Explanation handout format

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台大杜鵑花節錯覺展：科學的藝術與藝術的科學

下條信輔教授暨台大師生聯合特展

Close Encounter – Illusions where science meets art

Shinsuke Shimojo's work in collaboration with National Taiwan University

是方塊還是立體十字？ CUBE OR 3-D CROSS?

要做什麼？

請站到譜架前，用單眼透過譜架上畫白圈的小孔看正前方的展品。注視左邊的展品大約1~2秒，你看到什麼？現在用雙眼看，您現在看到什麼？

接著看正前方右邊的展品。您看到大方塊上凸起三個小方塊嗎還是立體的十字呢？有沒有辦法把凸起來的小方塊看成是凹下去的呢？如果發生了什麼變化？

【本作品由林永雋製作】

What to do?

Stand before the stand and look through the red circle with one eye. Look at the object in the left for a couple seconds. What do you see? Then, Look at the object with both eyes, does anything change?

Then look at the object in the right. Do you see three small cubes or a cross? Try to view the three small convex cubes as concave ones. What happens when you try to do this?

(This demonstration was produced by Yung-Chun Lin)

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發生了什麼事？

左邊的立體十字在某個特定視角下看起來是一個方塊，而右邊的方塊在某個特定視角下看起來是一個立體十字。這個例子顯示不同的物體可以導致網膜上相同的影像。這個例子也顯示輪廓能強烈地使人建構出從平面到立體的經驗，而不受到亮度或是陰影變化的影響。

從右邊的方塊中，可以感知到多種穩定的狀態。一直看著它，你便會發現不同的物體知覺交替出現。這是因為這些物體知覺對觀察者而言同樣合理。

更多嘗試與體驗

其實右邊的方塊不一定要從正前方注視，也可以換個角度觀看。你還能發現更多的立體圖形嗎？

還有左邊的立體十字，如果加上顏色會怎樣？假如加上顏色後就去掉線條，會不會有一樣的效果？請參考互動展示區的兩個動畫。

【林永雋與張凱鈞設計與製作】

What's going on?

At a particular viewpoint, the 3-D cross in the left appears to be a cube, and the cube in the right appears to be a 3-D cross. This example shows that different objects may result in the same perceived image. It also shows that surface and depth perception can be easily constructed from contours, regardless of the additional effects of shade and lightness.

In addition, there are several perceptual states for the right cube. When you look at it, different percepts of 3-D objects may emerge and alternate with each other. This is because these interpretations are equally possible for the retinal image induced by the object. This effect is called "bistable perception".

Other things to try

You may try other viewpoints for the right object. Can you find out more possibilities?

What will happen if the left object were painted? There are more examples of bistable perception in the interactive display area.

[Created by Lin, Yung-Chun; Chang Kai-Jun]