

Accommodating syntactic violations during online speech perception

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Comprehending spoken language entails more than accessing successive words in the mental lexicon. Words within sentences relate to one another and the recognition of one word can help process adjacent words. One such co-occurrence pattern concerns gender marking. In gender-marking languages, the gender of a noun determines the form of the preceding article. In French, for example, masculine nouns are preceded by the definite article *le* (e.g., *le bateau* 'the boat') whereas feminine nouns are preceded by the article *la* (e.g., *la banane* 'the banana'). Although grammatical gender increases article complexity compared to languages with a single definite article, both adults (Dahan et al., 2000) and young children (Lew-Williams & Fernald, 2007; Van Heugten & Shi, 2009) have been shown to readily integrate this type of information during word comprehension. The early and rapid integration of grammatical gender may lead us to believe that initial syntactic gender processes, much like early local phrase structure processes (Hahne & Friederici, 1999), are automatic. This raises the question of how syntactic cues are integrated under conditions of reduced reliability. That is, does poor speaker proficiency diminish listeners' reliance on gender cues during language comprehension? While (late) syntactic repair processes are reportedly influenced by speaker idiosyncrasies (Hanulíková et al., in press), much less is known about such influences on first-pass parses.

In the current study, we employed an online measure of lexical activation, as provided by the Visual World Paradigm, to examine the earliest effects of speaker reliability on the processing of grammatical gender. Native French-speaking participants' eye movements were recorded as they listened to French sentences instructing them to click on a target picture (e.g., *Cliquez sur le bateau* 'Click on the boat'). Pictures of four objects were displayed on the screen: one depicting the target word (e.g., *bateau* 'boat'), one depicting a cohort competitor starting with the same syllable (e.g., *banane* 'banana'), and two depicting unrelated distracters (e.g., *grenouille* 'frog'; *cactus* 'cactus'). In same-gender trials, the target and cohort competitor were of the same gender, while in different-gender trials, target and competitor mismatched in gender. Participants in Experiment 1 listened to a reliable speaker who always correctly applied gender marking. By including definite articles with incorrect gender markings in the filler trials such that half of the speaker's articles were ungrammatical, in contrast, the same speaker became unreliable to participants in Experiment 2. This allowed us to test for the automaticity of gender cue uptake.

In line with Dahan et al. (2000), Experiment 1 shows that the initial consideration of the cohort competitor in the same-gender trials is eliminated by the informative gender cues in the different-gender trials. In Experiment 2, however, the speaker's gender violations on filler trials rendered gender information uninformative, thereby failing to eliminate the initial activation of the cohort competitor in different-gender trials. The finding that gender information constrains lexical access for reliable, but not unreliable speakers suggests that listeners immediately adapt to a speaker's use of grammatical gender. Syntactic parsing may thus be less automatic than previously thought.

References

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