Effects of adult second language acquisition on inflectional synthesis

Language Contact: The State of the Art Aug 28, 2014

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Background

- In the last 15-20 years growing interest in exploring whether sociocultural factors might, after all, affect linguistic patterns across languages.
  - Focusing especially on the effect of adult second language acquisition/speakers on language structure.

- Notable case studies and overviews:
  - Kusters (2003), McWhorter (2007), Trudgill (2011, among others), DeLancey (2014).

- Notable typological studies:
  - Bentz & Winter (2013).

The rationale

- The leading idea in these studies has been that the complexity of linguistic structure may adapt to the degree the language is acquired by outside adult learners.
  - If there are many adult outsiders in the community learning its language as a second language, this increases the probability that the community's language simplifies (especially in terms of morphology).
  - If there are few adult outsiders in the community learning its language as a second language, this may favor the maintenance and even the development of linguistic structures that are difficult for adult learners, such as irregularity and morphological complexity.

Why?

- L1 learners tend to acquire inflection rather easily and rapidly, while adult L2 learners have greater problems (see Kusters 2003 and refs).

- Adult L2 learners are overall less sensitive to morphological structure during language processing (Clahsen et al. 2010).

- As for verbal inflection, it poses problems especially to adult L2 learners, but much less to L1 learners (Parodi et al. 2004).

Hypothesis

- Bentz and Winter (2013) showed based on a sample of 66 languages that the greater the proportion of L2 speakers was, the more likely the language had no case (or fewer).

- In the same spirit I explore whether the proportion of L2 speakers may affect the degree of inflectional synthesis of the verb.

- Case studies suggest that the degree of synthesis may decrease through extensive language contact (Kusters 2003 for Arabic, Swahili, Quechua and Scandinavian), while relative isolation may foster the development of greater synthesis (DeLancey 2014 for Tibeto-Burman).

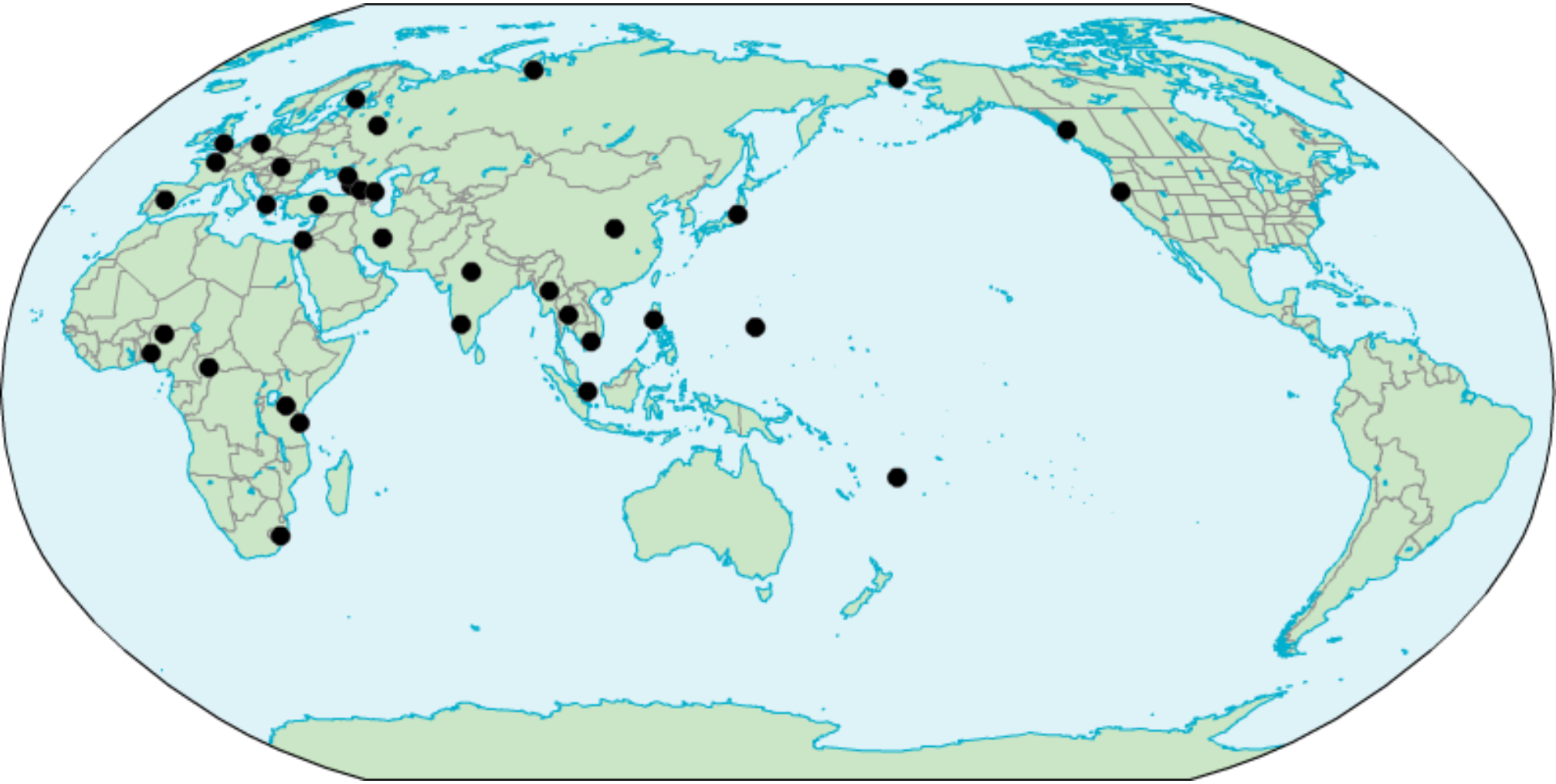
Method and data

- Inflectional synthesis of the verb; data from Bickel & Nichols' (2013).
  - They looked for maximally inflected verb forms and counted the number of categories per word.
    - For instance, two categories counted for English: agreement (-*s*) and tense (-*ed*).
  - Datapoints: 0-1, 2-3, 4-5, 6-7, 8-9, 10-11, 12-13 categories per word → conflated categories.
  - Sample : 145 languages.

- The number of speakers was taken from the Ethnologue (Lewis et al. 2013) and Christian Bentz's database that he kindly shared.
  - Bentz's database contains information about the number of L1 and L2 speakers for 231 languages.
  - Figures for small languages might be misleading, since the number of L2 speakers may be large but not really reflect adults learning the language over several generation, but the youth learning the language of the elders (p.c., C. Bentz).

- The combined database for inflectional synthesis and the number of speakers contains data on 36 languages. The sample is areally very biased.
  - Reasonably reliable data available for L1 but not L2.

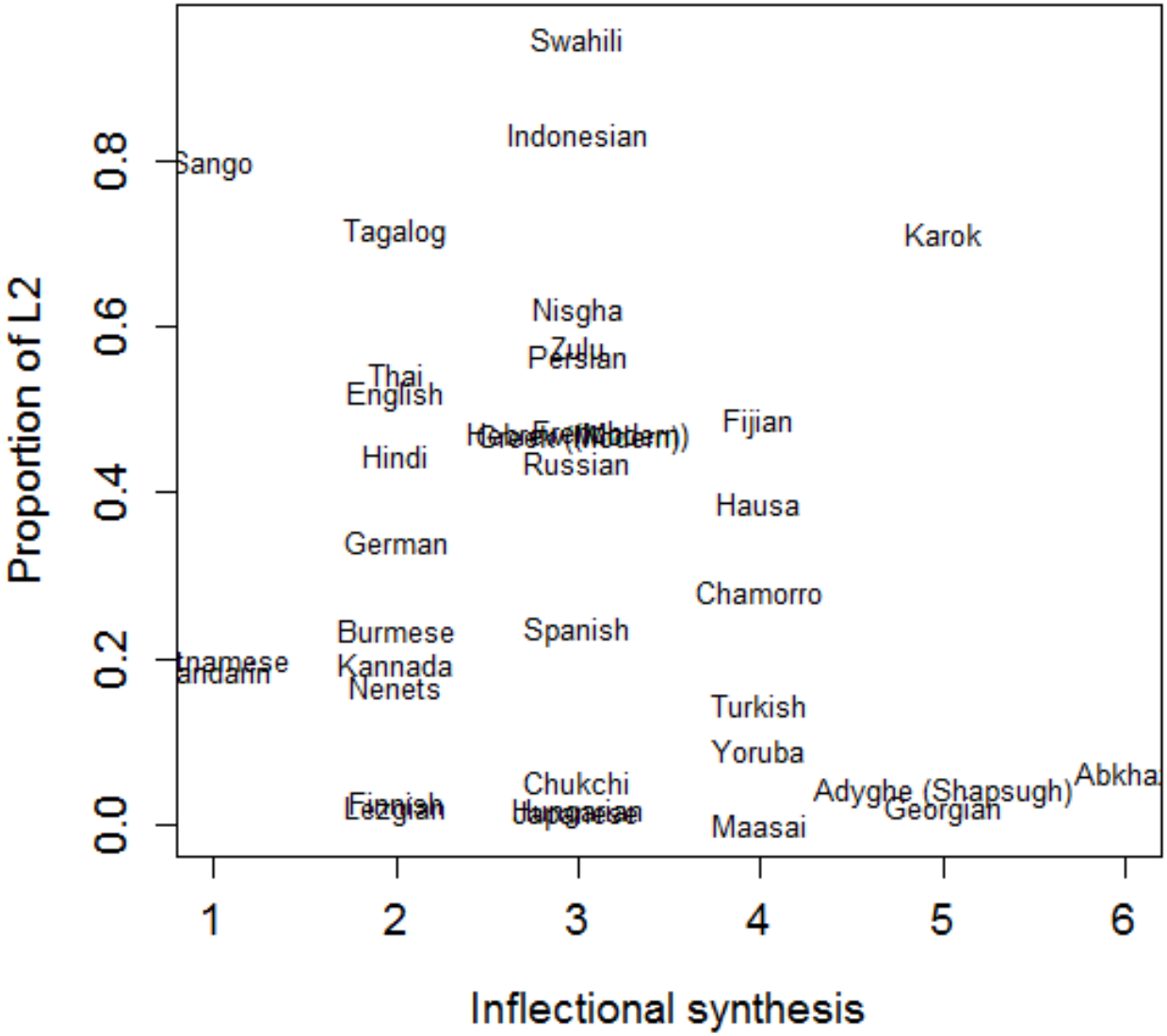
Sample languages on a map



On statistical modeling

- For statistical modeling I use mixed effects modeling in the spirit of Bentz & Winter (2013) and Winter (2014).
  - Inflectional synthesis is modeled as the dependent and L2% the predictor.
  - I further model the effect of stocks (Nichols & Bickel 2009) as a random intercept. This takes into account stock-internal variation and assumes that the effect of L2% is similar across stocks.
  - I model the effect of areal diffusion by including a random slope for geographical areas (10 areas; Nichols & Bickel 2009). Random slope means that the effect of L2% varies across areas.

Results


Swahili
Indonesian
Sango
Tagalog
Karok
Nisgha
Zulu
Persian
Thai
English
Fijian
Hindi
Russian
Hausa
German
Chamorro
Burmese
Spanish
Kannada
Nenets
Turkish
Yoruba
Chukchi
Abkha
Adyghe (Shapsugh)
Georgian
Maasai
0.0
0.2
0.4
0.6
0.8
1
2
3
4
5
6
Proportion of L2
Inflectional synthesis

- There is a slight negative trend in the data, but not a particularly strong one.

- Mixed linear regression of the model also indicates that there is an inverse relationship between inflectional synthesis and the proportion of second language learners (estimate: -0.75 ±0.84), but the relationship is non-significant ($p = 0.43$).
  - Since the standard error is greater than the estimate, the model is not a very good one.
  - I tried the WALS genealogical classifications and other areal configurations with little effect on the result.

Conclusions

- These preliminary results suggest that the proportion of second language speakers has no effect on the degree of inflectional synthesis of the verb.

- Why the proportion of second language speakers seems to affect nominal case but not inflectional synthesis?
  - Sample size? The highest degrees of synthesis in the Americas, but very few languages sampled from there. Small languages and generally small levels of L2% there.
  - Conflated categories for inflectional synthesis?
    →Explore other ways of estimating inflectional synthesis.
  - Or: there is simply no sociocultural effect here.

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