# 4.1 Layouts, Hierarchies, Grids

So now we're going to talk about layout. We're going to talk about hierarchies and grids. And these are more of the design elements that we started talking about last week. Layout is super important because it helps communicate the structure of information. And the structure of information, it's what helps people navigate the information and make sense of it.

So layout is about how you lay out the things on the page. And it can support or detract from your story. A messy layout makes it complicated. In fact, it doesn't just make it harder for people to make sense of it, they tend to tune out and not pay attention to it. Visual hierarchy and grids and composition, these three things work together to help you keep people attentive to what you're trying to communicate to them and also helps organize the information so they can make sense of it.

So the layout itself can be powerful. And we're going to spend some time on that. The first part of layout that I want you to think about is visual hierarchies. And visual hierarchies or what communicate what's the most important thing on the page. So you would tend to think about, what's the most important thing on the page? What's the next most important thing on the page? And what's the next most important thing on the page?

And there's visual cues that we can give people that help them find what those most important things are. These visual cues can help people make sense of what they're seeing and help them make their way through the image or through the page or through the visualization.

OK. So here's an example. I got this off the web, and I think that it's great. And most people will tell me that that's exactly what they experience. They're going to read that great big black text in the middle of the white box on the page first. And then the next thing that happens is their eyes slide down into the black space, and they read that next line, the one that says, "and then you will read this." And they got a little lower, and they say, "then this one," and at the end, they'll read what's on the top.

Now, to some degree, this is based on the way that we organize information and text in Western civilizations. So in different cultures, there might be some differences. But by and large, most people tell me that that's their experience. And it's because of the contrast and the size of the text and where things are placed. In Western civilizations, we tend to read from the top to the bottom. And in this case, we don't read that very top line first, because the text in the middle of the white box is so big, it draws our attention first.

So the first rule that we're following when we see this image is, largest text first. And then we start reading down. So that contrast between the large text and the black and the white is what grabbed our attention first. OK, this is very standard. And we can actually just borrow this when we're designing our layouts.

One of the publications that has historically done a really great job of layouts is *The* *New* *York* *Times.* This is an example front page of *The* *New* *York* *Times.* And if you just look at this front page, most of us are going to see the image first. It's the thing that has the most contrast. It has a lot of screen real estate, so it takes up a lot of space. And then after we see that, then we're going to start looking above that and around and following some of the other rules, like top down.

So in this case, probably the most important communication element on the page is the picture. And then is the title, "Bush celebrates victory." So what looks like the most important thing on the page often is the most important thing on the page. It's the thing that draws our eye. It's the element that stands out in largest contrast to everything else on the page. In this case, *The* *New* *York* *Times* is using color, a color image. They're using fonts and the size of the font to communicate different things.

It turns out position is also important, and we're going to talk about that a little bit later. But by and large, the things at the top right are the things that are going to grab our attention the most. The next thing that *The* *New* *York* *Times* does is it provides subheadings. And these subheadings help us navigate the page. We can look at this and tell what's important, what we want to look at. *The* *New* *York* *Times* title is a brand. And so it's a different font than everything else. And it helps us know that we're looking at *The* *New* *York* *Times.*

And then there's something called grids and gutters, and we're going to talk more about that in a second. But they can help emphasize certain elements. I mentioned that the image, the photograph of Bush and his family, is the most important thing on the page. And if you look at the page, you can see that there's columns. But the photograph breaks the rules of the columns by spanning four different columns. In that way, that's a kind of contrast too is that it's breaking the rules.

Grids are actually hugely important in helping to organize information. They signal and define the layout simultaneously. They support the visual hierarchy by having the information organized in some way that helps us figure out what's important, and what's the next most important thing. They provide structure and organization, and they do this by alignment with whitespace. I'm going to show you an example of that in a minute.

But those grids provide consistency. The information isn't all a jumble. It's organized in some clear way. And grids help us organize in. Grids also provide an opportunity to break the rules. Like I was saying with the photograph, the photograph spans four columns. And it does that intentionally breaking the column rules or the rules of the grid. And it does it so that it can communicate something. These grids support cognition and visual perception. Without it, with everything being a jumble, we actually tend to just zone out when things are complicated.

So by making things organized, we keep things cognitively simple. So here's an example of a grid. And what I want to point out here is that this grid has, on the left, this kind of looks like a textbook. We have an image in the top left, we have some text below the image that describes the image, and then we have two columns. Maintaining this consistent format actually exists because we have found, over time through research, that it works. It's what helps us digest information.

Short columns that are nicely laid out are easier to read than really wide columns. And so that's how we tend to organize things. We also tend to break the rules in ways that are strategically important. So for some reason, we have two images of this textbook page. On the left hand, we have a picture up at the top left. And on the right version, we have a picture that spans two columns.

So whatever the author's intention was here, in this case, they chose shorter columns, they chose an image that spans two columns with the text that describes the image on the right. But these are strategic choices that you can make. And in fact, later I'll talk about iterative design. That's probably the case here. They tried one design, and then they went with a different design. But maintaining that consistent structure is very important and really helps people make sense of the information.

These are different examples of a similar thing. Whereas before, we had a columnar layout, and we had a grid that supported that column layout. Here's two examples where they're actually using more of a grid layout to organize the information. So they have, on the left side, they have a bunch of space at the top. And then they have blurbs of text at the very bottom, and they have an image on the left, they have two images on the left, and they have the text in the middle. These are very intentional layout decisions.

The right is just another example of it. But one of the things that I want to call your attention to is that they don't actually-- we have red lines showing these grids here. But in the real textbook image, they don't have red lines breaking things up. Actually, the only thing that breaks the page up is the whitespace.

So whitespace, it turns out, is hugely important in communicating the layout of the page. Usually we find that boxes around things can be distracting. So instead of having boxes, we just let-- add a little more space, and we use the whitespace to make that grid obvious.

It's also the case that having whitespace on a page gives us a place to rest our eyes. A lot of times, when we look at a page, our eyes tend to dart around to figure out the page. Having space where our eye doesn't necessarily go is considered good form.

OK, here's another grid example. On the left, we have a pretty straight column layout. And on the right, we have a bunch of images mixed in. By and large, on the right, we're following the grid layout very, very carefully, except where that large image right in the middle of the page spans two columns.

The image also has space on it. For most people, what they'll find is, their eye will wander around that page, and it'll keep going back to that image. It goes back to that image because the image breaks the grid rules and also because the image is different than the surrounding text.

Grids aren't new. They've been around for a long time. They're a key element of design and a key way to keep your information neat and tidy, which makes it cognitively easier for the people that are trying to make sense of what you're trying to communicate to them.

This is actually a map of the New York Underground, sorry, London Underground. And if you've been to London, you know that the Underground is a hugely important part of life. People use it. They find it relatively easy to use. But they don't use this map of it. They use a map that has been imposed on a grid structure. Grids just make life easier for us. They help us make sense of the data. Here you can see the grid layout over it in such a way that it makes the lines of the London Underground map really stand out.

Now, when you go to the different cities around the world, many of them use the same kind of grid-imposed layout in order to layout their underground map. So when you're coming up with a layout, like I have said before, for this class, one of the big deliverables is a poster at the end. And you're going to have to think about how to lay the information out.

So one of the things that I do a lot of times is, I get a piece of paper and a pencil, and I just sketch what an underlying grid might look like. And then I fit things to the grid. You already know how to resize the images in order to make them different sizes. You actually want to-- when you're laying out your grid, you want to lay out the grid and then enforce the grid, which means changing the size of your plots to fit your layout.

So start with a sketch. Try different organizations of the information. Try laying out your plots in different places, putting your text in different places. And do that with a piece of paper and a pencil, first because it's fast, and because you can just throw away sketches that don't really work. You want to be very careful to align things that are similar in ways that help people organize the infor-- or that help your viewers make sense of the information.

And then we've got whitespace. Remember I said whitespace is actually better for enforcing layout than having different boxes and putting everything in boxes on a page. In this case, gutters are the whitespace and columns that separate the columns. And we want to make sure we have very clear gutters. This whitespace can communicate a flow in the post or design. And I'm going to show you an example of that in a later lecture. But whitespace also helps direct your eye. Where do you want people to pay attention?

Details matter in the layout. They matter in a really big way. If you're going to show a grid, you want to make sure that everything lines up evenly on the grid. You don't want things a little bit off to the left or a little bit off to the right, because then they don't enforce the grid in a way that helps people make sense of the information. And that's what it's all about. Remember, this is about communication. You want people to get your point. So make it easy for them. Make it easy for them by having a good clear layout and making it obvious to people.

Another thing that I've found is that you can actually look in a mirror. If you've got your layout sketched on a piece of paper, and you're looking at it this way, it looks one way. But if you take it around, turn it around and look in a mirror and then look at how that layout looks, it actually can help you go, mm, that part probably doesn't work, or this part needs a little bit of work. You can also squint so that it's kind of blurry. That blurriness can give you an overall sense of how the design looks, instead of getting mired in the details or spending too much time looking at one thing.

# 4.3 Composition

So we talked about layout, and we talked about how important that was to help people make sense of your information. But you could have a great layout and a really ugly piece, and nobody will want to look at it. So the next thing we're going to talk about is composition. And I don't expect anybody here to become an expert in design. But for composition, we can borrow from some other fields, like photography. And so we're going to take a look at a couple examples and talk through how they might come across.

Composition is about the overall feel of the work. We can use composition to create elements that help guide the eye where we want them to look. Some of this has to do with positioning, and for some of this, we can actually borrow from the layout or use the layout. But we can actually add some other design elements as well. Like I said, we're going to borrow from art and photography to talk about composition.

And so let's jump right in with a terrible example. Look, this is bad design. Don't do this. For a final poster project or posters that you're going to use in business to communicate some new project or something like that, or even slide design, having too much text or having a lot of boxes around things really doesn't help. In fact, in this case, these boxes don't even line up well. So this is an example of-- the designer here is using a column structure, but the rows aren't following a very good grid structure. So it just kind of looks messy. I've blurred out the text here, because what it says isn't important. What's important here is the overall effect does not invite somebody to want to look at it.

This is good design. In fact, this poster is great design. They have a pretty clear visual hierarchy. Even though they don't follow a grid structure, really, really terrifically, they break the rules in some key interesting places. But interestingly, this has a two-column structure, where one column's narrow and another column's wider. It has a very big title that tells us right away that we're talking about something that has to do with subscribers. It uses plots for good visual effect, and there's no boxes around things. Things are organized, because we can see that there is basically a grid. It largely follows the grid, and it's got some subheadings that help tell the story, that help set things apart.

The hierarchy, then, here is imposed by or communicated by a grid. It's communicated by these colorful subheading boxes. And it's communicated with fonts that are larger and smaller, that help tell the story. So this is an example of really good design.

Here's another example of terrible design. There's too much on this page. There's no place for your eye to rest. And there isn't really a very good grid or any real communication structure at all. The overall effect is a cacophony of visual noise. There's too many colors. It's just too much. We want things that are simpler and have lots of open space.

So here's an example of really good design. The colors are consistent, right? There's just a few colors. It's not a cacophony of colors. It's a few well-chosen colors. It's got boxes that help layout the structure of the poster. And I'm talking about this in terms of posters, but you can use these same design elements if you think about building a dashboard for a company, or laying out a report that's going to be a PDF. Or building a web page. All of these are going to be similar.

OK, so this is good design, because it's using a relatively simple color structure. It's got some clear lines that help divide the page up. The author of this particular poster follows those lines really well. And it's got a handful of fonts, but it's not a big mess of fonts.

So how did people think about this? This design also uses one narrow column and one wide column. It turns out they're borrowing from something called the rule of thirds. And this comes from, well, it comes from photography, but it actually is older than photography. It comes from fine art as well. But they talk about it a lot when they talk about, how do you layout a photograph? And that is basically-- we're going to break the screen up into a grid of nine squares, where things are roughly cut up into thirds.

And so when you're taking a photograph, you actually can do that. Here's an example. Here's a picture of a rose. The rose is basically taking up the top 2/3 and left 2/3 of the screen. And then you've got some background around the sides that take up a third on both sides.

Interestingly, they also put the center of the rose right on a one third grid line, and they do that intentionally. They do that because our eye actually tends to be drawn to something that's off-center. If we perfectly center an image, oftentimes, it's less interesting. It's more boring than an image that's off-center like this. Now this is a little different than portrait photography. If you're doing portrait photography, you want everything centered. But in this case, this is a very artistic example. And you can actually do this with your poster. And we're going to talk about this-- we're going to talk about how you might do that a little bit later.

But here's another example of the rule of thirds. This is a pretty common kind of photo way of laying something out. Look at the sky. The sky in this picture takes up the top third of the image. And then the watery area below that is taking up the bottom 2/3. This interesting outcropping of a tree-- it's right on that grid line of the thirds. So again, this is very common, and we're going to see ways that we might think about using this in posters as well.

But like I said it is actually older than photography. It shows up in fine art. Here we can see that there's horizontal and vertical points of reference that help the artist determine where the points of interest should be. This artist doesn't place the person, which is the key element of the image, exactly on the rule-- the grid line, but it's actually pretty close. And so they're still using this as a guideline here.

Here's another example that is also pretty close to the rule of thirds. The top third of the image is the background. It's behind the people that are in the foreground that we're supposed to pay attention to. One of the people who actually has the brightest face is pretty darn close to that cross point there. So here's another example where they've used the rule of thirds in older art that's actually hanging up in a museum.

More modernly, this is used very consistently in posters for movies. So we have some in the *Pirates* *of* *the* *Caribbean.* All the information about the movie is down at the bottom. And the people's heads that are the stars of the movie are at the top. So this is a information organization or a composition that's used to help break an image up in a way that's interesting.

So that's the rule of thirds. And like I've said, it's actually been used quite a lot in photography. It's kind of a fallback that you can use. Another one is the golden ratio. This is another way to break an image up to highlight something that's important. Or to organize a layout in a way that draws people in to what's important.

Look right here. This is a photograph that uses the rule of thirds. The person who is the key element we want people to look at is right in the center of that spiral. And in this case, the photographer has actually lined the person up along the spiral. And it draws us right in, right where the photographer wants us to look.

Here's another example. In this case, it's not so much that they're drawing us in, it's that they're using the golden ratio to break the image up into different parts. Here, we've got a large portion of the image that's devoted to the sky. That's where we're going to let our eyes rest. That tree almost takes up the next largest part of the golden ratio.

Here's a golden ratio layout that you can just borrow from these slides to think about a way to layout your poster. So those are some larger compositional things that you can use to impose a kind of interesting composition on a poster. But we can also use some supporting elements.

You saw this image before, when we were talking about color, and I was saying, "Look, that fish really stands out. It stands out because it's the only green in a bunch of orange." But the other reason why it stands out is because there's a bunch of arrows pointing at it. And I don't mean the arrows that I put on top of the fish. I mean, those fish, actually, are pointing, and they're pointing right at that green fish. So here I'm using two different elements to really draw your attention to one thing.

Another use of lines is-- in this photograph here, the photographer used all those lines on the edge of the boat and the boards in the boat to point to the people at the center of the-- at the front of the boat. It's also the case that you can see that there's landscape on the right that's being reflected in the water that's also pointing at the people. So that might sound silly. Oh, yes, I'm going to use pointers to just point to the things that are important. But here we see some concrete examples of how it can work really well.

Here's another example of when we're using lines to point at whatever is the key thing. This image actually takes advantage of the rule of thirds, too. The top third is the sky. The bottom third is the water around it. And my guess is what the photographer wants us to look at is the sunset. And so they're actually using these lines to draw us into the image. This is a very common way of laying out a photograph, too.

OK, so the point of this has just been that in addition to using layout to organize the information, here we're using composition to make the interesting-- to make the image, the overall image more interesting. Now I know that sounds like a lot. And actually, designing a good poster takes a lot of time, because we're thinking about all of these things together. We're thinking about the composition, the overall effect of how the thing looks to people, as well as a layout that helps organize things in a way that makes things cognitively accessible to the people that are looking at the image. There is another piece that we're going to talk about, and that's fonts. So that's coming up soon.

4.5 Good & Bad Typography



Layout, composition, grids, all those things are important. But you can really kill a good design with bad fonts. So we're going to talk about some good and bad choices.

Let's start with this one key concept-- good typography, good font choice happens when the meaning of the text is captured by the way the font looks. So we want to spend a lot of time thinking about, is this font the right choice? What works in one context probably won't work as well in another context. And another thing is, there isn't usually a single solution, only better and worst choices. So we're going to play with that a little bit.

But to make good typographical choices, you have to first totally understand what your data is about, and what is the story you're trying to tell. So this is a lot about meaning. And believe me, people can spend their whole profession being typographers-- being focused on what's the right font. People, if you're in a design class, or if you're a design student, you're probably going to take one or two whole classes on typography. So we're just going to scratch the surface.

But here's my first really awful bad example. So there's some guy named Big Ted, and Big Ted runs a Harley Davidson Bar. And he hires somebody to make a sign for him.

This is probably not a sign that's going to go over well, right? We imagine Big Ted to be tough. We imagine him to be a Harley Davidson biker. And the kind of clientele that he wants to attract is not going to necessarily be attracted by a bunch of really bright colors and a very playful font.

So let's pick something a little better. This is probably a little too straitlaced, but it's definitely better than the last one. We're more restrained on the colors. We're using black and white. And it's very straightforward.

This is safe. If you don't know what to do, be safe. But this is probably better. We're capturing the idea that there's something that Big Ted wants to communicate that's bold and is very black and white. This is Big Ted's bar. So in this case, I kind of feel like the meaning of the text is captured in the font choice I've made.

Could you do better? Yes, probably. There's millions of fonts out there. OK, I don't know if there's actually millions. But the point is when you scroll through all the fonts in Microsoft Word, there's a lot. And there's a lot of choices out there. And so when you look at your text, does the font you're choosing actually capture the meaning in there?

Let's look at another example. This is about Tina's Quilting Boutique. OK, I used the same font for the biker bar here. And it really doesn't work as well, does it? I imagine Tina to be-- or I imagine her quilting boutique to be a little bit more feminine.

So this is probably a safer choice. It's not quite as aggressive. It's not quite as in your face. It's not particularly feminine, but it's a safe choice.

This is probably the better choice. Now, I don't actually know anybody named Tina who has a quilting boutique. The point is just what I'm trying to do here is match the meaning of the text. What does Tina's quilting boutique bring to your mind? Well, it probably doesn't bring the biker bar font to mind.

Now, we can easily go overboard by choosing too many fonts. In fact, when we have too many fonts, we end up with what's called cognitive dissonance or cognitive challenge-- where we're trying to go through and figure out what the font means at the same time that we're trying to read the text. So just in general, try to avoid using too many fonts.

If your poster has more than three different fonts, there should be a really good reason for that. Too many fonts, again, becomes cognitively challenging for us to make sense of. So in general, go for something a little more consistent in your design choices.

Spacing is also really, really important. In this case, what I'm saying, look, when you have fonts that are all squished together like that, people are having a hard time reading it. And the whole point of putting text on a page is because you want somebody to read it. So try to find ways that make it easy for them to read.

I think I say that here when I say, give your text a more organized look. Give plenty of space around it. We talked about white space and grids before. So make sure that your text fits into that grid. Using right-justified, or center-justified, or justified is a choice you can always make. If you want really good tight grids use justified text all the way through.

If you want people to read your text, the main point here is make it easy for them. But you don't have to be totally safe. If you feel like you really understand what the text is trying to say, then you can step back and go through the list of fonts and say, which one of these really kind of looks like what it is that I'm trying to communicate with