

Response to Trask - Take 2

As long-term fans of Larry Trask's postings to Evo-Psych, we are saddened and disappointed by his repeated ill-informed and misleading postings about our paper.

Trask displays a serious misunderstanding of biology. Biology is not 'entirely' about genes. Some of the most prominent biologists of our time have gone to great lengths to emphasize this point (this is something that even Richard Dawkins and Richard Lewontin agree about - see Lewontin (1998) and Dawkins (2000)). Phylogenetics is also not all about DNA sequences. Phylogenetic techniques have been used successfully for a number of decades on genetic, morphological and behavioral data. To complain that our results are flawed because language isn't like biology is a misrepresentation of our central thesis. We are not saying that words behave exactly like genes, or that languages behave exactly like species. Instead, we argue that there are a number of similarities that enable us to use phylogenetic techniques from biology to resolve questions in historical linguistics. Indeed, we are not alone in noticing these similarities. Darwin, for example, remarked,

“The formation of different languages and of distinct species, and the proofs that both have been developed through a gradual process, are curiously parallel... We find in distinct languages striking homologies due to community of descent, and analogies due to a similar process of formation”

- (*Descent of Man*, 1871).

Second, we have never refused to explain what we did. Our explanation in the *Nature* paper was necessarily brief due to the constraints of the 'Letters to Nature' section. Scientific papers typically do not contain detailed explanations of every aspect of the methodology, but rather, they are part of a profession that necessarily assumes a background level of specialist knowledge. In fact, our paper contained more than the usual level of methodological detail present in phylogenetically orientated papers in *Nature* - some of the referees actually asked us to reduce the size of the methods section. No-one familiar with phylogenetic techniques has expressed difficulty in understanding our methodology. It is also worth noting that all techniques discussed in the *Nature* paper are fully referenced so that the interested reader can easily look them up. We are currently preparing a more detailed explanation of the methodology for publication in a forthcoming book. A draft of this chapter has been posted on our web site (www.psych.auckland.ac.nz/psych/research/Evolution/GrayRes.htm). Far from being reluctant to explain and defend our approach we have already responded to Trask's earlier postings, addressing many of the issues that he repeats here (our posting, dated 30 February 2004, is also available on our web site). It is Larry Trask who "refuses to reply to" our response, preferring instead to comment on reporters summaries and other secondary sources relating to our work.

Third, Trask again raises "the argument from the wheel". Nowhere, do we argue that Indo-European languages 'all waited for 3000 years...and then they all invented the "same" word for wheel'. We propose two likely alternative explanations for the current distribution of words associated with wheeled transport which do not necessitate a proto-

Indo-European word for wheel. These alternative explanations were explicated in our previous response to Trask and are available on our web site (www.psych.auckland.ac.nz/psych/research/Evolution/GrayRes.htm). We urge interested readers to read this more detailed explanation. However, to reiterate: -

1. Terms for new technologies may well be borrowed along with the technology itself – the wheel seems like a prime example. We argue that, in the case of the wheel, borrowed terms are unlikely to be identifiable as such - if terms associated with wheeled transport were borrowed 5000-6000 years ago, as we would expect, then the terms in each of the major lineages will have undergone all of the sound changes that characterize that lineage. This would make the words appear native to the lineage and thus inherited from Proto-Indo-European when in fact they could have been early borrowings.
2. In many languages, independent semantic innovations from a common root may produce apparently related words with meanings that were not present in the common ancestral language. For example, “Watkins (1969) considers that [the] terms pertaining to wheeled vehicles were chiefly metaphorical extensions of older IE words with different senses (**nobh-*, for example, meant ‘navel’). The word **kwekwlo-* ‘wheel’ itself is derived from the root **kwel-* ‘turn, revolve’.” (Trask, 1996). For example, upon the development of wheeled transport, words derived from the PIE term **kwel-*, meaning “to turn, rotate”, may have been independently co-opted to describe the wheel. On the basis of the reconstructed ages shown in our paper, as few as three such semantic innovations around the 6th millennia BP could have accounted for the attested distribution of terms related to **kwekwlo-* ‘wheel’ (one shift just before the break up of the Italic-Celtic-Germanic-Balto-Slavic-Indo-Iranian lineage, one shift in the Greek-Armenian lineage, and one shift (or borrowing) in the Tocharian lineage).

Finally, we would like to consider the Trask’s *parable of the pizza* –

“Imagine that the archaeologists of AD 8000 find a word ‘pizza’ for a kind of bread in lots of ancient languages.”

Trask claims –

“They have two choices. One, the bread was invented once around AD 2000 and given the name ‘pizza’, and this name was inherited into lots of languages.

Two, the bread was invented much later, around AD 5000, and then every language invented the name ‘pizza’ for it independently.”

But neither of Trask’s choices are realistic or relevant to the current debate – we are not arguing about when the wheel was invented (we know it must have been around 6,000BC), we are arguing about the age of a language family. We all know that the word ‘pizza’ has been borrowed into many different languages. If many of these languages survive until AD 8,000, will the scholars of the time be able to conclusively identify the word ‘pizza’ (or ‘pizzeria’ or ‘pizza cutter’ or any of the words associated with pizza technology) as a borrowing? Quite possibly, after 6000 years they will not. They then have two choices. One, assume that the word pizza was not a borrowing and then claim that all of the languages of their time must have shared a common ancestor in AD 2000. Two, allow for the possibility that when pizza was invented, its popularity meant that the

term was borrowed into many of the languages of the time, and that languages of 8,000AD may therefore share a common ancestor much older than AD 2000.

Despite the disgruntled and rather defensive responses from some linguists such as Larry Trask, we remain convinced that evolutionary methods have much to offer the study of cultural evolution. Historical linguistics is no exception to this.

References

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- Trask, R. L. (1996). *Historical Linguistics*. London: Arnold.