

## Areal, family, and sociolinguistic effects on conditional constructions

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Socio-typological studies have revealed a relation between syntactic properties and socio-cultural factors, such as number of speakers, proportion of L1 and L2 speakers, literacy tradition, etc. (e.g. Bentz & Winter 2013, De Busser & LaPolla 2015, Karlsson et al. 2008, Lupyan & Dale 2010, Sinnemäki 2020, Sinnemäki & Di Garbo 2018, Trudgill 2011, Wray & Grace 2007). Similarly, Martowicz (2011) found a correlation between the degree of lexicalization/grammaticalization of conditional markers with several socio-cultural factors. Following up on those findings, this study examines the interaction between socio-linguistic as well as areal and family effects on the availability of conditional markers and constructions with a sample of 300 languages. While the use in writing may be expected to play a role, we do not yet know to what extent areal and genetic effects and language contact (cf. Bakker & Hekking 2012) may play a role and how those factors interact. We focus on real and hypothetical conditionals, which express what could or might happen (cf. Thompson et al. 2007: 255-262), as in examples (1) to (3).

- (1) Là góe=p'ét t'òng góe=múút.  
cond 2sg.m.s=exit.sg irr 2sg.m.s=die.sg  
'If you go out, you will die.'  
Goemai (Hellwig 2011: 457)
- (2) Nyila=ma=rna=nga warlagu=ma ba-rru guliyan=ma nyamu=yi=nga baya-wu.  
that=top=1min.s=dub dog=top hit-pot dangerous=top rel=1min.o=dub bite=pot  
'I'll hit the aggressive dog, if it bites me.'  
Bilinearra (Meakins & Nordlinger 2013: 307)
- (3) muguchii-kwaa-ku-m, wi'i-vichi-gwa-vaa máy-pu-ga-s 'uwas.  
shake-head-go-sub-2sg fall-descend-go-irr say-rem-conj 3sg  
'But then if/when you shake your head, I will fall down, he said.'  
Ute (Givón 2011: 365)

For each language, we determined the number of dedicated conditional markers, constructions, and other constructions used to express conditionality, e.g. temporal constructions (3). We fitted a series of Bayesian Poisson regression models to predict the number of markers/constructions from the number of speakers of a language, the presence of a literacy tradition, its use in written communication and in education. We controlled for genetic bias in modelling using phylogenetic regression, and for areal effects with a two-dimensional Gaussian Process (on latitude and longitude).

When used without additional control, the socio-linguistic predictors show a robust effect on real conditionals: especially a higher number of speakers and a higher degree of use in education are associated with a higher number of dedicated conditional markers as well as with a lower probability of a realis conditional marker being also used as a temporal marker.

However, after adding areal and family controls to the model, the effects of the sociolinguistic factors disappeared. While we cannot be certain that this result will hold for all possible sociolinguistic factors, it does show that what might seem like strong sociolinguistic effects can simply be the result of genetic and areal biases. This stresses the importance of careful modelling techniques in quantitative socio-typological studies.

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