摘要

面為基階段在視覺處理歷程中扮演重要角色，面表徵是高於視網膜影像的視覺表徵，本研究目的在於探討以「面表徵」為選擇基礎之注意力運作。參考過去研究者所採用的面材料，本研究改為同時呈現二個交叉斜面並進行線索提示作業，以同面優勢效果作為面為基注意力運作之指標。

本研究分成四項實驗，每項實驗皆由兩個子實驗構成，此二個子實驗分別使用「外因性線索提示作業」與「內因性線索提示作業」探討面為基注意力的運作。實驗一利用上述「面」的設計及兩種提示作業，得同面優勢效果，反映面為基注意力的運作參與其中。實驗二目的在於排除注意力根據「可能目標的斜度」進行選擇之混淆，因此將面改為擁有相同斜度且互相平行的二個斜面。注意力若根據可能目標的斜度進行選擇，則無法得同面優勢效果。結果顯示在實驗二的兩種提示作業中，仍得同面優勢效果。實驗三目的在於排除可能目標因空間排列而形成簡單的知覺組織，繼而影響注意力分配之可能性。結果顯示在外因性線索提示作業下，仍得同面優勢效果；在內因性線索提示作業下，SOA 需延長至 500 毫秒，才展現同面優勢效果。實驗四則進一步確認在不同 SOA 下，面為基注意力的運作情況，結果發現：在外因性線索提示作業下，SOA 為 500 毫秒展現同面優勢效果；內因性線索提示作業下，SOA 為 1000 毫秒下展現同面優勢效果。

綜合而言，在外因性線索提示作業與內因性線索提示作業下皆得到同面優勢效果。當可能目標難以群聚後，在長 SOA 時距下，依然展現同面優勢效果。因此本研究的結果，對於面為基注意力提供了直接的支持證據。

關鍵字：面為基注意力，同面優勢效果，線索提示作業，外因性提示，內因性提示

Abstract

Surface-based stage plays an important role in visual information process. Surface representation means the representation that goes beyond 2-D image representation. The purpose of this study is on the exploration of attentional selection which is based on surface representation. Referring to the surface material used before, this study adopted two interlacing slant surfaces structured by random-dot stereogram to test the effect of “same-surface advantage”.

There are four experiments and each experiment includes two sub-experiments which are exogenous cuing task and endogenous cuing task, respectively. In Experiment 1, the same-surface advantage was revealed. In Experiment 2, the confounding of “slant” was ruled out and the same-surface advantage was still kept. In Experiment 3, we reduced the possibility that candidate targets group together to form simple perceptual organization and then influence the allocation of attention. After rearrange the spatial positions of candidate targets, attention cannot select the simple perceptual organization easily. In exogenous cuing task, same-surface advantage was still revealed. In endogenous cuing task, SOA should be prolonged to 500ms, and it shows same-surface advantage. Furthermore, in Experiment 4, we manipulate three kinds of SOA and confirm the operation of surface-based attention. We found that in exogenous cuing task, SOA should be prolonged to 500ms, and it shows same-surface advantage.In endogenous cuing task, SOA should be prolonged to 1000ms, and it shows same-surface advantage.

In conclusion, it shows same-surface advantage in exogenous cuing task and endogenous cuing task. When candidate cannot group together to be selected easily, SOA should be prolonged to longer, and it still shows same-surface advantage. The results provide the direct support evidences of surface-based attention.

Keywords: Surface-based attention, Same-surface advantage, cuing task, exogenous cue, endogenous cue