

Introduction

- *Partial selectivity*: The degree of accessibility of each language depends on the current context
- Bilinguals quickly identify the language to which a word belongs & can use this information to suppress a task-irrelevant language¹

1. At what representational level (e.g., lexical, semantic) is the task-irrelevant language suppressed?

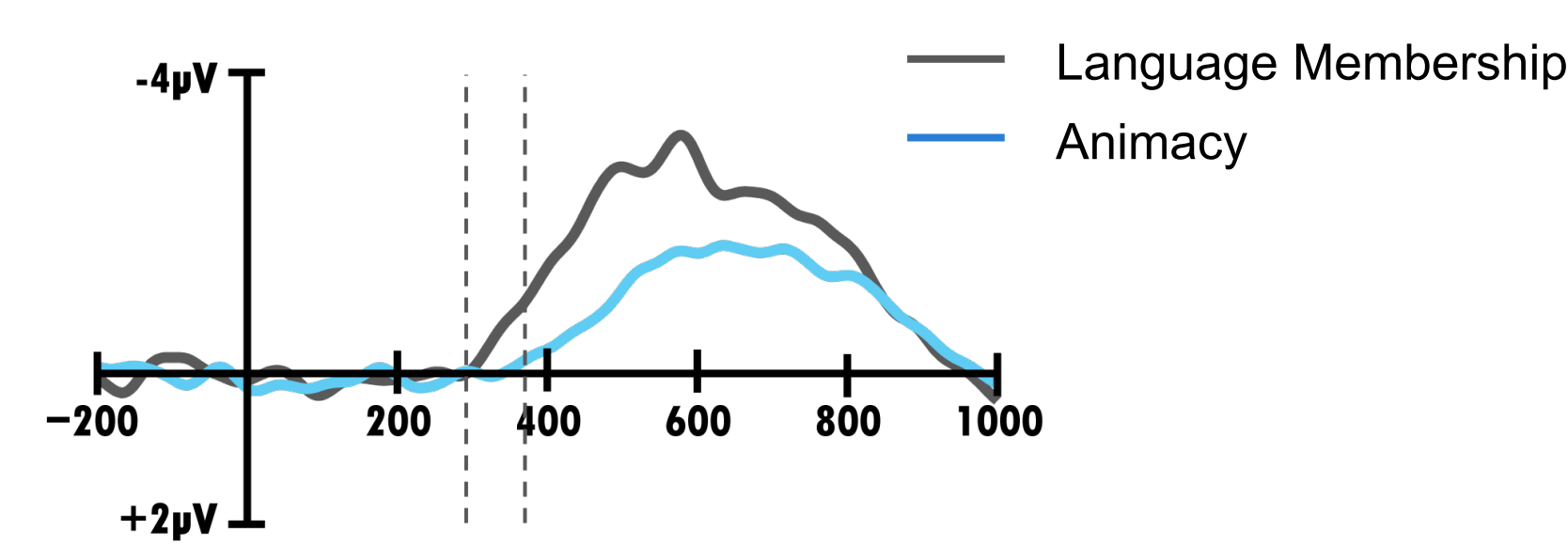
- Language mode influences the global activation of each language²

2. Does the proportion of each language presented influence nontarget language suppression?

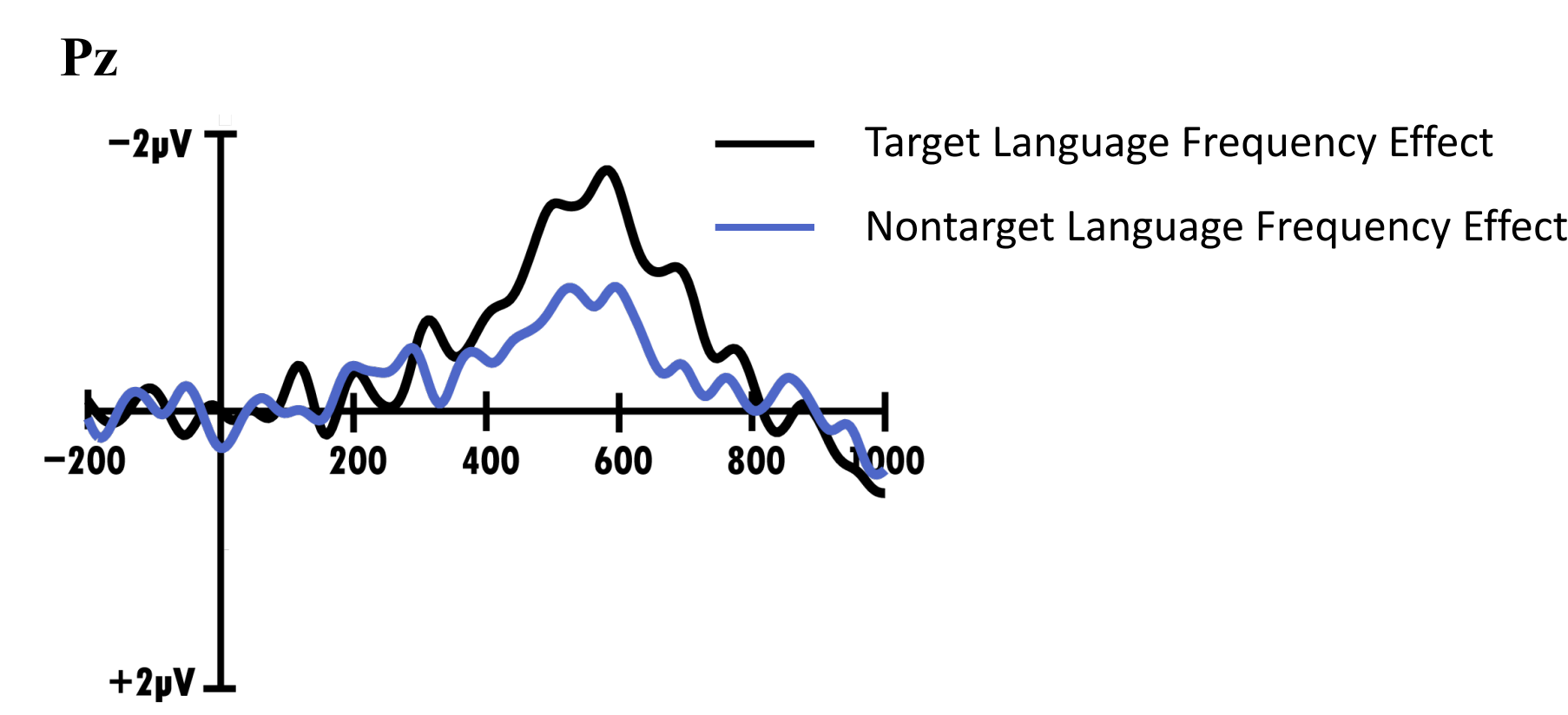
Methods

- 24 Spanish-Basque bilinguals (half of planned N=48)
- EEG recording
- 576 nouns displayed RSVP
 - Basque/Spanish; living/non-living
 - Matched on frequency, concreteness, length, orthographic neighborhood
- Orthogonally manipulated frequency and concreteness to assess lexical and semantic processing, respectively
- Simultaneous language & semantic categorization tasks on each word
 - Go/No-Go decision based on language membership (Spanish/Basque)
 - Left/Right hand decision based on animacy (living/non-living)
- Proportion of words in each language
 - 50:50 block
 - 75:25 block (target fillers added)

Hoversten et al. (2015)



→ Language membership information available ~100 ms prior to animacy



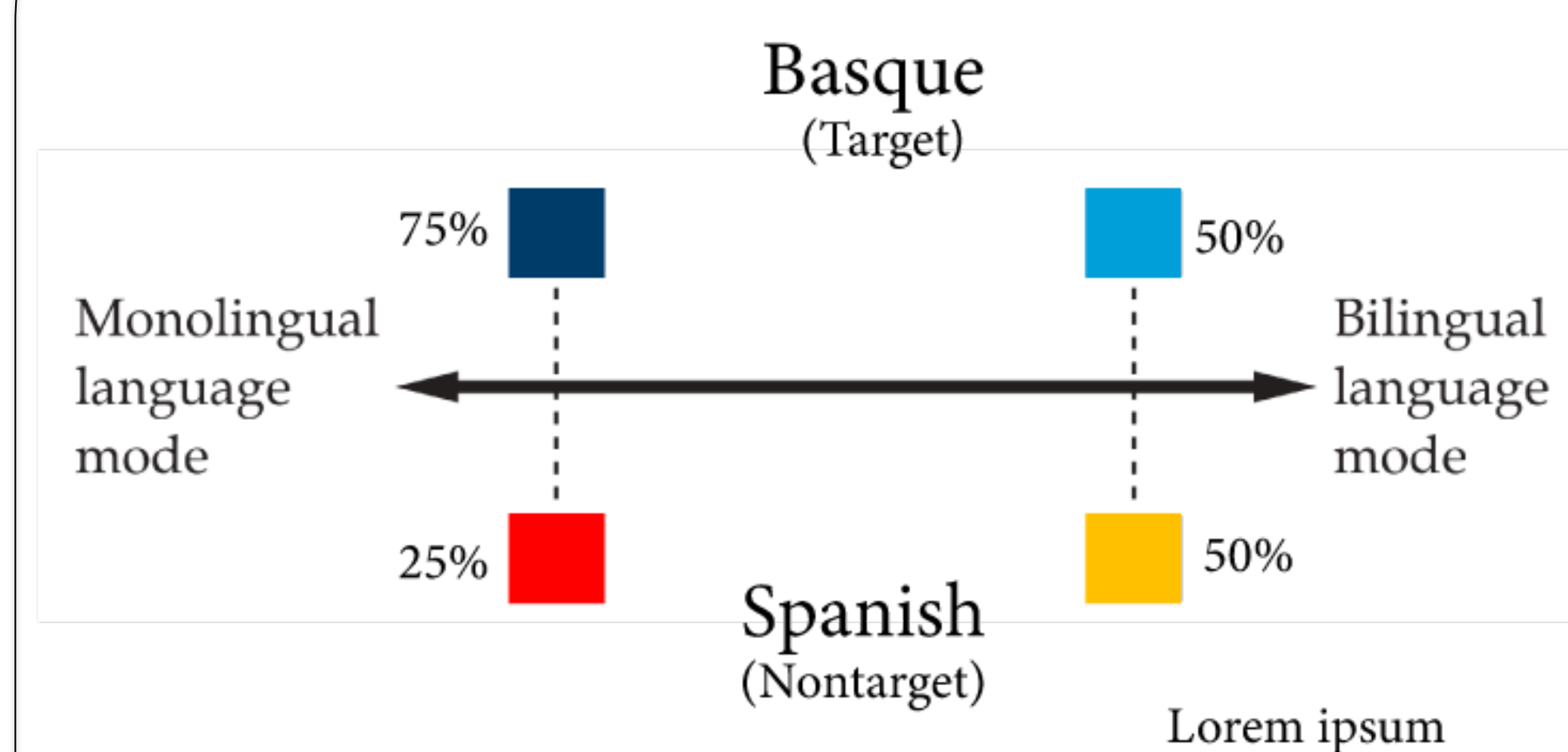
→ Reduced depth of processing of nontarget language vs. target language

Task Demands

| | LEFT HAND Living | RIGHT HAND Non-living |
|------------------|---------------------|--------------------------|
| GO Basque | ZALDI (horse) | HERRI (town) |
| NO-GO Spanish | PERRO (dog) | JAULA (cage) |

Orthogonally manipulated word frequency and concreteness

Language Mode



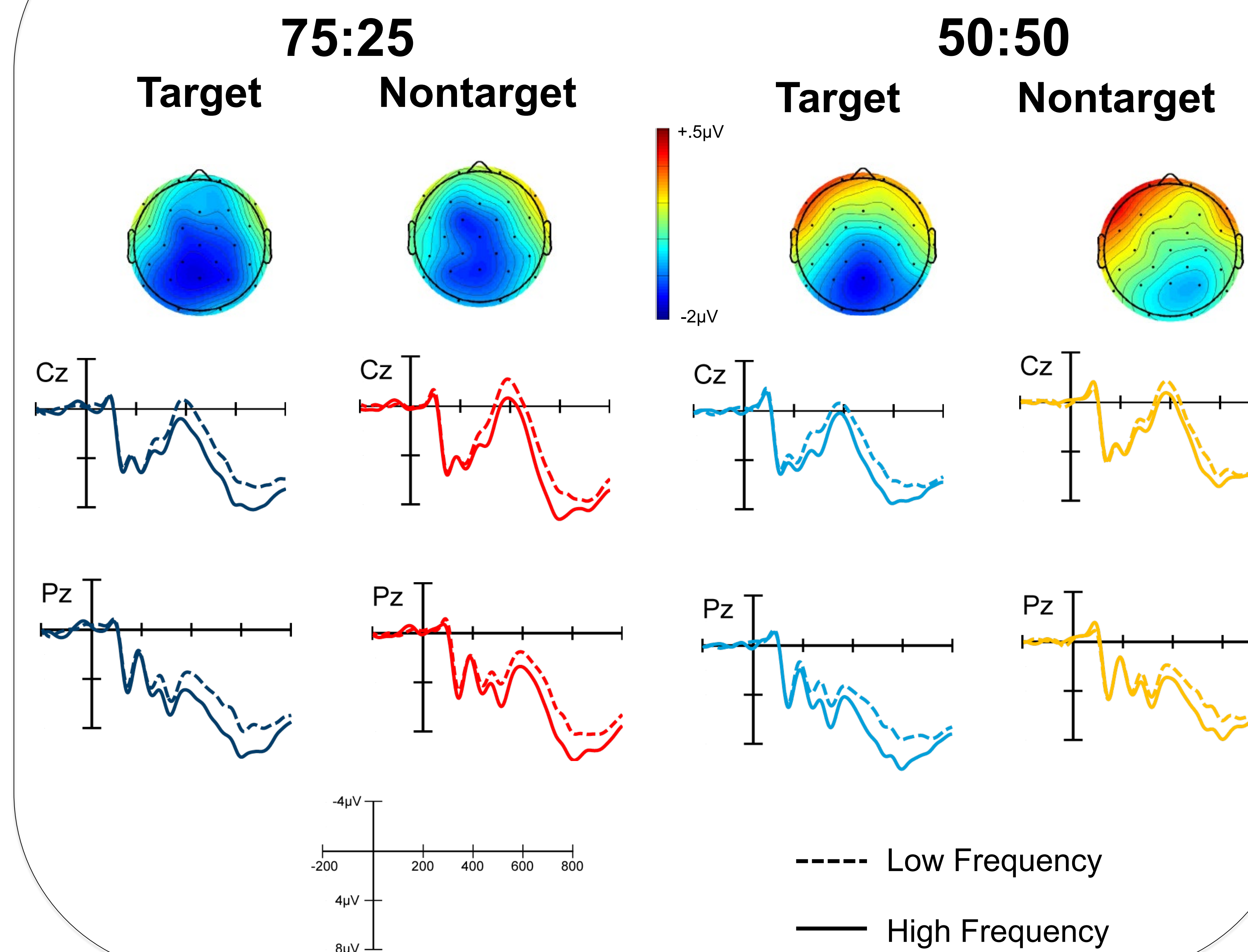
75:25 block

herri (town) R
perro (dog) R
ahuntz (goat) L
mutil (boy) L
tiempo (time) R
kutxa (box) R
ehiztari (hunter) L
mahai (table) R

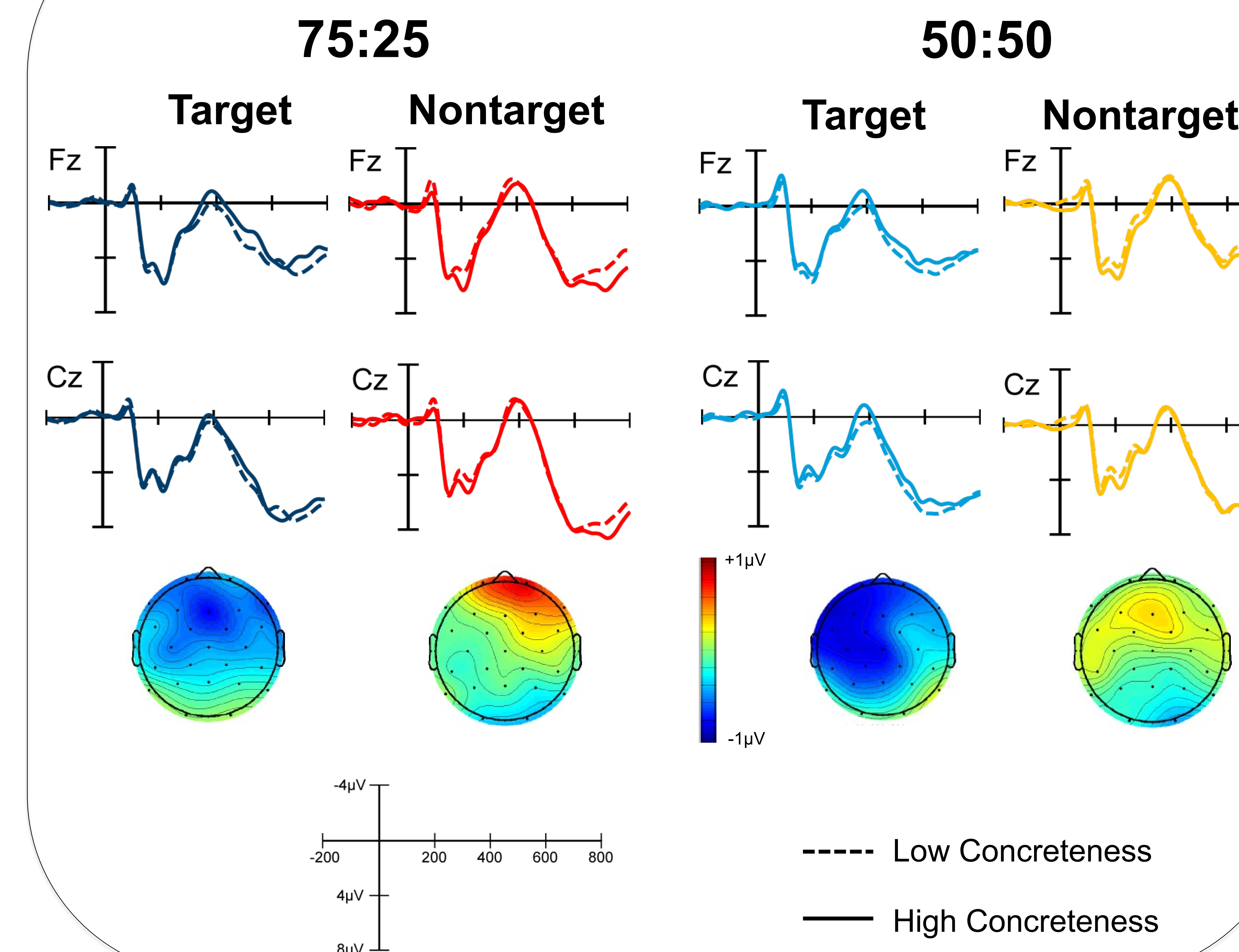
50:50 block

L zaldi (horse)
L jaula (cage)
L lagun (friend)
R hondartza (beach)
R festibal (festival)
R cobarde (coward)
R gosari (breakfast)
R rival (rival)

Lexical Processing



Semantic Processing



Results

Lexical Processing

- Posterior frequency effect in all conditions
- Smaller frequency effect for nontarget language in 50:50 block

Semantic Processing

- Anterior concreteness effect in the target language in both blocks
- Concrete & abstract words did not differ in the nontarget language
- Similar concreteness effects in 50:50 and 75:25 blocks

Discussion

Replicated the restricted depth of lexical processing in the nontarget language in the 50:50 block (condition comparable to the prior study¹)

→ **Partial suppression of the nontarget language at the lexical level**

No evidence of semantic processing in the nontarget language in either block

→ **Full suppression of the nontarget language at the semantic level**

Increasing the proportion of target language words did not increase suppression of the nontarget language

→ **Language mode does not appear to affect language activations in the same way as task demands**

References

- Hoversten, L. J., Brothers, T., Swaab, T. Y., & Traxler, M. J. (2015). Language membership identification precedes semantic access: Suppression during bilingual word recognition. *Journal of Cognitive Neuroscience*, 27, 2108-2116.
- Grosjean, F. (2012). Bilingual and monolingual language modes. In Chappelle, C. (ed.). *The encyclopedia of applied linguistics*. John Wiley and Sons, Inc.