



SOCIAL GRAVITY
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As physical space configures the motion and shape of objects I want to suggest that social space configures the motion and shape of human language and interaction. Let me quickly give you a concrete example. In her recent book on social interaction among Black children, Marjorie Goodwin points to differences between boys and girls in terms of how they engaged in joint activities.⁴ Boys used talk to emphasize differences in status between group members. Girls, on the other hand, used talk to stress equality and mutuality. But consider what happens when the girls play house. In this activity, girls enacting the role of mothers address directives to their play children that are similar to those their own mothers address to them. And the girls enacting roles as children defer in talk and action to their play mothers. However, from time to time, a girl steps outside her play role and seeks information about her role (for example, what age she should pretend to be). Given the equalitarian nature of their other activities, we might expect such a girl to offer her own suggestions or to ask any other girl for suggestions. But, of course, she does no such thing. Rather, she addresses the girl playing mother as if she were the boss (e.g., "How old am I?", pg. 129).

What is happening here is that the social activity of playing house has an asymmetry built right into it, following from the nature of the parent-child relationship and the culturally distinctive way in which Black mothers relate to their daughters. This asymmetry creates a distinctively configured social space. Thus, even when the girl exits her play role, her talk and interaction are shaped by the configurations of this space. She asks as a subordinate the play mother to determine in an asymmetrical fashion the nature of her own role in the activity.

If massive physical bodies warp physical space, thereby determining the contours of the motions and shapes of moving bodies, what warps social space? The answer, I believe, is what I

have called "Discourses" (with a capital "D").⁵ Discourses are socially and historically distinctive ways of saying, doing, being, valuing, and believing (and sometimes writing and reading) in the "right" places at the "right" times with the "right" people and the "right" props so as to mark out specific social identities or play specific social roles. Being a Black woman of a certain sort, being a business woman of a certain sort, and being a member of a regular radical-feminist social gathering are each examples of Discourses.

There has been a lot of work lately on how scientific disciplines like biology function as Discourses creating a distinctively configured social space which shapes language and interaction.⁶ In a recent book, Greg Meyers points out that biology works differently in professional journals than it does in popular science magazines.⁷ Thus, compare the two extracts below, the first from a professional journal, the second from a popular science magazine, both written by the same biologist on the same topic:

1. Experiments show that *Heliconius* butterflies are less likely to oviposit on host plants that possess eggs or egg-like structures. These egg-mimics are an unambiguous example of a plant trait evolved in response to a host-restricted group of insect herbivores. (Professional journal)

2. *Heliconius* butterflies lay their eggs on *Passiflora* vines. In defense the vines seem to have evolved fake eggs that make it look to the butterflies as if eggs have already been laid on them. (Popular science)

The first extract, from a professional scientific journal, is really about the conceptual structure of a theory within the scientific discipline of biology. The subject of the initial sentence is "experiments", a methodological tool in natural science. The subject of the next sentence is "these egg mimics"--note how plant-parts are named in terms of the role they play in a particular theory of natural selection and evolution, namely "coevolution" of predator and prey. Note also, in this regard, the earlier "host plants" in the preceding sentence, rather than the "vines" of the popular

passage. In the second sentence, the butterflies are referred to as "a host-restricted group of insect herbivores", which points simultaneously to an aspect of scientific methodology (like "experiments" did) and to the logic of a theory (like "egg mimics" did). Any scientist trying to argue for the theory of coevolution faces the difficulty of demonstrating a causal connection between a plant characteristic and a particular selective agent when plants have so many other plants and animals attacking them. A central methodological technique to overcome this problem is to study plant groups (like *Passiflora* vines) that support only one or a few herbivore taxa (in this case, *Heliconius* butterflies). "Host restricted group of insect herbivores", then, refers to both the relationship between plant and insect that is at the heart of the theory of coevolution and to the methodological technique of picking plants and insects that are restricted to each other so as to "control" for other sorts of interactions. The first passage, then, is concerned with scientific methodology and a particular theoretical perspective on evolution.

The second extract, from a popular science magazine, is not about methodology and theory, but about animals in nature. The butterflies are the subject of the first sentence and the vine is the subject of the second. Further, the butterflies and the vine are labeled as such, not in terms of their role in a particular theory. The second passage is a story about the struggles of insects and plants that are transparently open to the trained gaze of the scientist. Further, the plant and insect become "intentional" actors in the drama: the plants act in their own "defense" and things "look" a certain way to the insects, they are "deceived" by appearances as humans so often are.

These two examples replicate in the present what, in fact, is an historical difference. In the historical evolution of biology, the scientist's relationship with nature gradually changed from telling stories about direct observations of nature to carrying out complex experiments to test the logic of complex theories.⁸ "Real" biology and popular science are now different Discourses, mutually upholding and undermining each other's authority in complex ways.

Though I don't have time to elaborate the point here, I would argue that professional science is now concerned with the expert "management of uncertainty"⁹ and popular science with the general assurance that the world is knowable by and directly accessible to experts. The need to "manage uncertainty" was created, in part, by the fact that mounting "observations" of nature led scientists to realize (as the scientist we will study in the next section said) "like most things in science there has never been a clear-cut answer". This problem led, in turn, to the need to convince the public that such uncertainty did not damage the scientist's claim to professional expertise or the

ultimate "knowability" of the world. These two Discourses--professional biology and popular biology--have etched a complex "geometry" into socio-historical space, and this geometry moves and shapes the language of our two extracts right down to their finest details.

One can go from the study of Discourses to the study of language or go in reverse from language to Discourses. Thus, one can read off of language and social interaction the lineaments of the social spaces that have shaped and moved them like the orbits of planets. When one does this, it is clear, for example, that in much "school science" language and interaction do not bear the configurations characteristically left on language and interaction by the Discourses of science. This alerts us that, labels aside, some other Discourse is operative here. The social geometry shaping language, interaction, and thought in these classrooms is often an asymmetrical Discourse of sorting and control, mislabeled "science", and functioning rather like playing house, or should we say, "playing school".¹⁰

Finally, let me add, that we are none of us the mere victims of the social spaces that shape and constrain us: though it takes much effort and cooperation we can with others drop a new massive object into social space--that is, create a new Discourse--and thus change the configurations of many lives, our own included.

NOTES

1. Emile Durkheim, *Le Suicide: Etude de Sociologie* (Paris: Alcan, 1897).
2. Ian Hacking, *The Taming of Chance* (Cambridge University Press, 1990).
3. Robert B. Hazen & James Trefil, *Science Matters* (New York: Doubleday, 1990).
4. Marjorie Harness Goodwin, *He-Said-She-Said: Talk as Social Organization among Black Children* (Bloomington: Indiana University Press, 1990).
5. James Paul Gee, *Social Linguistics and Literacies: Ideology in Discourses* (London: Falmer Press, 1990).
6. Charles Bazerman, *Shaping Written Knowledge* (Madison: University of Wisconsin Press, 1989), and Bruno Latour & Stephen Woolgar, *Laboratory Life: The Social Construction of Scientific Facts* (Beverly Hills, Cal: Sage, 1979).
7. Greg Meyers, *Writing Biology: Texts in the Social Construction of Scientific Knowledge* (Madison: University of Wisconsin Press, 1990). The examples reprinted here are on page 150.
8. Charles Bazerman, *Reporting the experiment: The changing account of scientific doings in the Philosophical Transactions of the Royal Society, 1665-1800* (mimeo), cited in John M. Swales, *Genre Analysis: English in Academic and Research Settings* (Cambridge University Press, 1990).

9. Susan Leigh Star, *Regions of the Mind: Brain Research and the Quest for Scientific Certainty* (Stanford University Press, 1989).

10. Basil Bernstein, *Classes, Codes and Control, Vol. 1.*, 2nd rev. edition (London: Routledge and Kegan Paul, 1974, orig. 1971).

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