

THE WAY WE SEE IT: HOW FAMILIARITY AFFECTS PERCEPTION

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INTRODUCTION The identification of a peripheral target object surrounded by flankers becomes increasingly difficult when the spacing between target and flanker decreases. This perceptual phenomenon, *crowding*, limits object identification. Familiarity of the object is an important factor in crowding but is still poorly understood. Here we use three alphabets— English (E), Korean (K), and Symbol (S)— to determine how English and Korean observers are visually affected by the familiarity of target and flanker objects.

DEMO While fixating the plus, try to identify the central target.

ㄱ

A

Ω

+

Easy, right? The task is harder when the spacing is reduced.

ㄱ

A

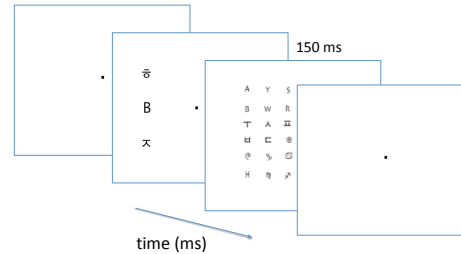
Ω

+

STIMULI 10 English, Korean, and Symbol letters are used as target and flanking stimuli.

A	Y	S	K	E
B	W	R	H	N
T	人	ㅍ	ㅊ	ㄹ
H	ㄷ	ㅊ	ㅌ	ㅋ
@	ㄱ	Ω	Ω	⌘
ㅈ	ㅊ	ㅊ	ㅌ	ㄹ

METHODS All observers read English. Korean observers are native Korean-readers. Observers are presented with a peripheral target surrounded by flankers and are then asked to identify the target from a display of all possible targets. The threshold crowding (critical spacing) for each target-flanker set is found. Each set is presented at a 14.5 deg eccentricity. Observers complete three blocks, each consisting of 288 trials.



Nine flanker-target-flanker conditions are presented, composed of English (E), Korean (K), and Symbol (S):

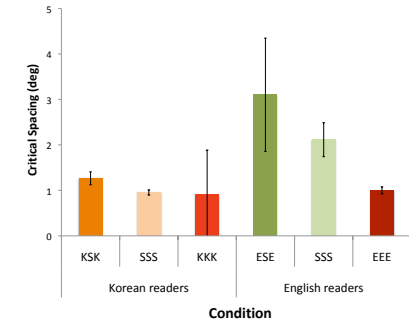
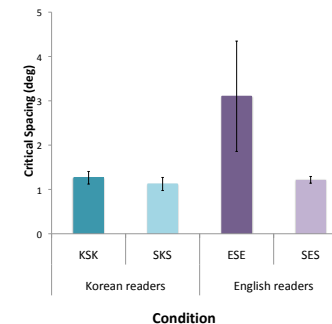
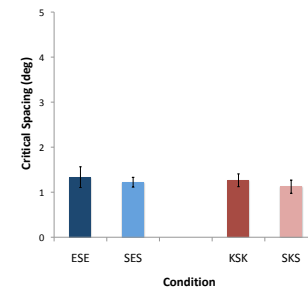
EEE	ESE	EKE
SSS	SES	SKS
KKK	KEK	KSK

RESULTS

The Korean-reading observers perceive Korean letters better than they do English letters.

An observer's familiarity with the flanker affects critical spacing.

Familiarity with the flanker is more important than familiarity with the target.



For Korean-reading observers, when the target or flanker is Korean, the **critical spacing is less** (crowding is weaker) than when the target or flanker is English.

When observers identify the **familiar target** (Korean or English) surrounded by the **unfamiliar symbol flankers**, the **critical spacing is less** than the reserve conditions (KSK or ESE).

When the **unfamiliar symbol target** is surrounded by the **unfamiliar symbol flankers**, **the critical spacing is less** than when the **unfamiliar symbol target** is surrounded by **familiar flanking stimuli** (Korean or English).

CONCLUSION

Familiarity with the flankers affects the identification of the target. Flanker familiarity increases crowding of an unfamiliar target.