PRESENTATION

"COMPARATIVE MYTHOLOGY, POPULATION GENETICS, LINGUISTIC PHYLOGENETICS, AND COGNITIVE PATTERNS: STUDIES IN THE NEW SCIENCE OF CULTURAL DIFFUSION"

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Cross-cultural scholars have often been struck by the existence of almost identical cultural patterns in unrelated areas (Atran, 1990; Berlin & Kay, 1969; Brown, 1991). The existence of such commonalities in very distant cultures must be accounted for. Broadly speaking, two frameworks can account for such cross-cultural commonalities: *diffusionism* and *parallelism*.

• According to the first framework – *diffusionism* – each cultural trait has very low probability of emerging. As a result, it is expected that it will only emerge in one single culture (or a handful of cultures). The reason why the trait becomes nonetheless widespread cross-culturally, is because it successfully diffuses across large areas. As it diffuses, the cultural trait becomes gradually modified. It is therefore possible to account for the phylogeny of any given cultural trait just by looking at the different versions of the trait and thereby reconstructing where the trait initially emerged and how it diffused. Diffusionism has been classically promoted by authors such as Ratzel, Frobenius, Graebner, Rivers, etc., but also, to a certain extent, by some proponents of the culturalist school such as Boas (for a review: Barnard, 2000, Chapter 4).

• According to the second framework – *parallelism* –, humans are endowed with universal psychological mechanisms that explain why the same trait can emerge in parallel in many cultures. Within this framework, explaining the cross-cultural pervasiveness of a cultural trait does not require diffusion: each cultural trait has on its own high probability of emerging. By positing the existence of binary transformational psychological rules, structuralism provides a good example of a parallelist account of cognitive patterns across cultures (Descola, 2005; Laughlin & D'Aquili, 1974; Lévi-Strauss, 1962, 1964). Similarly, by positing the existence of universal psychological devices, nativism accounts for the emergence of specific cultural traits in parallelist terms (Boyer, 1994, 1996; Sperber, 1996; Sperber & Hirschfeld, 2004; Tooby & Cosmides, 1992).

While diffusionism was once considered a sound and fruitful framework, it has been subsequently criticized for being too speculative (e.g., Lévi-Strauss, 1958; Rowe, 1966). According to diffusionism, commonalities between, for example, Amazonia and Melanesia (Gregor & Tuzin, 2001) or North America and the Chaco (Sergent, 2014) are to be explained as phylogenetically related cultural features. In many cases, the assumption that migratory events or cultural contacts/exchanges can account for commonalities between distant areas may appear as particularly ad hoc and far-fetched. Yet, several lines of research developed in the last two decades largely vindicate the diffusionist framework:

• First, classically, comparisons between different cultural areas used to be somewhat arbitrary and to lack quantitative grounding. The development of large databases solves this problem as it allows researchers to put forward hypotheses and subsequently test them with quantitative methods against the available databanks (e.g., Berezkin, 2005; d'Huy, 2016).

• Second, while diffusionist hypotheses based merely on the comparative study of artefacts or myths appear as highly speculative, the development of population genetics and

paleogenomics is a game-changer (e.g., Reich, 2018). It is now possible to make much stronger diffusionist claims based on different types of evidence (e.g., if a diffusion process is corroborated both by archeological and genomic evidence, it is very likely that it did take place) (Cavalli-Sforza, 1997; Korotayev & Khaltourina, 2011).

• Third, classic diffusionist authors lacked formal tools to reconstruct diffusion trees. The development of powerful computational phylogenetic methods – and especially the development of Bayesian statistics (Csilléry, Blum, Gaggiotti, & François, 2010) – now enables researchers to reconstruct in a rigorous manner the phylogeny of cultural diffusion (Amorim et al., 2013; Thuillard & Le Quellec, 2017; Thuillard, Le Quellec, & d'Huy, 2018).

In sum, in the last two decades, the diffusionist framework has been considerably improved and largely vindicated. Diffusionism is not a pseudo-scientific and highly speculative field anymore; it has become a very promising transdisciplinary framework that can shed light on some of the most important issues bearing on the distribution of cognitive patterns across cultures and on cultural evolution.

The present workshop will feature cutting-edge studies in the new science of cultural diffusion. But it will also feature some work challenging or qualifying some of the chief assumptions of the new diffusionist framework. For example, some of the key issues that will be discussed is that of knowing to which extent artefactual, linguistic and genetic evidence overlap and corroborate one another, given that the speed of diffusion of artefacts, languages and genes is not the same (Amorim et al., 2013; Heyer & Mennecier, 2009; Thouzeau, Mennecier, Verdu, & Austerlitz, 2017). Importantly, the speed of diffusion governing each of these domains is highly dependent on local social structures (e.g., speed of genetic diffusion largely depends on local kinship systems) (Chaix et al., 2007; Heyer et al., 2009; Heyer, Sibert, & Austerlitz, 2005). More broadly, the study of cultural diffusion raises questions regarding how cultural areas are to be individuated and whether they form well-delineated or somewhat porous ensembles (Hornborg & Hill, 2011).

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