YOUR THEORY OF LANGUAGE EVOLUTION ALSO DEPENDS ON YOUR VIEW OF EVOLUTION

THIAGO MACEK GONÇALVES ZAHN[*1]

[*]Corresponding Author: thimacek@gmail.com
[1]Departamento de Linguística, Universidade de São Paulo, São Paulo, Brazil

One exciting but often puzzling aspect of the field of Language Evolution is the variety of theories and approaches it includes. These not only embrace different, sometimes contradictory assumptions, but also often seek explanations to different questions. An interesting topic is thus how different theories/ approaches are related, i.e. how different assumptions may lead to disparate questions and views, and how contradictory different assumptions made in the field in fact are.

In an important contribution, Jackendoff (2010) argued that "what there is for a theory of language to explain" depends on one's theory of "what language is", discussing how different views on the "innate language capacity" and on how domain-specific it is lead to different theories on how that language capacity might have evolved. As Jackendoff mentions, some defend that little or nothing special (i.e. domain-specific) is needed for the evolution of language, making it essentially a "cultural phenomenon". In the same article, however, he states that "if that ("disparate languages" passed down through cultural transmission) is all there is to language, a theory of the evolution of language has nothing at all to explain". Therefore, although Jackendoff speaks of cultural evolution, he sees a clear contrast between this and language evolution, which is apparently equated with biological evolution and deemed more important.

Others distinguish even more clearly between *evolution* as a specifically biological phenomenon, and *language change*: Berwick & Chomsky (2016, p. 92) explicitly say "Languages change, but they do not evolve. (…) nonbiological evolution (…) is not evolution at all"; and Andersen (2006) has a whole chapter arguing "that there is no chance of explaining language *change* by the mechanisms of *evolutionary* theory". For some (e.g. Berwick & Chomsky), this

distinction is taken as given - perhaps reflecting the Chomskyan view that linguistic variation and change are strongly constrained by a shared Universal Grammar. Others, like Andersen (2006) and Itkonen (1999), have discussed at some length what they see as *disanalogies* that would disallow the use of *evolutionary thinking* to explain *cultural* linguistic phenomena.

Although researchers who advocate for a cultural evolutionary approach to language change and *evolution* (i.e. *origin of modern human languages*) have provided some answers to such criticisms (e.g. Dediu et al, 2013, p. 305-307; Steels, 2017), little conversation seems to occur between both sides of the divide. In part, this may reflect different conceptions of *language*, as pointed by Jackendoff (2010), mirroring the Formalist-Functionalist divide common in linguistics. However, it seems clear that another aspect underlying the divide are different understandings of *evolution* – including *what counts as evolution*, *what evolution can/ should explain* and related questions. This suggests that some of the ongoing debates in the field are *inherently theoretical*, and thus cannot be solved solely empirically, since new evidence may be interpreted differently and/ or given different weights depending on one's assumptions.

Discussion on "what is evolution" and on whether it is possible (or productive) to expand evolutionary thinking beyond biology has a prolific history in philosophy (e.g. Lewontin, 1970; Hull, 1988; Godfrey-Smith, 2007, 2009, 2012; Baraghith & Feldbacher-Escamilla, 2021; also Price, 1995[1971]; Frank, 2012; Luque, 2017). Assuming an ontology based on a 'general selection theory' (e.g. Croft, 2000; Clark, 2010; Gong, 2012; Steels & Szathmáry, 2018) allows *linguistic* changes to be studied alongside or independently of genetic changes in speakers, and I suggest it may solve some incommensurabilities between approaches. In fact, models based on such assumptions have shown how *cultural language evolution* could have worked alongside biological evolution to shape modern human language(s) (see e.g. Steels, 2010; Kirby, 2013). Meanwhile, taking 'evolution' as limited to *genetic* changes raises questions about what is inherently different in systems of *cultural* change, and whether phenomena at that level might not have long-term effects in the evolution of human language(s).

Taking as a "general model" Kirby (2017, p.125)'s idea that language involves the interaction of three dynamical systems (*individual learning, cultural evolution and biological evolution*), important differences between theories may be recognized by considering which of these systems in fact involve *evolution*, which are deemed more important, and how they influence each other in each approach.

It is perhaps not surprising that one's theory of *Language Evolution* depends on one's theories of *language* and *evolution*; thus, clearing assumptions in both regards may go a great way in building more constructive exchanges in the field.

Acknowledgments

The author would like to thank João Figueiredo Nobre Cortese, Thomas Finbow, Paulo Chagas de Souza, Joana Bortolini Franco, Wellington Santos da Silva, Mariana Payno and Vitória Lima for constructive discussions about the nature of language and language evolution, and CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for financial support which was essential to allow the development of this research.

References

Andersen, H. (2006) Synchrony, Diachrony, and Evolution. In: O.N. Thomsen (Ed.) *Competing models of linguistic change – Evolution and Beyond* (pp. 59-90). Amsterdam/ Philadelphia: John Benjamins Publishing Company.

Baraghith, K, & Feldbacher-Escamilla, C. (2021). The Many Faces of Generalizing the Theory of Evolution. *American Philosophical Quarterly 58(1)*: 35-50.

Berwick, R., & Chomsky, N. (2016). Why only Us: Language and evolution. Cambridge, MA: MIT Press.

Clark, B. (2010). Evolutionary Frameworks for Language Change: The Price Equation Approach. *Language and Linguistics Compass 4(6)*: 363-376.

Croft, W. (2000). *Explaining Language Change: An Evolutionary Approach*. London: Longman.

Dediu, D., Cysouw, M., Levinson, S.C., Baronchelli, A., Christiansen, M.H., Croft, W., Evans, N., Garrod, S., Gray, R.D., Kandler, A., Lieven, E. (2013) Cultural Evolution of Language. In: P.J. Richerson and M.H. Christiansen (Eds.) *Cultural Evolution: Society, Technology, Language, and Religion*. (pp. 303-332). Cambridge, MA: MIT Press.

Frank, S.A. (2012). Natural selection. IV. The Price equation. *Journal of Evolutionary Biology* 25: 1002-1019.

Godfrey-Smith, P. (2007). Conditions for Evolution by Natural Selection. *Journal of Philosophy* 104: 478-516.

Godfrey-Smith, P. (2009). *Darwinian populations and natural selection*. New York, NY: Oxford UP.

Godfrey-Smith, P. (2012). Darwinism and cultural change. *Philosophical Transactions of the Royal Society B 367*: 2160-2170.

Gong, T., Shuai, L., Tamariz, M., Jäger, G. (2012). Studying Language Change Using Price Equation and Pólya-urn Dynamics. *PLoS ONE 7(3)*: e33171.

Hull, D.L. (1988). A mechanism and its metaphysics: An evolutionary account of the social and conceptual development of science. *Biology and Philosophy* 3(2): 123-155.

Itkonen, E. (1999). Functionalism yes, biologism no. *Zeitschrift für Sprachwissenschaft, 18(2)*: 219-221.

Jackendoff, R. (2010). Your theory of language evolution depends on your theory of language. In: R.K. Larson, V. Déprez, H. Yamakido (Eds.) *The Evolution of Human Language – Biolinguistic Perspectives* (pp. 63-72). Cambridge: Cambridge University Press.

Kirby, S. (2013). Transitions: The Evolution of Linguistic Replicators. In: Binde, P.-M.; Smith, K. (Eds). *The Language Phenomenon: Human Communication from Milliseconds to Millennia*. (pp. 121-138). Heidelberg: Springer.

Kirby, S. (2017). Culture and biology in the origins of linguistic structure. *Psychonomic Bulletin and Review 24*: 118-137.

Lewontin, R.C. (1970). The units of selection. *Annual Review of Ecology and Systematics 1*: 1-18.

Luque, V.J. (2017). One equation to rule them all: a philosophical analysis of the Price equation. *Biology & Philosophy 32(1)*: 97-125.

Price, G.R. (1995[1971]). The Nature of Selection. *Journal of Theoretical Biology* 175: 389-396.

Steels, L. (2010). Can Evolutionary Linguistics Become a Science? *Journal for Evolutionary Linguistics* 1(1): 1-34.

Steels, L. (2017). Do languages evolve or merely change? *Journal of Neurolinguistics 43(B)*: 199-203.

Steels, L., Szathmáry, E. (2018). The evolutionary dynamics of language. *Biosystems 164*: 128-137.