

Grammatical gender is selected in bare noun production: Evidence from the picture–word interference paradigm

Roberto Cubelli ^{a,*}, Lorella Lotto ^b, Daniela Paolieri ^a,
Massimo Girelli ^b, Remo Job ^c

^a *Istituto di Psicologia, Università di Urbino “Carlo Bo,” Via Saffi 15, I-61029 Urbino, Italy*

^b *Università di Padova, Italy*

^c *Università di Trento, Italy*

Received 30 April 2004; revision received 16 February 2005

Available online 2 April 2005

Abstract

Most current models of language production assume that information about gender is selected only in phrasal contexts, and that the phonological form of a noun can be accessed without selecting its syntactic properties. In this paper, we report a series of picture–word interference experiments with Italian-speaking participants where the grammatical gender of nouns and the phonological transparency of suffixes have been manipulated. The results showed a consistent and robust effect of grammatical gender in the production of bare nouns. Naming times were slower to picture–word pairs sharing the same grammatical gender. As reported in studies with Romance languages, the gender congruity effect disappeared when participants were required to produce the noun preceded by the definite determiner. Our results suggest that the selection of grammatical gender reflects a competitive process preceding the access to morpho-phonological forms and that it is mandatory, i.e., it occurs also when the noun has to be produced outside a sentential context.

© 2005 Elsevier Inc. All rights reserved.

Keywords: Speech production; Lexical access; Grammatical gender; Picture–word interference; Grammatical feature selection; Gender congruency

In many languages, nouns belong to one of two or more genders (Corbett, 1991). From a linguistic point of view, grammatical gender is by and large independent from the nouns’ form and meaning, but plays an important syntactic role.

In Italian, every noun is obligatorily masculine or feminine. This implies that in Italian there are two classes of nouns that can be distinguished syntactically by the agreements they take (Chini, 1995). Grammatical

gender controls agreement phenomena within and outside the noun phrase (for example “La (fem.) volpe (fem.) rossa (fem.) è astuta (fem.)” [the red fox is astute]). Further, it is strictly related to inflectional classes (Aronoff, 1994), which act as paradigms for the morphological realisation of number forms (“gemma [gem, fem.] → gemme” [gems]; “lemma [lemma, masc.] → lemmi” [lemmas]). Gender is not an inflectional category; it is an inherent feature of nouns and cannot be determined by the speaker’s intention by means of morphological rules (Scalise, 1994). Rather, grammatical gender is a lexical property and it is only partially related to the meaning and the phonological form of the noun.

* Corresponding author. Fax: +390722329690.
E-mail address: cubelli@uniurb.it (R. Cubelli).

It can be independent from the natural sex of referents (the Italian nouns “guardia” [sentinel, fem.] and “soprano” [masc.] have usually male and female referents, respectively), and it is completely arbitrary for the names of most animals (the Italian words for eagle and hawk are feminine and masculine, respectively), or when the referenced entity is neutral with respect to biological sex (the term for the sea is masculine in Italian [il mare], but it is feminine in French [la mer] and neuter in German [das Meer]). Finally, words of different gender may refer to the same concept: Consider for example the Italian words for star “astro” (masc.) and “stella” (fem.).

The Italian nominal categorisation system reveals formal regularities related to the distribution of noun endings (Corbett, 1991). Based on their distributional properties, nouns belonging to the most frequent noun classes (masculine nouns ending with -o and feminine nouns ending with -a) are defined as phonologically transparent (or marked) for gender. Nouns with the vowel -e can be either masculine or feminine and are defined as phonologically opaque (or unmarked) for gender. In all other instances (e.g., feminine nouns ending with -o, masculine nouns ending with -a, or all nouns ending with the vowels -i or -u, either masculine or feminine), nouns are defined as irregular for gender. This classification based on word form implies that words of the same gender may bear different phonological markers, and that the same phonological marker may appear on words of different genders (Chini, 1995). In Italian the names of animals in the pairs “pesce” [fish] and “lepre” [hare], “puma” [puma] and “rana” [frog], and “gnu” [gnu] and “gru” [crane], and the names of body parts in the pairs “polso” [wrist] and “mano” [hand], “diaphragma” [diaphragm] and “costola” [rib], and “polmone” [lung] and “laringe” [larynx], are masculine and feminine, respectively, although they have the same ending vowel.

A large number of experimental studies on language production support the independent representation of gender information (for a review see Schriefers & Jescheniak, 1999). Further, the performance of aphasic patients in an anomic state (Avila, Ralph, Parcet, Geffner, & Gonzalez-Darder, 2001; Badecker, Miozzo, & Zanuttini, 1995; Henaff-Gonon, Bruckert, & Michel, 1989), and that of neurologically intact speakers experiencing the TOT phenomenon (Caramazza & Miozzo, 1997; Vigliocco, Antonini, & Garrett, 1997), are consistent with the distinction between gender and phonological information.

Given the autonomy of grammatical gender from semantics and phonology (in Italian as well as in many other languages), most prominent psycholinguistic models postulate that gender information is stored as a property of nouns at a representational level different from those specifying the corresponding conceptual and phonological information. The model WEAVER++, origi-

nally proposed by Roelofs (1992) and refined by Levelt, Roelofs, and Meyer (1999), assumes three main layers. Whereas the top layer describes the word’s meaning by means of a network of conceptual connections and the third layer specifies the word’s phonological form (lexeme), the intermediate layer contains the abstract lexical representation (lemma), which is connected to nodes representing the word’s syntactic properties, such as grammatical gender. The lemma stratum mediates between conceptual and phonological lexical information. The phonological form of the target word becomes activated only after the corresponding lemma has been selected, which in turn is activated by its corresponding conceptual node. The alternative model proposed by Caramazza (1997) and Caramazza and Miozzo (1997), called the Independent Network (IN) model, also distinguishes three separated networks representing lexical-semantic, syntactic, and phonological information. However, in this model semantic representations can activate word forms directly, without assuming an intervening lemma node. The activation of the syntactic features associated with a word requires the prior selection of the corresponding modality-specific lexical node. The selection of a noun’s grammatical gender is assumed to be an automatic, non-competitive process that follows the selection of the lexical form node.

Current models share the assumption that grammatical gender is represented independently within the lexical system. However, its functional role is syntactic and morphological, emerging at the phrase level. Given this peculiar status, one empirical issue concerns the processing of grammatical gender in lexical access. The question is whether gender information is selected only when a noun phrase has to be produced, or whether it is always selected, even when processing isolated nouns (Cacciari & Cubelli, 2003; Friedmann & Biran, 2003).

A widely used task in studying the dynamics of activation of lexical information is the picture–word naming interference task, a variant of the classical Stroop task (McLeod, 1991). In this task, participants are required to name a picture while ignoring a distracter word printed on it. The relationship between the distracter and the target words has been found to affect the reaction time to name the picture. Interference occurs when the two words are semantically related (e.g., Glaser & Duengelhoft, 1984; Lupker, 1979; Rosinski, Golinkoff, & Kukish, 1975), while facilitation emerges when the two words are phonologically related (e.g. Lupker, 1982; Posnasky & Rayner, 1977; Rayner & Springer, 1986). The semantic interference is thought to reflect competition at the level of lexical node selection, while the phonological facilitation is thought to reflect priming at the level of the phonological form activation (Schriefers, Meyer, & Levelt, 1990; Roelofs, 1992).

For gender, the available data portray a double pattern. On the one hand, a facilitation effect of gender

Download English Version:

<https://daneshyari.com/en/article/10459827>

Download Persian Version:

<https://daneshyari.com/article/10459827>

[Daneshyari.com](https://daneshyari.com)