

Abstract of thesis entitled:

Previous findings have suggested a distinction between representations of spatial information and featural information. However, where the concept “shape” stands in this featural/ spatial distinction remains elusive. The present study explored the nature of shape in the visual short-term memory, using an interference paradigm. Experiment 1 showed that the cost of concurrently memorizing a color and a dot pattern was much less than that of concurrently memorizing two colors or two dot patterns, thus confirming the dissociation between object (i.e., featural) and spatial short-term memory. Experiments 2 and 3 showed that the cost of concurrently memorizing an ellipse, as an example of a “shape”, and a color (or a dot pattern) was approximately as large as that of concurrently memorizing two colors (or two dot patterns), suggesting that representations of “shapes” heavily demand both featural and spatial short-term memory. This finding contradicts the common believing that shapes are mainly featural representation, leading us to reconsider studies using shapes as featural stimuli. Nevertheless, further studies are needed to expose how a simple shape as an ellipse can be divided into featural and spatial components, which should be more complex than the propose by the structural description theory.

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論文摘要

先前研究發現特徵與空間信息的表徵具有一定的獨立性。然而，“形狀”這個概念在特徵和空間特性的區分中處於什麼位置，尚不清楚。本研究使用干擾範式，挖掘形狀在視覺短時記憶的表徵中的性質。實驗一發現同時記憶一個顏色和一個點陣的損耗，比同時記憶兩個顏色或兩個點陣的損耗少，支持物體（也就是特徵）短時記憶系統與空間短時記憶系統獨立的假設。而實驗二和實驗三發現記憶一個橢圓的同時記憶一個顏色或一個點陣的損耗，幾乎等同於記憶兩個橢圓、兩個顏色或兩個點陣。此發現表明形狀的表徵非常依賴特徵和空間短時記憶兩個系統。這與傳統認為形狀主要是特徵表徵的觀點相矛盾，使得我們需要重新審視那些用形狀作為特徵刺激的研究。然而，一個如橢圓這樣簡單的形狀是怎樣劃分成特徵和空間特性成分的呢？這還有待進一步的研究。

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