From: "Modeling: A Study in Words and Meanings" by Willard McCarty

November 4, 2019

> Out on site, you were never parted from your plans. They were your Bible. They got dog-eared, yellowed, smeared with mud, peppered with little holes from where you had unrolled them on the ground. But although so sacred, the plans were only the start. Once you got out there on the site everything was different. No matter how carefully done, the plans could not foresee the *variables*. It was always interesting, this moment when you saw for the first time the actual site rather than the idealised drawings of it.
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> Kate Grenville, *The Idea of Perfection* (Sydney: Picador, 1999): 62–3

Introduction

The question of modeling arises naturally for humanities computing from the prior question of what its practitioners across the disciplines have in common. What are they all doing with their computers that we might find in their diverse activities indications of a coherent or cohesible practice? How do we make the best, most productive sense of what we observe? There are, of course, many answers: practice varies from person to person, from project to project, and ways of construing it perhaps vary even more. In this chapter I argue for modeling as a model of such a practice. I have three confluent goals: to identify humanities computing with an intellectual ground shared by the older disciplines, so that we may say how and to what extent our field is of as well as *in* the humanities, how it draws from and adds to them; at the same time to reflect experience with computers "in the wild"; and to aim at the most challenging problems, and so the most intellectually rewarding future now imaginable.

My primary concern here is, as Confucius almost said, that we use *the correct word* for the activity we share lest our practice go awry for want of understanding (*Analects 13.3*). Several words are on offer. By what might be called a moral

philology I examine them, arguing for the most popular of these, "modeling." The nominal form, "model", is of course very useful and even more popular, but for reasons I will adduce, its primary virtue is that properly defined it defaults to the present participle, its semantic lemma. Before getting to the philology I discuss modeling in the light of the available literature and then consider the strong and learned complaints about the term.

Background

Let me begin with provisional definitions[1]. By "modeling" I mean *the heuristic process of constructing and manipulating models*, a "model" I take to be either *a representation of something for purposes of study*, or *a design for realizing something new.* These two senses follow Clifford Geertz's analytic distinction between a denotative "model *of*" such as a grammar describing the features of a language, and an exemplary "model *for*" such as an architectural plan.[2][3]. In both cases, as the literature consistently emphasizes, a model is by nature a simplified and therefore fictional or idealized representation, often taking quite a rough-and-ready form: hence the term "tinker toy" model from physics, accurately suggesting play, relative crudity, and heuristic purpose.[4] By nature modeling defines a ternary relationship in which it mediates epistemologically, between modeler and modeled, researcher and data or theory and the world.[5] Since modeling is fundamentally relational, the same object may in different contexts play either role: thus, e.g., the grammar may function prescriptively, as a model for correct usage, the architectural plan descriptively, as a model of an existing style. The distinction also reaches its vanishing point in the convergent purposes of modeling: the model of exists to tell us that we do not know, the model for to give us what we do not yet have. Models *realize*.

[1]My definitions reflect the great majority of the literature explicitly on modeling in the history and philosophy of the natural sciences, especially of physics. The literature tends to be concerned with the role of modeling more in formal scientific theory than in experiment. The close relationship between modeling and experimenting means that the rise of a robust philosophy of experiment since the 1980s is directly relevant to our topic; see Ian Hacking, "On the Stability of the Laboratory Sciences," *The Journal of Philosophy* 85, no. 10 (1988): 507–14, http://www.jstor.org/stable/2026809. Quite helpful in rethinking the basic issues for the humanities are the writings from the disciplines other than physics, e.g., David L Clarke, *Models in Archaeology* (London; New York: Routledge, Taylor & Francis Group, 2015), http://public.eblib.com/choice/publicfullrecord.aspx?p=1826744. on archaeology; on the social sciences, the essays by de Callatay, Mironesco, Burch, and Gardin in Robert. Franck, *The Explanatory Power of Models : Bridging the Gap Between Empirical and Theoretical Research in the Social Sciences* (Dordrecht; London: Springer, 2011). For interdisciplinary studies see Shanin (1972) and Mary S. Morgan and Margaret Morrison, *Models as Mediators* (New York: Cambridge University Press, 1999), esp. "Models as Mediating Instruments" (pp. 10–37).

[2]Clifford Geertz, *The Interpretation of Cultures*, 2017, 93.

[3]Cf. Goodman's distinction between "denotative" and "exemplary" models, respectively (1976: 172–3); H. J. Groenewold's "more or less poor substitute" and "more or less exemplary ideal" (1960: 98). Similar distinctions are quite common in the literature.

[4]Nancy. Cartwright, *How the Laws of Physics Lie* (Oxford; New York: Clarendon Press : Oxford University Press, 1984), 158.

[5]Morgan and Morrison, *Models as Mediators*.

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