The Origin of the Gender Effect in Spoken-Word Recognition

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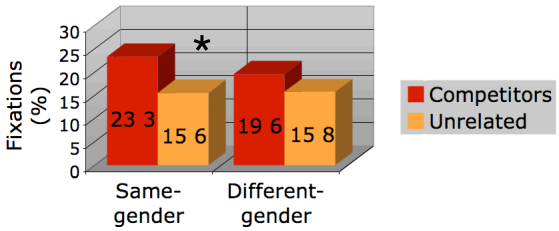
Introduction

- Eyetracking studies have confirmed that during spoken-word recognition, words with similar onsets are simultaneously activated and compete against each other until they no longer match incoming acoustic input (e.g., Tanenhaus et al., 1995)
- Dahan et al. (2000) found that a preceding gender-marked article can prevent activation of gender-inconsistent competitor nouns:
  - Upon hearing *"le$_{[masc]}$ bou…"* (`the b…´), French listeners looked at the picture of a button (*bouton$_{[masc]}$*) but not of a bottle (*bouteille$_{[fem]}$*), because bottle is feminine in French
- When listening to a foreign language, competitors from the mother-tongue are also activated (Weber & Cutler, 2004)
  - Dutch participants in an English experiment also looked at a lid (*dekse*l) after hearing *"the de...[sk]"* because of its overlap with the target

Previous Work

- In non-native listening, native gender information can inappropriately restrict the competitor set to nouns matching in gender in the mother-tongue (Weber & Paris, 2004):
  - (a) French-speaking participants fixated a wig (French *perruque$_{[fem]}$*) significantly more than unrelated pictures after hearing German *"die$_{[fem]}$ Per…[le]"*
  - (b) But after hearing *"die$_{[fem]}$ Ka…[ssette]"* (`the tape´), they did not fixate the picture of a canon, because it is masculine in French (*canon$_{[masc]}$*), although it agrees with the article in German (*Kanone$_{[fem]}$*)



- By contrast, a control group of German-speaking participants showed competition in both conditions
- This seems in support of a grammar-based origin of the gender effect, but not of a form-based explanation: Since French was not spoken, French form-based distributional regularities are unlikely to have influenced the result

What about Non-Cognates?

The preceding result may be due to the use of cognate nouns: Gender in a foreign language could be stored differently for cognates and non-cognates.

Experiment

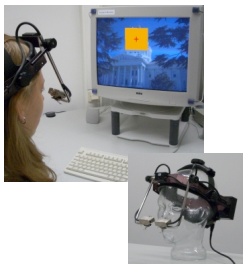
When German natives listen to French, do they activate only gender-matching nouns in German which overlap with the target?

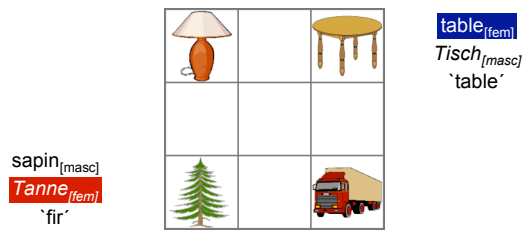
(a) Will they look at a fir (German *Tanne$_{[fem]}$*) when hearing the onset *"la$_{[fem]}$ ta...[ble]"* (`the table´)?

(b) But not at a magnet (German *Magnet$_{[masc]}$*) when hearing *"la$_{[fem]}$ ma...[chine]"* (`the machine´), because it is masculine?

Method

- Head-mounted eyetracking
- Participants: Proficient German-speaking late learners of French
- Displays:
  - Target (to be clicked on)
  - Competitor (overlaps in onset with the target in German)
  - 2 unrelated distractors
- Two conditions:
  - **(a) "Same-gender" pairs**: German competitor of the same gender as the French target
  - **(b) "Different-gender" pairs**: German competitor of a different gender than the French target
- 2 x 20 experimental trials alternating with 40 fillers





- Instructions: Target will be preceded by the gender-marked, definite article: *"Cliquez sur la$_{[fem]}$ table"* (`Click on the...´)
- The French name of the competitor does not overlap with either target or German competitor, and its gender is always different from that of the target

Publications

- Paris, G. & Weber, A. (in preparation for journal submission) Grammatical Gender and Lexical Competition in Non-Native Listening.
- Paris, G. & Weber, A. (2004) The role of gender information in spoken-word recognition in a non-native language. Paper presented at the *10th Annual Conference on Architectures and Mechanisms for Language Processing* (*AMLaP 2004*), Aix-en-Provence, France.
- Weber, A. & Paris, G. (2004) The origin of the linguistic gender effect in spoken-word recognition: Evidence from non-native listening. Poster presented at the *26th Annual Meeting of the Cognitive Science Society* (*CogSci 2004*), Chicago.

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