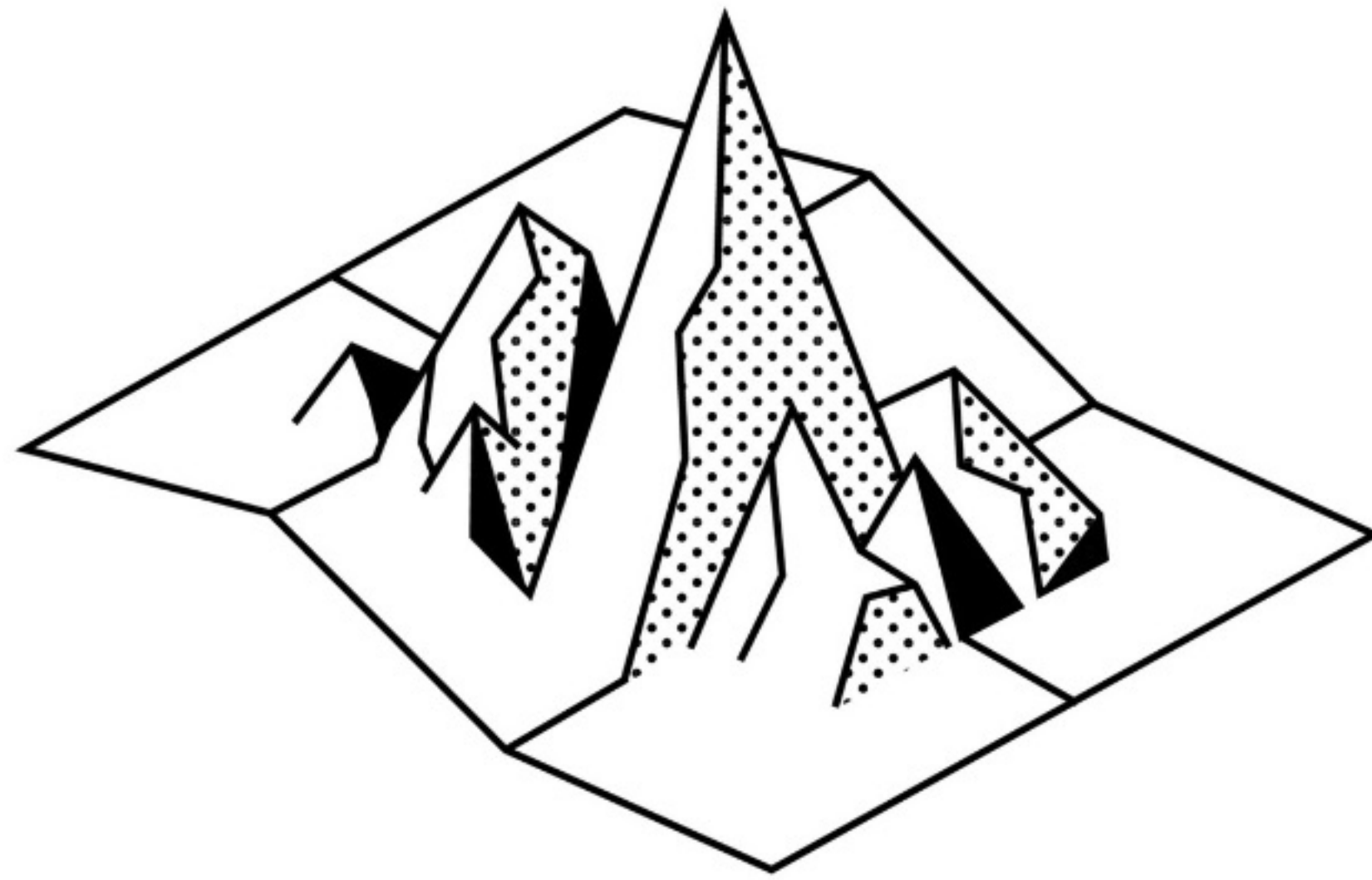


General Thinking Concepts

01

The Map is not the Territory



—
Reality check.

The map appears to us more
real than the land.

D.H. Lawrence [1](#)

The People Who Appear in this Chapter

Korzybski, Alfred.

1879-1950 - Polish-American independent scholar who developed the field of general semantics. He argued that knowledge is limited by our physical and language capabilities.

Newton, Sir Isaac.

1643-1727 - English polymath. One of the most influential scientists of all time. He related the workings of the Earth to the wonders of the universe. He also spent 27 years being Master of the Royal Mint.

Einstein, Albert.

1879-1955 - German theoretical physicist who gave us the theory of relativity and opened up the universe. He is famous for many things, including his genius, his kindness and his hair.

Ostrom, Elinor.

1933-2012 - American political economist. In 2009 she shared the Nobel Memorial Prize in Economic Sciences for her analysis of economic governance; in particular, questions related to “the commons”.

Abbud, Karimeh.

1893-1955 - Palestinian professional photographer. Also known as the “Lady Photographer”, she was an artist who lived and worked in Lebanon and Palestine.

Jacobs, Jane.

1916-2006 - American-Canadian journalist, author, and activist who influenced urban studies, sociology, and economics. Her work has greatly impacted the development of North American cities.

The Map is not the Territory

The map of reality is not reality. Even the best maps are imperfect. That's because they are reductions of what they represent. If a map were to represent the territory with perfect fidelity, it would no longer be a reduction and thus would no longer be useful to us. A map can also be a snapshot of a point in time, representing something that no longer exists. This is important to keep in mind as we think through problems and make better decisions.

We use maps every day. They help us navigate from one city to another. They help us reduce complexity to simplicity. Think of the financial statements for a company, which are meant to distill the complexity of thousands of transactions into something simpler. Or a policy document on office procedure, a manual on parenting a two-year-old, or your performance review. All are models or maps that simplify some complex territory in order to guide you through it.

Just because maps and models are flawed is not an excuse to ignore them. Maps are useful to the extent they are explanatory and predictive.

Key elements of a map

In 1931, the mathematician Alfred Korzybski presented a paper on mathematical semantics in New Orleans, Louisiana. Looking at it today, most of the paper reads like a complex, technical argument on the relationship of mathematics to human language, and of both to physical reality.

However, with this paper Korzybski introduced and popularized the concept that *the map is not the territory*. In other words, the description of the thing is not the thing itself. The model is not reality. The abstraction is not the abstracted.

Specifically, in his own words:[2](#)

1. A map may have a structure similar or dissimilar to the structure of the territory. The London underground map is super useful to travelers. The train drivers don't use it at all! Maps describe a territory in a useful way, but with a specific purpose. They cannot be everything to everyone.

2. Two similar structures have similar "logical" characteristics. If a correct map shows Dresden as between Paris and Warsaw, a similar relation is found in the actual territory. If you have a map showing where Dresden is, you should be able to use it to get there.

3. A map is not the actual territory. The London underground map does not convey what it's like to be standing in Covent Garden station. Nor would you use it to navigate out of the station.

4. An ideal map would contain the map of the map, the map of the map of the map, etc., endlessly. We may call this characteristic self-reflexiveness. Imagine using an overly complicated "Guide to Paris" on a trip to France, and then having to purchase another book that was the "Guide to the Guide of Paris". And so on. Ideally, you'd never have any issues—but eventually, the level of detail would be overwhelming.

The truth is, the only way we can navigate the complexity of reality is through some sort of abstraction. When we read the news, we're consuming abstractions created by other people. The authors consumed vast amounts of information, reflected upon it, and drew some abstractions and conclusions that they share with us. But something is lost in the process. We can lose the specific and relevant details that were distilled into an abstraction. And, because we often consume these abstractions as gospel, without having done the hard mental work ourselves, it's tricky to see when the map no longer agrees with the territory. We inadvertently forget that

the map is not reality.

But my GPS didn't show that cliff

We need maps and models as guides. But frequently, we don't remember that our maps and models are abstractions and thus we fail to understand their limits. We forget there is a territory that exists separately from the map. This territory contains details the map doesn't describe. We run into problems when our knowledge becomes of the *map*, rather than the actual underlying territory it describes.

When we mistake the map for reality, we start to think we have all the answers. We create static rules or policies that deal with the map but forget that we exist in a constantly changing world. When we close off or ignore feedback loops, we don't see the terrain has changed and we dramatically reduce our ability to adapt to a changing environment. Reality is messy and complicated, so our tendency to simplify it is understandable. However, if the aim becomes simplification rather than understanding we start to make bad decisions.

We can't use maps as dogma. Maps and models are not meant to live forever as static references. The world is dynamic. As territories change, our tools to navigate them must be flexible to handle a wide variety of situations or adapt to the changing times. If the value of a map or model is

related to its ability to predict or explain, then it needs to represent reality. If reality has changed the map must change.

Take Newtonian physics. For hundreds of years it served as an extremely useful model for understanding the workings of our world. From gravity to celestial motion, Newtonian physics was a wide-ranging map.

Then in 1905 Albert Einstein, with his theory of Special Relativity, changed our understanding of the universe in a huge way. He replaced the understanding handed down by Isaac Newton hundreds of years earlier. He created a new map.

Newtonian physics is still a *very* useful model. One can use it very reliably to predict the movement of objects large and small, with some limitations as pointed out by Einstein. And, on the flip side, Einstein's physics are still not totally complete: With every year that goes by, physicists become increasingly frustrated with their inability to tie it into small-scale quantum physics. Another map may yet come.

But what physicists do so well, and most of us do so

poorly, is that they carefully delimit what Newtonian and Einsteinian physics are able to explain. They know down to many decimal places where those maps are useful guides to reality, and where they aren't. And when they hit uncharted territory, like quantum mechanics, they explore it carefully instead of assuming the maps they have can explain it all.

Maps can't show everything

Some of the biggest map / territory problems are the risks of the *territory* that are not shown on the *map*. When we're following the map without looking around, we trip right over them. Any user of a map or model must realize that we do not understand a model, map, or reduction unless we understand and respect its limitations. If we don't understand what the map does and doesn't tell us, it can be useless or even dangerous.

— *Sidebar: The Tragedy of the Commons*

The Tragedy of the Commons

The Tragedy of the Commons is a parable that illustrates why common resources get used more than is desirable from the standpoint of society as a whole. Garrett Hardin wrote extensively about this concept.

“Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.

As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, “What is the utility to me of adding one more animal to my herd?” This utility has one negative and one positive component.

1. The positive component is a function of the increment of one animal. Since the herdsman receives all the

proceeds from the sale of the additional animal, the positive utility is nearly +1.

2. The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of 1.

Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another. . . . But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.” [3](#)

What is common to many is taken
least care of, for all men have

greater regard for what is their own than for what they possess in common with others. –Aristotle

Here's another way to think about it. Economist Elinor Ostrom wrote about being cautious with maps and models when looking at different governance structures for common resources. She was worried that the Tragedy of the Commons model (see sidebar), which shows how a shared resource can become destroyed through bad incentives, was too general and did not account for how people, in reality, solved the problem. She explained the limitations of using models to guide public policy, namely that they often become metaphors.

*“What makes these models so dangerous ... is that the constraints that are assumed to be fixed for the purpose of analysis are taken on faith as being fixed in empirical setting.”*⁴

This is a double problem. First, having a general map, we may assume that if a territory matches the map in a couple of respects it matches the map in all respects. Second, we may think adherence to the map is more important than taking in new information about a territory. Ostrom asserts

that one of the main values of using models as maps in public policy discussions is in the thinking that is generated. They are tools for exploration, not doctrines to force conformity. They are guidebooks, not laws.

«Remember that all models are wrong; the practical question is how wrong do they have to be to not be useful.»

George Box⁵

In order to use a map or model as accurately as possible, we should take three important considerations into account:

1. Reality is the ultimate update.
2. Consider the cartographer.
3. Maps can influence territories.

Reality is the ultimate update: When we enter new and unfamiliar territory it's nice to have a map on hand. Everything from travelling to a new city, to becoming a parent for the first time has maps that we can use to improve our ability to navigate the terrain. But territories change, sometimes faster than the maps and models that describe them. We can and

should update them based on our own experiences in the territory. That's how good maps are built: feedback loops created by explorers.

We can think of stereotypes as maps. Sometimes they are useful—we have to process large amounts of information every day, and simplified chunks such as stereotypes can help us sort through this information with efficiency. The danger is when, like with all maps, we forget the territory is more complex. That people have far more territory than a stereotype can represent.

In the early 1900s, Europeans were snapping pictures all over Palestine, leaving a record that may have reflected their ethnographic perspective, but did not cover Karimeh Abbud's perception of her culture. She began to take photos of those around her, becoming the first female Arab to set up her own photo studio in Palestine. Her pictures reflected a different take on the territory—she rejected the European style and aimed to capture the middle class as they were. She tried to let her camera record the territory as she saw it versus manipulating the images to follow a narrative.

Her informal style and desire to photograph the variety around her, from landscapes to intimate portraits, have left a legacy far beyond the photos themselves.^{6,7} She contributed a different perspective, a new map, with which

to explore the history of the territory of Palestine.

We do have to remember though, that a map captures a territory at a moment in time. Just because it might have done a good job at depicting what was, there is no guarantee that it depicts what is there now or what will be there in the future. The faster the rate of change in the territory, the harder it will be for a map to keep up to date.

«Viewed in its development through time,
the map details the changing thought of
the human race, and few works seem to be
such an excellent indicator of culture and
civilization.»

Norman J.W. Thrower⁸

Consider the cartographer: Maps are not purely objective creations. They reflect the values, standards, and limitations of their creators. We can see this in the changing national boundaries that make up our world maps. Countries come and go depending on shifting political and cultural sensibilities. When we look at the world map we have today, we tend

to associate societies with nations, assuming that the borders reflect a common identity shared by everyone contained within them.

However, as historian Margaret MacMillan has pointed out, nationalism is a very modern construct, and in some sense has developed with, not in advance of, the maps that set out the shape of countries.⁹ We then should not assume that our literal maps depict an objective view of the geographical territory. For example, historians have shown that the modern borders of Syria, Jordan, and Iraq reflect British and French determination to maintain influence in the Middle East after World War I.¹⁰ Thus, they are a better map of Western interest than of local custom and organization. Models, then, are most useful when we consider them in the context they were created. What was the cartographer trying to achieve? How does this influence what is depicted in the map?

« As a branch of human endeavor, cartography has a long and interesting history that well reflects the state of cultural activity, as well as the perception

of the world, in different periods. ...
Though technical in nature, cartography, like architecture, has attributes of both a scientific and artistic pursuit, a dichotomy not satisfactorily reconciled in all presentations. »

Norman J.W. Thrower¹¹

Maps can influence territories: This problem was part of the central argument put forth by Jane Jacobs in her groundbreaking work, *The Death and Life of Great American Cities*. She chronicled the efforts of city planners who came up with elaborate models for the design and organization of cities without paying any attention to how cities actually work. They then tried to fit the cities into the model. She describes how cities were changed to correspond to these models, and the often negative consequences of these efforts. "It became possible also to map out master plans for the statistical city, and people take these more seriously, for we are all accustomed to believe that maps and reality are necessarily related, or that if they are not, we can make them so by alter-

ing reality.” [12](#)

Jacobs’ book is, in part, a cautionary tale of what can happen when faith in the model influences the decisions we make in the territory. When we try to fit complexity into the simplification.

«In general, when building statistical models, we must not forget that the aim is to understand something about the real world. Or predict, choose an action, make a decision, summarize evidence, and so on, but always about the real world, not an abstract mathematical world: our models are not the reality. »

David Hand [13](#)

Conclusion

Maps have long been a part of human society. They are valuable tools to pass on knowledge. Still, in using maps, abstractions, and models, we must always be wise to their limitations. They are, by definition, reductions of something far more complex. There is always at least an element of subjectivity, and we need to remember that they are created at particular moments in time.

This does not mean that we cannot use maps and models. We must use some model of the world in order to simplify it and therefore interact with it. We cannot explore every bit of territory for ourselves. We can use maps to guide us, but we must not let them prevent us from discovering new territory or updating our existing maps.

While navigating the world based on terrain is a useful goal, it’s not always possible. Maps, and models, help us understand and relate to the world around us. They are flawed but useful. In order to think a few steps ahead we must think beyond the map.

Model of Management

Let's take a model of management. There are hundreds of them, dating back at least to the Scientific Theory of Management by Frederick Taylor, which had factory managers breaking down tasks into small pieces, forcing their workers to specialize, and financially incentivizing them to complete those tasks efficiently. It was a brute force method, but it worked pretty well.

As time went on and the economy increasingly moved away from manufacturing, other theories gained popularity, and Taylor's scientific model is no longer used by anyone of note. That does not mean it wasn't useful: For a time, it was. It's just that reality is more complicated than Taylor's model. It had to contend with at least the following factors:

1. As more and more people know what model you're using to manipulate them, they may decide not to respond to your incentives.
2. As your competitors gain knowledge of the model, they respond in kind by adopting the model themselves, thus flattening the field.
3. The model may have been mostly useful in a factory

setting, and not in an office setting, or a technology setting.

4. Human beings are not simple automatons: A more complete model would hone in on other motivations they might have besides financial ones.

And so on. Clearly, though Taylor's model was effective for a time, it was effective with limitations. As with Einstein eclipsing Newton, better models came along in time.

Maps Are Necessarily Flawed

Maps, or models, are necessary but necessarily flawed. Lewis Carroll once jabbed at this in a story called *Sylvie and Bruno*, where one of the characters decided that his country would create a map with the scale of one mile to one mile. Obviously, such a map would not have the limitations of a map, but it wouldn't be of much help either. You couldn't use it to actually go anywhere. It wouldn't fit in your pocket or your car. We need maps to condense the territory we are trying to navigate.