

Packaged and Ready-to-Go: Linguistic Tools for Communication and Mental Processing

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It has been argued that human cognition relies crucially on ‘tools’ obtained through social learning (Tomasello 1999; Dennett 2000). The conceptual constructs underlying certain words and constructions can be considered as such tools: when learning to use them in language, their representational power opens new worlds of possibilities for our mental and communicative activities, not replacing but complementing existing ones (see also Clark, 1997; Lohmann & Tomasello 2003).

In this talk we discuss implications of this idea for both communication and mental processing and show how it tightly fits current ideas about both human ontogeny and human cognitive evolution. In doing so, we present an account of a cognitive strategy we call ‘packaging’, drawing on works such as D’Andrade (1981), Gentner (1982), Bod (2002), and Dancygier (2012). At the substrate level, the packaging idea assumes an elementary cognitive system that includes the primitives of our cognition (such as figure ground relations and the recognition of objecthood). However, many of the concepts we effectively communicate about and reason with are conceptual constructs packaging these primitives several at a time. Packages can furthermore include other packages recursively, allowing us to build incrementally more complex concepts. Moreover, packages can obtain Gestalt-like properties through routinization: they can be used as ‘diagrammatic’ wholes in more complex lines of thought and communication, while their constituent components remain accessible. As such, packaging provides crucial scaffolds for communication and higher-level cognition. First, encoding packages instead of their conceptual atoms makes communication more efficient. Second, given constraints of working-memory and processing, working with packages allows us to engage in more complex patterns of reasoning than working with substantively identical, but non-packaged primitives.

It follows from the packaging account that the processing costs of routinized complex concepts should not be (much) higher than those of routinized but less complex constructs. We evaluate this hypothesis on the domain of reasoning with kinship relations, by measuring if subjects in a web-experiment processed more complex concepts (such as ‘nephew’) slower and less accurately than less complex ones (such as ‘father’), when asked to judge the possibility of statements such as “John’s father’s uncle’s brother’s son’s niece is John’s sister”, that varied in their cumulative complexity (cf., Cech & Shoben 1980). We observed no linear increase in response latency nor a linear decrease in performance, suggesting that, on the one hand, subjects reason with routinized complex concepts (hence: no linear increase in response latency) while still being able to process the content of the conceptual constituents of those complex concepts (hence: no linear decrease in accuracy). We conclude by suggesting that packages can be considered as culturally evolved and transmitted entities. Every generation of infants acquires them ‘ready-made’, through language, thereby obtaining the tools that enable them to participate in current human thought and communication. After all, in Dahlbom and Janlert’s words (cited in Dennett 2000): “there is not much thinking you can do with your bare brain.”

keywords: cognitive complexity, cultural evolution, kinship terminology, packaging

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