

## The dark side of the model

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**Abstract.** In his paper “Small Model Languages as Tools for Reflection”, Paul Rastall proposes using deliberately oversimplified and artificial model languages, making no grand claims for absolute truth, as heuristic and didactic tools in linguistic inquiry. While I find this approach both useful and commendable, I argue (echoing similar warnings in Wittgenstein’s late work) that such models can not only expand our horizons in thinking about language, but also limit them.

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Paul Rastall’s paper “Small Model Languages as Tools for Reflection” (Rastall 2013) explores the heuristic potential of deliberately oversimplified and artificial model languages in the study (and teaching) of language. These Small Model Languages (SMLs), as Rastall calls them, can “control variables better and make assumptions more transparent” (Rastall 2013, 2). As Karen Sullivan (2013) stresses in her response, a great advantage of Rastall’s approach is that it avoids committing to the “truth” of the specific model being applied. We are thus free to exploit the valuable insights our models can provide without being forced to defend the inadequacies they inevitably have.

I definitely see the great heuristic value of the sort of model languages Rastall is talking about, and I share Sullivan’s sentiment that Rastall’s paper offers a very healthy approach to linguistic modeling. And yet, I believe there is a lingering danger in using models of languages (small or otherwise), which Rastall neglects to address—a danger that should not preclude us from using models, to be sure, but which we should nevertheless be mindful of when we are using them, especially for heuristic or pedagogical purposes.

The title of Rastall’s paper presents his SMLs as *tools*. Tools are excellent enabling devices. They vastly increase the affordances of our bodies and minds. But tools can also limit the way we see the world around us. As the old adage goes, when all you have is a hammer,

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everything looks like a nail. This restricting power of models (or pictures, to use his own word) was a major concern for Wittgenstein (1958) in his late work, and, as I will try to show in what follows, this concern indeed applies to Rastall's suggestion.<sup>1</sup>

To accomplish this task, one needs to go no further than Rastall's own example model. Moreover, the limitations this model unwittingly imposes on those using it are already evident if we look at the very first stages of its development in the paper (Rastall 2013, 9–11). The description of Rastall's sample SML begins with an imaginary situation in which people are communicating to each other the existence of various objects, without any further information about them. The initial model consists of two types of markers: one marker of existence ("actualizer", obviously modeled on the existential quantifier  $\exists$  in formal logical notation), and an open set of object labels. The existence of an object is communicated by placing the object label and the actualizer next to one another, in any order.

Rastall then notes that "the idea of a sequence of signs is an assumption" (Rastall 2013, 10), and that the actualizer need not be expressed explicitly as a symbol at all. Instead, the existence of an object can be conveyed by modifying the object label itself in some way (e.g., using prosodic marking). This gives him the first chance to conduct a reality check:

In real languages, however, we normally find an actualiser and a naming sign in a sequence (*There is/are*, *Es gibt*, *Il y a*, (Arabic) *fii*, (Chinese) *you*<sup>3</sup>, etc.). This strategy is clearly dominant, although it requires the "effort" of identifying different signs, associating them, memorising and synthesising them into a complex message (Rastall 2013, 10–11).

Now, those of us who are used to working with naturally-produced linguistic materials (in corpus studies, or in discourse and conversation analysis) might notice a problem at this stage: Rastall's conclusion that such explicit marking is a "clearly dominant" strategy does not seem to be borne out by the evidence. First, whereas many languages have existence markers, as listed by Rastall, not all do, while languages that do have such explicit markers also typically retain the option of marking existence prosodically or pragmatically. Of course, a full typological study would be necessary to settle the empirical question properly, but at first blush, it appears non-explicit marking is actually the more widespread strategy of the two among the world's languages.

And if we also consider the semantics and pragmatics of communicating existence, this impression receives further reinforcement. It is notable that the English marker *there is* is not really a device for communicating the mere existence of some object. "There is a river", in isolation, is not a complete utterance (where is that river? what about it?) It is also definitely *not* the way English speakers typically report on the existence of objects they can perceive directly. To the contrary, *there is* would be used typically to talk about things one knows about, but does not currently perceive. There are also specific idioms being used for some objects and events (e.g., we say "It's raining", not "There's rain"). Studies of how people actually do talk about the presence of objects in their environment (e.g., Clark and Wilkes-Gibbs 1986) show a much more complex picture than the one Rastall takes for granted in his discussion at this stage.

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<sup>1</sup> As it happens, the "language of the builders" described by Wittgenstein (1958, §2) is a superb example of a small model language in Rastall's sense.

But why am I dwelling for so long on just one contingent problem with one example of an SML in use? Well, the issue is that this sort of misjudgment is not random. Rather, it reflects the blind spots inherent in the model itself. One of the model's assumptions is that objects are designated by stable conventional labels.<sup>2</sup> When comparing the "predictions" of the model with actual linguistic practice, our gaze is then naturally fixed on issues of conventional word order, to the detriment of relevant pragmatic devices, for example.

If I understand Rastall's stance correctly, his reply at this point would be that the SML we are talking about is explicitly designed to explore syntactic relations, and that we can use another SML to model pragmatics. Fair enough. But this requires prior knowledge of which aspects of language to model. Aye, there's the rub. For this prior knowledge has to come from another model of language, whose assumptions are no longer made explicit in the same way the SML's assumptions are.

If our SML is being used for didactic purposes—by a professor in a linguistics class—we can say that in a sense the professor is introducing her students into a scientific paradigm, whereby they are taught to see some things about language and (unintentionally) taught *not* to see other things. If the SML is used heuristically to explore fundamental questions about language as such, the blind spots of the model may turn into the blind spots of a whole theory, keeping us entirely unaware of important aspects of linguistic reality. In Wittgenstein's words:

*A picture held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably* (Wittgenstein 1958, §115).

To come back to the point from which we started, none of what I wrote here detracts from the value and importance of Rastall's argument. Small artificial models are indeed valuable tools for reflection, all the more so because they are explicitly artificial, divorced from any claim for absolute linguistic truth. It's only that, even in this form, models are still the sort of tools that should be handled with care. Handling SMLs with care means remembering that behind the explicit assumptions of the SML there are always implicit assumptions belonging to a background model—a background model that we should then be especially careful to avoid introducing into the real-world data we are comparing our model to.

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<sup>2</sup> As an aside, I should note this assumption has a long pedigree, going back at least to Aristotle's *Organon* (see especially Barnes 1984, 1:25), which further increases the chance that the assumption in question gets unwittingly sneaked into the conclusions of the whole exercise.

Sullivan, Karen. 2013. "It's Only a Model: Discussion Note on 'Small Model Languages as Tools for Reflection'." *Language Under Discussion* 1 (1): 27–29. <http://ludjournal.org/index.php?journal=LUD&page=article&op=view&path%5B%5D=15>.

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