

It's Only a Model: Discussion Note on 'Small Model Languages as Tools for Reflection'

Karen Sullivan^a

^a University of Queensland, Australia, ksull@uq.edu.au.

Paper received: 9 April 2014

Published online: 29 April 2014

DOI: 10.31885/lud.1.1.250

When a linguistic model is shown to be inadequate, its proponents scramble to update it, or to downplay the significance of the data that doesn't fit. But why should a model's proponents be disappointed that their model is imperfect? The model's inadequacy has offered a valuable insight into the assumptions that underlie the model. Nevertheless, the flawed model is rarely given credit for this contribution. Recognition is instead granted to the next model that comes along to replace it, which will of course have inadequacies of its own.

Rastall's (2013) paper 'Small Model Languages as Tools for Reflection' observes that when linguistic models fall short of an accurate representation of language, this offers a rare opportunity to question assumptions and observe linguistic facts. The only reason a model's proponents might be distressed when a model is proven inadequate is if they harboured the illusion that the model was an accurate representation of language, or even of cognition. As Rastall points out, no model can make this claim. Every model is necessarily an imperfect representation of reality.

Why, then, not build formal models that are designed to fail? Simple, resilient models, such as proposed by Rastall (2013), can fail, offer up insights, be easily repaired, and fail again. Researchers can take credit for the fruit of their models' inadequacies, and either salvage and refine the model, or cast aside the model without regrets and build a new one. There is no reason to cling to a model once it has lost its usefulness. This healthy attitude towards formal models is unfortunately uncommon in linguistics, where—as Rastall observes—modelling is often implicit, linguists are inclined to make grandiose claims for their models, and many researchers confuse the map with the territory.

Most linguists have observed firsthand the value of imperfect models, both in teaching and in research. Despite the flaws of a feature-based model of semantics, I continue to teach my students that in terms of semantic features, a BACHELOR is [+human +male +adult -married]. I

Language Under Discussion, Vol. 1, Issue 1 (December 2013), pp. 27–29

Published by the [Language Under Discussion Society](#)



This work is licensed under a [Creative Commons Attribution 4.0 License](#).

am always gratified when students protest, “But what about people who don’t identify as either male or female?” or “But doesn’t adulthood begin at different ages in different cultures?” or “Hasn’t the definition of marriage changed over time?” One student observed that even some non-humans, such as unpaired male deer, are termed *bachelors*. No student has yet pointed out that the Pope or Tarzan are [+human +male +adult –married] but fail to fit our understanding of the meaning of *bachelor*, but by the time I mention these examples, most students have already convinced themselves of the inadequacy of the feature-based model. Semantic features cause students to notice polysemy, semantic change, encyclopaedic cultural information in language, and other concepts they haven’t yet been introduced to and otherwise wouldn’t have considered. The introduction of the semantic features model, and the subsequent process of identifying and discussing its inadequacies, also serves as an introduction to more recent models such as frame semantics and prototype theory. Even if the students never encounter semantic features again, the model has served a purpose.

Questioning a model’s adequacy can, of course, also lead to research advances. In 1971, Geis and Zwicky noted that their students tended to interpret conditional sentences biconditionally, though these “novice logician(s)” were “surely wrong” (1971: 562). Students understood the sentence *If John leans out of that window any further, he’ll fall* as meaning that if and only if John leans further out the window, then he will fall. Moreover, students interpreted the consequent (falling) as a causal result of the antecedent (leaning out). This interpretation of an English sentence, by a group that doubtless included native speakers of English, was considered wrong by Geis and Zwicky because it did not match the predictions of their formal logical model. Although students’ intuitions did not lead Geis and Zwicky to question the adequacy of their model, Geis and Zwicky did acknowledge that English conditionals involved inferences of biconditionality and causation. This allowed later researchers, such as Dancygier and Sweetser (2005), to build a new model that recognised that conditionals are interpreted locally, and that the local interpretation of English conditionals is biconditional. In the local scenario in which John is leaning precariously out of a window, *If John leans out of that window any further, he’ll fall* is indeed asserting that if John ceases his foolish behaviour, he won’t fall. The speaker of this sentence is not actively considering other non-local reasons that John might fall, such as an earthquake. Questioning the assumptions of the formal logic model made these observations apparent and paved the way for a new model of English conditionals.

Clearly, the rejection and replacement of models is an essential part of linguistic discovery, both in classroom learning and in research advances. Recognition of the value of temporary models would offer at least three advantages in the field of linguistics. Firstly, the cycle of rejecting and replacing models, with all of its benefits to teaching and research, could be sped up. Currently linguists are reluctant to let go of outdated models, learn from the models’ flaws, and move on. Temporary models can be employed until they fulfil their purpose, and then be discarded, allowing researchers to begin with new models instead of tinkering with models that have little more to offer.

Secondly, temporary models are less likely to become needlessly complex and opaque. Longstanding linguistic models can become increasingly unapproachable to those outside their field. Even a model that is designed to be easy to learn, such as the Natural Semantic Metalanguage (NSM), will almost inevitably become impenetrable to outsiders as it attempts to account for more phenomena. NSM semantic descriptions (‘explications’) avoid technical

vocabulary and use only everyday terms such as *something*, *all* and *good*. Over 40 years, NSM has maintained this limited vocabulary, but has become intricate to the point that explications of single words sometimes last pages, must reference other lengthy previously defined explications (Goddard 2010), and are not transparent to laypersons (Matthewson 2003). Discussions of longstanding models may additionally dissuade outsiders due to their focus on the minutiae of the model itself. If you do not work in NSM, you probably will not attach much importance to whether 54 or 56 different words may be used in explications, for example. Temporary models encourage researchers to keep their models simple and keep their debates relevant.

Thirdly, and most importantly, models that are temporary and purpose-built are less easily conflated with the linguistic or conceptual reality they represent. Linguists who have saturated themselves in a single model for a lifetime sometimes make claims about language and cognition that are incompatible with findings from psychology, anthropology, or even biology. This is because they have forgotten that their model is necessarily flawed, and they insist on its perfection to the point of ignoring evidence that contradicts it.

Given the advantages of temporary linguistic models, why is Rastall so unusual in preferring them? Perhaps linguists become emotionally attached to their models. Perhaps it is easier to publish on, or receive funding for, work involving well-established models accompanied by claims of cognitive reality, rather than purpose-built models with realistic claims. Nevertheless, Rastall's description of "all linguistic models as *constructs for the understanding*" (2013: 22) could hardly be more accurate. An honest recognition of the nature of linguistic models can only lead to a more effective use of models and more rapid progress in the field.

To quote a line from the scene in "Monty Python and the Holy Grail" where characters are enthusing over a distant castle that is obviously a low-budget fake: "It's only a model". Recognising a model for what it is will offer more benefits than interpreting a model as an accurate representation of reality, or even as reality itself.

References

- Dancygier, B. & E. Sweetser 2005. *Mental Spaces in Grammar: Conditional Constructions*. Cambridge: Cambridge University Press.
- Geis, M. & A. Zwicky 1971. On Invited Inferences. *Linguistic Inquiry* 2(4): 561–566.
- Goddard, C. 2010. Semantic molecules and semantic complexity (with special reference to "environmental" molecules). *Review of Cognitive Linguistics* 8(1): 123–155.
- Matthewson, L. 2003. Is the meta-language really natural? *Theoretical Linguistics* 29: 263–274.
- Rastall, P. 2013. Small Model Languages as Tools for Reflection. *Language Under Discussion* 1(1): 1–23.