



Roma, 29 ottobre 2025

AVVISO DI SEMINARIO

Dipartimento di Metodi e Modelli per l'Economia, il Territorio e la Finanza
Facoltà di Economia, Sapienza Università di Roma

giovedì 6 novembre 2025
Ore 9:00, Aula Di Fresco - IV piano

La Dottoressa Emma Kopp, Paris-Dauphine University (CERAMADE), terrà il seminario

Recent work on phylogenetics applied to historical linguistic and cultural evolution

Abstract. Linguistic phylogenies reconstruct the evolutionary relationships between languages based on cognate data (presence/absence of shared linguistic traits). We use theoretical bounds derived from Mossel's work to determine the temporal limit to which phylogenetic methods can reliably reconstruct linguistic tree topology or ancestral states. The study combines simulation of synthetic data on trees to assess reconstruction accuracy as a function of tree age and number of cognates, and ancestral state reconstruction on real lexical data from Sino-Tibetan and Bantu language families. The study methodologically demonstrates that for languages evolving at rates typically observed in the literature, it is impossible to reconstruct the topology of a tree whose root age exceeds 12,000 years. Beyond this threshold, the inferred topology will be no more reliable than a random estimate. Analysis shows that increasing the number of traits improves reconstruction for ancient trees, but gains remain limited. Ancestral state reconstruction results show that certain semantic categories (body parts, numerical concepts and natural elements) can be reconstructed at remarkable temporal depths. This convergence in the retention of essential concepts suggests the existence of universal constraints in lexical evolution. These results establish for the first time a theoretical quantitative bound on phylolinguistic methods, demonstrating that reconstruction of deep topologies of ancient linguistic families based on cognate lexical data constitutes a doomed enterprise.

Tutti gli interessati sono invitati a partecipare.

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