The Jumping Pen Illusion

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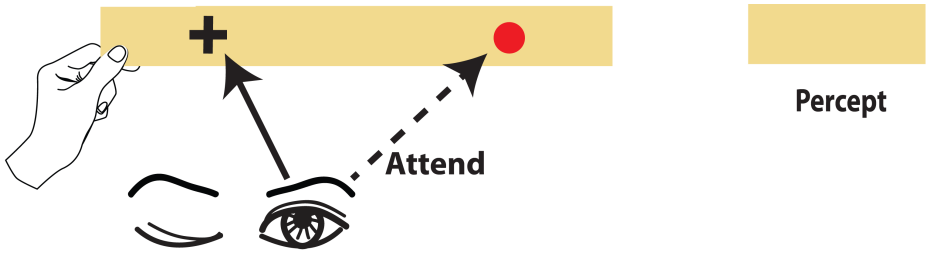
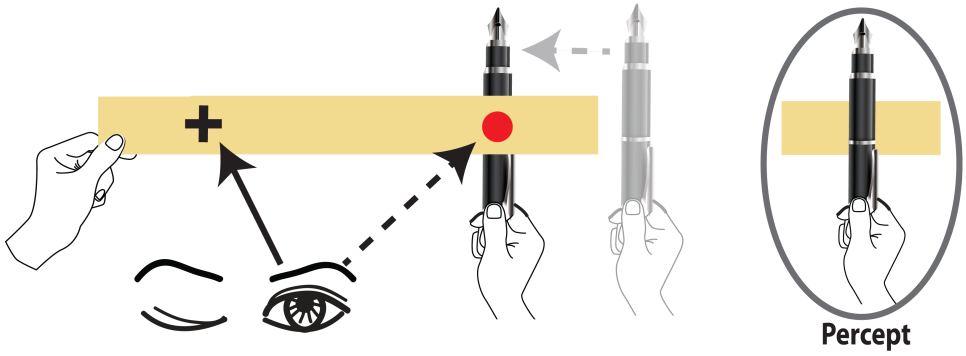
1. **Use the blind spot card to find your blind spot.** Hold the card horizontally in front of you so the cross is on the left. Close your left eye and focus on the cross with your right eye. While keeping your eye on the cross, monitor the dot on the other side of the card. Slowly move the card backwards and forwards until the dot disappears. The dot is now in your blind spot.



2. **Experience the jumping pen.** While keeping the dot in your blind spot, take a pen and hold it vertically behind the card. Slide the pen behind the card into your blind spot, where the dot used to be. When the pen enters your blind spot, you should see it jump in front of the card! What you are seeing is a filled-in illusory percept of the pen perceptually dominating over a filled-in illusory percept of the card. If you are having trouble seeing the pen in front of the card, try sliding it into the blind spot again, or wiggling it a bit while holding it in the blind spot.



3. **Fun with perceptual competition.** When the pen and the card cross in your blind spot, you can experience perceptual competition between two illusory (filled-in) percepts. Hold the pen still and watch as the depth-ordering of the pen and card alternates: the pen in front of the card, then the card in front of the pen, and so on.

4. **Try for the "Tyrannosaurus hand effect".** Once you see the pen in front of the card, try holding the pen farther back from the card while maintaining it in your blind spot. Wiggle the pen to keep it perceptually dominant over the card. When the pen is far behind the card but still perceptually dominant, you might find that it looks tiny! This is probably because the retinal image of the pen is small while the occlusion cues created by filling-in cause the perceived depth of the pen to be closer than it really is. A small image close to you is interpreted as a tiny object. Does the same effect to happen to your hand holding the pen? (We've noticed that this doesn't work for everyone, but when it does, it's pretty great.)

Related publications

Chen, Z., Maus, G., Whitney, D., & Denison, R.N. (2017). Filling-in rivalry: Perceptual alternations in the absence of retinal image conflict. *Journal of Vision*, 17(1):8, 1-15. doi:10.1167/17.1.8

Chen, Z., Denison, R.N., Whitney, D., & Maus, G. (2018). Illusory occlusion affects stereoscopic depth perception. *Scientific Reports,* 8:5297. doi:10.1038/s41598-018-23548-3