Learning on Steroids:

Better Metaphors – Part One

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Better Metaphors – Part One

In this guide, I'm going to share with you a principle to help you make better metaphors. It's important, however, that you first read and get comfortable with the previous implementation guides on metaphors.

Since the vast majority of learners don't use metaphors deliberately even *starting* to use metaphors can be a big challenge. If you don't already use metaphors in your studying, stop reading now and go back to the first guides. These tips are about improving the quality, but they can't work unless you already have enough quantity.

I give this warning because I coach students all the time and the #1 problem they have when creating metaphors and analogies, is being overly self-critical. They can't think outside the box for creative analogies because they're worried they won't do good enough.

However, if you're already creating metaphors and using this tactic in your studies, then this guide will give you a method for creating more useful metaphors.

What Makes a Good Metaphor?

Most students mistakenly assume that a good analogy is one that is memorable. While having a memorable analogy is important, it shouldn't be the priority.

Instead, a metaphor is good if it has two qualities:

1. It is easy to understand.
2. It reflects the *substance* of the idea it models, not merely the details.

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The first point is fairly self-explanatory. If you want a metaphor for compound interest and you relate it to complex logarithmic functions you don't quite understand, that metaphor isn't terribly useful. The goal of a metaphor is to explain a difficult thing in terms of an easier thing.

A better metaphor for compound interest might be a rabbits breeding or simply imagining a normal savings account paying interest. While some of the complicated aspects of interest may require work, if you relate them to thing in your everyday experience, they are easier to understand.

The second point, however, is more subtle and perhaps even more important than the first. Understanding how to make substantive analogies instead of just ones that mimic the details is critical, since it allows you to gain a deeper understanding, rather than just a memory aid.

Memory Aids vs Deeper Understanding

The best example of this came from a student writing to me asking for help with his metaphors in a science class. He gave two examples:

The first was understanding the relationship between molar mass and actual atomic weight. These tend to be different, in practice, because there are different isotopes of a particular element, so the mass tends to include fractions while no real atom would contain half a proton's mass, for example.

His metaphor for this was claiming it was like orange juice. Although the orange juice has a specific mass, there may also be pulp in the juice which changes the average weight, even though the weight of any individual particle would not be the average weight.

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Here the pulpy juice metaphor is a good one. First, it's easy to understand if you've ever drank juice before. Second, it models the substance of the metaphor, not merely the details. In this case, the reason that pulpy juice has this quirk in weight is the *same reason* that the mass of a mole would.

Now compare this to his second analogy. Here, he needed to remember that the gas giant planets were colder and further away from the sun than the rocky planets. His analogy for this is that it was like drinking a cola. Colas have carbonation (gas), and are better kept in the cold. This relationships between gas -> cold, was his metaphor for remembering that the gas planets were colder.

However, this analogy is much weaker than the first. Although it is true that in both cases gas -> cold, the substance of the ideas are quite different. Some astronomers suggest that gas giants are colder because solar radiation would strip them of their

atmospheres at closer distances. Cola is better cold for a cultural and gustational reason. The two explanations are not only different, they don't even resemble each other.

Here, the metaphor is little more than a memory aid. It allows you to summon up the fact gas -> cold, but it offers zero insight into why this relationship exists.

Why Memory Aids Waste Your Time

Memory aids are great when all you need to do is memorize a bunch of facts. Mnemonics, linking and pegging are all memory aids. I use them from time to time when a subject is too fact-heavy or conceptually weak to use other methods.

But, if an alternative for deeper understanding exists, do not use memory aids!

Holistic learning is about having deep constructs filled with genuinely useful models of the concepts you're trying to learn. Packing yourself full of memory aids is better than memorizing by rote, but not by much. Since at this level you're still doing essentially the same task—memorizing, instead of learning.

Improving Metaphors

Now I don't want to be too harsh on the student who wrote to me. The truth is ANY metaphor, memory aid or beautiful model, is still incredibly useful. The point is not to doubt yourself each time you create a metaphor, but to create lots of them and get used to thinking that way.

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However, if you want to create better metaphors, it helps to focus on creating metaphors that model the substance of an idea and not merely the details. This can often outweigh simplicity, since a more complicated and contrived situation that models the substance better, can be superior to a broken model that merely mimics the details.

Let's take the analogy about gas giants again.

A better analogy in this case might be to imagine a field of dandelions that have already bloomed and are now just seeds. If you're like me, this will probably bring back memories as a kid of blowing the seeds off the dandelion stalks.

Now imagine in this field we placed a rotating fan, that would spin around, essentially blowing the air near it. What would happen?

Well the fan action would strip all the seeds off the nearby dandelions, but wouldn't be powerful enough to do so for the more distant ones. As a result, you would have tiny, stripped dandelion stalks and untouched ones further out.

As a metaphor for the solar system this works well—the fan is like the sun, the wind it blows is like the solar radiation, the nearby dandelions are the rocky planets and the faraway ones are the gas giants. Not only does it explain gas -> distance, but it also does so in a way that somewhat accurately models the underlying substance of the idea.

Of course, no model is perfect. The only truly perfect model is the idea itself. However, there are ideas which not only explain the details of an idea, but also the mechanism for how why the idea exists. Those are better metaphors.

Creating Better Metaphors

There are a few steps for creating this better metaphors, which I'll be covering in Part II of this guide. Until then, however, here are a few starting points:

1. Figure out the history of the concept you're studying.
2. Ask “why” to every detail you have to remember.
3. Test the metaphor in several different situations to see where it breaks down.

That's all for today, but I'll be back soon with the second part of this guide where I'll discuss in detail how you can use the above three approaches to create better metaphors.