

Phonological and semantic cues in determining Danish gender: Implications for lexical models

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Grammatical gender provides a testing ground for cognitive models of lexical structure and retrieval. The highly irregular nature of gender, contrasted with the few errors native speakers make, was once taken to support lexical storage models, in which words are stored independently along with their lexical properties. Closer inspection of many gender systems reveals surprisingly strong relationships between gender and other lexical properties. For example, French and Italian gender is strongly related to semantic associations with natural gender (Vigliocco & Franck, 1999), as well as phonological endings (Karmiloff-Smith, 1979; Maiden & Robustelli, 2000).

Danish gender, with two categories (*neuter* and *common*), has had little investigation. Danish gender assignment appears highly arbitrary, although common gender is three times more frequent than neuter gender in Danish (Hansen, 1967). However, books for second language learners point to some gender consistencies “by meaning,” according to semantic categories, and “by form,” according to the phonology of the ending (Allan, Holmes & Lundskær-Nilsen, 1995). The present study investigated whether native Danish speakers are sensitive to these regularities when assigning gender, and how such biases interacted with any overall preference to assign the more prevalent *common* gender.

Seventeen native Danish speakers assigned gender to 36 novel words for ‘alien objects’. Novel words contained one of six real-word phonological endings. Half of the endings were suspected common-biasing (*-ance*, *-ans*, *-er*) and half were suspected neuter-biasing (*-iv*, *-tet*, *-um*). Each of these novel words were paired with a picture of an ‘alien’ object, representing a novel meaning belonging to one of six real semantic classes. Half of the categories were suspected common-biasing (people, animals, plants) and half were suspected neuter-biasing (substances, collective nouns, places).

Results indicated an overall preference to assign common gender, reflecting the statistical bias for common gender across Danish. This preference was modulated by significant main effects of both semantic and phonological cues. Words with consistently biasing cues yielded stronger gender biases and faster reaction times than words with inconsistent cues, indicating integrated use of both types of lexical cues.

Although the intention was to explore the influence of form based cues, on closer inspection two of the chosen word endings can function as suffixes, *-er* (common biasing) is a suffix which can denote an occupation and *-tet* (neuter biasing) a suffix which can denote a state of being. Note however that within the experiment words with these endings were paired with pictures whose semantics were incompatible with the meaning of these suffixes. Future research will further probe the role of purely phonological versus morphological cues.

Findings indicate that lexical properties do effect gender assignment. We interpret these results in terms of a distributed processing model of gender assignment, which is consistent with network models that have been proposed for general linguistic processing (e.g. Bybee, 1998). We describe how such a model may apply to gender assignment and how it contrasts with rule-based theories which also take advantage of lexical cues (e.g. hierarchical rule-based models, Corbett, 1991; Gender Tally, Steinmetz, 2006).

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