Effects of Object Facing Direction and Implied Motion on Preferences for Spatial Composition

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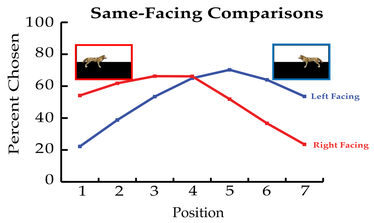
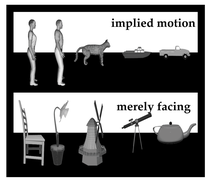
Background

The "inward bias" in aesthetic preferences (Palmer, Gardner & Wickens, 2008; Bertamini, Bennett & Bode, 2011)



Right facing objects preferred left of center.

Left Facing objects preferred right of center.



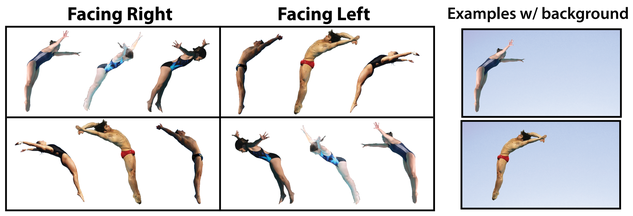
No significant differences were detected between objects with ***implied motion*** vs. objects that were ***merely facing***.

Research Question:
Would images of ***objects in motion*** reveal differences in the inward bias?

Hypotheses:
1) Facing and motion directions would interact when they were inconsistent.
2) A greater inward bias for faster objects when compared to static objects.

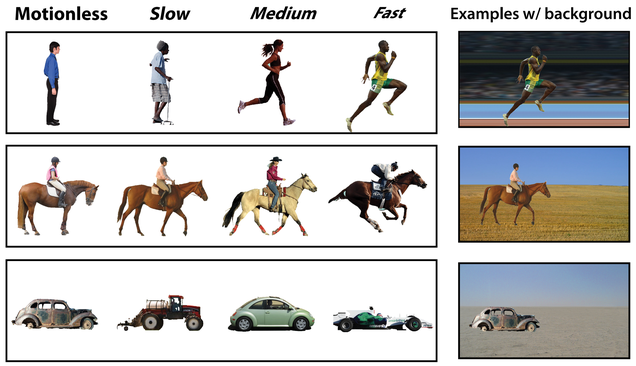
Stimuli

Implied Motion Direction



8 images per set X 2 diving directions X 2 facing directions = 32 images

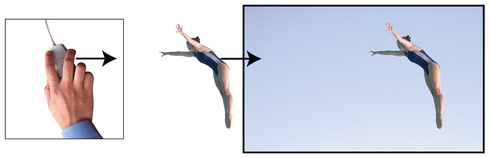
Implied Motion Speed (right-facing examples only)

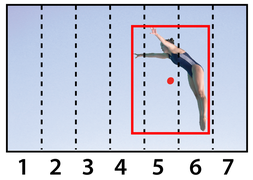


3 object types (humans, horses, cars) X 3 stimulus sets/type X 4 speeds X 2 facing directions = 72 images

Methods: The Drag-and-Drop Task

Drag the figure into the background, then **Drop** (and click) at the best position





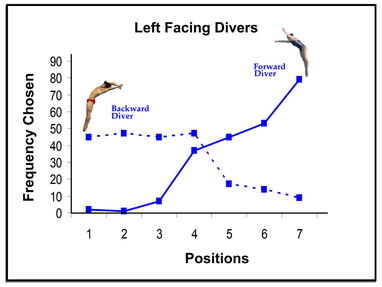
Experimental instructions:

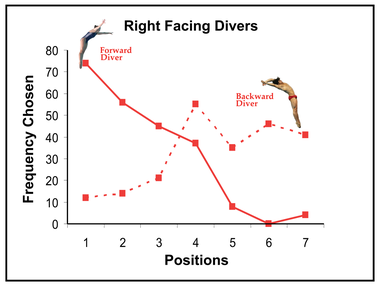
"In this experiment, you will see images of human figures, horses and cars. Your task will be to move these images into a background image frame, and place them in the location that is most aesthetically pleasing."

The position of the object was defined as the center of its bounding box and was categorized into 7 bins.

Results

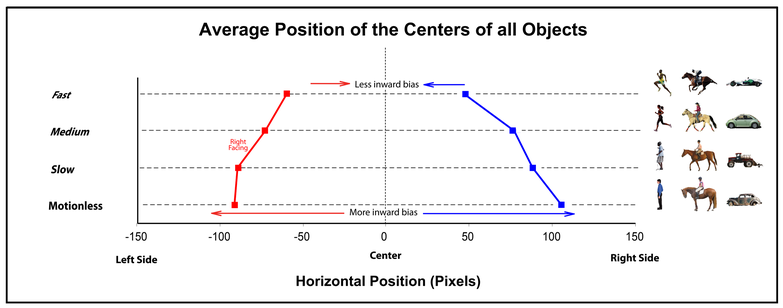
Implied Motion: Direction





Strong inward bias for forward divers ($p < .001$); see solid lines in graphs.
When motion and facing conflict (backward divers):
Motion is more salient ($p < .001$); compare dotted and solid lines in graphs.
The inward bias due to motion is weaker ($p < .001$).

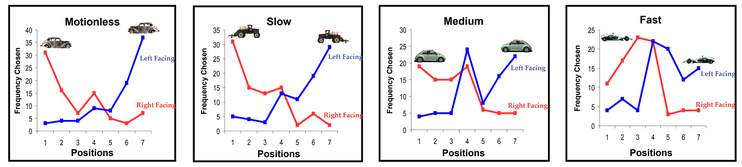
Implied Motion: Speed



Facing effects are consistent with the inward bias ($p < .001$).
The inward bias ***decreases*** as object speed increases ($p < .001$), opposite our hypothesis.

Results (Continued)

Implied Motion: Speed (Car results)

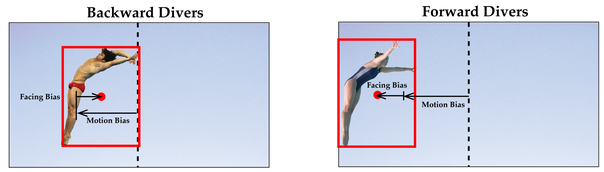


Facing effects are consistent with the inward bias at all speeds ($p < .001$).
Smaller inward bias for faster cars ($p < .001$), as if people are including a ***displacement*** in the direction of motion over a fixed interval of time.

Discussion

The results replicated our previous findings demonstrating an inward bias in people's preferences for the position of right and left facing objects, but they also showed strong effects due to object in implied motion.

1) Backward divers were preferred ***moving inward*** and ***facing outward***, but they were placed closer to the center than forward divers.



Incongruent Facing and Motion Effects

Congruent Facing and Motion Effects

2) Implied speed produced opposite effects: faster objects showing a smaller inward bias, as though displaced farther along the direction of motion.

Small speed displacement effect:
Slight reduction of inward bias

Large speed displacement effect:
Greater reduction of inward bias

References and Acknowledgments

Palmer, S. E., Gardner, J, S. & Wickens, T. D. (2008). Aesthetic Issues in Spatial Composition: Effects of Position and Direction on Framing Single Objects. *Spatial Vision,* 21, 421, 449.

Bertamini, M., Bennett, K. M., Bode, C. (2011). The Anterior Bias in Visual Art: The Case of Images of Animals. Laterality. *Asymmetries of Brain, Body and Cognition,* 6, 673-689.

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