Trade-offs between head and dependent marking: A typological study

Syntax of the World's Languages 6   Sep 9, 2014
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Background

- A central aim in typology is to study possible interactions among linguistic patterns (Bickel 2007).
  - Greenbergian word order correlations (Greenberg 1966).

- One type of interaction is a rough complementary distribution between the patterns, or a "trade-off".
  - Special focus on trade-offs in language complexity research, to test whether complexity in different areas varies in rough complementary distribution (e.g. case marking, rigid word order).
  - Only a few trade-offs have been attested, results are mostly negative (see Maddieson 2006; Shosted 2006; Miestamo 2009; Sinnemäki 2011, 2014).

The marking of syntactic relations

- Trade-offs have been researched in core argument marking from two perspectives:
  - The presence vs. absence of case marking, agreement and rigid word order (Sinnemäki 2011).
  - Hierarchies of case and agreement (Miestamo 2009).

- Also studies on case/agreement and the degree of word order variation (Siewierska 1998) and on case vs. agreement (Siewierska & Bakker 1996).

- The focus has often been on transitive clauses with two full noun arguments → strong discourse bias.
  - Here I include independent pronouns and person marking on the verb; I also study possessive NPs.

Head and dependent marking

- Head and dependent marking are alternative patterns for marking syntactic relations in different constructions (Nichols 1992).
  - In head marking (HM), the syntactic relation is marked on the head via some morphological marking, as in possessive nouns phrase in Barasano, while in dependent marking (DM) the syntactic relation is indicated on the dependent.

  Sabidõ   *ya-wi*
  Sabino   GEN-house
 'Sabino's house.' (Jones & Jones 1991: 4)

Data

- Possessive NPs:
  - Nichols & Bickel (2013a): 230 languages.

- Noun arguments of a transitive verb (the P-argument):
  - Nichols & Bickel (2013b): 233 languages.

- Marking of person indexes:
  - Case marking of 1st and 2nd person independent pronouns (Comrie 2013). Marking of 1st and 2nd person on the verb (both A and P roles; Siewierska 2013); 170 languages.
  - Whether independent or "dependent" pronouns differentiated.

- The grammatical analyses follow directly from the sources.

Statistical modeling

- For statistical modeling I use generalized mixed effects modeling (cf. Bentz & Winter 2013).
  - DM chosen as the predictor and HM as the response (no difference if modeled the other way round).

- I modeled the effect of genealogical affiliation (genus and family) and areas (10 areas; Nichols & Bickel 2009) as random slopes.
  - →The predictor's effect varies across genealogical units and areas.

- Each factor's effect was evaluated using likelihood ratio test where a model with the variable of interest was compared to a model without the variable of interest.

Results: locus of marking in poss. NP
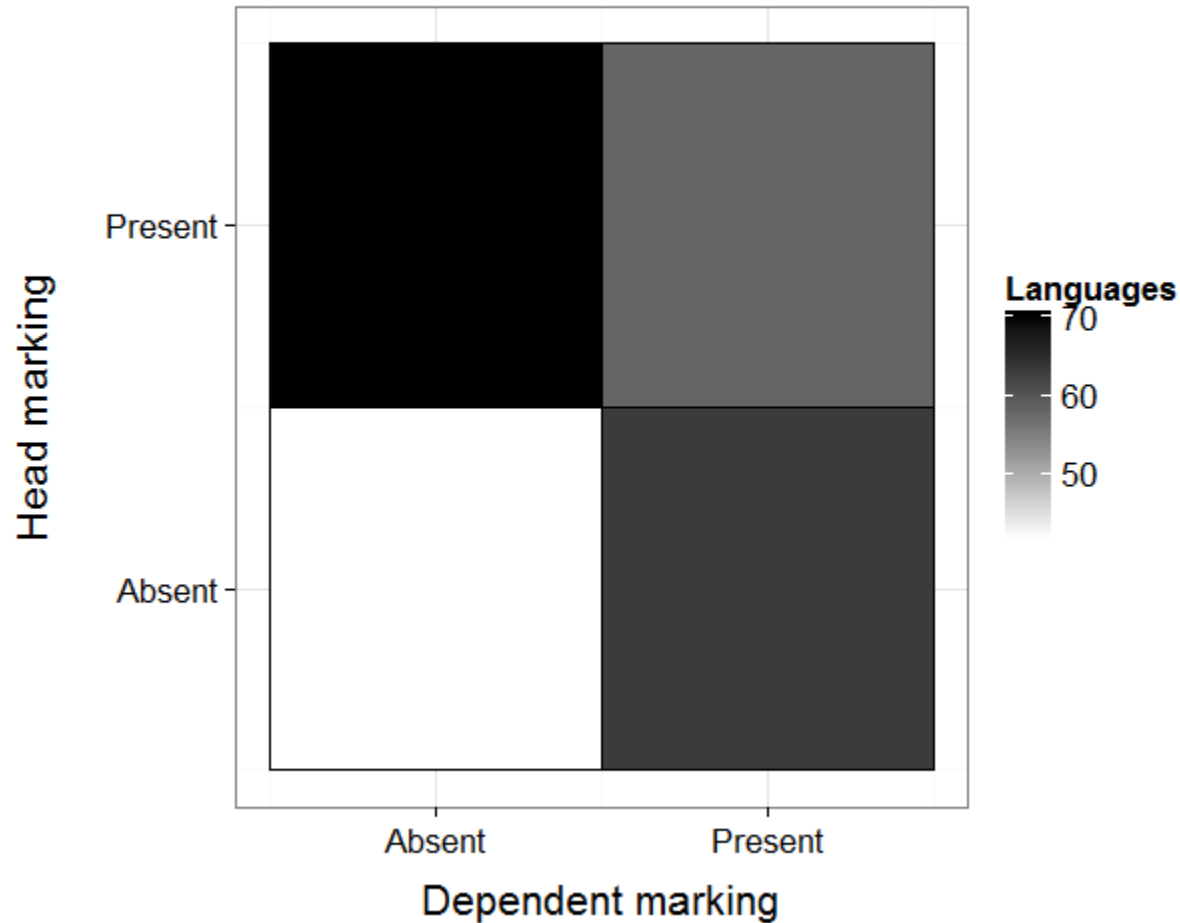

Locus of marking in the possessive NP
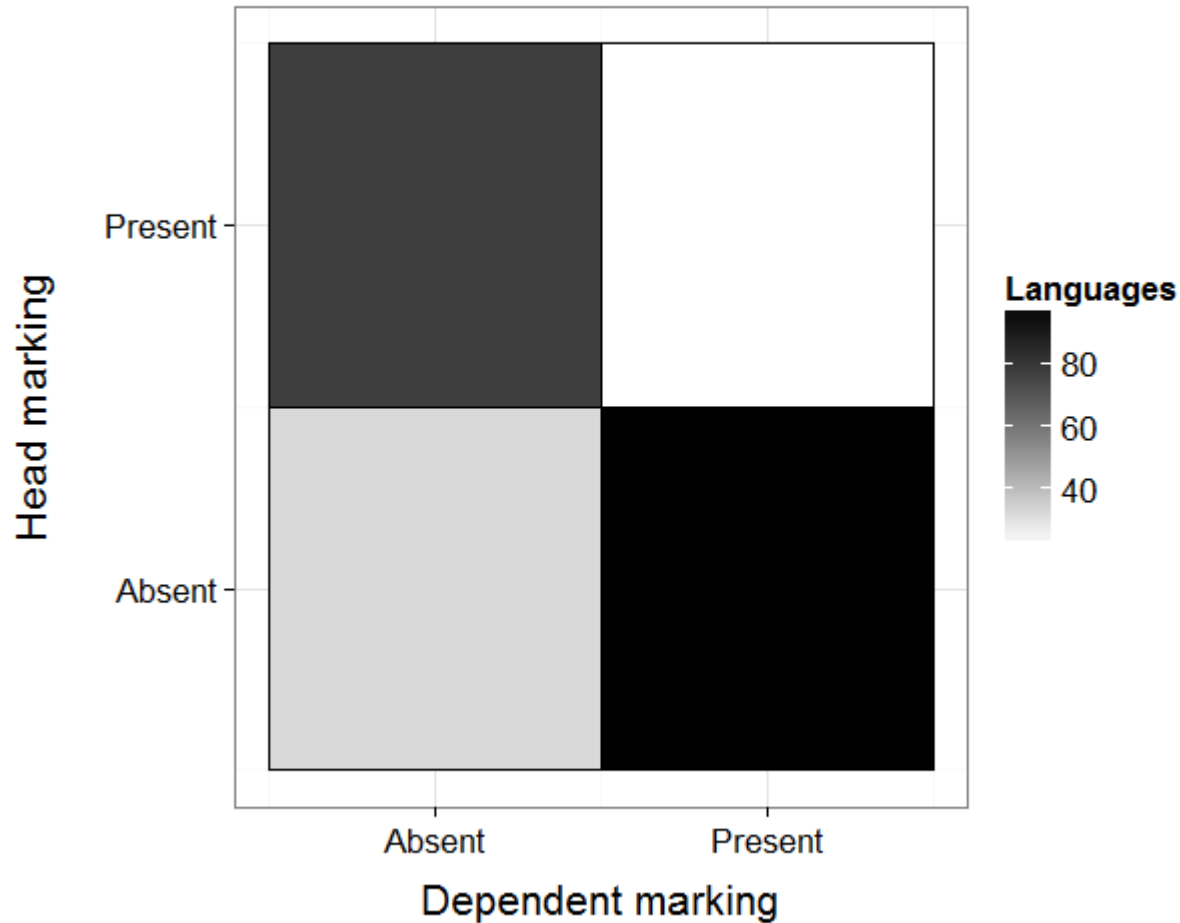
- The effect of DM was significant (χ^2 = 14.3; p < .0002) and the correlation estimate was negative (-2.3 ± .4).

- No significant effect from areas (χ^2 = 7.4; p = .06) or g-units (χ^2 = 0; p = 1).
 - This means that the effect of DM was independent of areas and g-units.

Results: locus of marking in the clause, noun P argument

- The effect of DM was non-significant ($\chi^2 = 2.5$; p = .12), but the correlation estimate was negative (-.63 ± .4).

- No significant effect from g-units ($\chi^2 = 0$; p = 0.8), but a significant effect from areas ($\chi^2 = 18.1$, p < 0.0005).
  - This means that the effect of DM is not similar across geographical areas.

Results: locus of marking in the clause, pronoun arguments

Locus of marking in the clause, pronoun arguments
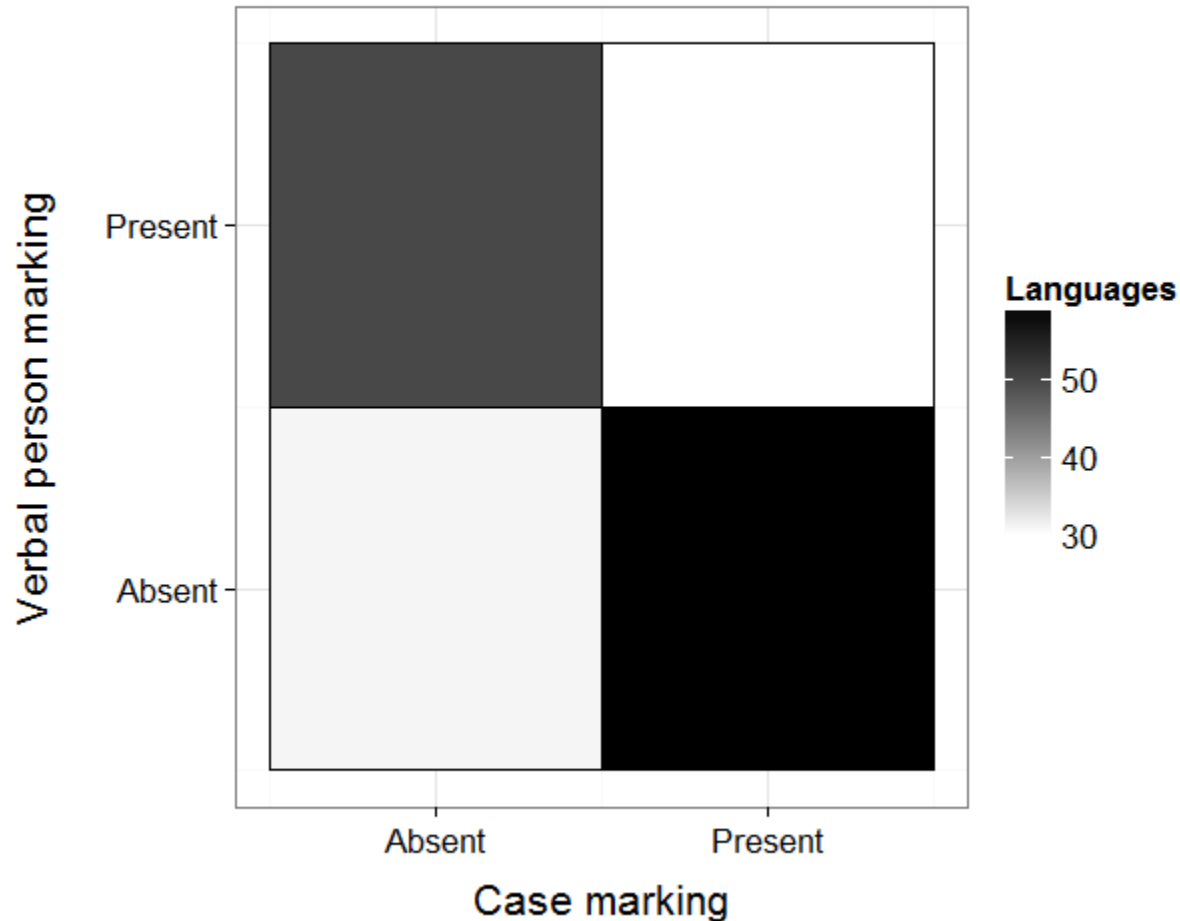
- The effect of DM was significant (χ^2 = 7.6; p < .006), and the correlation estimate was negative (-1.6 ± 0.5).

- No significant effect from g-units (χ^2 = 1.0; p = 0.99) or areas (χ^2 = 7.3, p = .06).
  - The effect of DM was similar across areas and g-units.

- Interim conclusion:
  - Statistical "trade-offs" occur in possessive NPs and with pronoun arguments but not with noun arguments.

Why?

- Head and dependent marking are alternative strategies for marking syntactic relations.
  - To the extent they are sufficiently effective, either strategy can carry the communicative load.

- The most efficient way to keep processing cost minimal is to use only one strategy and this is what most languages do (cf. Bornkessel-Schlesewsky & Schlesewsky 2009).
  - Interplay between economy and distinctness: little motivation to develop double marking.
  - In the case of noun arguments of transitive constructions, head marking is rather inefficient in linking the syntactic arguments with the argument structure or the verb.

Conclusions

- I presented typological evidence for two trade-offs, one involving the marking pronoun arguments of a transitive verb and the other involving the marking of possession in possessive NPs.
  - Not many trade-offs in earlier research.

- A limited tendency in languages to balance out the complexities of functionally related variables.
  - Motivated by economy and distinctness; cognitively plausible.

- In future research:
  - analyze possessive NPs by person.

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