

phil henshaw

From: phil henshaw [id@synapse9.com]
Sent: Sunday, January 21, 2007 12:28 PM
To: 'Stanley N. Salthe'
Subject: RE: easy to mark

['easy to mark' refers to a draft post to FRIAM I sent Stan quoted below - ph]

Stan,
> Phil --

>
> >Stan,
> >> Phil --
> >>
> >> >Stan, that's so strange that you'd think I was talking about an
> >> >equation.
> >> The way you have stated things is compatible with a logistic
> >> perspective.
> >Yes, sure, the simplest of mathematical representations of change
> >also
> >have that same single landmark (., .·|' - or -`|·. .,) but I'm
> >pointing out what that marker helps you find in the evolving
> >physical processes underlying the event...

> >
> >> >People do frequently assume that equations are the only form of
> >> >information that can be derived from observed natural systems,
> >> >so I should make it much more clear. I'm talking about
> >> >reading the measures of a system for signs of structural change
> >> >in
> >> >the feedback loops that drive it.
> >> But these 'loops' have theoretical origin, and equations are
> >> short hand for these theories.

> >
> >Maybe this is what we'd differ on, don't know. Language uses the
> >same
> >words to refer to lots of different things sometimes and I get
> >confused. You seem to say "these 'loops'", as to refer to my usage,
> >which would mean that you're asserting that the physical world
> >originates from our explanations. I find a time sequence problem with
> >that.

> Note that all obserations are 'theory laden'. That's how you
> know what to observe in the first place.

But not all observables are though. In the process of forming an image of things we do tend to 'take ownership' of the image (converting the territory into a map), effectively substituting observables for a position in our mental construct for the world, as we discard our original connection with the physical thing we observed. What I think I do is fail to quite complete that process. That most people don't really know what their images refer to is definitely a source of confusion. The fact that physical things and mental things have completely different design and structure, while presenting quite the same outside appearance to us, is my main clue to where the boundary between them is located.

I think my perspective is proved with the evidence that we can extend our understanding of things that are built differently than mental images. Your perspective seems to rely on not being able to disprove that the world is made of our images. That positions a proof by search against a proof by default hypothesis. The curious thing about the latter is that no one who uses it seems to find it necessary to argue that the default hypothesis is plausible in a physical system. Yes, there are many default hypotheses that are 'incontrovertible' as posed. Are you able to make a case that what seems to be your hypothesis is a workable design for a world?

> >The loops I'm

> >referring are the ones we have no knowledge of yet, but are able to
> >discover in the locations in the physical world that signs of emergent
> >systemic behavior point to.
> "Discover" or 'construct'? It seems that I'm a social
> constructivist and you a 'realist'.

No doubt the words we use are amazingly flexible in what they refer to, and it would not be hard to slightly bias my reading of either 'constructivist' or 'realist' to turn their meanings to their opposites. I think the social construction of knowledge, is indeed such a dominant force in our perceptions that most people can't see it as an influence at all. It is demonstrably also a physical system like any other, with an autonomy of internal relations, and a traceable history of growth and emergence as a sustained organism in its environment.

To me, adding that observation to the social construct of knowledge makes the construct much more plausible, and our learning tools much more useful, even if the reverse interpretation of what our maps imply is also possible. Considering the social construct idea of knowledge as encompassing the world, rather than as a part of it, I think, has the characteristics of a trap, a place hard to get out of once you're in, that one can see from the outside but would never go to get stuck in.

> >> >I think parametric equations of any kind are
> >> >handy sometimes but simplistic,
> >> All theories are simplistic.
> >

> >Yes, theories are simplistic as representations, but used as maps
> >they're not. A tour guide uses the map to point to the territory.
> >Nothing odd about that is there?

> No, I'm all for theory!

But why do you seem to say the territory which the maps point to is just another map? Me scout. No understand 'wise men'.

> >> >and contain no structural or
> >> >behavioral information, the same as statistics, just predictive
> >> >information.
> >> I think that if time is a parameter, they convey behavioral
> >> information.
> >

> >They imply and convey outcomes, but not buy the process of the
> >physical
> >system. When they do that for things that are of interest you can then
> >go look for the underlying structure or behavior, but the evidence
> >seems to be that all before|after equations make that connection by a
> >means different from that of the physical system.

> Yes, Maps are not the territories they represent.

Then why do you resist using words as maps, in a way consistent with their pointing an observer to something other than maps? Me scout. No understand 'wise men'.

> >> >For me that difference is not a question of right and wrong, but
> >> >just that one connects before and after by the path traveled
> >> >in-between and the other without a connecting path.

> >> But the connection may have different interpretations,
> >> embodied

> >> in different formulations.
> >

> >Certainly that's one of the things that makes theories useful, that
> >they can be constructed from various points of view, each maybe
> >simplistic with respect to another, but also useful. If you want to
> >get a better view of the wholes of nature I just think you need to have
> >a habit of using your theories to direct your attention to the source
> >from which all theories come, not just your own.

> Agreed.

Then why, if you need multiple perspectives to develop a whole understanding, do you seem to insist that the realist point of view is not importantly useful?

> >> >What I'm trying to describe is a guided set of questions you can
> >> >ask to gain a very useful kind of structural and behavioral
> >> >insight. When representing a system with an equation it's easy to
> >> >assume that the system follows a fixed course, because that's what
> >> >an equation represents. Then when the behavior turns out
> >> >different, it's easy to assume you just had the wrong equation or
> >> >parameters.
> >> Or that there is need for further investigation directed at
> >> understanding why it went wrong. Equations are tools for such use.
>
> >Yes, successive correction is often valid, but when stuck with the
> >wrong assumptions, just fiddling with parameters till you're tired of not
> >making much improvement is a very common outcome too. The fact that
> >individual emergent processes evolve differently every time is evident
> >in every trial of every experiment with them.
> Well, I think that. for any class of phenomena, there
> are a few diagnostic behaviors in common, and
> many individuating ones. Science deals only with what events
> have in common. That's its limitation.
No longer, that's not viable anymore because what we now need are means of steering and
appreciating unique individual events. Traditional science becomes a fine jewel in an
expanded natural science that starts from understanding individual events and includes the
statistically similar events as a special case.

> >My guess it it's ignored essentially because investigators have not
> >invented something useful to do with that discrepancy.

But I have, and it'll hold up fine once people try to test it.

> >
> >> >When you study
> >> >systems like a doctor studies a patients, just closely observing and
> >> >sifting patterns for common threads, you find that those differences
> >> >between systems and parametric models are not incidental, but
> >> >fundamental.
> >> Without having used the models you could not know this.
> >
> >and a pure scientist, asking the question "what does this represent"
> >both forward and back, will have a better chance of not being trapped
> >by their 'convenient assumptions' because they will be able to see the
> >'inconvenient discrepancies' they produce. Yes, and your point, that
> >without the wrong theory you can't find where it's mistaken is well
> >taken too.
> >
> >
> >> >Natural system behaviors actively evolve, constructing
> >> >an event horizon based on what branches of their networks of loops
> >> >develop in what way.
> >> >
> >> >When you find an inflection point on a growth curve,
> >>>This requires some equation to tell you its an inflection point.
> >Well, the wonderful tension with reality I see here is that difference
> >between the flowing shapes of nature and the flowing shapes projected
> >by mathematical equations. Yes, you need one or the other form of
> >smooth progression in shape to talk about changes in the direction of
> >the progression.
> >
> >Math is one kind of corollary of the physical property, and there are
> >various ways to construct point sequences that are completely
> >continuous in the mathematical sense, have real derivatives, but are
> >far more responsive to and reflective of the physical flows they
> >represent. I'm the author of the best one I know of, for many
> >situations, what I call
> >'derivative reconstruction'. It's more important than which one you
> >use, to learn to use the representation backwards, to draw attention to
> >the physical phenomenon, rather than reducing the phenomenon to the

> >representation.
> OK.
Great, that idea, that we can correct many of our mistakes by reading our maps 'backward', as pointing to rather than representing the world, is my whole point. For individual phenomena our maps are better read as questions than answers. That's the main step needed to begin studying the physics of individual events.

> >> >and know from the
> >> >circumstance that it is a new system that is not simply anecho or copy
> >> >of some other, but something original and developing for the first
> >> >time, it says something big about what's happeninginside. I'm
> >> >not talking about 'new' systems with respect to whether you or I might
> >> >find it unusual or not, but 'new' with respect to itself, as indicated
> >> >by whether the system had a beginning and whether what you're observing
> >> >is its first period of development.

> >> This can only be decided by you or I as observers.
> >How we see things is not entirely independent of what's there. The
> >main place I find that margin proving that my impressions are not
> >entirely of my own invention is the many places where we can
> >confidently expect to discover things we've never seen before, the
> >'look & you'll see' places. The switches in evolving systems signified
> >by inflection points being one of them.
> I agree that when our observations fail to agree with
> theoretical predictions, we have stumbled upon something
> possibly interesting.

At this point 'science' is so speechless on the question that it apparently concurs that managing a system of steadily multiplying complexity can be stable in the long term. The question is, what question are we failing to ask in that regard?

> >> >Is that more clear?
> >> Yes, but it resulted in my clarifying my points as well!
> >Yes, it can seem a miracle that I communicate anything at all
> >sometimes, considering how much of the relevant matters I'm constantly
> >leaving out... :)

> >
> >Don't thought maybe we could get you to come out to dinner if we just
> >showed up some evening. I'm totally for being spontaneous, but maybe
> >when I'm also on my way through to visit my friends in Hamilton. Why
> >don't we plan on something, in the end of Feb when I might find some
> >snow too, a Sunday evening maybe,...?
> Why not. Sounds like it could be fun. We have some
> spare rooms here as well. But Feb & Mar are terrible bad mos
> to do ought up here. (I don't much like this application of
> 'spontaneity, by the way)

Well, doing something in June would be great too. I do remember the March muds up there, but I'm still operating under the delusion that after my project deadline in mid Feb if I go visit my friends in Hamilton I'll find some snow too.... If that happens I'd be driving right through Deposit and will check beforehand whether you'll be in.

Phil

> STAN
>
> >Phil
> >> STAN
> >> >
> >> >
> >> >
> >> >> Phil -- I may be wrong, but I detect that you seem to have the logistic
> >> >> model in mind. It might be rewarding for you to try rethinking using the
> >> >> Gompertz model instead. It is entirely self-organized, unlike the logistic.
> >> >>
> >> >> STAN
> >> >>

[> >> >> > clipped]

Easy to Mark

Its so helpful to have input on what questions need to be answered. One of the things that Roger's comment brings out is the question of markers. On growth curves there really are not many markers at all. There really are only two places on them that are easy to mark, the upward and downward inflection points (,, .·|' - and -`|·. ,, respectively).

The origins and endings of the curves seem completely disguised by the smallness of events at their tails. Elsewhere in the history of their changes the wide distribution of seemingly unconnected but well orchestrated events makes it very hard to single out any particular thing for significance. The inflection points, however, are quite mathematically precise, and do approximately correspond to matching major changes in what's going on.

One way to say why that point is mathematically precise in the shape (though it's approximately at a straight line) is because it marks a moment in the changing shape when the changes switch from being in proportion to an asymptote in the past, to being in proportion an asymptote in the future (that's for the upward inflection point & opposite for the downward one). It's as if the system spends it's explosive growth looking to where it's coming from and then switches to looking to where it's going to, switching from looking backward to looking forward.

In most kinds of growth systems there is demonstrably no 'looking' going on, but people need images to help them understand things and I don't think representing what a system is responding to as 'looking' is completely inaccurate. Another thing that makes it hard to characterize what the one clear landmarks on an 'S' curve represents in the underlying physical process is the extremely wide variety of types of things that display 'S' curve shapes, and their dissimilar issues and terminology. A third reason it's hard to refer to what it represents is that we don't actually seem to have generally applicable models for describing growth system mechanisms.

Picking up on one wide conversation these days about changing systems I think a useful general statement as to what switches at the inflection point is that the loops of the system switch from increasing instability in their design to increasing stability, from explosion to homeostasis, the switch to sustainability. When you borrow other people's words for new meanings there's usually some trouble, but I think this one does largely coincide with both the technical meaning of the term, 'possible to be sustained' and it's widespread modern usage.

Up to the first inflection point there are no good markers available, and it's often quite uncertain from the behavior that there will even be a turning point. Afterward it's usually clear whether you have a stable change to a new steady state or just a flash in the pan that quickly decays. Consequently you might also get away with calling the marker at the end of explosive growth the 'starting point' of the system.

One of the most interesting but problematic parts of this is having the only definable marker located in the middle of the process. I also like, for example, the idea of calling the upward inflection point the 'birth' point of a living system, when the experiment become a reality, the first time there's any reasonably clear future to be referred to. Undoubtedly that conflicts a little with using the term 'birth' point for the more mysterious, and invisible, metaphysical moment when a growth process itself begins, except, of course, that that 'point' is indefinable and you can't actually point to it! For science it's better to name things you can point to perhaps... :)

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