Some thoughts on information theory, complex systems, and love

Often, when two people end a long-term relationship, one of those two people -- usually, the person initiating the breakup -- will say things like 'I just don't know you any more" or "You've totally changed." And often, it's not true, though the person saying it may *feel* that it's true. The truth is a little bit more complicated, and a quick glance at information theory can explain why.

One of the axioms of information theory is that the output of a system you do not understand looks random. Early man lacked the ability to predict such things as solar eclipses and whatnot because he did not understand the system; he knew nothing of gravity, didn't understand that the earth orbits 'round the sun, and so on. So these events appeared random to him, and he invented explanations for them that were based on random events -- the dragon wakes up particularly hungry and devours the sun, that sort of thing.

As time progressed, man learned to predict certain events, such as the course of the planets in the heavens and the rising and setting of the sun as the seasons changed. The models he built were based on repeated observation; he could predict certain events, but he still did not understand the mechanisms behind them; repeated observation was enough to show that the system wasn't random, but it still couldn't be predicted precisely, because he still didn't understand it. Certain events, like eclipses, still appeared random.

This is true of any system whose mechanisms are not understood. The process of understanding something lies in constructing models of that thing; the ancient Greeks attempted to model the behavior of the planetary bodies by constructing models based on rotating, interlocking Platonic solids, for example. A model is useful, and can be said to describe something, only if that model makes predictions that accurately predict the behavior of the thing being modelled. The Greeks ran into a lot of trouble here; their models of the heavens made predictions that were reasonably close, most of the time, but didn't always jive with observable reality; the more they tried to jigger the models to account for the discrepancies, the more mucked-up and complex the models became, until finally Copernicus got exasperated with it all and said "Here, look, it's got nothing to do with Platonic solids, see? If you assume that the sun is at the center of the whole mess, and we go 'round the sun, and the other planets go 'round the sun, you get a model that's very simple and makes predictions that are pretty much perfect, see?" In 1992, the Catholic Church finally agreed, and officially accepted the heliocentric model of the solar system.

The output of a system that is not understood at all looks random. As someone learns to find patterns in the output, and builds models that explain the behavior of the system, the output stops looking random -- but, as the Greeks discovered, a model that *seems* good, and makes accurate preductions some or even most of the time, can still be completely bolloxed. The Platonic-solids model made reasonably good predictions much of the time, but it wasn't really a terribly accurate model; in fact, it wasn't even close.

So what does this have to do with love?

The same laws of information theory that apply to planets and solar systems apply to people as well. If you don't know someone and don't know a blasted thing about him, you probably can't predict his behavior very well. You can predict very general things, simply by knowing that he belongs to the class of objects called "human beings," of course; you can predict that he most likely doesn't have wings, and so on. But you can't make predictions about how trustworthy he is, what kind of music he likes, how good he is in bed -- despite the best efforts of astrology, fringe racist groups, and those goody urban legends that say things like a man's penis size is related to the width of his hands. Fact is, until you have a reasonably good mental model of that person, you just plain don't know what he'll do -- his behavior might as well be random.

When you're in a relationship with someone, you have a pretty good opportunity to observe that person's behavior over an extended period of time. When you do this, you begin to see patterns emerge, and those patterns let you begin understanding that person. You build a mental model of that person, and as that model seems to predict that person's behavior, you understand that person still more. In fact, intimacy is the ongoing process of learning to understand another person with greater and greater accuracy.

But it's possible to go wrong. People tend to re-create the world in their own image, and to project their own feelings and beliefs and philosophies onto other people. This is to some extent unavoidable; it's very difficult to understand a person who conceptualizes the universe in a way that's completely different from the way you do. Your model of that person starts with the assumption that certain things about that person are basically similar to certain things about you. And given that many people are similar in many ways, often that works just fine.

But sometimes, two people who are very different in worldview get together. When this happens, it's possible they may never really understand each other; they may build mental models which, like the original Greek model of the solar system, work pretty well most of the time...but which are actually built on premises which are completely inaccurate.

So these two people go be-bopping down the road of life, not *really* understanding one another, but thinking they do -- and wham, a solar eclipse occurs. Something changes in the environment -- perhaps something that goes completely unnoticed, because it's not relevant to the mental models they've built of each other -- and one of them acts in some way that the other one never saaw coming and could never have anticipated.

"You've changed! You've completely lost it! I don't know you any more!"

No, the fact is, that person is the same as he's always been; you *never* knew him. You *thought* you did, but that understanding was flawed; and now your model can't predict his behavior any more. Which means that, to you, his behavior appears random -- a very scary thing in a partner you've been with for a long time.

The greater the difference in two people's worldviews, the more likely this can happen. It's especially common when two people who have very different drives or needs in relationship get together; each tends to project his own needs and his own drives into his model of the other. Even where it doesn't cause a meltdown, it can still create problems in the relationship; *"My partner says she is 'polyamorous,' which means she wants to fuck other people -- I better keep her on a short leash, because if I don't, she'll just run off and fuck everyone in town."* This is not a realistic model of 'polyamory' -- but a person who is not polyamorous may not really understand polyamory; the behavior of a person who is polyamorous may appear random.

Building an accurate model of something, especially a complex system, is very hard work. Building a good model means being able to step back from your own preconceptions and look -- really *look* -- at the system, without projecting your own desires onto it. the Greeks really, really *wanted* to believe that the model of the universe had something to do with Platonic solids, because they were utterly fascinated with what they perceived to be the harmony and beauty of Platonic solids, and it bolloxed them up for a very long time.

Which brings me to the second part of building a model of something, which is being able to discard that model when it makes predictions that don't come true.

That second one is especially difficult in romantic relationships. Like the Greeks, people in love become emotionally attached to their understanding of their partner, even if that understanding is based on projection. We tend to re-create the world in our own image, but more than that, we *want* our lover to be like ourselves; it's comforting. Things we don't understand about our lover are really scary; they make our lover's behavior seem random. It's much easier to embrace a model that has flaws than to discard the model, say "Actually, there are things about this person I *don't* understand, and if i want to understand them, I must first admit that I don't."

That takes work -- a lot of it. Scary work. The alternative, though, is having the conversation which usually starts with *You've changed, I just don't know you any more* and usually ends the relationship.

TAGS: philosophy, polyamory, relationships

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14 comments

May 16 2005, 17:19:34 UTC   ☐ CHECK   COLLAPSE

Wow, very beautiful.

Wow, a whole lot of deep insight here. Have you considered publishing this on E2 and K5?

So these two people go be-bopping down the road of life, not really understanding one another, but thinking they do -- and wham, a solar eclipse occurs. Something changes in the environment -- perhaps something that goes completely unnoticed, because it's not relevant to the mental models they've built of each other -- and one of them acts in some way that the other one never saaw coming and could never have anticipated.

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I just witnessed this happening with someone close to me and his lover, who made a life-changing decision based on criteria that we would never base that kind of decision on. It was one of those, "Where the hell did THAT come from?" kind of moments.

I've been thinking about the way relationships progress, and recently, I've had the insight that the first few weeks or months are all about finding out what you have in common, but after 5 or 6 months or so (in my experience, anyway) you start to notice and keep track of the ways you differ. Because it's a natural human instinct to want to be with those like us, and to have others reinforce our beliefs and worldviews, this can be a "make-or-break" time in a relationship. If you can get past the person being different and accept that they're *just* different and not *wrong*, then things will probably work out. But many times, this is the point at which things fall apart.
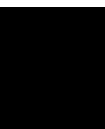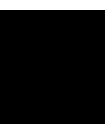
I completely agree.

Trying to understand someone else in terms of your own thoughts and feelings is like trying to get from Boston to Los Angeles using a map of Albania.

Re: modeling behaviour

good write-up

You've described something similar to what happened to 👤 ▓▓▓▓▓ and I about 2.5 years ago. We're still cleaning up from that. As might be obvious, since we're still together, we chose the build new models option. This was after 11 years of trying to build our models where we didn't realize we were using entirely different definitions of important words.

👤 ▓▓▓▓▓

I agree, and i disagree...

I think that its entirely possible that people change, but i don't think its something that happens overnight. I think that its a gradual process.

Everyday we learn something new, a lot of the times we learn something new about ourselves, and perhaps even get enlightened in a new way.

I do however think that love is blind. People tend to form what their relationship/partner is in their head, and not see it for what it is. They build images of what they want to see their partner/relationship as, and hearing what they want to hear, instead of reality.

Love is blind, but relationships are about compromise.

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Very interesting, and makes a lot of sense, in an area where people often don't make much sense at all. ;-)

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very cool I would like to make a pointer to this on my LJ any prob with that?

👤 tacit

Not at all! :)

👤 ▓▓▓▓▓

Here's something I've been thinking about that throws an additional wrench in this complicated machinery and requires more retooling:

At the same time, all parties in a relationship are also trying to define and understand themselves.

👤 tacit

At least in theory. There are people for whom the process of self-understanding and analysis is repellent and abhorrent; such people -- and I've been involved with some -- actively hate the process of trying to understand themselves.

One can argue that this cripples their ability to understand others, which is often true.

Fascinating analysis. Might I also suggest a bit of Suspension of Disbelief, a tendency to ignore those glitches in the observed patterns that call into question soundness of the Operational Theory. We want very much, and therefore it is.

And why might we want it so much? For me, at least, every time I hear a passionate cry of "Oh! Yes! Yes!", it sounds just like the Music of the Spheres.

Oh, yes. That suspension of disbelief is a core part of people's desire to believe; it's at the root of both an unwillingness to abandon a flawed model and of the desire to believe anything negative about someone that a person already dislikes.

This sounds so similar to a book by Polly Young-Eisendrath called "You're not What I Expected". The premise of the book is that a person often has an inaccurate image of zir partner in zir mind. And then gets surprised when the partner does not behave as the mental image would have.