

# Ambitus

Ambitus is a font that can be used to quickly create musical hints, for example to show vocal ranges or initial pitches of instruments like timpani (“pitch incipits”). It can be used in standard word processors as well as in music notation software, where it may otherwise be difficult to produce such elements of music notation that are not part of the actual score.

The image displays two musical score examples. The left example is for timpani, featuring two staves in 5/4 time. The top staff is marked 'Allegro' and 'wooden sticks', with a triplet of eighth notes and a dynamic marking of *p*. The bottom staff is marked *p*. The right example is a vocal score for Soprano, Alto, Tenor, and Bass, marked 'Adagio, molto legato e espressivo, (♩ = c. 72)'. It features the lyrics 'O mag - num mys - te -' and dynamic markings of *pp* for each voice part. Arrows point to specific musical symbols used in both examples.

It can also be used to create scales directly in a standard word processor:

The image shows two musical scales. The left scale is in treble clef, starting on middle C and ascending through the notes: C, D, E, F#, G, A, B, C. The right scale is in bass clef, starting on G2 and ascending through the notes: G, A, B, C, D, E, F, G.

Ambitus uses glyphs from Bravura and Academico as well as graphical elements created using Dorico 4.0.

Ambitus works in any word processor or other software that supports ligatures and kerning. Make sure these features are turned on for the glyphs to display correctly (see **Appendix: Setting up your word processor** on page 12).

## Installation

To install these fonts for use on your computer, open the ZIP file that you downloaded.

Quit any applications that may be running on your computer. Then, install the font on your computer:

Mac: <https://support.apple.com/kb/HT2509>

Windows: Right-click on the font files and select **Install**.

## Using Ambitus

Symbols in Ambitus can be typed by entering the appropriate series of keystrokes until the desired glyph appears. Alternatively, you can enter the characters in plain text using your favorite text font and then switch the desired sections to Ambitus afterwards.

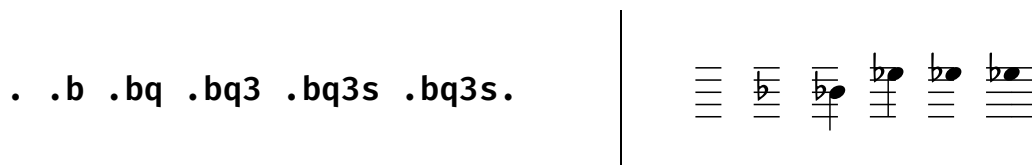
## How it works

In Ambitus, staves, musical symbols, lines and other elements are largely independent from each other. Most of the musical elements don't contain a staff, so you usually need to place "staff characters" before and after a musical symbol.

As a rule, notes and some other symbols don't advance the cursor, so if you input several of them in a row, they will be placed at the same horizontal position. This makes it possible to achieve vertically stacked symbols.

In contrast, staff symbols do advance the cursor. You can choose between staff symbols of different width to determine how closely your notes are spaced. This makes the resulting graphic more visually pleasing, especially when writing scales.

So, for example, `.` creates a medium-sized staff character, `b` adds a flat accidental, `q` a quarter note, `3` displaces it three places upwards, `s` removes the stem, and finally `.` extends the staff and advances the cursor:



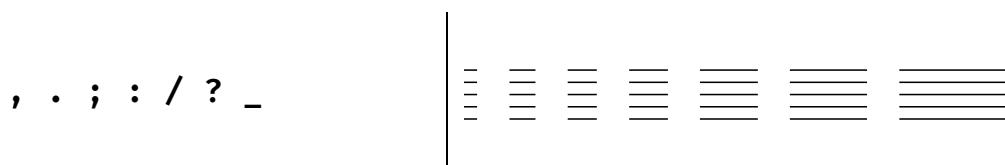
Ambitus was designed with flexibility in mind, so you can achieve results quickly but also have the tools to modify them to your needs. It will not stop you from doing "unmusical things" like squashing lots of notes on top of each other.

## Available glyphs

### Staff lines

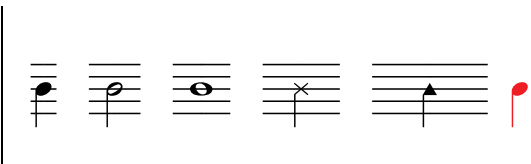
In general, you'll need to place a staff line before anything else.

- `,` is the minimum width, recommended for notes without accidentals.
- `.` and `;` can be used for notes with accidentals (`;` is better for whole notes).
- `:` and `/` can be used to build scales.
- `?` and `_` are even wider and may be useful if you need more room, for example for parenthesized notes or accidentals (see page 5).



### Individual notes

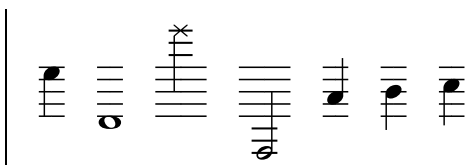
You can choose between quarter notes (**q**), half notes (**h**), whole notes (**w**), percussion notes (**p**) and triangle notes (**y**). Note that you will usually need a staff character before and after the note.

**,q, .h. ;w; :p: /y/ q** | 

### Pitches

By default, notes appear on the middle staff line. By adding a number after the note name, you can move them up to 10 steps up- or downwards. Positive numbers nudge the notehead upwards, negative numbers downwards.

**Note:** **0** stands for the number 10, so **0** moves the notehead all the way up, and **-0** all the way down.

**,q3, ,w-5, .p0. .h-0. ,q-1, ,q, ,q1,** | 

All pitches from low to high:

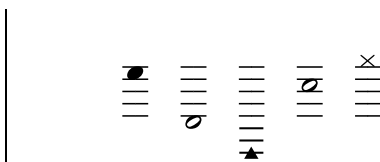
**-0, -9, -8, -7, -6, -5, -4, -3, -2, -1, <nothing>, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0**



**.q-0:q-9:q-8:q-7:q-6:q-5:q-4:q-3:q-2:q-1:q:q1:q2:q3:q4:q5:q6:q7:q8:q9:q0.**

### Noteheads without stems

Adding **s** after the note (and after the (optional) pitch) removes the stem from quarter notes, half notes and percussion notes (X and triangle noteheads).

**,q3s, ,h-5s, ,y-0s, ,h1s, ,p5s,** | 

## Accidentals

Use **#**, **b**, **x**, **bb**, or **n** before the note to add an accidental sign. The notehead will not move to the right when you add an accidental, so you may need wider staff characters in front of the note to make enough room for the accidentals. Period (.) should be enough for a normal accidental in front of a quarter or half note, semicolon (;) is sufficient for accidentals in front of whole notes. The double flat is wider and requires at least a colon (:).

Note: Percussion noteheads (**p** and **y**) don't support accidentals.

.bq3, .#h-5s, :bbw-0. .nh1s,  
 ,xq, ,#p3,

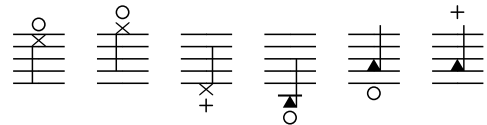


## Playing techniques for percussion

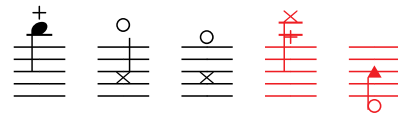
- **o** (lowercase o) for “open”, below the staff
- **O** (Shift-o) for “open”, above the staff
- **+** for “closed”, below the staff
- **\* or =** (Shift-+) for “closed”, above the staff

Place the Playing technique character **after** the note. Playing techniques will move out of the way if the notehead or stem protrudes beyond the staff lines. If you place the Playing technique character before the note, it will always display in its standard position and thus may overlap noteheads/stems.

.p30. .p50. .p-5+. .y-7o. .y-1o.  
 .y-1\*.

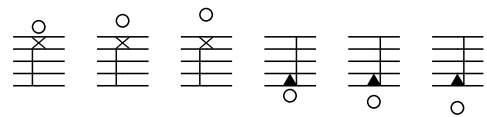


.q7=. .p-10. .p-1s0. .#p9. .oy.



If you want to place the playing technique further away from the staff, you can add a digit between **1** and **7** after the playing technique:

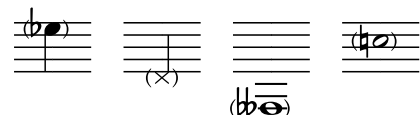
.p30. .p301. .p302. .y-3o. .y-3o1.  
 .y-3o2.



## Parenthesized notes and noteheads

Enclose a note (including its accidental, if present) in ( and ) to place parentheses around them.

:(bq3): :(p-5): :(bbw-0): :(nh1s):

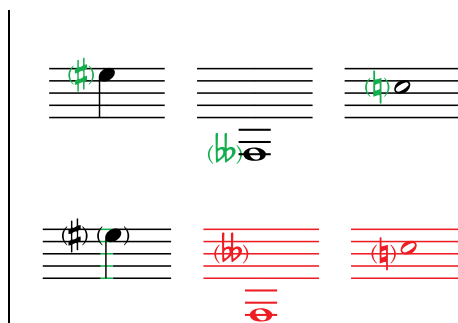


### Parenthesized accidentals

You can also just enclose accidentals in parentheses. However, in this case you need to specify the line position that the accidental is on (because placing parentheses detaches the accidental from its note, so it can't inherit its position). You will also need wider staff lines since the accidentals need to move further to the left:

`/(#3)q3/ /(bb-0)w-0/ /(n1)h1s/`

`/(#3),(q3)/ /(bb)w-0/ /(n)h1s/`



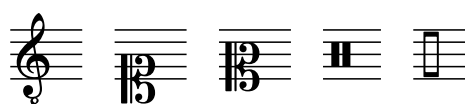
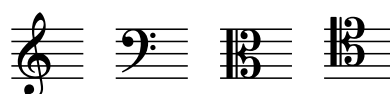
### Clefs

The following clefs are available: **T** (treble), **T8** (octave treble), **B** (bass), **A** (alto), **t** (tenor), **S** (soprano), **M** (mezzosoprano), **P** (percussion), and **Pr** (percussion rectangular). They contain a staff and advance the cursor, so you can start typing notes immediately (but of course you can add additional staff space if desired).

**T B A t**

**T8 S M P Pr**

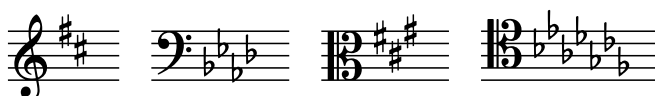
**Tbq-4 .q-2 . , bq,  
B, bq-4/bbq-2/bq.**



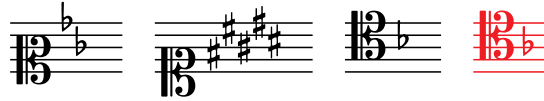
### Key signatures

A clef can be followed by **#/b** and a number from **1-7** to create a key signature (except percussion clefs). Note that the number **1** is important because otherwise the accidental will stay on the middle line (which is only a good idea if you happen to write F major in the treble clef).

**T#2 Bb4 A#3 tb7**



Mb2 S#5 tb1 **tb**



### Octave indicators/lines

- K for an 8va octave sign above the staff
- k for an 8ba octave sign below the staff
- J for a 15ma octave sign above the staff
- J for a 15ma octave sign below the staff
- Extend the octave lines to the right by repeating the character

Octave signs will move out of the way if the note it's anchored to protrudes beyond the staff lines.

Bq-4k/ Th6K/ AqJ/

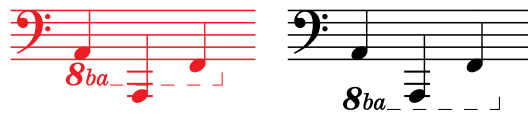


Bq-5kkk/q-4/q-3/q-9/



Since octave lines can't see if a note further ahead will intersect with it, you may need to manually move the octave line further away from the staff by adding a number between **1** and **7** directly after it:

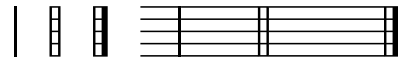
**Bq-3kkk/q-0/q-5/**  
**Bq-3kkk4/q-0/q-5/**



### Barlines

- | for a single barline
- || for a double barline
- ||| for an ending barline

| || ||| :|?|\_|||



B.w/ |:h:h: |;q;q;q;q;|||



## Spacing tips

Note positions are always centered on the notehead. Accidentals protrude to the left and may overlap previous notes if not enough staff space is given. If you want to avoid this, use `:` or `/` for spacing (or even `?` or `_`) – these are wide enough.

If you do want to bring the notes closer together, you can always use narrower staff characters like `.` and add `,` before an accidental to make room.

Tq-5s:q-4s:#q-3s:q-2s:q-1s:qs:#q1s:q2s:



Tq-5s.q-4s.,#q-3s.q-2s.q-1s.qs.,#q1s.q2s.



B, bw-2/w-1/w/bw1/w2/w3/w4/bw5/



Tw-6?w-5?bw-4?w-3?w-2?bw-1?bw?w1?



T#2q-5/q-4/(#-3)q-3/q-2/q-1/q/(#1)q1/q2/



.bq3, ,.#h-5s. :bw-0.



.h-4.h2,.bh-2. .h-1,.bh1.h-3.



## Ranges

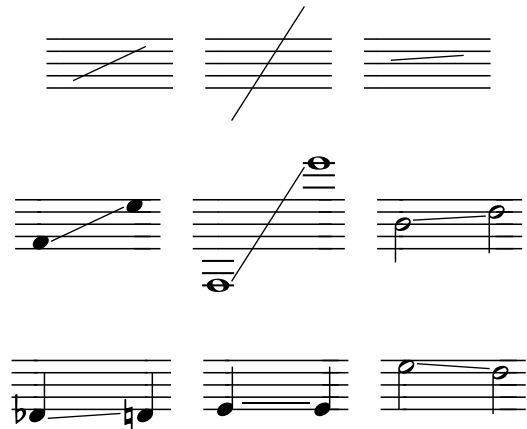
Ambitus diagrams, sometimes used in vocal scores to show the lowest and highest note required by the singers, sometimes to denote the playable range of an instrument, can be created between notes of any pitch.

### Left-to-right ranges

Enter **l** (lowercase L for “left”), then the starting position (**-0**, **-9**, ..., **-1**, *<nothing>*, **1**, ..., **9**, **0**), then **r** (for “right”), followed by the ending position.

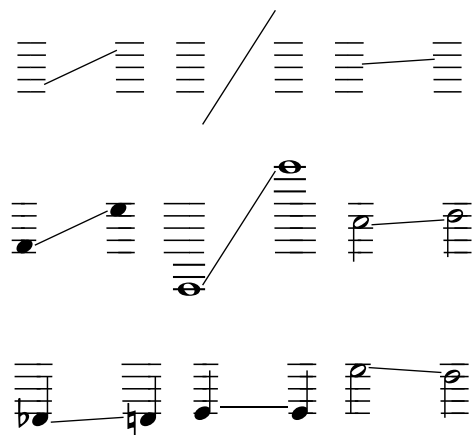
Note that by entering no number after **l** or **r**, you can create ranges that start or end at the middle line.

**,l-3r3 ,l-0r0 ,l1r2**  
**.q-3sl-3r3q3s. .w-0l-0r0w0.**  
**.h1r2h2.**  
**.bq-5l-5r-4nq-5.**  
**.q-4l-4r-4q-4. .h3l3r2h2.**



Use uppercase **L** to start a range indicator without underlying staff lines.

**,L-3r3 ,L-0r0 ,L1r2**  
**,q-3sL-3r3q3s, .w-0L-0r0w0.**  
**,h1L1r2h2,**  
**.bq-5L-5r-4nq-5,**  
**,q-4L-4r-4q-4, ,h3L3r2h2,**



### Clef changes

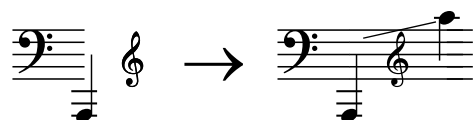
Ranges that require more than one clef to display can be generated using the combinations **cT**, **cB**, **cA**, or **ct** (“change clef to T”). These commands place a (smaller) clef in the space where an ambitus line will later be drawn. For example, the playing range of a bassoon can be written as

**Bq-0cTl-0r6q6. Bq-0cTl3r6q6.**



While entering this combination, the new clef will appear ahead of the cursor. Don't worry, it will catch up as soon as you enter a range line:

**Bq-0cT → Bq-0cTl2r6q6.**



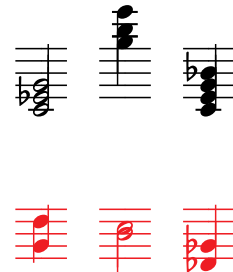


## Stacked notes

Since placing a note doesn't advance the cursor, it is possible to stack several notes on top of each other. This could be used to build some simple chords, but since the notes are unaware of each other's existence, they won't observe chord-specific rules (like stem direction or displacement of seconds/accidentals).

.h-6bh-4h-2. .q0q7q5. .q-6q-4q-2bqs.

.q-2q2. .hh1. .bq-5bq-2.



## Vertical ranges

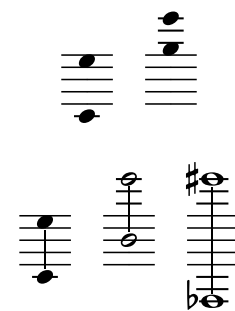
With the help of stacked notes, especially if only noteheads are used, you can build vertical ambitus diagrams:

A vertical line can be placed to connect the notes in a similar way as you would create a range diagram: Enter **v** (for "vertical"), then the starting position (**-0**, **-9**, ..., **-1**, *<nothing>*, **1**, ..., **9**, **0**), then **u** (for "up to"), followed by the ending position. Again, by entering no number after **v** or **u**, you can create ranges that start or end at the middle line.

Note that you can only place a vertical line between two notes that are **at least a fifth apart** (e. g., **v1u5** will work, but **v1u4** won't).

.q-6sq3s. .q5sq0s.

.q-6sv-6u3q3s. .hsvu0h0s. .bw-0v-0u0#w0.



## Building scales automatically with `ambitus.py`

Let's say you want to build a number of scales for a worksheet about modes, or you want to provide improvisation hints for jazz musicians and need a quick Ab mixolydian scale. Of course, you can do that in Ambitus directly, but you can also have these scales built for you. All you need is a Python interpreter (version 3.10 and up) and the script `ambitus.py` from <https://github.com/Pietzcker/ambitus> (where you'll also find the complete documentation). A standalone version that runs directly under Windows will also be provided soon.

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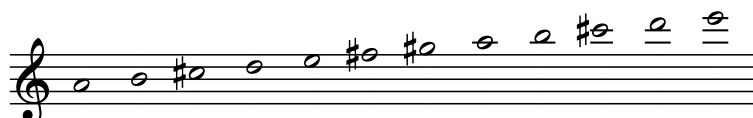
### Interactive mode

If you start the script from the command line, you can build scales step by step:

```
> python ambitus.py
Welcome to Ambitus!
-----
The following scales are available:
  1: Major
  2: Natural minor
  3: Harmonic minor
  4: Aeolian
  5: Locrian
  6: Ionian
  7: Lydian
  8: Dorian
  9: Phrygian
 10: Mixolydian
 11: Melodic minor
 12: Phrygian n6
 13: Lydian augmented
 14: Lydian dominant
 15: Mixolydian b6
 16: Locrian n2
 17: Altered dominant

Choose a scale or press <Enter> to quit: 1
Begin scale at (default: C4)? A4
End scale at (default: one octave above the beginning)? E6
Scale: [A4, B4, C#5, D5, E5, F#5, G#5, A5, B5, C#6, D6, E6]
Which clef should be used?
TReble (default), BAAss, ALto, TEnor, T8 (treble octave), SOprano, MEzzo: tw
Invalid clef!
Which clef should be used?
TReble (default), BAAss, ALto, TEnor, T8 (treble octave), SOprano, MEzzo: tr
Which key signature, if any (e. g. F, Gm, Bb, F#m or <Enter> for C)?
Choose separator (one of ;:/?_ (default ':')) /
Choose notehead (one of q (default), h, w) h
Remove stems (default: No)? y
Any additional spacing in front of the scale (;:/?_ or leave blank)?
Any additional characters at the end (default ':|')?

Th-1s/hs/#h1s/h2s/h3s/#h4s/#h5s/h6s/h7s/#h8s/h9s/h0s:|
```



Choose a scale or press <Enter> to quit: **3**

Begin scale at (default: C4)? **C5**

End scale at (default: one octave above the beginning)? **C4**

Scale: [C5, B4, Ab4, G4, F4, Eb4, D4, C4]

Which clef should be used?

TReble (default), BAss, ALto, TEnor, T8 (treble octave), SOprano, MEzzo:

Which key signature, if any (e. g. F, Gm, Bb, F#m or <Enter> for C)? **Cm**

Choose separator (one of ;:/?\_ (default ':')):

Choose notehead (one of q (default), h, w):

Remove stems (default: No)?

Any additional spacing in front of the scale (one of ;:/?\_ or leave blank)?

Any additional characters at the end (default ':|')?

Tb3q1:nq:q-1:q-2:q-3:q-4:q-5:q-6:|



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## Building modal/diatonic scales

If you import the script at the command prompt, you can choose from several scales that can be constructed using the `diatonic()` function:

```
>>> import ambitus
>>> ambitus.diatonic(scale="Aeolian", startkey="Bb4")
[Bb4, C5, Db5, Eb5, F5, Gb5, Ab5, Bb5]
>>> ambitus.diatonic(scale="Mixolydian", startkey="F#3", stopkey="C6")
[F#3, G#3, A#3, B3, C#4, D#4, E4, F#4, G#4, A#4, B4, C#5, D#5, E5, F#5, G#5, A#5, B5]
>>> ambitus.diatonic(scale="Melodic minor", startkey="C4")
[C4, D4, Eb4, F4, G4, A4, B4, C4]
>>> ambitus.diatonic(scale="Natural minor", startkey="C5", stopkey="C4")
[C5, Bb4, Ab4, G4, F4, Eb4, D4, C4]
```

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## Converting scales to Ambitus glyphs

After you have generated a scale, you can pass that list to the `build_glyphs()` function. It will return a string that can be copied and pasted into a word processor, music notation program or any other program that can display the Ambitus font.

```
>>> scale = ambitus.diatonic("Phrygian", "D2")
>>> print(ambitus.build_glyphs(scale, clef="bass"))
Bq-7:bq-6:q-5:q-4:q-3:bq-2:q-1:q:|
```



`ambitus.py` is still under development, but I hope it is already useful in its present form.

## Credits

Bravura and Academico were designed by Daniel Spreadbury of Steinberg Media Technologies.

## Appendix: Setting up your word processor

Ambitus relies on certain font features such as ligatures (the ability to combine several keystrokes into a single glyph like changing “fi” into “fi” to improve font aesthetics) and kerning (the ability to bring characters closer together, e. g. “Ta” instead of “Ta”). These features may be turned off in your word processor by default, so you will need to activate them to use Ambitus in any meaningful way.

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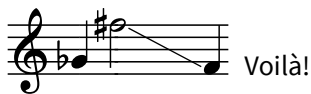
### Turning on kerning and ligatures in Microsoft Word

If you have chosen “Ambitus” from the **Font** dropdown, but your symbols look like this:

Tb-2:#414-3-3, then ligatures and kerning are turned off.

To turn on these features, you need to select the text you want to correct (by double-clicking into the margin to the left of the current paragraph) or (if you haven’t written anything yet) putting the cursor where you intend to write your musical symbols.

- Press **Ctrl-D** (⌘-D on Mac) to open the **Font** menu.
- Click on the **Advanced** tab.
- Check the boxes **Kerning for fonts** and **Use contextual alternates**.
- In the **Ligatures** dropdown menu, select **All**.
- Click **OK**.



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### Creating a formatting style

The solution above will apply only to the current paragraph, and to further paragraphs you generate by pressing **Enter** while typing. It will not affect other areas of the document, and when you switch paragraph styles (for example a heading) and back to “Normal”, the new paragraphs will no longer use these settings.

Therefore, it might be helpful to set up a new formatting style that can be reused.

- Select some Ambitus diagrams whose style you want to reuse.
- Choose **Styles** from the pop-up ribbon (if there is no ribbon, right-click your selection)
- Select **Create Style...**
- Choose a name (Ambitus, perhaps?), and press **Modify...**
- Under **Style Type**, select **Character**.
- In the lower left corner, press **Format** and choose **Font**.
- Click on the **Advanced** tab.
- Check the boxes **Kerning for fonts** and **Use contextual alternates**.
- In the **Ligatures** dropdown menu, select **All**.
- Close all the dialogs with **OK**.

You now have a formatting style that you can quickly assign to any text or choose for the next characters you’re about to type.