

DESIGNING DESIGN SPACES FOR VARIABLE FONTS

*Text by
Lukas Horn*

*advised by Petr von Blokland
written during the master program TypeMedia 20/21
2021, The Hague, Netherlands*

In this essay, I give an overview about the designing of a design space for Variable Fonts. The focus lies mainly on the phase, before you actually start to design it on paper or in a program. Because there are certain questions, that are important to be asked before starting to draw.

So, how do I design a design space for Variable Fonts?

First, I will clarify the terminology.

① TERMINOLOGY

1.1 DESIGNSPACE

I heard the term ›design space‹ quite often and had always a vague idea, what it means. In this essay I refer to the definition of Erik von Blokland:

A designspace is a file that contains the plans for an interpolation system for a typeface. It describes how the source fonts relate and how they should interpolate. It defines the dimensions in which the typeface develops, for instance ›weight‹, ›width‹, or other things. A designspace also stores information about the instances, specific locations in the designspace that are interesting and what they need to be called.

dl.acm.org/doi/10.5555/2023011.2023014

1.2 VARIABLE FONTS

One definition for Variable Fonts:

Variable fonts are an evolution of the OpenType font specification that enables many different variations of a typeface to be incorporated into a single file, rather than having a separate font file for every width, weight, or style.

[developer.mozilla.org/en-US/docs/
Web/CSS/CSS_Fonts/Variable_Fonts_Guide](https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Fonts/Variable_Fonts_Guide)

1.3 DESIGN

Maybe, it is easier to define the term ›design‹ as the term ›art‹. But it is not so easy at all:

A design is a plan or specification for the construction of an object or system or for the implementation of an activity or process, or the result of that plan or specification in the form of a prototype, product or process. The verb to design expresses the process of developing a design. In some cases, the direct construction of an object without an explicit prior plan (such as in craftwork, some engineering, coding, and graphic design) may also be considered to be a design activity. The design usually has to satisfy certain goals and constraints, may take into account aesthetic, functional, economic, or socio-political considerations, and is expected to interact with a certain environment.

en.wikipedia.org/wiki/Design

1.4 DIMENSIONS

Beforehand, the term ›dimensions‹ also needs to be more explained:

In physics and mathematics, the dimension of a mathematical space (or object) is informally defined as the minimum number of coordinates needed to specify any point within it.

en.wikipedia.org/wiki/Dimension

1.5 .DESIGN SPACE

Important to know: There is not just one ›design space‹ in type design. In terms of type production, there is also the .designspace format.

A .designspace file is an XML-based description of a multi-dimensional interpolation space.

[robofont.com/documentation/
how-tos/creating-designspace-files](https://robofont.com/documentation/how-tos/creating-designspace-files)

② WHY SHOULD I DESIGN A DESIGN SPACE?

To design a Variable Font system, is a complex task. Therefore, the first questions that arises is, if it is necessary to design a design space.

Mostly it would make sense, because it helps you to get more clarity. But maybe your idea does not fit to the purpose, so you can save the time for other important tasks.

Like I said before, very often you need to design a design space. But what is the function of it?

Should it help you, with the planning and taking control of a Variable Font system? Or is it about the exploration of the depth of your idea, maybe even for experimental purpose?

Asking yourself all this questions, can be accelerating for your process.

③ AUDIENCE & CHOICE OF TOOLS

To design a design space, it makes sense, to think about the audience, it will be addressed to.

If the design is meant to be only understood by yourself, you can be more free.

IMPORTANT To sketch the design space in a way, that you can understand it well.

You could quickly grab pencil and paper and you can start sketching.

If the design is meant to be understood by employees and colleagues, you have to be more clear.

IMPORTANT During your design process, try to zoom out and think about, how your coworkers could understand your idea even better. Detailed Informations could be of value.

You could sketch with ruler and colours. Or even with design programs like Photoshop or Illustrator.

If the design is meant to be understood by the audience of students, it could be good, to come up with some explanatory notes.

IMPORTANT It could be helpful to show the design space from different perspectives. Maybe the students know already a bit of the topic, but it will be good, to explain it from many levels at the same time, to reach out to everyone. You could even show more process than finished designs, to underline the openness of the topic.

You could sketch with pencil and paper, but also with design programs. Maybe you could even try, to go in the direction of 3D renderings, and show AR or VR attempts to explore the idea.

If the design is meant to be shown in context of selling your idea, then you can trick around.

IMPORTANT Interesting is the balance between boiling down a very complex system, so that the customer can understand the problem. But at the same time, show how difficult the problem is, and that only you can solve it properly.

You could work with design programs, to make your design more tidied up. But if you are in charge of explaining it live, then you could sketch it live on a tablet device. But to rehearse it before the meeting is recommended.

If the design is meant to be seen on a conference (a type conference for example), you can share very specific informations about your design space.

IMPORTANT Maybe in the rows could sit some competitors from your field, so it is of value to keep the secrets you have safe.

You could work with design programs.

④ OTHER TOOLS & APPROACHES

To design a thing does not mean, that you have to do it visually. Therefore, it is good to know, that you can design your design space without a visual representation of it (like a graphic).

You could also write a text, that describes your idea, you could write a code that does the same thing. Or use an application that is in between and made for this specific purpose. Like *Skateboard*, *Superpolator* etc.

⑤ DIMENSIONS

To think about the design of this complex design space, it can be good, to think also about, how you can draw objects, that are leaving the space we can normally understand. Because Variable Font design spaces can reach out in more abstract spaces. You have to get a perspective on how to make a abstract topic a little bit more visible.

We as humans are well equipped to sense our environment in a three dimensional way. We have two eyes, that have a slightly different angle on the object we are looking at. That gives us a sense of space. And our brain provides us with hints (like the analysis of shadows etc.), to get a three dimensional feeling. The first dimension can be understood. The second dimension is something real in the perception of the environment as well.

But if we want to go up to higher dimensions (above the 3D) it is harder to imagine. We are limited, because we are not made to functioning that way.

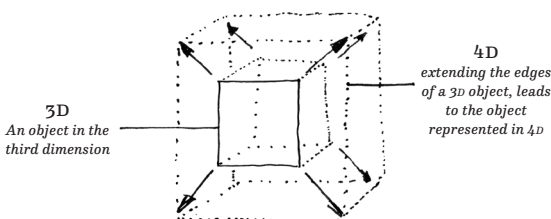


FIG. 1 Illustrating other dimensions in one way

But here is a interesting theory, which makes it more clear, how other dimensions could look like. Imagine you are standing outside, in front of a wall. you raise your hand and you can see the shadow of your hand on the wall.

The shadow is the two dimensional representation of you hand. One dimension higher: Your hand is the three dimensional representation of your hand.

The theory (fig. 2):

Imagine that the three dimensional representation of your hand is something like the shadow of your hand represented in the fourth dimension. From here on you could go higher and higher.

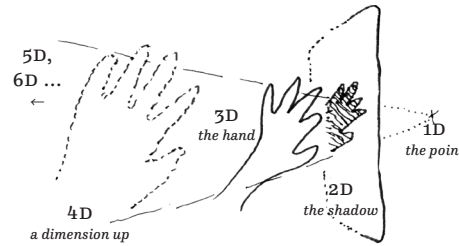


FIG. 2 Representation of a hand in different dimensions

That concludes, that we can imagine other dimensions, even if we cannot percept them with our human senses. And it is possible to make them visible in a two dimensional (sheet of paper) or three dimensional space (VR, AR). That can be supportive when you design a design space for Variable Fonts.

⑥ HOW COULD A WORKFLOW LOOK LIKE?

To get an insight, how the process of a design could look like, I will show a workflow, that is mainly shaped by Petr von Blokland.

In the chapters before, I talked mainly about reasoning, circumstances and the choice of tools. In this chapter, more practical questions will be present, while showing the workflow.

① CLEARIFY YOUR INTENTION & IDEA:

Ask yourself the questions from before and other, like: »Where do I want to go, what do I want to expect?«

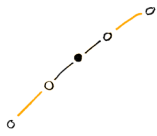
① START FROM THE MIDDLE:

Define a default weight (for example the regular cut) from where you want to start

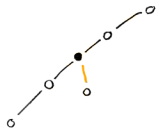
② DESIGN RANGES / AXES:

Add an axis, so that you define a range (If your default is regular, then go for example in the one direction to bold, and to the other direction to light: your range is set)

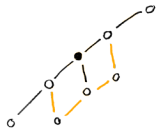




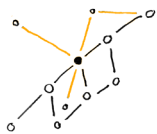
③ ADD MASTERS TO THE AXIS:
Add more masters on that axis, like in the direction of light, set a master on the spot of thin. Do the same on the other end of the axes.



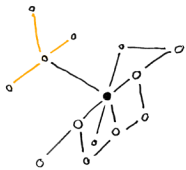
④ ADD NEW AXES FROM THE MIDDLE:
You can go to another direction, starting again from your default cut. Add for example an optical axes.



⑤ EXTEND CORNERS:
You can extend the corners.



⑥ PARAMETRIC AXIS (DOING ONE THING):
Get more specific. Are there parametric axes you could add, that are referring to single, or just some masters?



⑦ ADDING LOCAL MASTERS:
From there on, you are free to add local masters to certain created masters.

⑧ WHEN YOU ARE FINISHED:
If necessary, remove informations, that are not important for the understanding of your visualisation and tidy it up for presentation (working with Illustrator, Sketch App etc.)

⑦ CONCLUSION

The process of the design of the design space for Variable Fonts can be tricky. Especially if you build a really complex type system. Drawing and thinking from different perspectives helps.

Because Variable Fonts were more present from 2016 on, there is room for more approaches of the visualisation of design spaces of Variable Fonts. Especially in 3D there could be an interesting field to be experimented with. That means, playing with different kinds of visualisations and design processes, maybe could lead to new discoveries in the Variable Font space.

Furthermore, it is relevant to say, that the designing of a design space is something personal, too. The personal perspective shapes how you gonna achieve the goal.

⑧ SOURCES

8.1 PRESENTATION

»The Art of Design Spaces«
by Petr von Blokland
held during TypeMedia 20/21

8.2 ONLINE ARTICLES

»Visualizing Design Space in Variable Fonts«
by María Ramos on Alphettes Blog

alphettes.org/design-space-variable-fonts

»Designspace Theory«
Some Ideas on Construction and Use
by Erik von Blokland

superpolator.com/designspace.html

»Scripting a Designspace«
by Fonttools

github.com/fonttools/fonttools/blob/main/Doc/source/designspaceLib/scripting.rst

