



Jasmijn Bosch

Supervisors: F. Foppolo, M. T. Guasti, F. Arosio

University of Milano-Bicocca



Introduction

Grammatical gender: morphosyntactic cue to predict upcoming information during sentence processing

- Monolingual children make anticipations based on gender of the article (Lew-Williams & Fernald, 2007)
- Anticipation abilities related to word reading skills in monolingual children (Mani & Huettig, 2014)
- Bilingual adults show less efficient processing of gender than monolinguals (e.g., Lew-Williams & Fernald, 2010)
- Transfer effects due to gender incongruency in bilingual adults (Morales et al., 2016)
- Cross-linguistic influence is related to amount of input (e.g., Unsworth et al., 2014)

→ Investigate online processing of grammatical gender and its relation to reading in German-Italian bilingual children resident in Italy and Germany

Research questions

1. Do Italian-German bilingual children make linguistic anticipations on the basis of grammatical gender?
2. Is there cross-linguistic influence when two languages have the opposite gender?
3. Is anticipation ability related to reading skills?
4. What is the effect of language dominance?

Hypotheses and predictions

1. Children process speech incrementally
 - increase looks to target at onset of the article in predictable condition
2. Gender incongruency leads to cross-linguistic influence
 - delayed anticipation when German and Italian nouns have opposite gender
3. Anticipation skills are positively related to reading
 - reading fluency scores predict anticipation
4. Language dominance influences anticipation abilities and the likelihood of transfer
 - stronger anticipation patterns in dominant language
 - language incongruency effect more likely when tested in least dominant language

Methods

Participants

Groups	N	Age range
Italian-German bilinguals resident in Italy	46	7;4 – 9;2 (M = 8;5)
Italian-German bilinguals resident in Germany	40	7 – 9
Italian monolinguals	40	7- 9
German monolinguals	40	7- 9

Visual world eye-tracking experiment

Italian: *Dov'è la/il ... ?*
German: *Wo ist die/der ... ?*
'Where is the ... ?'

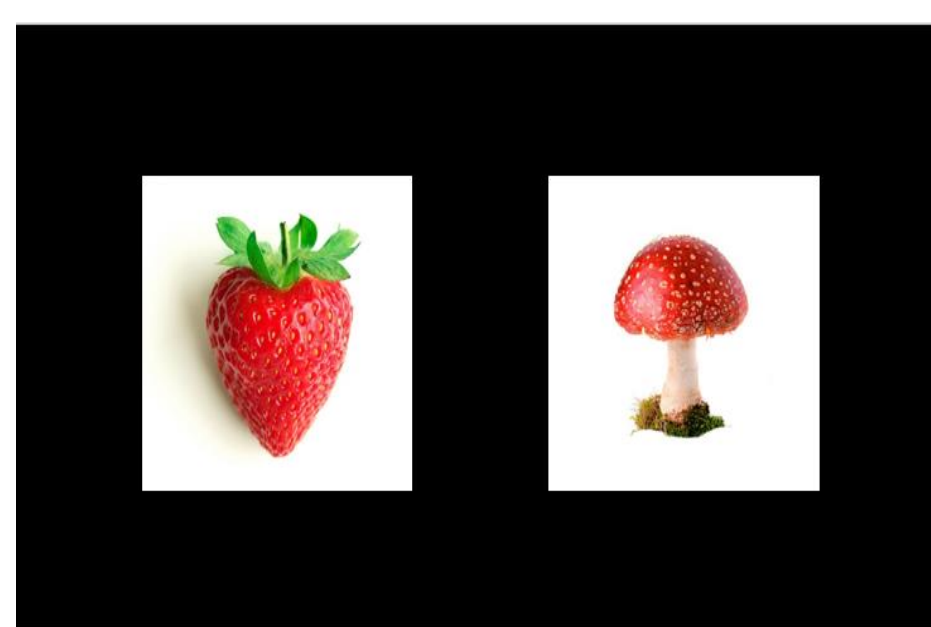


Figure 1.
Predictable/Congruent

la_[+Fem] fragola
il_[+Masc] fungo
die_[+Fem] Erdbeere
der_[+Masc] Pilz



Figure 2.
Predictable/Incongruent

il_[+Masc] topo
la_[+Fem] farfalla
die_[+Fem] Maus
der_[+Masc] Schmetterling

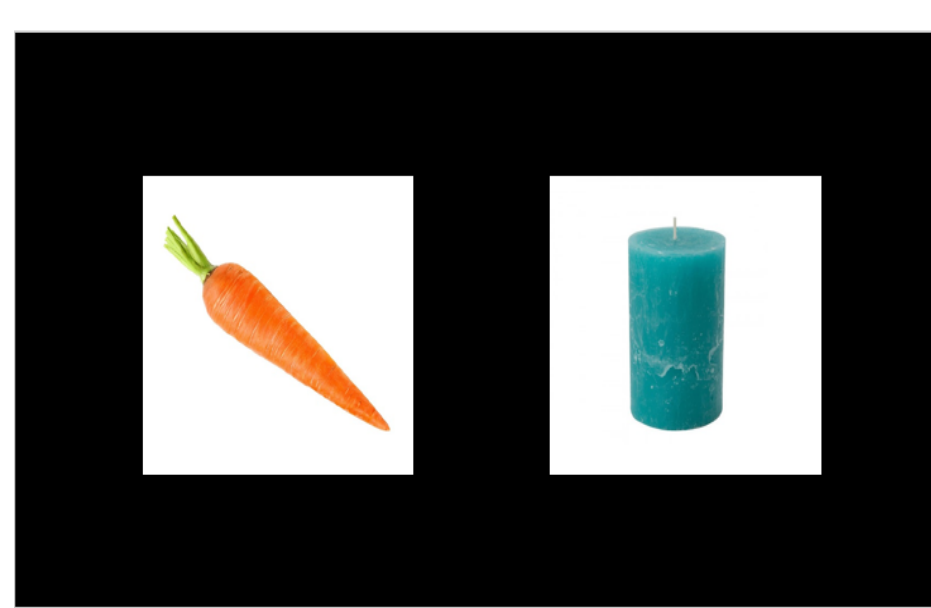


Figure 3.
Unpredictable/Congruent

la_[+Fem] carota
la_[+Fem] candela
die_[+Fem] Möhre
die_[+Fem] Kerze

- 2 experiments: Italian and German
- 42 items (14 per condition)
- 2 lists with reversed targets/competitors

Other measures

Vocabulary knowledge:

- PPVT in German and Italian

Reading fluency and accuracy:

- Words, non-words and passage reading
 - Italian: DDE-2, MT-3
 - German: Zürcher Lesetest

Non-verbal intelligence: Raven's colored progressive matrices

Non-word repetition tasks

Preliminary results

21 Italian-German bilinguals resident in Italy, tested in Italian

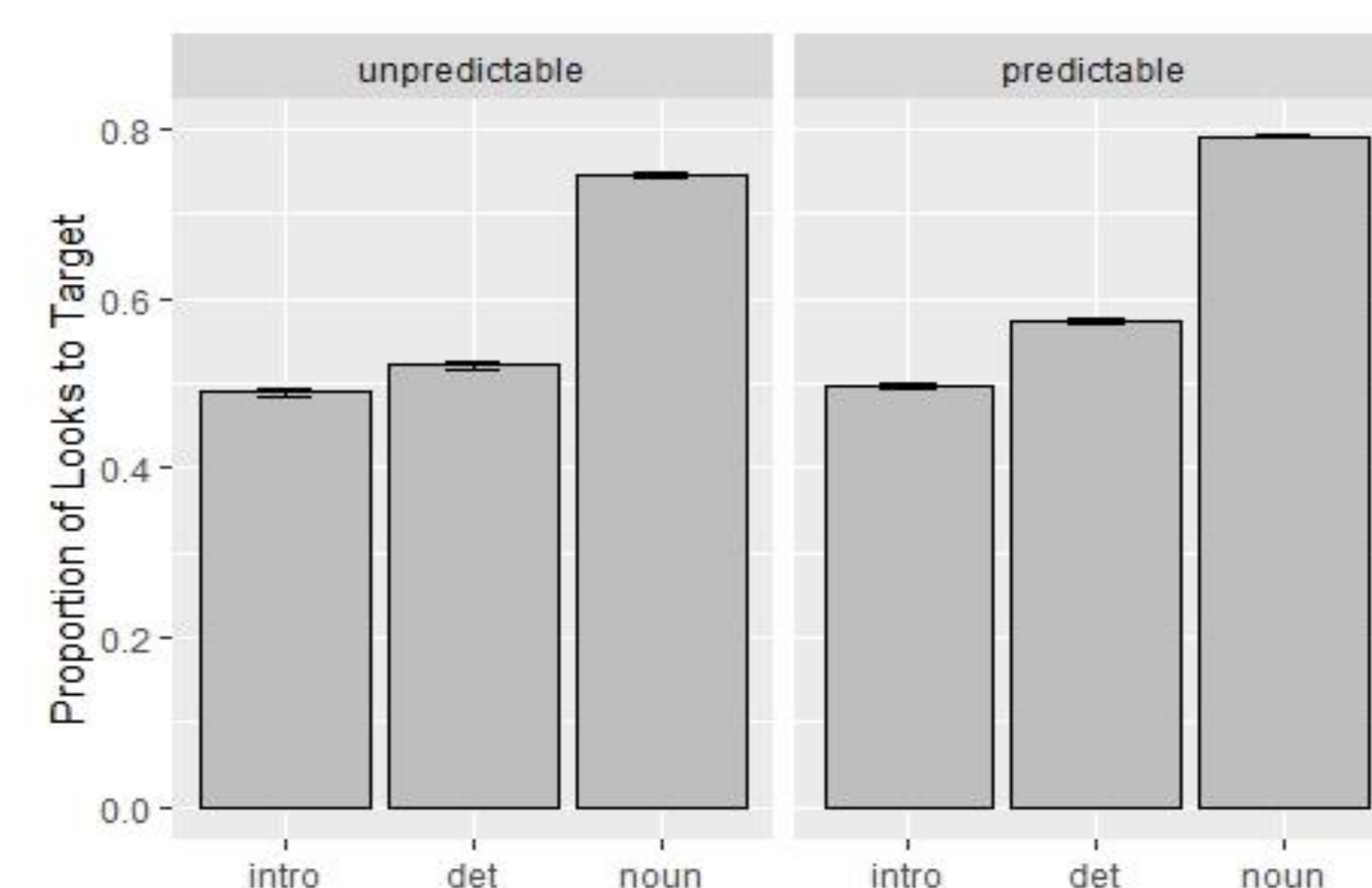


Figure 4. Proportion of looks to the target (vs. competitor) in the Unpredictable vs. Predictable scenarios in the three auditory regions (where is / the / strawberry?)

Significant interaction between condition (predictable/unpredictable) and auditory region (intro/determiner) ($Est = .441998$, $SE = .018582$, $z = 23.79$, $p < .001$). → anticipation based on gender

No significant effect of gender incongruency across languages

→ But strongly Italian-dominant

M standard score Italian PPVT: 108 ($SD = 12$)

M standard score German PPVT: 73 ($SD = 10$)

To be continued ...

- Cross-linguistic influence only in less dominant language?
- Comparison with:
 - German-dominant bilinguals in Germany
 - Italian and German monolingual controls
- Positive correlation between linguistic anticipation and reading abilities?
 - In both languages?
 - Also across languages?

References

- Lew-Williams, C., & Fernald, A. (2007). Young children learning Spanish make rapid use of grammatical gender in spoken word recognition. *Psychological Science*, 18(3), 193-198.
- Lew-Williams, C., & Fernald, A. (2010). Real-time processing of gender-marked articles by native and non-native Spanish speakers. *Journal of memory and language*, 63(4), 447-464.
- Mani, N., & Huettig, F. (2014). Word reading skill predicts anticipation of upcoming spoken language input: A study of children developing proficiency in reading. *Journal of experimental child psychology*, 126, 264-279.
- Morales, L., Paolieri, D., Dussias, P. E., Kroff, J. R. V., Gerfen, C., & Bajo, M. T. (2016). The gender congruency effect during bilingual spoken-word recognition. *Bilingualism: Language and Cognition*, 19(2), 294-310.
- Unsworth, S., Argyri, F., Cornips, L., Hulk, A., Sorace, A., & Tsimpli, I. (2014). The role of age of onset and input in early child bilingualism in Greek and Dutch. *Applied Psycholinguistics*, 35(4), 765-805.