

Metaphors and Identity in Human Evolution

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How we create personal knowledge depends upon our perceptions of the world outside us. Those *perceptions*, in turn, are shaped not only by our senses—where perceptions occur—but by a deeper *conception* of how we value those perceptions: what we know depends on how that knowledge is integrated with our own identity. The questions we ask about that world “outside”, therefore, are themselves determined by the answers acceptable to our self-identity “inside”.

But a great deal of the phenomena we have some knowledge *about* cannot be integrated. How can we integrate our possible relation to the cosmos? Or to dark matter? Or to the evolution of our early ancestors? Since these things are not—indeed, most *cannot* be—sensed, we have no actual perceptions of them. The vast majority of things and events that constitute the universe are far beyond our ken, because the human animal was not constructed to perceive them.

Yet, as we learn about them, and we accept them as parts of our world, we create knowledge of them. Since they are not perceptible, therefore, we must fashion in them an imaginary perceptibility. If we do not, they do not actually become personal knowledge—only words that stand for things to which we have no relation.

This is why so much of our knowledge is metaphorically described and understood. In many cases, the imagery contained in the metaphor becomes proxy for its object. This is what gets us into trouble: we have difficulty distinguishing the things unseen from the symbols that we construct to represent them. Exploring this is the purpose of this presentation.

Evolutionary metaphors

A good example is the conceptualization of evolution. In the following comments I will identify several of the metaphors we have used to represent evolution—particularly human evolution—over the past several centuries and discuss how these metaphors, in turn, have influenced how we identify ourselves and our ancestors. I will also comment on the role of the metaphor in creating knowledge on the one hand and in restraining or limiting it on the other.

Evolution is both a process and a series of products. While we see products of evolution, we cannot observe the processes by which evolution has occurred, and so we create metaphoric visualizations, as Darwin himself did. But long before Darwin, metaphors were used to represent perceived relationships among living beings and our position within them. A “ladder of life” or *scala naturae* was how Aristotle visualized life’s grades of complexity. Among Scholastics of the Middle Ages this became the “great chain of being”, with God at the top and humans just

below the angels. In the 18th century, Aristotle's *scala* became the basis for Linnaeus' system of biological classification.

Both the ladder and chain metaphors were more than just visually appealing; they were metaphysically concordant with the common view of reality. First, each conveyed knowledge of an established order to the universe; second, each conceived of this order as a hierarchy; and finally, each created and asserted fixity in that order—a gratifying sense of unchanging stability and perfection. Both visualizations, moreover, were ontologically compatible with the classical roots of human identity, which envisioned the entirety of existence teleologically: the entire cosmic process had a celestial purpose. This was equally true for believers and non-believers, for both were comforted in the belief that man's elevated position in the universe was destiny and his future preordained. These metaphors, therefore, not only confirmed the current belief—much as evidence confirms a scientific hypothesis—they inhibited any contravening metaphors. That is to say, these metaphors both created and restrained knowledge. They opened the long hallway passage, but closed off the side chambers (there's a metaphor in itself!).

The Tree Metaphor

Darwin transformed the hierarchical metaphor—both ladder and chain—into an evolutionary tree, and with it he disputed both the teleology and fixity of that order. To appreciate the necessity for a new metaphor under Darwin, we need to be

aware of the immensity of the evolutionary concept. One landmark assertion of Darwinian evolution was that natural law, rather than divine law, can explain the *nature* of the process. Consequently, not only is man an inherent part of nature and subject to its laws, he has lost his special status as the purpose and inheritor of Divine intent. This new materialism personalized the less foreboding (but still, to some, unnerving) materialism of the Enlightenment a century before. It may be okay for the rest of creation to simply obey physical cause and effect, “but surely humans must be exempt!” was the objection. The Anthropic Principle—a universe organized to accommodate human life—had survived the critique of Aristotelian science.

Another fundamental assertion of Darwinian evolution beyond its materialist claim that natural law explains the *process* of transformation is that the differential survival of individual variations is the *mechanism* of that process. Hence, that mechanism—natural selection—operates on individuals in the species, and not on a species as a unit. Consequently, the *essentialism* that had dominated metaphysics since Plato, the doctrine that things are naturally grouped as *types* bearing essential patterns independent of their coming into being, is, under Darwinian canon, no longer a valid concept nor a valuable scaffold on which to build an evolutionary model.

There were multiple reasons for the objections to Darwin's new ideas, some religious and some not, but these may be collectively identified as a refusal to accept the redefinition of reality and of humankind that it imposed. This constituted not so much a *change* in identity as a *loss* of identity, because there was no new sense of a re-identity in the scheme offered by Darwin. This conundrum was not lost on Darwin himself, who struggled with a way to dispose of supernatural purpose without succumbing to the utter chaos of "randomness".

The new tree metaphor and its ingenious re-drawing in visual form (first ed., p. 116) was particularly appropriate as a representation of the evolutionary process, identifying both the success of useful adaptations in life's history and the extinctions on the dying branches which made room for them. In terms of speciation, the single trunk nicely reflected the succession of more complex from less complex forms in a gradual—imperceptible—progression, while the tree's branches reflected adaptive radiation and increasing biodiversity, both of which were not only non-progressive, but depended on chance occurrences. Victorian science was ill-inclined to embrace this new metaphor, but by the second decade following Darwin's century, it was standard fare in textbooks and scientific papers.

The Braided Stream Metaphor

As human fossil discoveries revealed increasing numbers of contemporaneous remains bearing species differences, the tree became a bush and the root fossil

disappeared, leaving more relatives and fewer ancestors. At *Sima de los Huesos* in north central Spain in the closing years of the 20th century and at Dmanisi in former Soviet Georgia and Rising Star Cave in South Africa in late 2013, unexpected discoveries revealed that our ancestry was probably never a matter of one species replacing another. These sites exposed local Paleolithic populations containing individual members with widely divergent morphologies. Had these individuals been discovered at separate sites they would have been identified as different species, but at these three sites the clusters each belonged to communities of humans. The discomfort this caused has led to changed definitions of what species actually are, and altered the criteria for identifying them. This in turn resulted in the virtual elimination of identifying species differences morphologically, and a tendency to lump species rather than split them.

The tree metaphor and the bush it had transformed into were both no longer suitable for our self-identity as a progressively “sapienized” species neatly replacing our predecessors with improved biological equipment. At the same time, archaeogenomics revealed Neanderthal genes in archaic *Homo sapiens*, and a 40,000 year old Siberian population genetically more closely related to Melanesians than to Europeans. Clearly, human evolution was more confusing today than in earlier times, and clearly a new model—perhaps a new paradigm—was needed in order to integrate this new knowledge.

Enter the “braided stream.” A braided stream has channels that separate at one point and re-join at another. While some of these stream branches diminish and disappear, most intertwine through the downstream flow. So it seems to be in the evolutionary stream, where the flow is through time rather than across the landscape. Between 2.5 and 2 million years ago human morphological diversity becomes profound. There exist at least three and as many as five conventional species living not only in the same region, but even at the same site in East Africa. While all were our relatives, there is no agreement on any ancestral line identifying an earlier form that leads to us, probably because there never was a line. It has never made much sense to accept the possibility of so many separate—and presumably competing—species, and there seems to be no precedent in other, non-human, evolutionary trajectories. A braided stream analogy makes more sense and avoids this problem, even though theoretical challenges reside here as well.

So how does this new metaphor change our identity? First, our new identity consists of multiple racial or ethnic groups which arose before our species did, and thus independently of speciation. Secondly, it suggests that morphological species are not genetic species, and conflating the two has brought us to our current impasse. Third, it suggests that the processes responsible for morphological and genetic variations are only loosely related: one process is adaptive response

through natural selection, the other is an inertia propelled from within the inherent capabilities of the genome itself without significant genetic change.

It now seems likely that our journey to *Homo sapiens*, only partially guided by genetics, became largely irreversible before the earliest Australopithecines emerged in the middle of the Pliocene some 3-1/2 million years ago. Our braided past is one of morphological alternatives weaving in and out of a polymorphic species as that species progressively sapienizes.

So—another metaphor, another revision of our self-identity, as we find ourselves self-consciously addressing a complex past made simpler by analogy. This is only the most recent metaphor by which we redefine us. It will hardly be the last.

Further reading

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