On the person-number distinction: Subject-verb agreement processing in Italian

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Abstract

Agreement is generally conceived as a syntactic dependency whose computation and comprehension processes deal with agreement features uniformly, without differentiating among them. However, different interpretive properties are associated with Person and Number. While Person expresses the status of an argument with respect to the participants in the speech act (e.g. speaker, addressee), Number refers to the cardinality of the subject argument (e.g. a singular vs. a plural entity). Two self-paced reading experiments were run to investigate the on-line processing of subject-verb agreement in Italian manipulating both the Person and Number Agreement factors. The results revealed a greater processing penalty for Person compared to Number agreement violations, which is interpreted as evidence for a separate access to the two features. Because it disrupts the evaluation of the perspective from which a sentence is reported, a Person violation can generate a more serious perturbation than a Number anomaly, which only changes the Number property of the subject of predication.
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1. Introduction

Together with case marking and word order, agreement is one of the main devices used by languages to signal relations among constituents. Patterns of agreement are subject to a great deal of cross-linguistic variation, ranging from languages where this dependency is poorly signaled, as in English, to languages where it is pervasive, such as Romance languages. Regardless of the structural configuration involved (determiner-noun, adjective-noun or subject-verb) and the language under study, this dependency is generally realized as an identity in agreement features (Person, Number and Gender) between two elements.

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Within derivational theories, standard analyses (cf. Chomsky, 1981, 1995) have emphasized the formal nature of this dependency, which would be computed during the syntactic build-up of the sentence, independently from the thematic roles and discourse functions of the elements involved. Mainstream psycholinguistic models (Frazier and Fodor, 1978; Frazier and Clifton, 1996; Friederici, 2002; Grodzinsky and Friederici, 2006) have supported this view, underscoring the syntactically-driven nature of the mechanisms involved in agreement computation.

As for agreement features, an undifferentiated representation has been generally assumed, despite the intrinsically different information that each of them carries. Recent minimalist analyses have represented Person, Number and Gender as a feature set that during agreement computation is uniformly dealt with by the formal operation Agree (Chomsky, 2000, 2001), which ensures the copying of the relevant feature information from the controller (the subject) to the target (the verb). In processing terms, this has a straightforward consequence: during feature checking, Person, Number and Gender are accessed as a bundle, presumably treated as a unit under this view.

This last assumption is however controversial. Comprehension studies have evidenced a functional dissociation between Number and Gender that emerged for example during pronoun antecedent reactivation (De Vincenzi, 1999; De Vincenzi and Di Domenico, 1999), or during Number and Gender anomaly repair (Barber and Carreiras, 2005; Molinaro et al., 2008). Faussart et al. (1999) reported longer recognition times when words disagreed in Gender than when they disagreed in Number. According to the authors, this pattern reflects the intrinsic interpretive differences existing between the two features. Because Gender is an inherent feature, an anomaly involving this feature would compel the parser to go back to the lexical identification stage, in order to retrieve the correct lexical entry. On the contrary, Number is not stem-inherent, and the detection of an anomaly involving this feature would not imply re-accessing the lexical representation of a word, but only the morphosyntactic context in which it appears.

In addition, production studies have reported greater error rates for Number than for Gender suffixes (Igoa et al., 1999; Vigliocco et al., 1996). An explanation of these findings may be that while Gender is retrieved directly from the lexicon and assigned to phrase structure together with the lemma, Number is derived by rule and its inflection is thus more subject to errors.

1.1. Person and Number agreement

Recent theoretical analyses have underscored the different interpretive properties associated with Person and Number information (Bianchi, 2006; Sigurdsson, 2004). On the one side, Person expresses the status of an argument with respect to the participants in the speech act. Under this assumption, 1st person would indicate identity with (or inclusion of) the speaker, 2nd person identity with (or inclusion of) the addressee, and 3rd person a contextually salient entity that however does not bear either the former or the latter role (Benveniste, 1966; Cysouw, 2003; Jakobson, 1971; Sigurdsson, 2004, 2009, 2012).

For example, in ''He buys some apples'', the 3rd person subject indicates that the individual involved in the buying event is contextually relevant, but the event is not reported from his perspective, i.e. he does not contribute to the unfolding of the speech event. Rather, it is a covert speaker that is telling the hearer/reader about what happens. By anchoring discourse roles to the referents indexed by sentential arguments, Person interpretation contributes to the establishment of aspects of the subject of predication related to the speech act participant representation, namely who are the participants and what their roles are in an event, as well as the perspective from which an event is narrated.

In contrast, the contribution of Number to the speech act representation is not as significant. Since this feature encodes the cardinality of the set referred to by the subject argument, its interpretation determines how many referents are involved in e.g. the buying event described above, but it does not change the discourse role of the subject, i.e. the apple buyer.

In light of these intrinsic differences, Person and Number can be plausibly regarded as two separate probing phenomena in agreement computation (Sigurdsson and Holmberg, 2008). Crucially, unlike Number, Person agreement computation hinges on the presence of relations between morphosyntactic and left-periphery features, or C-edge linkers, which encode speech participant values, namely the Logophoric speaker (or λ-Agent) and the Logophoric addressee (or λ-Patient) (Sigurdsson, 2012). Crucially, it is in relation to C-edge linkers that grammatical Person features are computed and valued. Sigurdsson (2004, 2012) subdivides clause structure into three layers, each of them encoding specific features: the lexical layer in the vP shell, with event features; the inflectional layer in the IP area, with morphosyntactic features; and the speech event layer within the CP area, with speech act features, i.e. speech participant (λ-Agent and λ-Patient), speech time (S_T) and speech location (S_L) features, as in (1) below. For instance, a matching relation ties lexical to grammatical features, and grammatical features to speech act ones. This way, λ-Agent can be linked to a 1st person pronoun or 1st person verbal morphology, and consequently to a speaker role. This would lead to proper interpretation of Person.

(1) $[_{CP}$ Force..λ_A λ_P.. Top..S_T..$S_L$$[_{IP}$..Pers$_S$..Num$_S$..M..T..$[_{vP}$. . .]]]

No such IP-left periphery connection is necessary for Number, the interpretation of which does not necessitate any direct link with the speech act participant representation of the sentence.