

Are similarities among languages of the Americas due to diffusion of inheritance? An exploration of the WALS evidence

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Abstract:

An exploration of WALS (i.e. the *World Atlas of Language Structures*, edited by Haspelmath et al., 2005) has brought out a number of linguistic features that are significantly better represented in the New World than anywhere else. 24 such features remain when features that are restricted to certain subareas of the Americas are excluded. Are the features in question inherited from some language ancestral to all or most of the languages of the Americas or are they diffused? In order to address this question we introduce the strategy of analyzing spatial autocorrelations. Spatial autocorrelation refers to a systematic decrease in the similarity among the members of a set of entities as the geographical distance increases. It is a phenomenon well known in many branches of science, including genetics, geography, and ecology. Nevertheless, within linguistics at large it is only dialectologists who have been studying this phenomenon. In order to acquire an understanding of the factors that have an effect on the spatial autocorrelation of languages we have employed computer simulations where we varied parameters such as the rate of internal language change, the amount of diffusion, the speed of migration, and the amount of language shift. The empirical data show that linguistic spatial autocorrelation holds for any part of the world, and most, if not all, parts of the world will stand out as being significantly different from languages of the rest of the world even if the languages of the area in question are not related. Thus, diffusion is a very powerful factor. Nevertheless, the similarities among the languages of the Americas seem to be due to more than just diffusion because the languages in this area are more similar at large distances than are unrelated languages normally. The computer simulations indicate that the only relevant parameter that can affect the curve for spatial autocorrelation is descent from a common ancestor vs. non-relatedness. Thus, the conjunction of empirical evidence and simulations suggests that a phylogenetic signal is lurking in the WALS data pertaining to the native languages of the Americas.