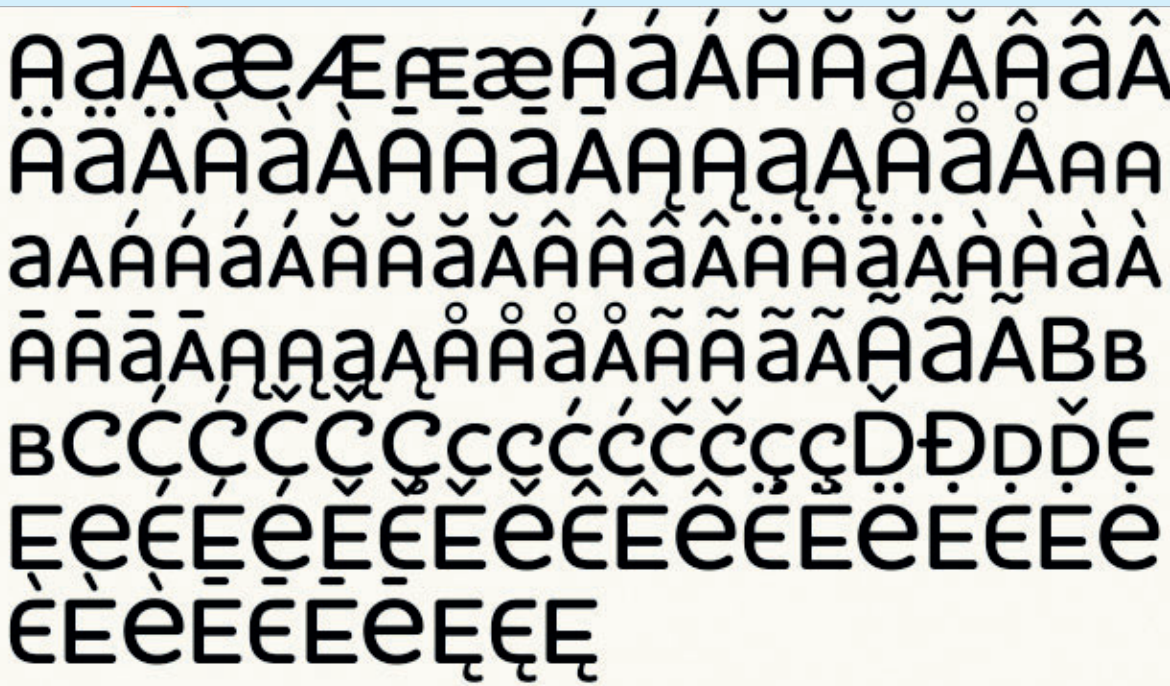


13 Click the Compile button to create the feature and make sure it works. Then click the Open Sample Panel button to view the Source and the Result when clicking the salt button.

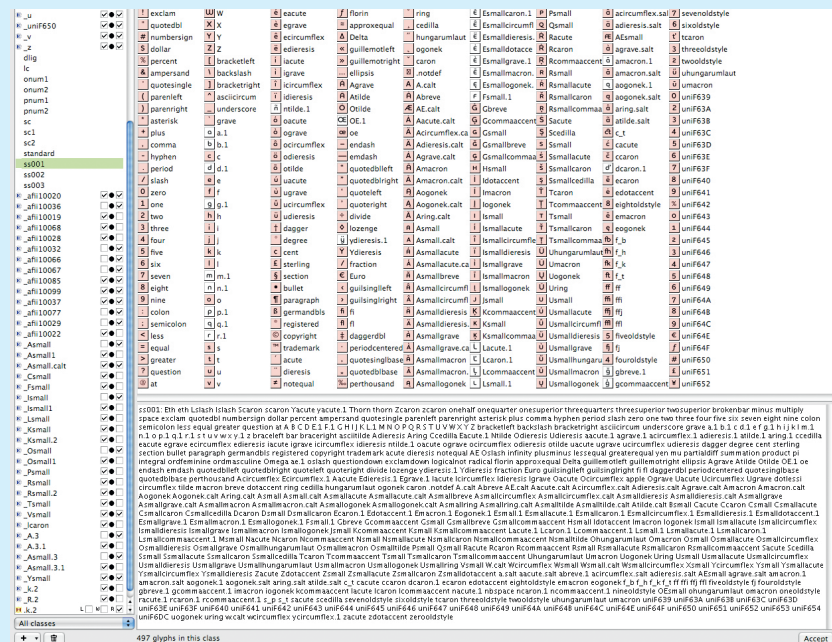


14 Now use the Contextual Alternates feature to replace one style of glyph with another. My font Houschka Rounded has two styles of cap 'A' and 'W' and small cap 'A' and 'W'. They both have an 'arched' shape. The Contextual Alternates feature replaces the standard cap 'A' and 'W' and small cap 'A' and 'W' with a more standard 'A' and 'W' shape. Contextual Alternates is constructed in exactly the same way as Stylistic Alternates except xxx should be replaced with calt. As there are probably a lot more glyphs to replace, it's a good idea to make classes like:

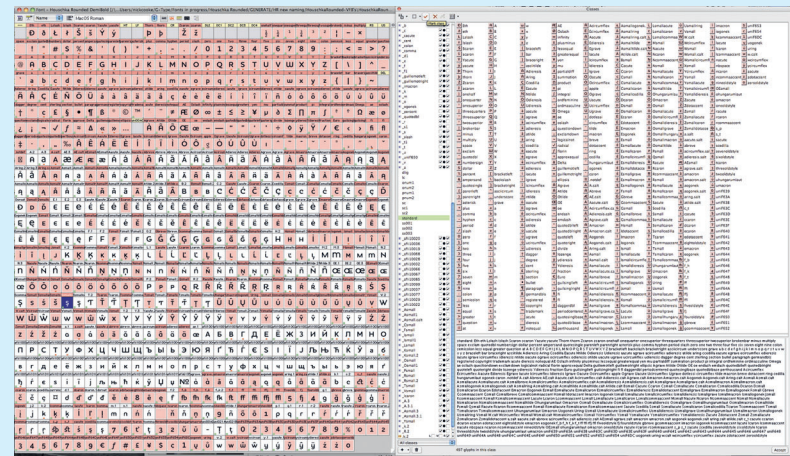
```
feature calt {
  sub @calt1 by @calt2;
} calt;
```



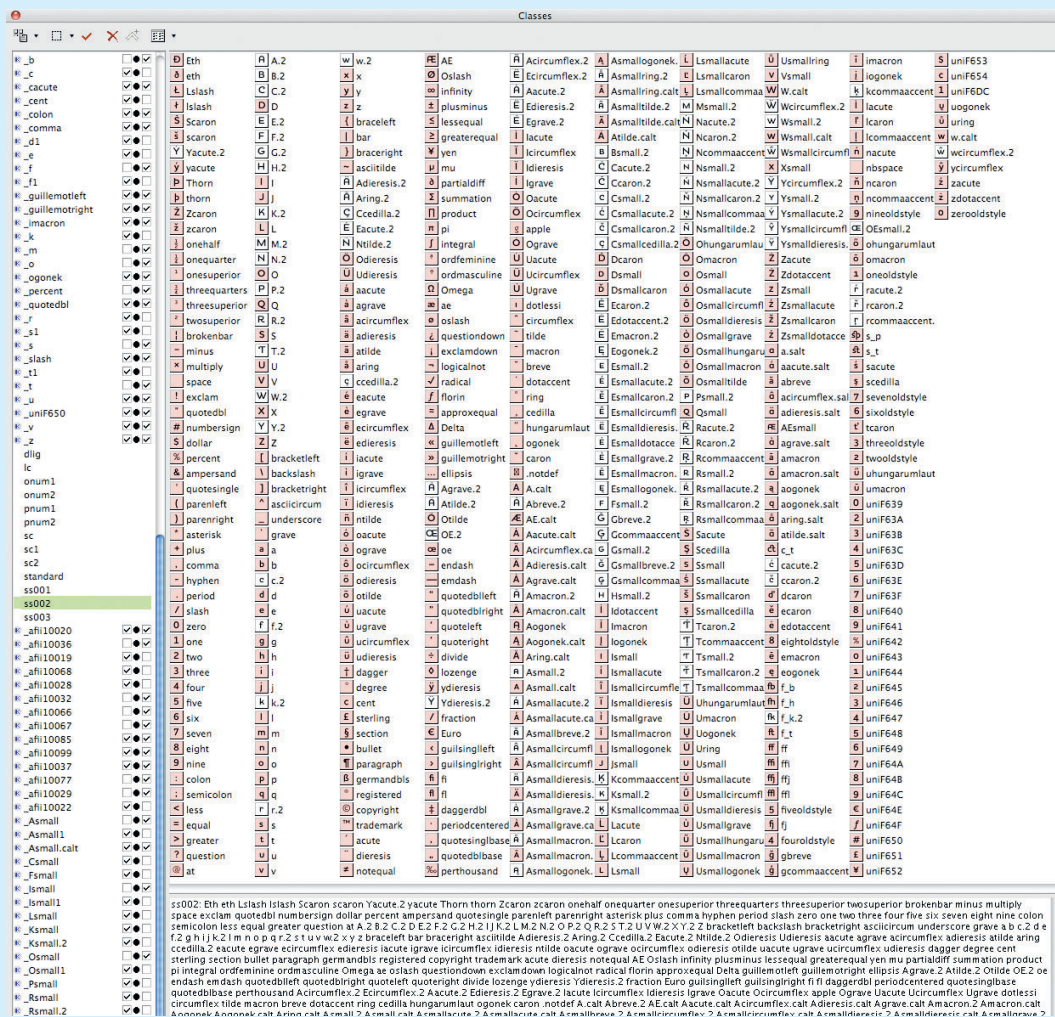
15 I wanted to have more variety in my Houschka Rounded font, so I created four character sets: the standard set, a more 'modern' set, an Art Deco influenced set, and a Unicaise set. Set creation can be quite a complex area, so it'll take a good few weeks to put together. Design your character sets including all accented characters, small caps plus accents, and any other variations you wish to include. Generate the glyphs as in previous steps, but add the suffix .1 after each glyph for the first stylistic set, add the suffix .2 after each glyph for the second stylistic set, and so on.



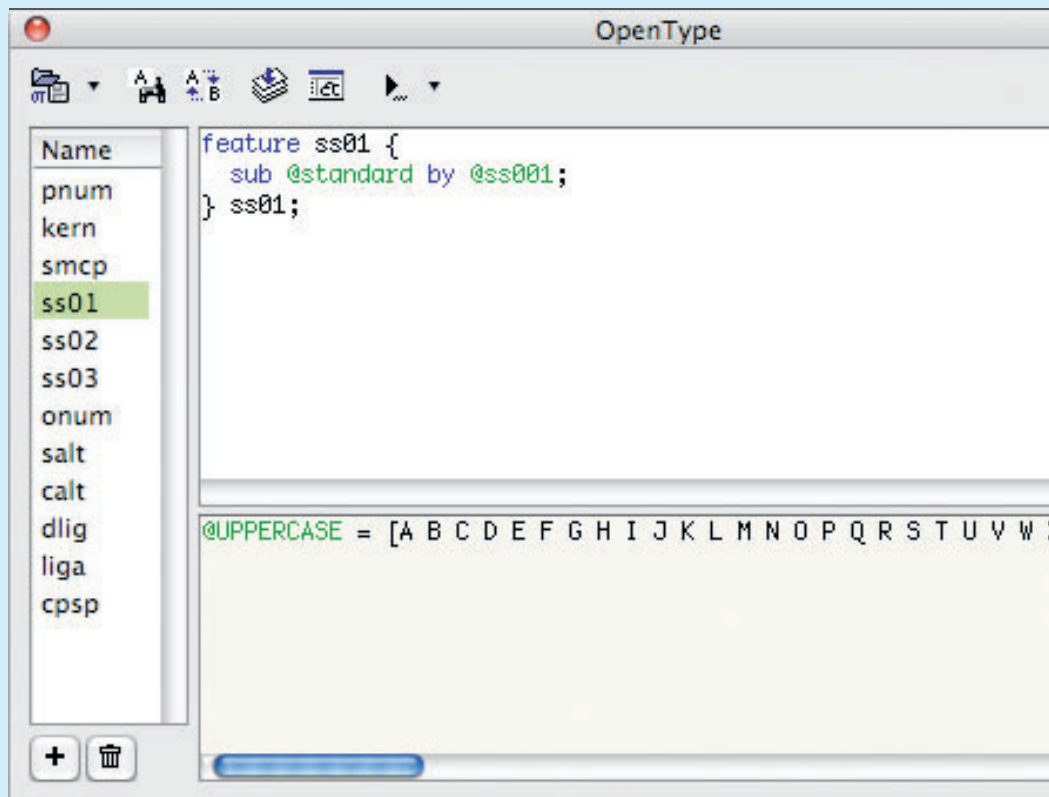
17 Scroll over the text in the bottom-right panel and copy it. Click the + button to add a new OpenType class. Paste the text into the bottom-right panel, scroll over 'standard' and type ss001. Click Accept. Now you have two differently named classes with identical content. By doing it this way you're ensuring there are the same number of glyphs in each class – 497 in this case. Now type .1 after each replacement glyph in the bottom right Classes panel. Click on Accept occasionally to see the replaced glyphs change from red to white in the top panel.



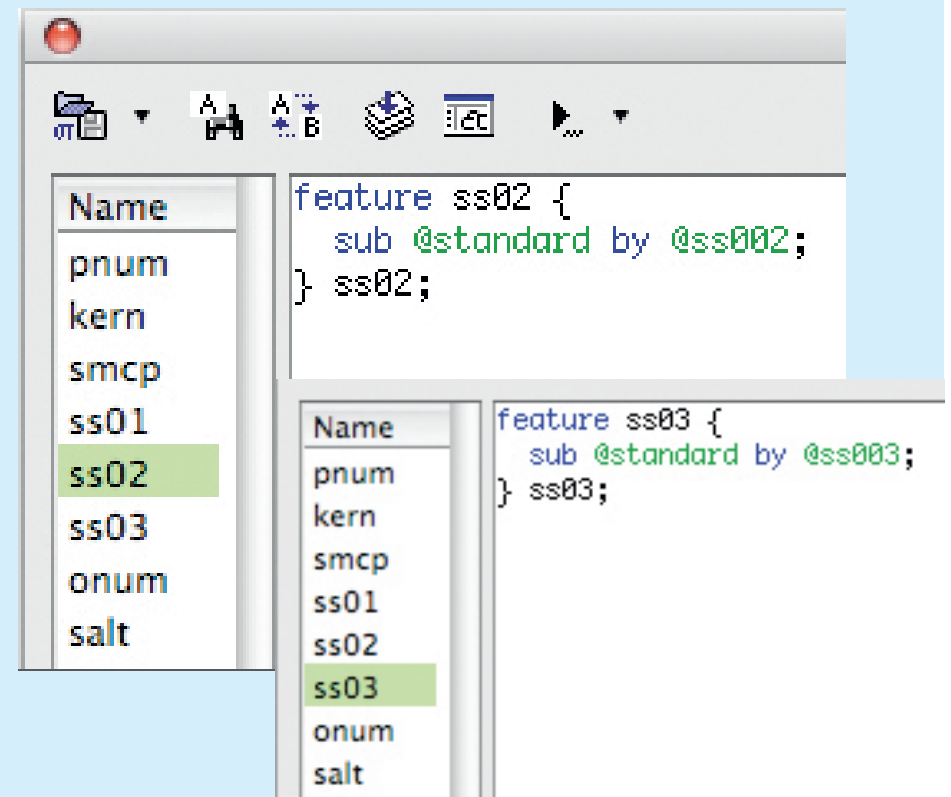
16 Now you need to create the 'base' class. Click the + button to add a new OpenType class. This will be the 'base' or standard class that contains the glyphs to be replaced by the new classes. Select and drag the glyphs into the top-right panel. Click the View Mode button (top right in the Classes panel), and select List. The 'standard' set, as I have named it, should include all the characters except the 'new' stylistic sets. You can mark the class in colour as shown.



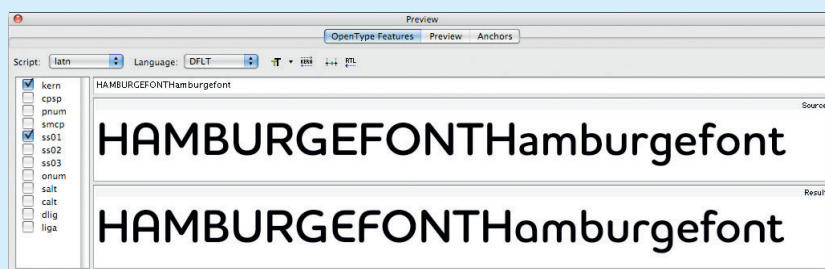
18 Now simply follow the procedure of the previous step to create subsequent classes. Name the new next classes as ss002, ss003, and so on.



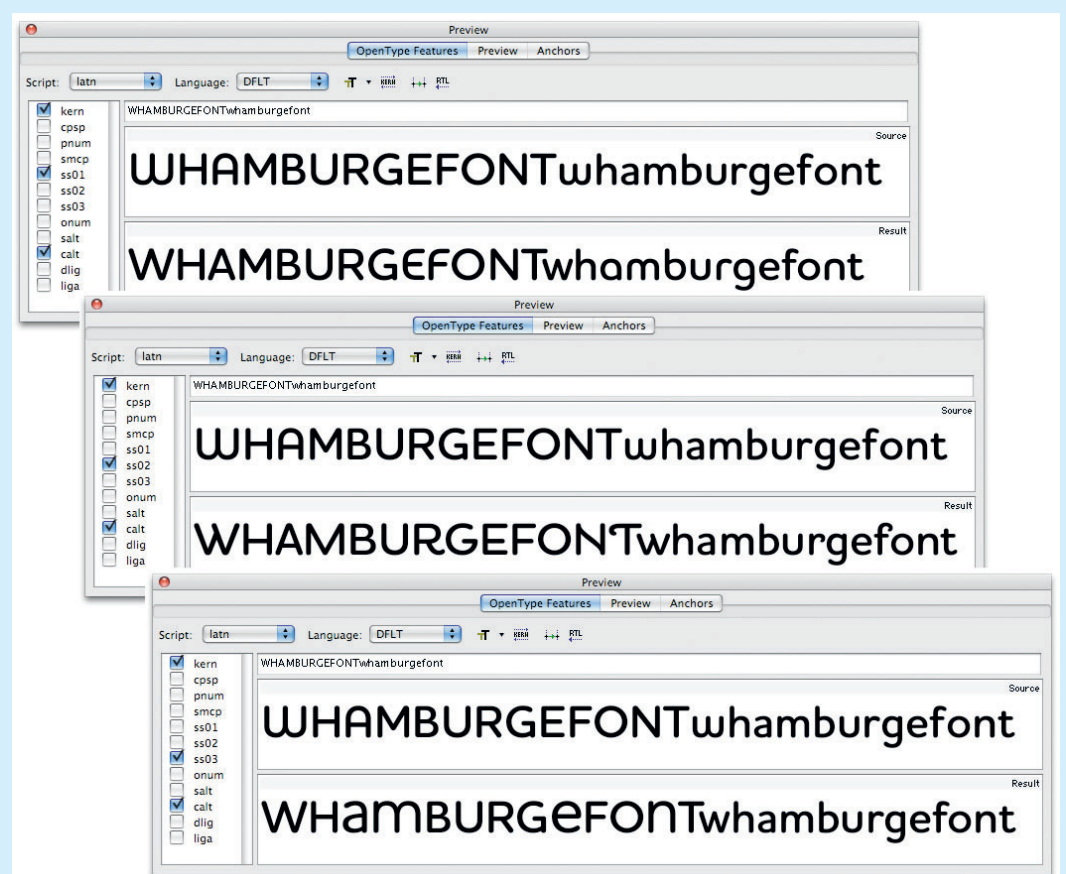
19 Now create the substitution feature. Click the OT Panel icon in the menu bar and add a new feature by clicking the + button. Replace xxxx with ss01 in both instances and complete the panel as shown.



20 Replace xxxx with ss02 in both instances and complete the panel as shown above. Then replace xxxx with ss03 in both instances and complete the panel.



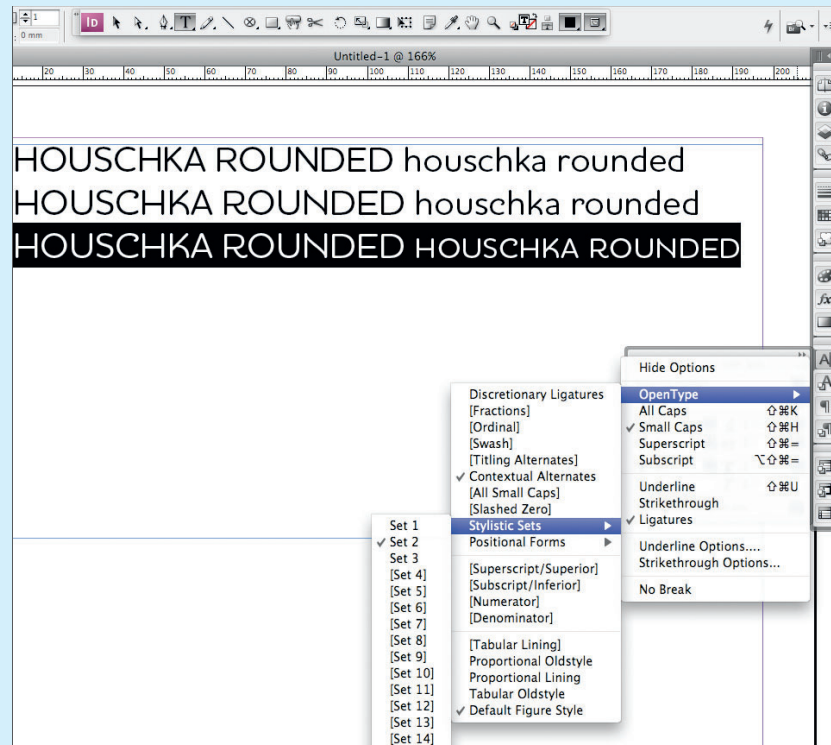
21 Click the Compile button to create the features and make sure they work after each step. Then click the Open Sample Panel button to view the Source and the Result when clicking the ss01, ss02 and ss03 buttons.



Content

You should note that OpenType fonts are never equal in terms of content. There is no industry standard character set for OT Pro fonts, so be careful when purchasing. One Pro font could contain pan-European language coverage and multiple features; the next could contain a bare minimum.

22 It's quite important to have the Features in the correct order to ensure that they can work together. They can be re-ordered in the Features panel. You can see from the illustration that the features 'kern', 'calt' and the stylistic sets all work together. The 'smcp' feature would also work with the other features.



23 Using alternate glyphs and stylistic sets in the likes of InDesign CS is very straightforward. With the Character Window (in the main Type menu) open, select the OpenType option and a submenu will appear. Features within square brackets indicate that they are not included in the font and are therefore unavailable for selection. Use this section to choose which set of figures you want, switch discretionary ligatures and contextual alternates on, select swashes, fractions, and so on. With these features activated, your text will alter on the fly as you type. Alternatively, text can be selected when keyed in and changed later by switching features on or off. Certain fonts may also contain Stylistic Sets, which is a neat way of tweaking the appearance of your work without changing the font.



24 Foreign language accents, or indeed any character contained in the font, can be accessed via the Glyph palette (Type>Glyphs). Simply double-click the glyph you want and it'll appear in your document.