# 10. complex graphics

How can you make sure that a complex diagram is a highlight rather than a lowlight? This is a largely ignored problem. You need to pay special attention to the way in which you present conceptually complex graphics. Many of our diagrams are difficult to understand even by those who have the opportunity to explore and reflect on them at leisure. If you use a complex diagram in your presentation, you must ensure your audience will understand its implications for your argument.
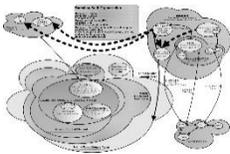
 Most books on presentation urge you towards simplicity. For example, Garr Reynolds, who focuses on graphic design in his excellent book, *Presentation Zen*, argues for simplicity as a design principle.

There is, however, one issue that Garr Reynolds and others who recommend simplicity do not deal with. In the knowledge professions, much of our material is conceptually complex. It is not that Reynolds denies that but rather that he does not offer a strategy for dealing with it.

I believe that what I offer in this chapter is unique. It is not radical or revolutionary or even profound. I have not, however seen this issue addressed in any treatment of presentations.

Simple or simplistic?

Garr Reynolds distinguishes simplicity (achievement of maximum effect with minimum means) from simplistic (the false simplicity of glossing over complicating factors). For our purposes, this is an excellent definition of simplicity; achievement of maximum effect by minimum means. We do not want to gloss over important details even if they do add to the complexity of our ideas. However, in promoting simplicity, Garr Reynolds focuses on relatively straightforward ideas. He does not explain how to maintain simplicity in the face of complexity.

Even for complex ideas, we can work towards explanations that focus on their intuitively straightforward aspects. As I noted in chapter 5, Richard Feynman, a Nobel Laureate in physics, was admired for his ability to communicate complex ideas. Let's see if we can follow his lead in the design of our graphics.

A picture is worth …..

Some say a picture is worth a thousand words. I have seen pictures within presentations that were not worth a syllable. It is not, as Rod Stewart would have it, that every picture tells a story but rather, that every graphic *should* support an explanation.

In the knowledge professions, we have countless diagrammatic forms for representing flow and structure. In my work, my favoured method of analysis, cognitive work analysis, has a number of different representational products. When presenting, I always find it challenging to explain these in a way that an audience will be able to follow.

Here I will describe how I go about it. In doing so, I will focus on the problems posed by node-and-link diagrams. My treatment of this problem can, however, be adapted to any style of complex graphic.

Three problems

Node-and-link diagrams pose three challenges.

The most obvious is that the typical analysis of a complex system results in a representation with many nodes and many links. Some of the representational products I have developed have contained hundreds of each. An audience would not be able to take in such a complex diagram if offered in a presentation and indeed, the sheer number of elements would result in nodes, links and labels that were so small as to be unreadable.

A second problem is that every node is similar in appearance to every other node and every link is also similar in appearance to every other link. These nodes and links constitute the syntax of our diagrams. Although we intend that these diagrams support a meaningful narrative, one laden with semantics, the nodes and links are semantically neutral. Thus, syntax dominates to the extent that it obscures the semantics. With the semantics hidden, it can be very difficult to follow the explanation. This is serious enough in a document but it is even more challenging in a presentation.

Finally, because of space constraints, those who build these representations rely heavily on abbreviations and acronyms that are not widely recognized. Again, syntax dominates as semantics is pushed into the background.

Control of your graphics

My argument below assumes you have full control over your graphics. If something is not quite right, change it. That was difficult in the days we used specialists to hand draw our graphics. Advances in

Control of Your Graphics

Never allow yourself to be in a position where you have to explain why your graphic is not quite consistent with your argument.

Also make sure the words you use in your graphic match those you have elsewhere on your slides and also match those you use in your narrative.

Do not use different words to refer to the same concept even when those different words mean the same thing.

Additionally, do not use the same word to refer to different concepts even when that word can refer to both.

computer applications has changed all that. If you still use someone else to create and edit your graphics, you will continue to put up with something that is less than ideal.

My approach

My complex diagrams are detailed descriptions of complex systems. However, it is not useful within a presentation to lay out all of the details. It would be like showing the circuit diagram of an electronic device and going through its hundreds (thousands?) of components and connections element by element. On the other hand, it may be useful to describe the function of the device or its principles of operation. It may even be useful to explain how to read the circuit diagram. Any one of these goals could be supported by much simpler graphics. These are the sorts of goals I try to satisfy with my complex graphics.

The first thing I do is eliminate unnecessary detail. If I am using a diagram from a report or a previous presentation, I customise it, removing elements that are peripheral to this presentation.

If the diagram is still too complex, I reduce the number of nodes and links. I may do that by showing a fragment of the complete figure. If that does not work, I may collapse several nodes into one. That typically also collapses several links into one. In some cases, I will combine these two approaches. If at all possible, I limit the number of nodes to around 20, with a similar number of links.

However, even 20 nodes and links are too many to reveal at once. I sort the nodes and links into convenient conceptual clusters and reveal them in layers, incrementally building up the diagram with each cluster.

Any diagram must support a narrative. Some of my diagrams support many narratives; far too many to go through in a presentation. I select one or two narrative trajectories that will serve to illustrate how to glean insight from the diagram (how to read it) and then as I work through a narrative, I build the diagram in layers, revealing the appropriate conceptual clusters as I progress.

I also work at fore-grounding the semantics by replacing abstract elements with distinctive and meaningful graphics. For example, in a flow diagram that represented the development of a presentation, I might replace a box labelled *presenter* with a picture of someone presenting.

Distinctive, meaningful graphics   Semantically neutral nodes
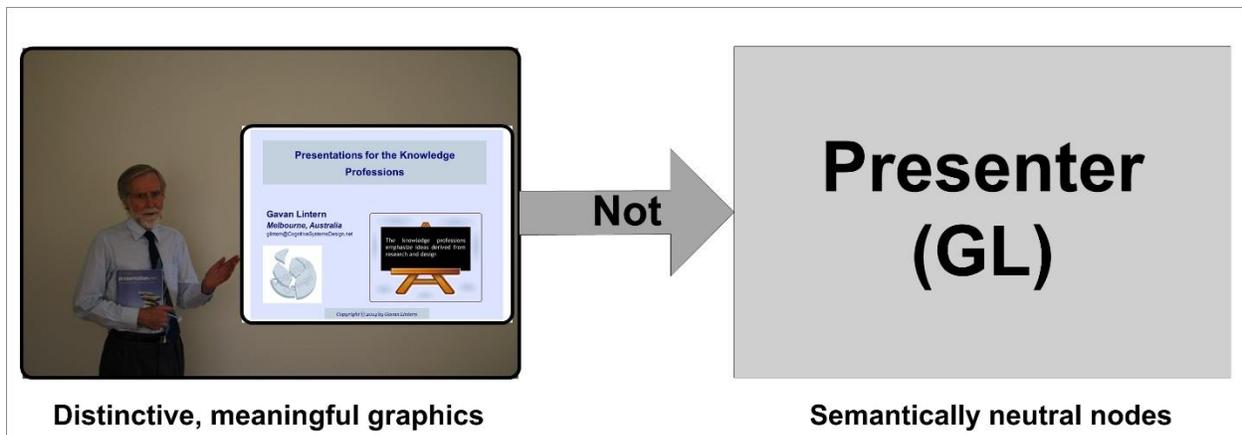
Abstract relationships are typically more difficult to represent in picture form than physical entities. Nevertheless, there are evocative ways of representing many types of common relationships. For example, within my presentation workshop slides, I use a balance icon to depict an assertion that meaning is more important than detail.

Distinctive, meaningful graphics   Semantically neutral nodes
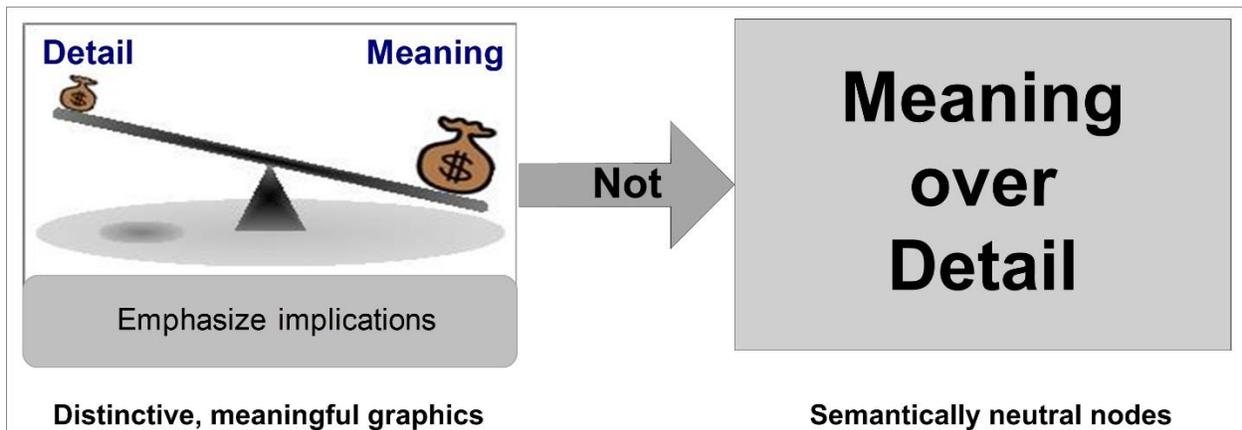
Finally, I avoid acronyms wherever possible. I spell out labels for nodes and links, ensuring they are succinct and meaningful. I do not succumb to the excuse that space is too limited. The only acronyms or abbreviations I allow are those that are well known and defined in a reputable dictionary.

Illustration

I had wanted, at this stage, to illustrate my approach to complex graphics with an example from my presentation workshop. I do not, however, use any complex graphics in that workshop. I had thought to use one from my own professional discipline, but too was problematic; it would have required a lot of explanation of basic concepts. Instead, I have developed an illustration for a problem that I believe will be obvious to all. You

can view that illustration in the video below.

[Access my short video summary]

Summary

Within the knowledge professions, you may have to discuss something that can best be represented by a complex graphic. This particular problem of how you present complex graphics is ignored by presentation gurus. Presentation of complex graphics is always a challenge, but in this chapter I have described how I approach the problem; I present only those elements that are essential to my explanation, I build from the simple to the more complex in conceptual layers, and I work hard at foregrounding the semantics.

I have used this approach for over a decade. The feedback I get suggests to me that those who attend my presentations and workshops can follow my explanation and that they get good value from my complex graphics when I follow this strategy.