language as the "product of successive ontogenies" (p. 10; also see Studdert-Kennedy 2005).

19. This process, once termed "niche picking" by Scarr and McCartney (1983), has recently been treated in some detail by Odling-Smee et al. (2003), who rightly regard "niche construction" as a vastly underplayed process in the history of evolutionary thinking. A brief but interesting discussion of niche construction is available in Dawkins (2004), who distinguishes this kind of engineered and adaptive alteration, which is encompassed by his extended phenotype theory, from the less Darwinian processes of "niche change."

Open Peer Commentary

Invoking narrative transmission in oral societies

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Abstract: The ethnographic description of story-telling and narrative transmission of cultural facts is an aspect of Locke & Bogin's (L&B's) article that should be amplified. Innate shared gene patrimony is biased by the kinship structure of particular societies and interacts with the transmission of narratives. Trance experiences are another interesting aspect of verbal and agonistic "performances."

Language acquisition in both its innate and social aspects must affect the oral transmission of culture within traditional societies. The rules of transmission are certainly a matter for multidisciplinary investigation. Ethnology and the specific description of story-telling including performance style and context constitute only one level of approach to the narrative transmission of cultural facts (Degh 1995). Ethnology, however, is uniquely important as an avenue to the complex syntax that articulates human society on both synchronic and diachronic scales.

Essentially, kin groups across cultures strive to reproduce their knowledge across generations, particularly favoring their peers of the same generation. Ethnologists concentrate on recurrent cultural practices, with the supporting genetic relatedness of kind groups less salient to them. In any case, selection on raw vocal ability, improving widely variant types of spoken communication within the kin group in the very early stages of human history (see sect. 3.5 of the target article), seems logically possible, but can hardly be documented.

Kinship structures inform the mechanisms of cultural transmission. Natural kinship is accompanied in practically every society by cultural kinship (previously called fictive kinship). Conceptually put, natural and cultural kinship may lead to two complementary genealogies, with memory-carriers only partially overlapping in each group. Thus, an important patrimony exists that is not "individually" genetic, but "communitarily" genetic. To insiders following the oral prescriptions of a given society, often the personal aspect of information transmission is very secondary. To the ethnologist, the interesting question is not about the origin of oral transmission, or about its evolutionary trajectory, but about its content and mechanisms, easily searched for in present-day field realities. Ethnographic description must complement evolutionary hypotheses regarding oral cultural transmission. Present-day cultures with primarily oral methods of transmission have never stopped generating transmission content and are far from the static models that the target article suggests (sect. 4).

Ethnographic evidence is richest in the following categories of cultural transmission: kinship – the transgenerational division of goods, both material (e.g., dowry, inheritance) and spiritual (e.g., descent and widely-accepted institutions such as god-parenting; Rivers 1907); narratives from belief-tales to fairy-tales; and ceremonies – including a wide variety of life-cycle or year-cycle ceremonies. All of these kinds of transmission are observed not only in the case of oral societies, but also in urban and literate ones.

A great deal of attention is focused in ethnology on the relation invoked in sections 4.1 and 4.2, between verbal and agonistic performance, and power. Contests of brilliant performers in story-telling and oral narrative transmission show only one aspect of cultural transmission. Another aspect is trance, which is linked to the special qualities of precious individuals within the community – another widespread form of power.

Locke & Bogin's (L&B's) article concentrates principally on individuals consciously manipulating technical ability for power. No less powerful, "ordinary" members of oral societies often achieve high status using transformed linguistic proficiency in altered states of consciousness. I have in mind the many techniques of trance, be it ecstatic trance (whose exemplar model is the classical shaman; Eliade 1951; Humphrey 1996), or induced trance (trances without presumed journeying to other worlds; De Martino 1961). Both types of trances share exquisite performances, complete with assistants/interpreters of often parallel "languages." The audience is prepared, and the performance must fit the expectancies of the community in the form of local myths or legends. For the individuals performing in a trance state, the ability to significantly change their state of consciousness *accompanies* their linguistic proficiency; it does not originate in such proficiency. The stories of first-hand trance experience surely reinvest local narrative patrimony, after necessarily following its trends in shaping the trance/ecstasy experience.

Language use, not language, is what develops in childhood and adolescence

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Abstract: That both language and novel life-history stages are unique to humans is an interesting datum. But failure to distinguish between language and language use results in an exaggeration of the language acquisition period, which in turn vitiates claims that new developmental stages were causative factors in language evolution.

Locke & Bogin's (L&B's) unusually long target article has provided an unusually thorough account of how the life cycle of humans differs from those of other primates. Instead of a solution to the puzzle of how and why language evolved, however, we are left with additional mysteries: how and why childhood and adolescence evolved. Furthermore, L&B fail to make a convincing case that any causal connection exists between novel developmental stages and language evolution.

What selected for childhood? L&B's best suggestion is that it enabled mothers to shorten the interval between childbirths, hence to have more offspring. But since this is desirable for any species, why did childhood evolve in one primate alone? L&B have no answer. When they come to adolescence, what the authors propose does not merely fail to support their claims, it works against them. They characterize adolescence as a period for young individuals to rehearse adult economic, social, and sexual behaviors before being burdened with reproductive chores. Why would such behaviors need rehearsal unless they were noticeably more complex than behaviors of