

Graphemes sharing Phonetic Properties tend to Induce similar **synesthetic** colors.

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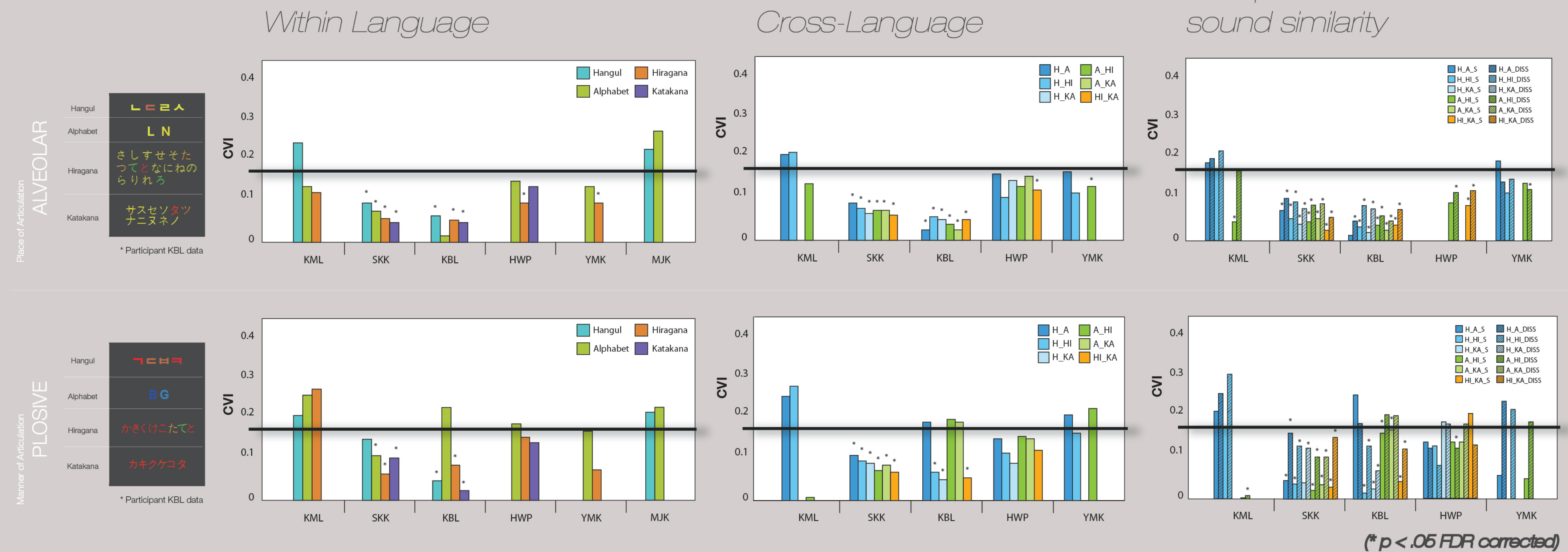
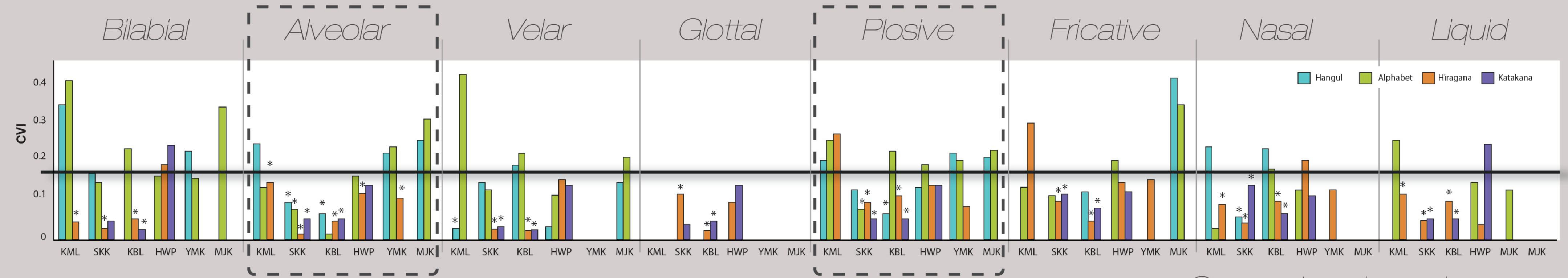
ACKNOWLEDGEMENTS

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INTRODUCTION

People with grapheme-color synesthesia experience idiosyncratic colors when viewing achromatic letters and digits. Despite large individual differences, researchers have suggested determinants of grapheme-color associations (Asano & Yokosawa, 2011; Brang et al., 2011). A work in our group, for example, showed that graphemes with similar sounds tend to induce analogous synesthetic colors (Shin & Kim, 2011). **In the present study, we extended the previous finding and examined whether graphemes categorized the same based on the phonetic rules – i.e., the place and the manner of articulation - are associated with similar synesthetic colors.**

RESULTS



METHODS

Participants Six Korean multilingual synesthetes

Stimuli Characters of Korean Hangul, Latin Alphabet, Japanese Hiragana, Katakana

Six Korean multilingual synesthetes matched their “colors”. The matched RGB values were converted into x y coordinates on the CIE xyY color space. The distance between each pair of graphemes was taken as an index for synesthetic color similarity.

CONCLUSION

These results imply that the phonetic properties of graphemes across multiple languages, not just conceptual similarity based on their sounds, are what really matter in determination of their synesthetic colors. The linkage between phonetic properties of graphemes and synesthetic colors, despite the lack of synesthetes' awareness of the phonetic rules, suggests implicit association between sound and color.

REFERENCES

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 Brang, D., Rouw, R., Ramachandran, V. S., & Coulson, S. (2011). Similarly shaped letters evoke similar colors in grapheme-color synesthesia. *Neuropsychologia*, 49(5), 1355-1368.

