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Abstract

[Austronesian Language Case Studies 2]

Limitations of the tree model: A case study from North Vanuatu

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Since the beginnings of historical linguistics, the family tree has been the most widely accepted model for representing historical relations between languages. It is even being reinvigorated by current research in computational phylogenetics (e.g. Gray et al. 2009). While this sort of representation is certainly easy to grasp, and allows for a simple, attractive account of the development of a language family, the assumptions made by the tree model are applicable in only a small number of cases.

The tree model is appropriate when a speaker population undergoes successive splits, with subsequent loss of contact among subgroups. For all other scenarios, it fails to provide an accurate representation of language history (cf. Durie & Ross 1996; Pawley 1999; Heggarty et al. 2010). In particular, it is unable to deal with dialect continua, as well as language families that develop out of dialect continua (for which Ross 1988 has proposed the term "linkage"). In such cases, the scopes of innovations (in other words, their isoglosses) are not nested, but rather they persistently intersect, so that any proposed tree representation is met with abundant counterexamples. Though Ross's initial observations about linkages concerned the languages of Western Melanesia, it is clear that linkages are found in many other areas as well (such as Fiji: cf. Geraghty 1983).

In this presentation, we focus on the 17 languages of the Torres and Banks islands in Vanuatu, which form a linkage (Tryon 1996, François 2011), and attempt to develop adequate representations for it. Our data consists of a database of 474 linguistic innovations reflected in the area—whether phonological, morphological, lexical or otherwise. Based on this rich database, we propose to define a new approach to representing and reconstructing language history – an approach we call historical glottometry.

Firstly, we use the tools of dialectometry developed by European dialectologists (Goebel 2006, Nerbonne 2010, Szmrecsányi 2011). For each pair of languages, we compute the ratio of shared innovations to non-shared innovations. Converting this ratio into a distance and applying

multidimensional scaling, we are able to accurately visualise the degree of historical divergence among the languages.

Secondly, we attempt to answer the question of how closely the Torres-Banks linkage approximates a tree—in other words, to what extent the isoglosses are nested. For each isogloss, we compute the proportion of isoglosses that contain or are contained in it to isoglosses that intersect it; this allows us to determine its "subgroupiness". In the case of a language family that develops exactly in the manner assumed by the tree model, every isogloss would have a subgroupiness of 100%. We thus propose an isogloss map with line darkness dependent on subgroupiness as a general representation, which includes the situation assumed by the tree model as a special case.

Overall, the approach of historical glottometry, anchored as it is in the classical comparative method (with its focus on shared innovations), provides a reliable and verifiable representation of language history, that avoids the misleading assumptions of the tree model.

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