

## Ranking alternative specifications of abstract agreement features

Subject-predicate agreement usually follows a rigid deterministic pattern. However, quantified noun phrases (QNP) in subject position have been known to lead to considerable variation between two or more agreement patterns on the predicate. This paper presents experimental findings from a study of QNP agreement in Hebrew and Russian in sentences like the following:

- (1) xeci me-ha-kita yada / yad'a / yad'u et ha-tšuva.  
half.M.S of-the-class.F.S knew.M.S / knew.F.S / knew.PL OM the-answer  
'Half of the class knew the answer' (Hebrew)

We argue that the findings support the view that subject agreement involves an abstract set of features that are distinct from the morphological features of the head noun (as in e.g., Sauerland & Elbourne 2002 or Wechsler & Zlatić 2003, henceforth WZ) and whose values are determined pre-syntactically. Furthermore, this data supports the claim that while both of the above languages favor 'consistent' lexical choice, in which the abstract agreement features match both the semantics and the morphology, languages differ in how they rank different kinds of mismatch when a mismatch is unavoidable.

In Hebrew, QNP subjects where the noun is a singular group noun and the quantifier has morphological gender and number (as in (1)) may trigger one of 3 agreement patterns, for which we use the following notation:

- Q-agr: agreement involving the Q's morphological gender and number
- N-agr: agreement involving the N's morphological gender and number
- S-agr: plural agreement, matching the subject's semantic gender and number

In Russian, such subjects might additionally give rise to default agreement (neuter singular); this pattern will not be discussed in this talk.

Informal elicitation of grammaticality judgments from native speakers seems to show that all the above agreement patterns are to some extent possible, but leaves open questions such as whether speakers have any systematic preferences and whether all agreement patterns are equally acceptable under all conditions. An important theoretical question is whether the facts support an analysis in which agreement alternations are due to optionality within the syntactic derivation or to optionality elsewhere. Specifically, the model proposed in Danon (2013) argues that the N-agr/Q-agr alternation is the result of optionality in the lexical feature specification on the Q, rather than to true syntactic optionality. The essence of the analysis is that both Q and N carry not only morphologically-related gender and number (which we refer to as CONCORD, following WZ), but also an additional abstract set of features involved in subject-predicate agreement (INDEX, following WZ). Q's INDEX may either be specified in the lexicon to match the Q's CONCORD (leading to Q-agr), or Q may enter the derivation with unvalued INDEX, to be valued later via agreement with NP (leading to N-agr).

The current study aims to test the predictions of this analysis as well as its extension to S-agr. We propose that S-agr provides evidence for optionality in the noun's INDEX features: these may be specified either as matching the noun's CONCORD/morphology or its semantics. Combined with a Q with unvalued INDEX, this derives the N-agr/S-agr alternation.

**Hebrew data** Acceptability ratings on a 5-point scale were collected from 30 native Hebrew speakers. For QNPs with a plural N, a very strong preference for N-agr over Q-agr was observed (mean 4.778 vs 2.783), as expected by the analysis of Danon (2013), as Q-agr requires a Q that enters the derivation with its own INDEX features, a marked option for quantifiers. N-agr, on the other hand, is the result of Q having no independent INDEX, instead agreeing with the NP's

INDEX. Furthermore, as to the NP, plurals involve no mismatch between the INDEX and either the CONCORD or the semantics: plural NPs are consistently plural on all levels.

Distributive quantification over singular group nouns, on the other hand, forces a mismatch as the noun must be interpreted as denoting a plurality even when morphologically singular. We propose that the INDEX of such nouns may be lexically specified as either plural, matching the semantics, or as singular, matching CONCORD (and morphology). The former option involves an INDEX-CONCORD mismatch, while the latter involves an INDEX-semantics mismatch (in number and possibly also in gender). This analysis entails that S-agr with QNPs involves an INDEX-CONCORD mismatch, and N-agr an INDEX-semantics mismatch, while the Q has no INDEX of its own.

This analysis is supported by the experimental findings for QNPs with group nouns. Both N-agr and S-agr are favored over Q-agr (mean 4.169, 4.350 and 2.975, respectively); yet both N-agr and S-agr are judged significantly lower than N-agr in the case of plural nouns, where no mismatch is involved. This shows that having a mismatch of any kind is ‘penalized’; the slightly higher ratings for S-agr over N-agr suggest that Hebrew speakers find an INDEX-CONCORD mismatch somewhat more tolerable than an INDEX-semantics mismatch, but this was not statistically significant.

**Russian data** Acceptability ratings on a 5-point scale were collected from 29 native Russian speakers. As in Hebrew, in the case of QNPs with plural nouns, Russian displayed a preference for N-agr, albeit with a much smaller contrast between N-agr and Q-agr (3.863 and 3.509, respectively). When compared to QNPs with group nouns, we once again observe a ‘mismatch penalty’: Ratings for both N-agr and S-agr with group nouns (2.179 and 3.137, respectively) were much lower than for N-agr with plurals. Unlike in Hebrew, however, Russian speakers showed a strong preference for S-agr (INDEX-CONCORD mismatch) over N-agr (INDEX-semantics mismatch), to the point where N-agr might be classified as ungrammatical with group nouns. This means Russian has grammaticalized this to the point where it is no longer subject to speakers’ choice. Another surprising result, which won’t be discussed for lack of time, is that Q-agr was rated higher than S-agr and N-agr with group nouns (mean 3.485).

**Conclusions** The proposed model of agreement features allows us to account not only for the existence of multiple agreement patterns but also for their relative acceptability. Both languages ‘penalize’ cases involving a feature mismatch, but Hebrew is fairly neutral regarding the choice between alternative mismatches while Russian ranks avoiding an INDEX-semantics mismatch higher than avoiding an INDEX-CONCORD mismatch. These findings seem to fit naturally into an OT-style analysis of lexical feature specification (which is left for future research).

These results thus support a lexical model of agreement alternations, in which the source of the alternation lies in variable pre-syntactic specification of abstract agreement features on the relevant heads. This contrasts with an analysis in which the alternation is the result of optionality in the syntactic derivation itself (with a straightforward mapping of morphology to  $\phi$ -features); it remains to be seen whether such a purely syntactic analysis could be developed that would predict sensitivity of derivations to factors such as the kind of noun (group versus plural) and that would account for the experimental findings from these two languages.

## References

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