Nature, Nurture, the Presumption of Determinism, and Developmental Fixation

PSY 702: Summer Session 2005
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When I told my wife that my depth paper for developmental psychology was going to explore the question of when and by what mechanism sexual orientation might be fixed in humans, she asked me with alarm whether there was any chance that my essay might be published. After assuring her that there was absolutely no possibility of this, we took the opportunity to explore the basis of her anxiety. It turns out that she was reflexively concerned about the possibility that I might imply sexual orientation was a "choice" (presumably a bad one), and that our gay friends might be offended. This was an object lesson in the passions that can become attached to the epic *Nature vs. Nurture* debate. The very title of the debate seems to beg the question of parental responsibility for kids who don't "*turn out*". I suspect that the direct and indirect issues of moral responsibility that are associated with this broad question account for most of its emotional charge, although the philosophical and practical questions that pertain to the debate are certainly interesting in their own right.

The developmental perspective seeks to characterize how any particular system evolves through time, both specifically and generally. In fact, any system or entity of interest can be said to have a developmental history that can, in principle, be characterized exactly. Given an interest in any particular construct, the question is only how predictive its characterization can be in the light of the associated theory, if any. Two illustrative limit cases would be a system consisting of a finite string of random digits versus a system consisting of a finite string of a single repeated digit. The minimum representation of the random string is the entire string itself, and it has no predictive value in any domain, or in the light of any theory. The minimum representation of the repeating string is very concise, no matter the length of the actual string, and it is perfectly predictive within its proper domain.

Although the elements of any psychological construct are vastly more complex than digit strings, any developmental theory can ultimately be evaluated in this way. The development of wisdom over the life span may turn out to be properly and comprehensively represented by a single linear equation (nature); who knows? On the other hand, the development of language certainly involves multiple necessary stages or phases (nature) which must be characterized independently and placed in environmental context (nurture) in order to achieve their predictive capacity (construct validity). To the extent that universal rules of syntax and grammar are eventually attributed to genetic determination, the developmental theory of language will be reduced in bulk and enhanced in predictive capacity. The developmental theory of language would thereby become more elegant.

When a theory advances in this way, the minimal representation of its content generally diminishes and its predictive power always increases. Depending upon the specific

nature of the theoretical advance, it may leave the role of environmental variables (nurture) intact, modified, diminished, or increased. In some cases the influence of the environment may be subsumed by a theoretical advance, as in the discovery of a final common pathway. At the limit, every aspect of development culminates in death. If final status is the focus of interest, then the intermediate details become irrelevant in the light of more comprehensive theory.

In some cases additional theoretical constructs may reveal *additional* environmental dependencies. For example, if it is eventually established that angels really do get involved in our lives after all, then angelic motives, habits, and capabilities will automatically be drawn within the scope of many developmental theories. To the extent that such angelic attributes and behaviour can be reliably established, they will be drawn into theory and will therefore, in a sense, be removed from the environmental category of things. As environmental factors become better understood, they cease to be environmental and are transformed from nurture into nature by the alchemy of theoretical sophistication.

It must be noted that nature and nurture are both deterministic concepts. The division between them is largely a matter of theoretical perspective. The fact that the "input stream" is regarded as an environmental variable in the theory of language acquisition does not deny that it might be the determinant result of the mother's biopsychosocial history and status. The designation of any particular determinant as either internal or external to a system under examination is sometimes arbitrary. In any case, neither implies any real freedom. The difference is only that system theory does not purport to account for environmental factors, but only for their influence upon the "internal" structure of the system under examination. As environmental factors come under scrutiny and are precisely characterized, they can be integrated into the expanded system theory, assimilating from nurture into nature.

Neither does the concept of "hardware" serve very well to clearly distinguish nature from nurture. It is often tempting to regard DNA as natural bedrock but, before genetic expression has progressed even to the zygote, the developmental sequence has already fallen heavily under the influence of its local chemical and electromagnetic environment. As cerebral development progresses, increasingly abstract cognitive elements become permanently embedded in the physical structure of the brain. For example, attachment style and sexual orientation both seem to become fixated very early on, in extremely persistent form.

Of course, *every* psychological construct is instantiated physically within the cerebral architecture. It is only the fact that some structures are more persistent than others that leads us to classify them as "nature". Some of these constructs undoubtedly acquire precisely localized cerebral hardware at some point, and some clearly could not. It is hard to imagine a very tight localization of a representation like "*the theoretical implications of post-modern social constructivism*", although this particular construct is known to exert persistent cognitive and behavioural influence on some Fielding faculty across their adult lifespan.

Finally, it strikes me that a broad developmental principle of *fixation* should be given more prominent focus than it appears to enjoy, at least within the scope of the readings in developmental psychology that I have undertaken for this assessment (Bornstein & Lamb, 1992; Kagan & Herschkowitz, 2005; Schore, 1994; Siegel, 1999). The story of how any particular aspect of an entity or system develops is only a part of its story. The remainder of the story is an understanding of how the development process is terminated (when it is) and how persistent results are fixated, represented, retained, and manifested.

Fixation of various kinds undoubtedly proceeds by a wide variety of means. It is tempting, once again, to think of a spectrum of "hardness" ranging from rigid physical instantiation at one end to Platonic logical necessity at the other. Various forms of imprinting appear to "lock down" particular configurations of perception and cognition into relatively permanent cerebral structures (e.g. attachment style and sexual orientation). At the other end of the spectrum fixation sometimes appears to occur as a logical necessity, as in the acceptance or recognition of various mathematical truths. Regardless of the mechanism, most developmental processes must be inhibited, and sometimes concluded, in order to limit the time and cognitive resources that they consume, or in order to satisfy other practical requirements. I am certain that the issues related to principles of fixation must be treated somewhere within the developmental literature, and I look forward to finding and exploring such treatments.

References

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