Representational differences between monolingual and multilingual speakers' grammars: Evidence from Spanish agreement

Maria Polinsky
Polinsky@umd.edu

This paper investigates the morphosyntax of number and gender agreement in English-dominant Spanish bilinguals (heritage speakers of Spanish) comparing their results with those from monolingual Spanish speakers. This comparison reveals a case of grammatical divergence whereby the heritage system has less structure overall. Based on the principled nature of these changes, I argue that the erosion of agreement is undergirded by the systematic reorganization of heritage grammars.

Background. In investigating differences in linguistic behavior between baseline (monolingual) and heritage speakers, the null hypothesis holds that both groups possess the same grammar, but heritage speakers are constrained by a scarcity of online resources: their usage differs from that of the baseline due to the overwhelming processing load of speaking in a non-dominant language. Under the competing hypothesis, differences in performance are symptomatic of deeper, structural differences in the heritage grammar. This hypothesis can be further subdivided: there are two obvious forces that could lead to a diverging grammar. *Representational economy*: Heritage speakers may prioritize restructuring their grammar in favor of lighter-weight linguistic representations; this would create a preference for less articulated, more parsimonious structures (e.g., structures with fewer explicit agreement features and projections). However, simplifying representations decreases analyticity. *Processing economy*: Conversely, heritage speakers may restructure baseline grammars by prioritizing one-to-one correspondences between underlying features and stem forms; this would increase analyticity, eliminating ambiguity and the costs associated with resolving it (Keating, Jegerski & Vanpatten 2016; Montrul 2016; Sorace 2005).

Experiment. We focus on number and gender features in Spanish because they are expressed on independent morphemes in the baseline grammar, and theoretical approaches provide competing syntactic analyses. Under the *bundling hypothesis* (cf. Carstens 2000, 2003; Ritter 1993), number and gender are hosted on the same projection, like on NumP in (1); the valuation of one feature presupposes the valuation of the other, and so number and gender agreement happen as a single process. Under the alternative *split hypothesis* (Antón-Méndez, Nicol & Garrett 2002; Carminati 2005; Picallo 1991), gender is hosted on its own projection dominated by the number projection (2). According to the split model, number and gender are projected and valued independently; in other words, number and gender agreement are separate, independent processes.

(1) [NumP … [Num{Number, Gender}]]
(2) [NumP [GenP …

Methodology. In an experimental setting, we elicit responses to agreement failures to diagnose the potentially-independent contributions of number and gender features. Test sentences take the form in (3); by independently manipulating the number and gender of NP1, NP2, and ADJ, we engineer cases of potential agreement attraction whereby ADJ shares its features with NP2 (but not NP1), masking an otherwise ungrammatical string (Bock & Eberhard 1993; Bock & Miller 1991). Fuchs et al. (2015) found that baseline speakers treat errors in two features (5) separately from attraction in one (4), supporting a split analysis; because the two features participate in agreement separately, attraction in number does not precipitate attraction in gender. If heritage speakers share the same feature geometry, they too ought to rate potential cases of attraction with errors in two features lower than cases with a single error. However, if number and gender are

projected and valued together (i.e., bundled) in the heritage grammar, then when ADJ (erroneously) gets a feature (e.g., number) from NP2, it should get the other feature (e.g., gender) as well. In other words, agreement attraction in one feature ought to precipitate agreement attraction in the other feature, with the result that both (4) and (5) should be rated equally high (or equally low).

(3) (Subject) Verb <u>NP1</u> PP <u>NP2</u> Adverb <u>ADJ</u>

(4) **El* *niño* *considera* *la* *noticia* *en* *las* *revistas* *terriblemente* *aburridas.*
the.M.SG boy considers.3SG the.F.SG news.item.F.SG in the.F.PL magazine.F.PL terribly boring.F.PL
('The boy considers the news item in the magazines to be terribly boring.')

(5) **El* *niño* *considera* *la* *noticia* *en* *los* *periódicos* *terriblemente* *aburridos.*
the.M.SG boy considers.3SG the.F.SG news.item.F.SG in the.M.PL magazine.M.PL terribly boring.M.PL
('The boy considers the news item in the magazines to be terribly boring.')

Results. We fins a main effect of NP1 (β = -0.72, t = -2.40, $p < 0.05$): attraction conditions with a feminine NP1 were rated significantly higher than attraction conditions with a masculine NP1. There was no significant effect of the number of agreement errors and no significant interaction. Thus, we found no difference in ratings between conditions with potential agreement attraction in one vs. two features. Following the predictions above, this finding indicates that number and gender are bundled in heritage Spanish: number and gender are projected and valued together.

Discussion. A comparison with the monolingual baseline shows that number and gender agreement in heritage Spanish constitutes a diverging grammar. In the monolingual grammar, number and gender are projected independently, while in the baseline grammar they are bundled. That is, the heritage grammar has less agreement projections: a less articulated, more parsimonious structure that results in a general slimming-down of the heritage morphology. This indicates that the heritage grammar prioritizes representational economy in its restructuring of the baseline grammar.

Implications. The differences in the underlying syntax of agreement categories in heritage Spanish suggest a clear trajectory for the development of the impoverished agreement systems characteristic of heritage grammars. Assuming that the structure in (6) is widely available as the default (cf. Harley and Ritter 2002), bundling is made possible by the structural proximity between the two features. (6) [DP... [NumP{xy}... [GendP{xy}... [nP....

The new feature bundle is projected on NumP, and GenP is left empty – heritage speakers thus lose feature specification on one of the nodes in the DP. Although this structure is favored by representational economy, it leads to feature opacity (number and gender amalgamated on one projection), which in turn can lead to interpretive instability. As a result, the feature specification of the bundle may be lost altogether, resulting in an empty feature projection. The outcome is a more general decline in morphological richness, leading eventually to the loss of agreement – a hallmark of heritage languages. The trajectory outlined here demonstrates that loss of agreement in heritage languages is not accidental, but rather follows from changes in feature geometry and specification. The gradual impoverishment of morphological richness is driven by systematic pressures which can be predicted on the basis of syntactic structures.