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The mutual relevance of teaching and cultural attraction

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Abstract: As Kline envisages, there is an important relationship between cultural attraction and teaching. The very function of teaching is to make the content taught an attractor. Teaching, moreover, typically fulfills its function by exploiting a variety of factors of cultural attraction that help make its content learnable and teachable.

In the Introduction to her excellent target article, Kline raises the question of what mechanisms and processes facilitate the faithful transmission of cultural knowledge. She considers the possibility that “cultural attractors” might play an important role. She suggests, however, that factors of attraction, in particular evolved psychological mechanisms, that make specific contents more attractive, do not change fast enough “to keep pace with culturally evolving mental representations” (sect. 1, para. 2), and, for this reason, she does not pursue the matter further. This, we fear, is an inaccurate interpretation of the theory and amounts to missing an opportunity of particular relevance to Kline’s own agenda.

Actually, cultural attraction theory (henceforth CAT; Sperber 1996; cf. Claidière et al. 2014) considers not only psychological but also biological and environmental factors of attraction, and not only factors that act throughout the whole cultural evolution of a species, but also factors narrowly situated in time and space. To give but one example, Imo, the female macaque who, in 1953, had initiated the practice of cleaning sweet potatoes in water, started a second tradition among her conspecifics on the island of Koshima, that of making potatoes tastier by dipping them in sea water. Two factors of attraction help explain the cultural success of this second practice: the existence of the earlier tradition of cleaning potatoes in water, which limited the learning involved in acquiring the second practice – a local factor – and the macaques’ biologically evolved taste for salt – a general factor.

In most current approaches to cultural evolution, it is assumed that cultural variants (mental representations, practices, and artefacts) propagate by being copied within and across generations. Cultural evolution, in such a perspective, is the effect of various forces, the interplay of which determine the differential success of cultural variants in eliciting copies of themselves.

From the viewpoint of such approaches, many culturally evolved active teaching practices present if not a paradox, at least a serious challenge. Active teaching involves a continuum of variants that go from performing the behavior to be transmitted in the usual way and instructing the learner to copy it, to merely giving verbal instructions describing the behavior without performing it at all. Most typical cases of actively teaching a skill fall somewhere in between these two extremes. A teacher teaching a learner how to, say, tie a knot, is likely to *demonstrate* the action, which involves slowing down the regular process of tying a knot, exaggerating some gestures, making pointing movements, and engaging in a verbal explanation of what she does. The learner isn’t at all intended to copy this complex teaching behavior but to use the information provided in a mix of preservative and constructive ways to work out how to tie a knot. Needless to say, practices of active teaching themselves are generally transmitted not by the learner copying a teacher teaching, but, here too, by a complex mix of preservative and constructive processes.

The idea that cultural transmission is not – and not even principally – a matter of imitation or copying, but instead involves the systematic use of preservative and constructive processes is what lies at the center of the CAT approach. CAT thus proposes that propagation by copying should be treated as a special case of a more general phenomenon of causal impact and attraction: In general cultural items of any given type at time step t may have an impact on the frequency not only of items of the same type but also of items of any other type at time step $t + 1$. In particular, when items of type A asymmetrically have a positive impact on the frequency of items of type B, B is an attractor relative to

A. Teaching is a case in point. Teaching any given cultural variant has a greater positive impact on the frequency of the variant taught than the variant has on the frequency of its teaching: Teaching, in other terms, not only contributes to making some variants cultural attractors, but also, it is its function to do so. In short, the abilities to teach, and to learn from teaching, are important factors of cultural attraction.

To be effective, most teaching practices – the rare exceptions being cases of teaching purely by rote – must take advantage of other factors of cultural attraction, only a few of which have been previously described in the literature (typically under the label “biased transmission” – Richerson & Boyd 2005, p. 69). Consider, for instance, ballroom dancing as a cultural skill. Much of what gets taught in dance classes are classic steps and rhythms that are highly characteristic of a given dance and that have contributed to its cultural success. As such, the form these steps take is in large part the consequence of a range of underlying factors of attraction, which are variously cognitive, biological, or environmental in nature, and which include, in particular, physical affordances of the human body that make certain steps easier to teach and learn, the (highly locally situated in time and space) repertoire of dance steps already known to the learners, pan-human or culture-specific aesthetic preferences, and of course the rhythms being danced to (rhythm and dance being a glaring example of the way in which one type of cultural item may have an impact on the frequency of another).

Cultural attraction theory is not meant as a radical alternative to evolutionary approaches to cultural evolution that have been developed in the past 40 years or so. It is, rather, a generalization of these approaches that provides novel tools to describe the causal impact of cultural items of a given type on not only the success of that same type, but also on the success of other types. Teaching as a cultural practice illustrates this essential dimension of cultural evolution in two ways. First, it is a practice that is aimed at increasing the frequency of practices other than itself. Second, to do so successfully, it relies on other factors of cultural attraction. This mutual relevance of the case of teaching and of CAT makes us particularly grateful to Kline for providing such a useful “evolutionary framework for the study of teaching behavior,” and encourages us to encourage her and anybody interested in the evolution of teaching to take advantage of the tools and hypotheses that CAT provides.