

## Bilingual lexicon of phonologically different languages and similar languages

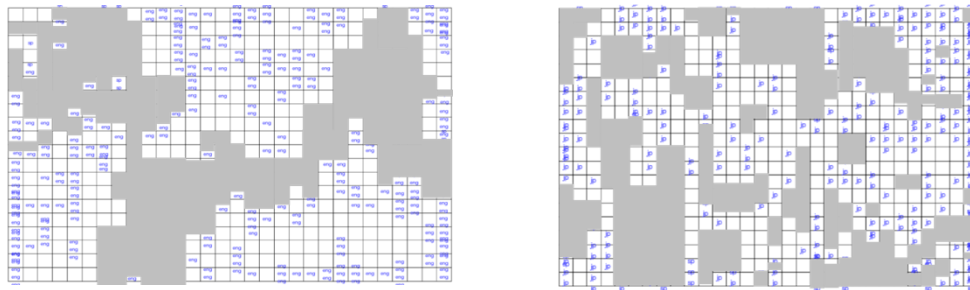
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It is uncontroversial that bilinguals co-activate both of their languages during spoken language comprehension [1]. Some studies even argue that the parallel activation of the two languages is not problematic for bilinguals because the two systems have different phonology and there are few phonologically similar words between them [2,3,4,5]. Overall phonological similarity can be depicted in a self-organizing map (SOM) where similar languages tend to cluster together based on their own phonological properties [2,3,4].

However, the previous studies picked up two languages that have clearly different phonological properties: e.g., Spanish and English, with respect to syllable structure and phonotactics. SOMs of phonologically similar languages may show a radically different pattern, which, then, suggests that bilinguals of such languages might experience a parallel activation of the two lexica.

The present study shows a result of two SOM calculations: a phonologically different language-pair (Fig 1 left), and a phonologically similar language-pair (Fig 1 right), using an equivalent method to that of Shook & Marian [2]. A preliminary analysis of the two SOMs reveals that the clustering, a clear split of gray and white areas, seen in a non-similar language pair is not evident in a similar language pair. This implies that bilinguals of phonologically similar languages might experience a cross linguistic parallel activation of lexical items, which requires other mechanisms for language selection such as Inhibitory Control Model [6].

**Fig 1:** English-Spanish SOM (left) and Japanese-Spanish SOM (right). Shaded areas represent Spanish.



### References

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