11. 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 you present conceptually complex graphics. Many of our diagrams are difficult to understand even for those who have the opportunity to explore and reflect on them at leisure. The presentation format exacerbates the problem. 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 address. In the knowledge professions, much of our material is conceptually complex and we have countless diagrammatic forms for representing the flow and structure of that complexity. It is not that Reynolds denies the problem of complexity but rather that he does not offer a strategy for dealing with it.

In my work, I often have to discuss complex representational products and, 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 generic node-and-link diagrams. My treatment of this problem can, however, be adapted to any style of complex graphic.

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.

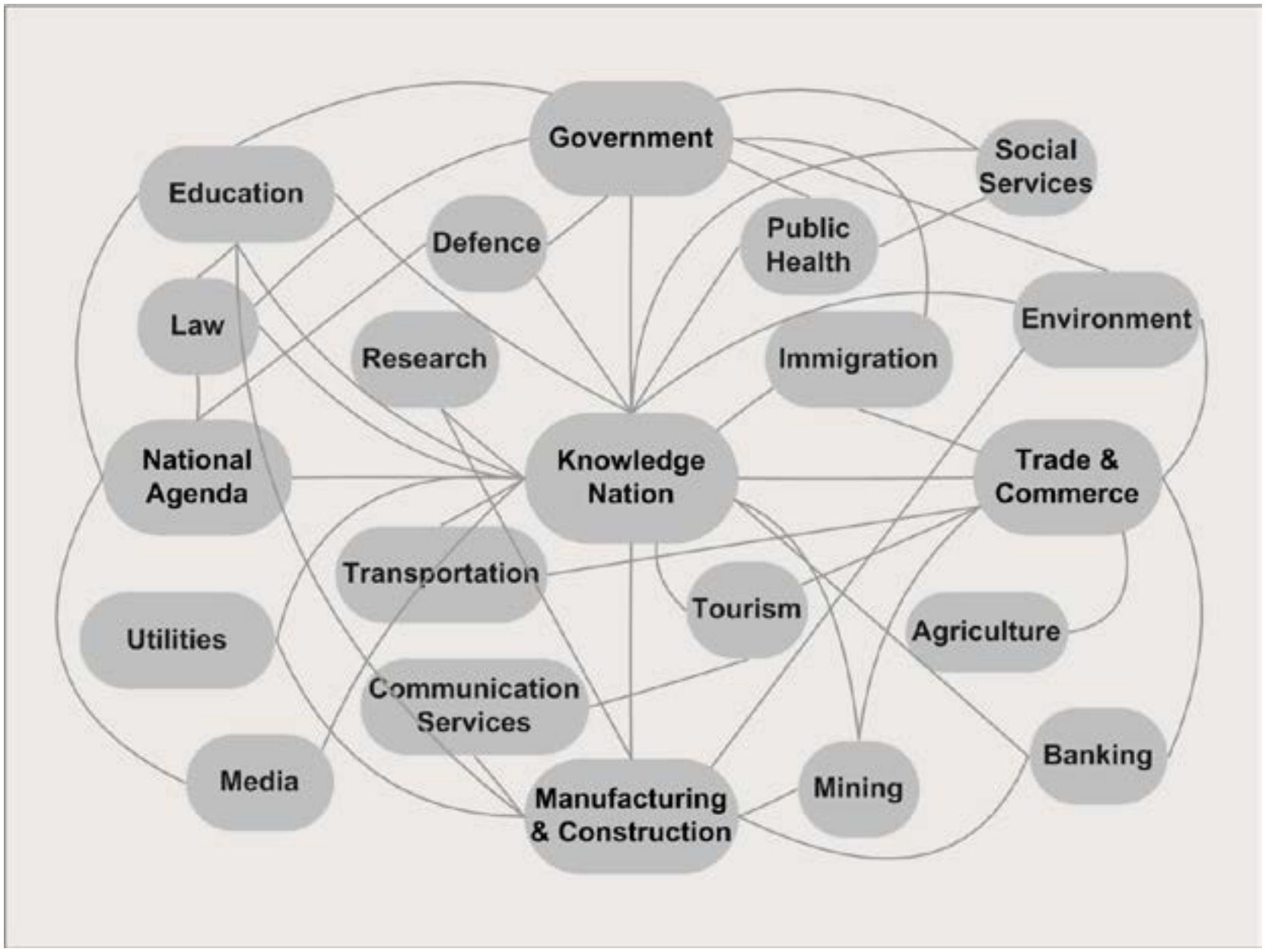
Simple or simplistic?

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 unnecessary complexity but neither do we 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.

Three challenges

Node-and-link diagrams of the type shown below 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 explanation, one laden with semantics, the nodes and links are semantically neutral. Thus, syntax dominates to such an extent that it obscures the semantics. With the semantics hidden, it can be difficult to follow the explanation; serious enough in a document but even more challenging in a presentation.

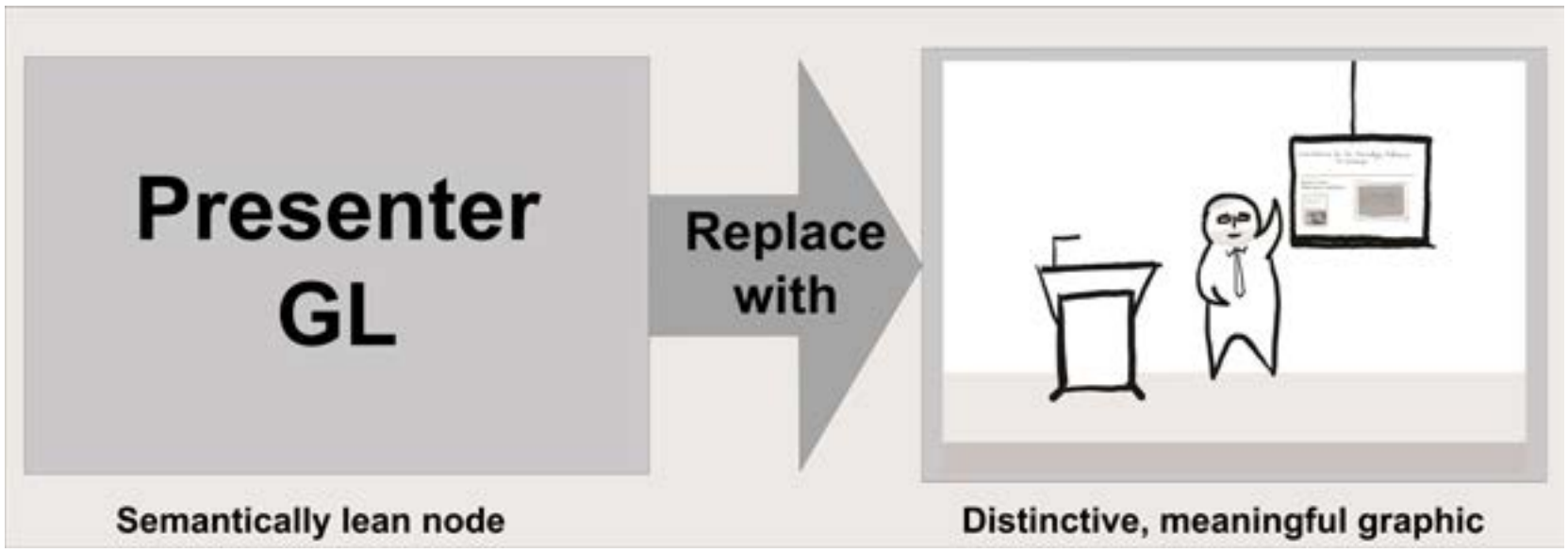
Finally, because of space constraints, those who build these representations rely heavily on abbreviations and acronyms that are not widely recognized. Again, syntax dominates as semantics is pushed into the background.

My approach

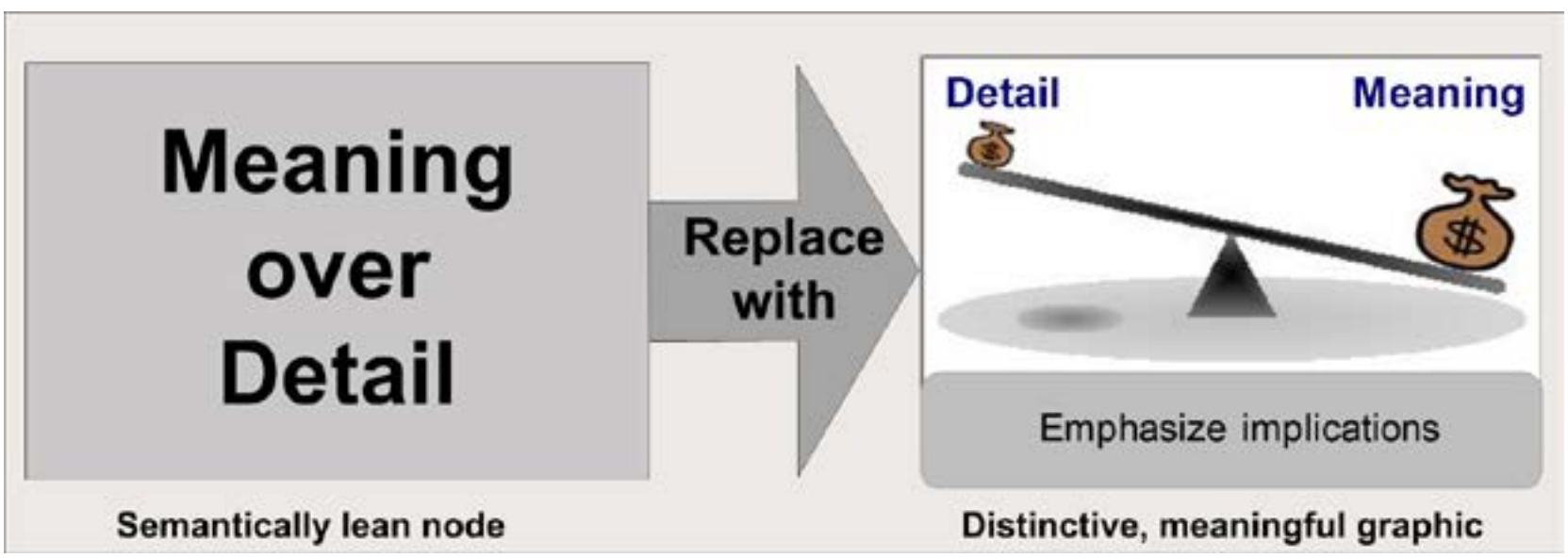
My complex diagrams are detailed descriptions of complex systems. However, it is not useful within a presentation to lay out all of the details. It would be like showing the circuit diagram of an electronic device and going through its hundreds (thousands?) of components and connections element by element. 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 customize it, removing elements that are peripheral or irrelevant to my presentation.

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



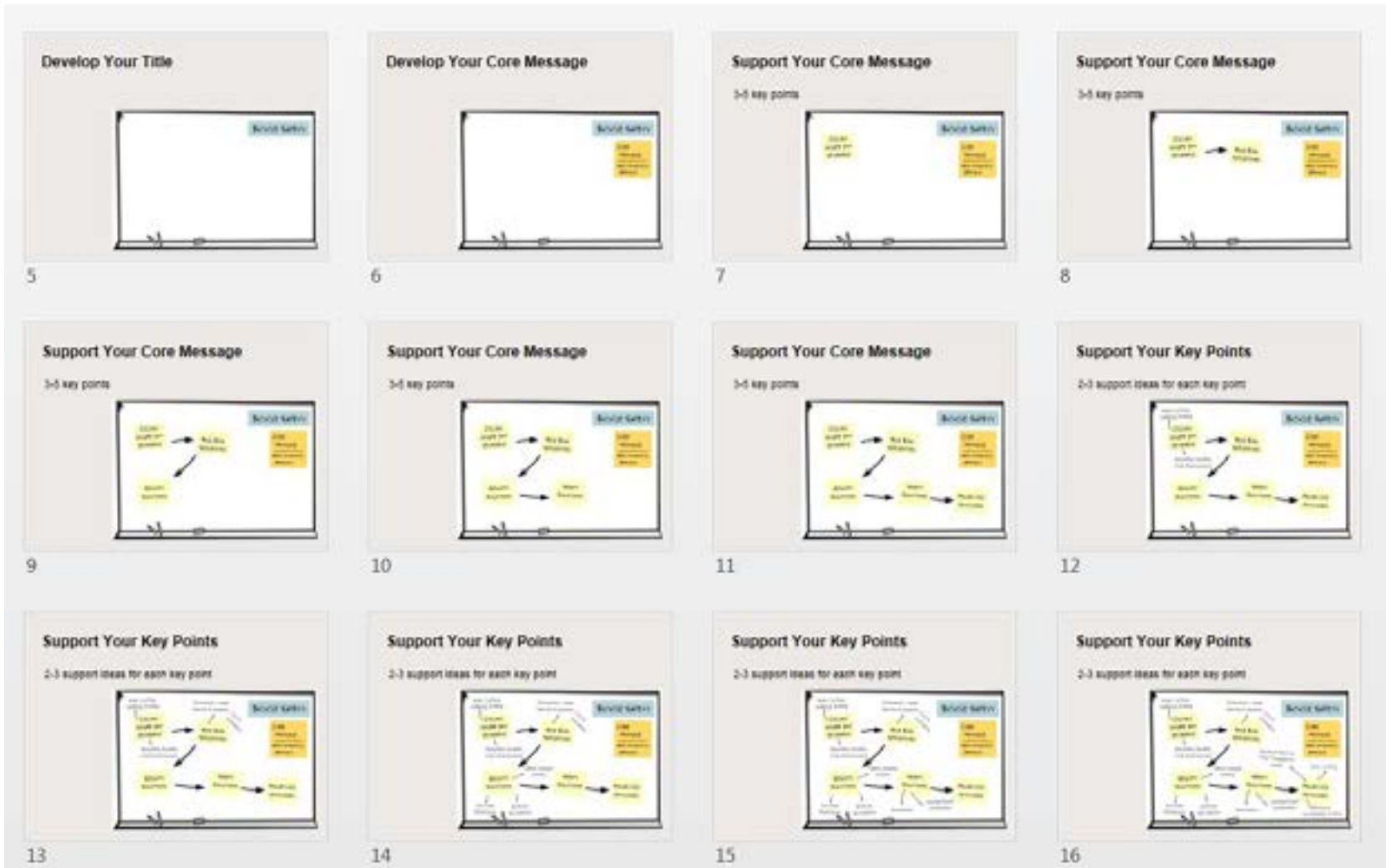
Abstract relationships are typically more difficult to represent in picture form than physical entities. Nevertheless, there are evocative ways of representing many types of common relationships. For example, within my presentation workshop slides, I use a balance icon to depict an assertion that meaning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



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.

If my diagram is still too complex, I may reduce the number of nodes and links by showing only a fragment of the complete figure. Alternatively, I may collapse several nodes into one, which also generally collapses several links into one. If at all possible, I limit the number of nodes to around 20, with a similar number of links.

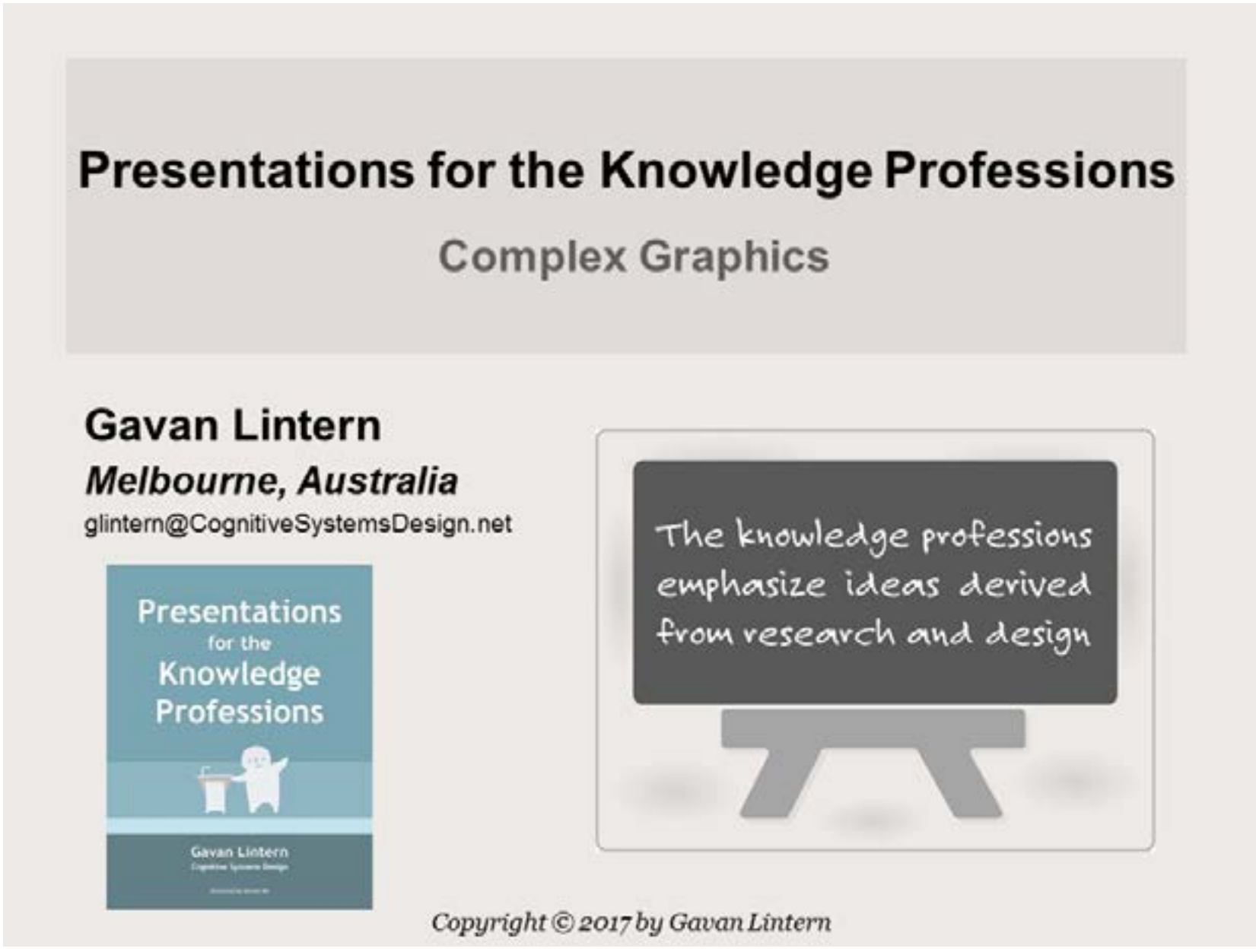
However, even 20 nodes and links are too many to reveal at once. I sort the nodes and links into conceptual clusters and reveal them in layers, incrementally building up the diagram with each cluster. I have already illustrated how I do an incremental build in an earlier video, Structure: A New Way, in chapter 3. In that video, I show how I developed a presentation on bicycle safety by building key points and support ideas over a number of slides. The slide sorter view of the relevant slides is shown below. While this is not a node and link diagram, the video demonstrates the general strategy of an incremental build.



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

Illustration

In writing this book, I had first thought I might illustrate my approach by reference to a complex node and link diagram from my own professional discipline, but that 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 where I summarize my approach to presenting complex graphics.



[Access my short video summary: Complex Graphics]

If you would like to see how I do this in my own professional discipline, you might refer to my book, Joker One: A Tutorial in Cognitive Work Analysis, downloadable at no charge from my website, cognitivesystemsdesign.net.

Control of your graphics

My argument above assumes you have full control over your graphics. You need to customize your graphics for your presentation. Do not retain details that are not specific to your exposition. Do not take a graphic from a report or from another presentation without editing out the extraneous detail. If something is not quite right, change it. That was difficult in the days we used specialists to hand draw our graphics. Advances in computer applications has changed all that. You need to do this yourself. 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.

Graphics, do not .....

Do not put yourself in a position where you have to explain why your graphic is not quite consistent with your argument.

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 exposition.

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

Do not use the same word to refer to different concepts even when that word can legitimately refer to both.

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.