

Is there a bilingual cost for syntax?

Mikel Santesteban, Ruth Yates & Itziar Laka

University of the Basque Country (UPV/EHU)

INTRODUCTION

Research into lexical access shows that bilinguals are slower and less accurate (in their L1) than monolinguals at certain linguistic tasks:

- Verbal fluency tasks (Sandoval et al., 2008)
- Picture-naming tasks (Gollan et al., 2008; Ivanova & Costa, 2008)
- Lexical decision tasks (Gollan et al., 2011)

Picture Naming (Gollan et al., 2008; Ivanova & Costa, 2008)

- Bilingual speakers naming in their dominant-L1 or dominant-L2 are slower than monolinguals.
- Greater frequency effects for bilinguals than monolinguals.
- Greater bilingual disadvantage in low-frequency than high-frequency words.

Picture Naming vs. Reading (Gollan et al., 2011)

- Main effects of frequency and group (i.e., bilingual disadvantage) in both naming and reading.
- Larger bilingual disadvantage in low-freq than high-freq words only in production.
- More robust bilingual disadvantage effects in production than in comprehension.

The weaker links account (Gollan et al., 2008) predicts that bilinguals should show larger frequency effects than monolinguals (i.e., a greater disadvantage for low-frequency than for high-frequency words).

- Less use leads to lower frequency values of words for bilinguals than for monolinguals.
- Logarithmic relationship between lexical frequency and naming speed: Frequency lag has a bigger impact on low than high frequency words.

The Language interference account (Gollan et al., 2008) suggests that the bilingual disadvantage appears because of interference from simultaneously activated and competing representations from the language not in use (e.g., Kroll, Bobb, Misra, & Guo, 2008).

Main research questions:

- Bilingual costs at the lexical level extend to syntactic levels of representation?
- If there is a bilingual disadvantage at the syntactic level, will this effect be modulated by the frequency of use of specific syntactic structures (e.g., larger bilingual disadvantage for low frequency structures) ?
- If syntactic structures are shared between the two languages of a bilingual (Hartsuiker et al., 2008; Bernolet et al., 2009; Schoonbaert et al., 2007, 2009), accumulated frequency of the shared structures should result in smaller bilingual disadvantage effects (if any) than the effects for cross-linguistically different (non-shared) structures.

PREDICTIONS

- Slower reading times for both bilingual groups compared to monolinguals (i.e., bilingual disadvantage).
- If language exposure/use has any effect, larger bilingual costs might be expected for Spanish-Basque than Spanish-English bilinguals.
- If the bilingual disadvantage effect is modulated by the syntactic structure frequency -> Passives slower than intransitives/relatives
- If cumulative frequency effects for shared syntactic representations:
 - Spanish-Basque bilinguals: larger bilingual cost for passives > relatives > Intransitives
 - Spanish-English bilinguals: larger bilingual cost (if any) for passives > (relatives = intransitives)

CONCLUSIONS

Bilingual costs also occur at the syntactic level of representation.

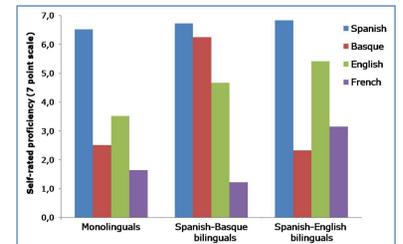
However, only bilinguals with early and extensive L2-AoA and L2-exposure/use suffered a bilingual cost. Highly proficient Spanish-English bilinguals with more spare L2-exposure and later L2-AoA did not show any bilingual cost.

In comprehension, syntactic structure frequency effects do not affect bilingual disadvantage effects. (In contrast to results reported by Runnqvist et al, 2013 in production)

METHOD

Participants:

- 27 Spanish Monolinguals.
- 29 Spanish-Basque bilinguals:
 - L2-AoA: 3.2 years-old (SD=1.2)
 - L2-Basque learnt at school (full immersion)
- 21 Spanish-English bilinguals:
 - L2-AoA: 6.1 years-old (SD=1.4)
 - L2-English learnt at school (3-4 hours per week)
 - Mid/advanced level of English (10=B2 / 11=C1 English proficiency level)



Procedure: Self-paced reading paradigm. Comprehension questions in 33% of trials

Materials:

60 high-frequency words used to create sentences (M=87.64 per million, SD=131.24).

150 experimental sentences :

- 50 subject relatives (9 words long), 50 passives (8 words long), 50 Intransitives (6 words long)
- + 50 filler sentences (8 to 12 words long)

EXPERIMENTAL CONDITIONS

50 Subject relative clauses (9 words long)

- Same structure in Spanish and English, different in Basque.
- Highly frequent in all three languages (Roland et al., 2007; Carreiras et al., 2010)

Spanish: *La chica [RC que ei leía el libro] tiene un cuchillo*
English: *The girl [RC who ei read the book] has a knife*
Basque: *[RC ei Liburua irakurri zu-en] neska-ki labana dauka*

Periphrastic passive structures (8 words long)

- Same structure in Spanish and English, non existent in Basque
- Low frequency in Spanish, highly frequent in English, and null in Basque (Roland et al., 2007; Green, 1975; Carreiras et al., 2010)

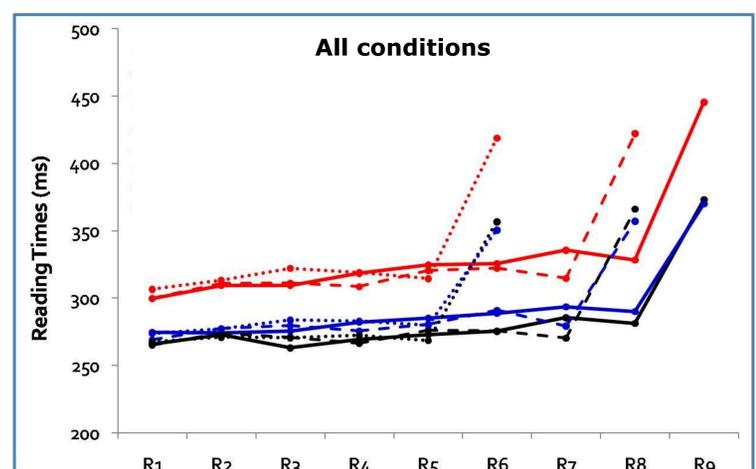
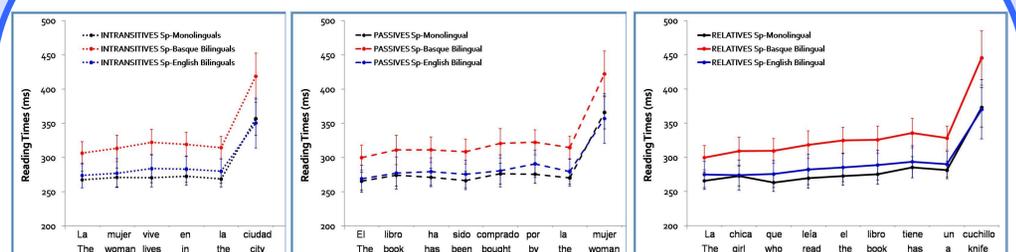
Spanish: *El libro ha sido comprado por la mujer*
English: *The book has been bought by the woman*
Basque: No passive structures

Intransitive (unaccusative) sentences (6 words long)

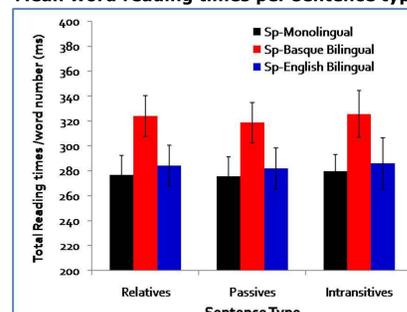
- Same structure in all three languages
- Highly frequent in all three languages

Spanish: *[La mujer]_s [vive]_v*
English: *[The woman]_s [lives]_v*
Basque: *[Emakumea]_s [bizi da]_v*

RESULTS



Mean word reading times per sentence type



Spanish-Basque bilinguals showed a general bilingual disadvantage effect compared to the monolingual group (slower reading times)

Spanish-English bilinguals performed like monolinguals (similar reading times)

No sentence type effects for any group of participants.