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# The processing of passive sentences in L1 and L2 German and French

## Evidence from an eye-tracking task

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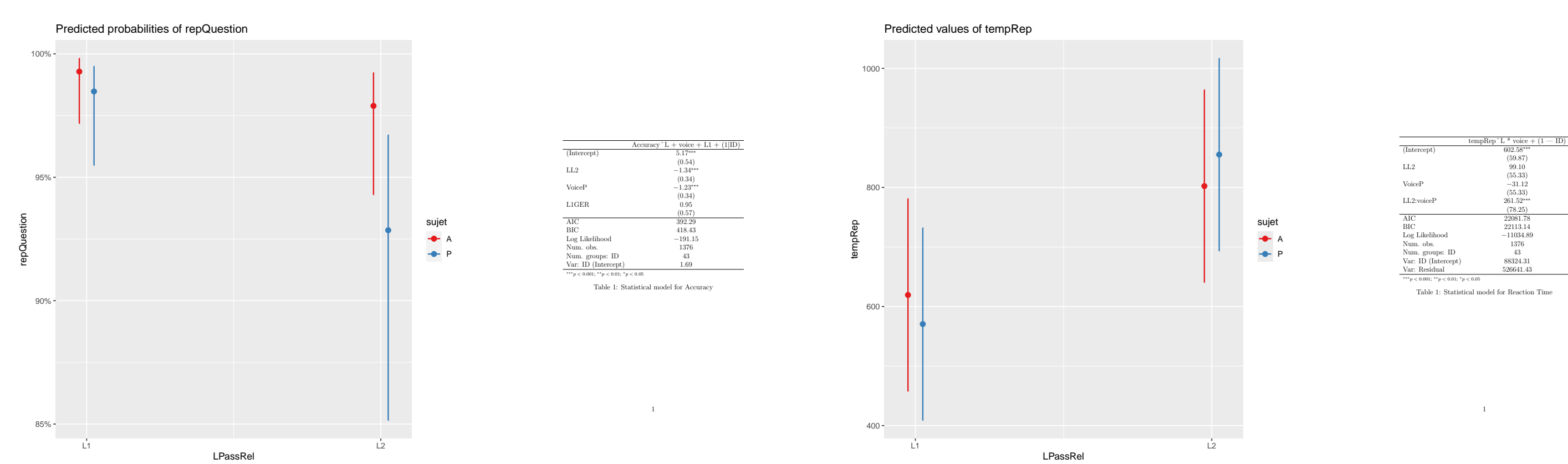
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### 1. Previous studies

Humans have a linguistic and cognitive preference for agents in production and comprehension. Their default choice by building sentences is to begin with agent and by understanding sentences to assign an agent role to the first animate element. But recent research has shown variability in processing sentences and apprehending events according to several factors : visual salience, reading , morphosyntactic properties, voice (Sauppe et al. 2021). Whereas speakers better process active than passive sentences in English and Spanish (Lee and Doherty 2019), voice does not make a difference in a recent study in German (Cristante and Schimke 2019).

### 4. Results

Comprehension : Accuracy and Reaction Time in L1, L2 French and German

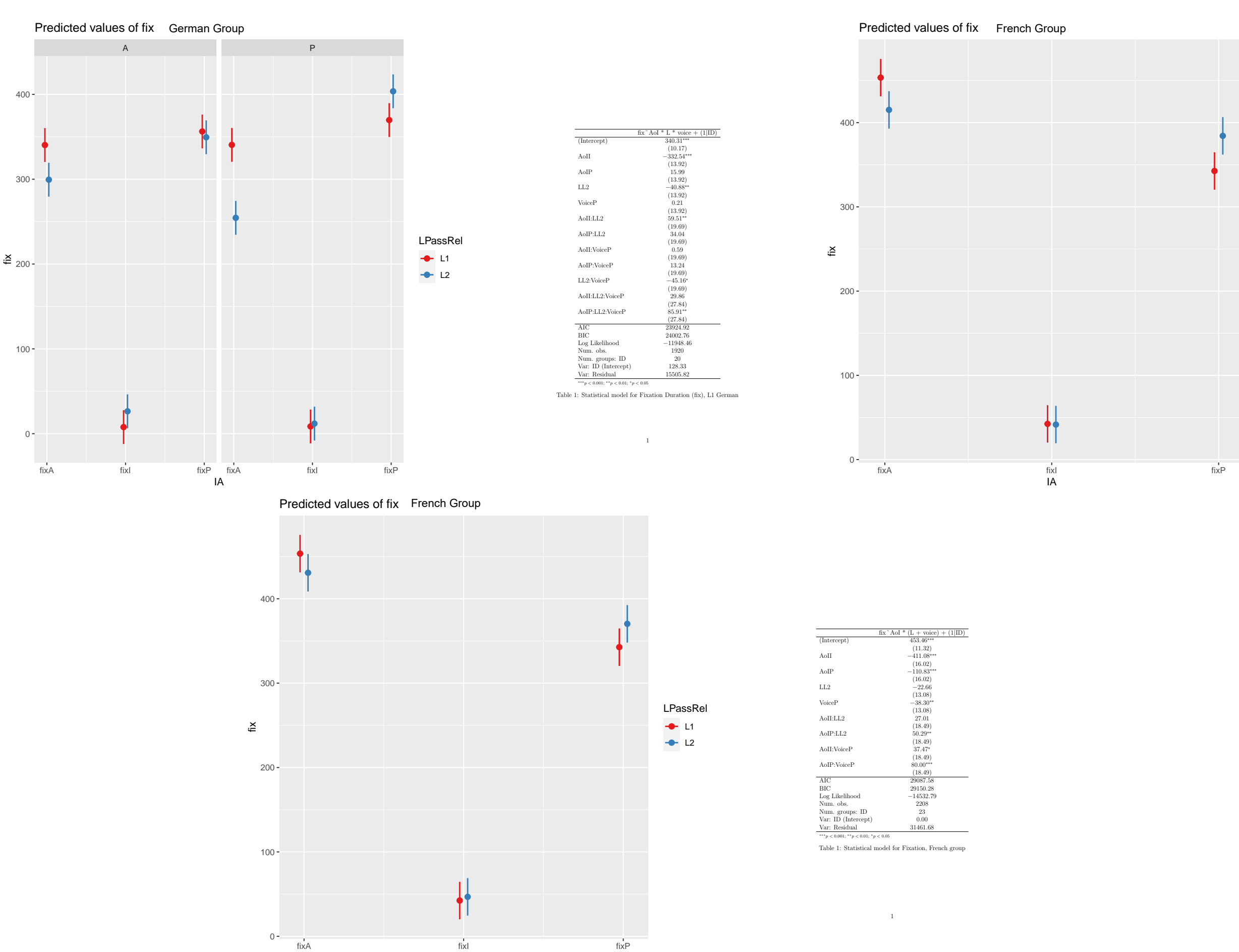


#### Analysis

Understanding passive and active sentences is less accurate in L2 than in L1. Understanding passive sentences is less accurate than processing active sentences. Processing in L1 German or French does not make a difference. It takes more time to process L2 passive sentences than L1 passive sentences.

#### Picture apprehension

Group analysis because of different data extraction methods



#### Analysis

FR Group : focus more in the agent area and behave differently when hearing passive and active sentences. When hearing passive sentences, focus more in the Patient area than when hearing an active sentence, even more in L2 German GER Group : no preference for the agent. In processing passive sentences in L2 French, do not behave as in L1 German : they focus more in the Patient Area than in the Agent area

### 5. Research answers

1. There is a difference in understanding passive vs active sentences in L1 vs in L2 but no difference between German and French. 2. There seem to be cognitive differences in resolving the comprehension task between the GER and the FR group : agent preference in the FR group, no agent preference in the GER group.

### 2. This study : research questions

The aim is to compare the processing of passive and active sentences by speakers of L1 and L2 French (SVO) and German (OV). 1. Is there a difference (accuracy and reaction time) in understanding passive vs active sentences in L1 and L2 German and French ? 2. Is there a cognitive difference (picture apprehension) in resolving the comprehension task in L1 and L2 German and French ?

### 3. Methodology

#### a. Participants

| Group       | L1  | L2  | Age<br>M (sd)  | AoO<br>M (sd) | L1 Score*<br>M (sd) | L2 Score*<br>M (sd) |
|-------------|-----|-----|----------------|---------------|---------------------|---------------------|
| GER<br>n=20 | GER | FR  | 23.8<br>(3.8)  | 13.9<br>(1.7) | 93.7<br>(4.4)       | 59.1<br>(16.7)      |
| FR<br>n=23  | FR  | GER | 20.06<br>(3.3) | 11.6<br>(2.8) | 93.1<br>(6.2)       | 40.3<br>(15.6)      |

\* Elao test (%) : lexicon, grammar, oral comprehension

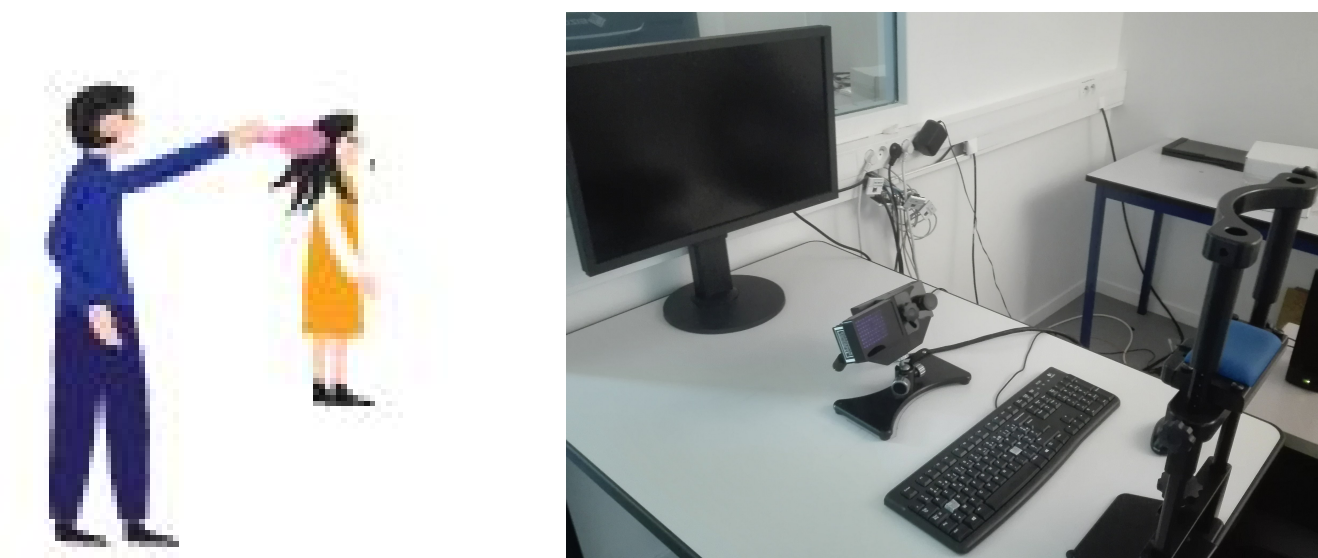
#### b. Comprehension Task : Aol preferences

0. Fixation +

1. **Sentence** (audio)

die Mutter frisiert die Tochter

2. **Picture** (1 second)



3. **Decision** (Does the picture match the sentence?) : YES vs NO

#### c. Experimental design

4 situations (brushing, washing, pinching, hitting)



x 2 Voice (active/passive)

die Mutter frisiert die Tochter (**GERactive**) + die Tochter wird von der Mutter frisiert (**GERpassive**)

x 2 Languages German + French

la mère coiffe la fille (**FRactive**), la fille **se fait coiffer** par la mère (**FRpassive**)

x 2 visual condition (Agent left + Patient left)



+ 12 fillers

= 1376 target trials

### 6. Conclusion

The off-line data analysis shows no difference in processing sentences in German and French. But the online analysis shows an agent preference in the L1 French Group only.

### 7. References

[1] Lee, J., Doherty, S. (2019). Native and nonnative processing of active and passive sentences : The effects of processing instruction on the allocation of visual attention. *Studies in Second Language Acquisition*, 41(4), 853-879. [2] Sauppe, S., Flecken, M. (2021). Speaking for seeing. Sentence structure guides visual event apprehension. *Cognition* 206. [3] Cristante V., Schimke S. (2019). The processing of passive sentences in German. Evidence from an eye-tracking study with seven- and ten-year-olds and adults. *Language, Interaction and Acquisition* 11 :2 (2020), pp. 163-195.

The data has been collected with the help of Birgit Füreder (Salzburg), Matthias Heinz (Salzburg), David Imbert (Nantes) and Dietmar Röhm (Salzburg).