

A CONTINUUM OF HUMAN COGNITIVE-LINGUISTIC EVOLUTION

OLGA VASILEVA

*Psychology Department, Simon Fraser University,
Vancouver, Canada
ovasilev@sfu.ca*

The current research explores a novel evolutionary hypothesis linking abnormal phenotypes of human cognition to ontogenetic variation in language acquisition styles.

A number of theories suggested that abnormal cognitive development in humans might have evolutionary underpinning with abnormal conditions being byproducts of specific human cognitive adaptations, that can be seen as windows into evolutionary development of our species in general, and language evolution in particular (e.g. Benitez-Burraco & Boeckx, 2014).

Schizophrenia and autism are two conditions that are frequently linked to human cognitive evolution in general and to language evolution in particular. A growing body of evidence suggests that these conditions are not only related, but present potentially opposite sides of a spectrum (Crespi & Badcock, 2008), with some symptoms manifested in the opposite manner in each condition.

Ontogenetic communicative development in humans presents another interesting continuum – so-called language-acquisition styles, with children exhibiting these styles being called “referential” and “expressive”. Cross-cultural research in North America and Russia (e.g. Bates et al., 1991; Dobrova, 2009) indicates that these styles can, first of all, be clearly defined only in a population segment where both clearly defined styles represent extreme points of a continuum; and second of all, main features of the styles are manifested in the opposite manner. For example, referential children are characterized by a fast rate of vocabulary growth and clear speech, while expressive children, on the contrary, by a slower vocabulary growth and less clear speech. While language acquisition styles were first distinguished based mainly on linguistic characteristics, further research showed that expressive and referential children also differ in social factors (socioeconomic status, parental education, family composition), biological factors (brain hemisphere dominance, gender) and certain cognitive parameters (imitation, ability for generalization). These same factors also play a significant role in abnormal cognitive phenotype development. The current submission proposes a link between abnormal phenotypes and language acquisition styles, as a closer analysis suggests that there are some

similarities between abnormal phenotypes and language acquisition styles respectively (schizophrenia – expressive style; autism – referential). The hypothesis proposes that there are not two independent spectrums of abnormal linguistic phenotypes and language acquisition styles, but a single continuum of human cognitive and linguistic development with abnormal phenotypes at the extreme points of it and normal variation in language acquisition in the central majority of the population. Existing evidence suggests that there are some similarities between abnormal phenotypes and language acquisition styles. For example, autistic children exhibit decreased self-reference; these referential children tend to discuss themselves in third person longer than typical children (delayed first-person reference).

This continuum might be present in both ontogeny and phylogeny, where existing variation can be explained by the interplay between the initial linguistic and cognitive biases common in humans and specific choices that an organism makes based on the cues from the environment for the former and specific biases in human cognition and language developed over the course of species evolution for the latter.

My presentation will review the main properties of autism and schizophrenia in relation to each other and to language evolution; analyze various linguistic, cognitive and social parameters common for two language acquisition styles; and show connections between abnormal phenotypes and their normal counterparts, the language acquisition styles, with precise examples for each step of the analysis. Implications for the evolution of human cognition and language will be discussed.

Acknowledgements

The author is grateful for the continuing guidance of senior supervisor Timothy Racine; and for helpful feedback and unwavering support from colleagues in the Human Evolutionary Studies Program.

References

- Bates, E., Bretherton, I., & Snyder, L. (1991). From first words to grammar: Individual differences and dissociable mechanisms. New York: Cambridge University Press.
- Benítez-Burraco, A. & Boeckx, C. (2014). Language disorders and language evolution: Constraints on hypotheses. *Biological Theory*, 1–6.
- Crespi, B. & Badcock, C. (2008). Psychosis and autism as diametrical disorders of the social brain. *Behavioral and Brain Sciences*, 31, 241-261.

Dobrova, G. R. (2009). On variability of language ontogenesis: Referential and expressive strategies of language acquisition. *Questions in Psycholinguistics*, 2009 (9).