*** This paper has now been published at *Behavioral and Brain Sciences*, please cite the published version: Rorot, W., Skowrońska, K., Nagórska, E., Zieliński, K., Zubek, J., & Rączaszek-Leonardi, J. (2023). Structuring unleashed expression: Developmental foundations of human communication. *Behavioral and Brain Sciences, 46*, E13. doi:10.1017/S0140525X22000838 ***

Structuring unleashed expression: developmental foundations of human communication

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This paper is a commentary on Heintz C., Scott-Phillips T. (2022). Expression unleashed: The evolutionary & cognitive foundations of human communication. *Behavioral and Brain Sciences*. https://doi.org/10.1017/S0140525X22000012

ABSTRACT

The target article highlights the sources of open-endedness of human communication. However, the authors' perspective does not account for the structure of particular communication systems. To this end, we extend the authors' perspective, in the spirit of Evolutionary Extended Synthesis, with a detailed account of the sources of constraints imposed upon expression in the course of child development.

MAIN TEXT

Heintz and Scott-Phillips strongly argue that the cognitive capacities required for unleashed communication are *adaptations* to a 'partner choice' social *ecology*. This emphasis on adaptation and ecology puts them roughly within the purview of modern evolutionary synthesis (Huxley 2010). However, arguments against both the adaptationist paradigm and the program of modern synthesis have been accruing systematically for a long time (e.g., Gould and Lewontin 1979; Sober 1982; Walsh and Huneman 2017) and resulted in several alternative proposals, out of which the Extended Evolutionary Synthesis is one of the most prolific (Laland et al. 2015; Pigliucci and Müller 2010). Evolutionary Extended Synthesis positions at its center the study of development (developmental bias and plasticity) and niche construction. These are precisely the elements that

we argue that the authors overlooked in their proposal, and which can provide important details not only about how expression becomes 'unleashed,' but also how it can become highly structured to enable the emergence of symbolic communication systems, such as language.

The target article draws the continuity between different forms of human expression, moving the search for foundations of the unleashed communication, i.e., the generativity of communication systems, outside the properties of language itself. This opens up new avenues for asking more adequate questions about systems of communication. Here we want to ask, what makes language in particular a suitable tool for such an open-ended expression. While various means of human expression—art, dance or improvised gestures—can convey meaning, language seems to be the only system effectively allowing for communication both unlimited and precise. We argue that the authors' framework cannot account for the emergence of the structure of unleashed communication visible in language. Here we focus on the inclusion of a crucial factor: external sources of linguistic structure present in development which go beyond the authors' focus on social ecology on an evolutionary scale.

Human infants are born into a social world. Interactions with caretakers are the primary source of experiences for a newborn, as well as the context for their agency. These include language utterances of particular structure, crucially—closely tied to action (Rączaszek-Leonardi et al., 2018). In fact, children learn basic linguistic structures much earlier than they are able to use them for communication in the same way as adults do (Bruner, 1985). Importantly, the caretakers' actions themselves also often exhibit a communicative structure. As evidenced in research on early semantic development, infants' behaviors, such as reaching and pointing, are treated as ostensive by caregivers to build sensible "events" or "narrations" around them. This way, action first, children learn about possibilities of expression that can be effective in social situations. "Events" rather than being entirely created on the fly are culturally sanctioned routines, adapted to a situation. It is within such interactions that experiences of being expressive and effects of this expression on partners appear and are progressively shaped towards communicative and linguistic modes. Yet, the child may be perfectly unaware of this and treat pointing gestures just as a reliable way of getting what they want. It is only when pointing becomes unreliable and produces different results depending on the context (most importantly, receiver's attention and knowledge (Liszkowski et al. 2004)) that the child starts to become aware of the intricacies of communication. Thus two kinds of cultural enactments scaffold the developmental progression: interactive routines leading to various expressions being integrated for purposive co-action (Rączaszek-Leonardi, Rohlfing and Nomikou, 2013; Rossmanith et al., 2014) and using a highly structured language by

a parent, in concert with the routines, which scaffolds skillful linguistic participation. In both cases, it is shareable structures, historically shaped by culture, that are central for developmental language emergence in interaction (Bruner, 1983).

Finally, these public, physical structures are crucially *replicable*. The authors are certainly correct in highlighting that one of the purposes of conventionalization is to turn attention to the communicative intention of a particular action (TA, p. 32). As importantly, however, conventionalization ensures the replicability of expressions and serves as one of the key sources of constraints on unleashed expression. Over the course of development, via overimitation (TA, p. 25) and co-action, utterances (spoken or signed) are nudged towards these culturally sanctioned forms stabilizing their functions, which make up a *language*. In turn, all this depends on the physical, public and shareable nature of the signs which can be abstracted away from a particular situation in which they are produced and repeated under nearly any circumstances while preserving their meaning.

A fully unleashed expression would prevent successful message transmission due to the multiplicity of possible meanings. Introducing structure and constraints which ensure replicability, a "leashing" of expression of sorts, restricts informative intentions of communicators which cannot be "about anything at all" (TA, p. 18). Open-endedness of some elements of a communication system needs to become suspended, so that they are produced and interpreted as natural signs (Bar-On 2021, p. 15), for the system to remain unleashed. This is possible via the developmental pressures described above. The evolutionary perspective of the authors needs a complementary account of the developmental and environmental structures that enable and stabilize communicative abilities. While the roots of expressive communication could be observed in the open-ended improvised expressions, identifying the key processes from other timescales on the level of individual and language development allow for an adequate, interaction-specific balance of "leashed" and "unleashed" parts of communication. We argue that this contribution may serve as a valuable extension for the proposed framework.

The processes described above indicate that the focus on the ecological interactions and on the evolutionary timescale may lead to averaging out crucial processes which accompany the unleashing of expression. On the other hand, taking care to analyze the developmental processes substantiates the authors' claims about the appearance of relevant cognitive capacities at "reliable and predictable stages of ontogeny" (TA, p. 23) and highlights that this results from a network of dynamic processes supported by other individuals and the cognitive niche that humans have constructed in order to master language use.

Acknowledgments: The authors wish to thank Borys Jastrzębski for discussion of the target article.

Funding statement: The work on this commentary has been funded by the NCN Opus 15 Grant 2018/29/B/HS1/00884 to Joanna Rączaszek-Leonardi.

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