

Representational Fit in Position and Perspective:

A Unified Aesthetic Account

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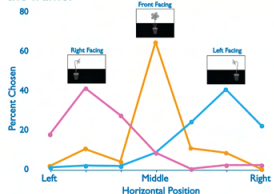
Background

Horizontal Position

Previous aesthetics research has shown two biases that affect people's aesthetic judgments of spatial compositions (Palmer, Gardner & Wickens, 2008):

Center bias: Pictures are preferred when their focal object is placed near the horizontal center of the frame

Inward bias: Pictures are preferred when their focal object is facing into rather than out of the frame.



Task: drag and drop object to be most aesthetically pleasing position.

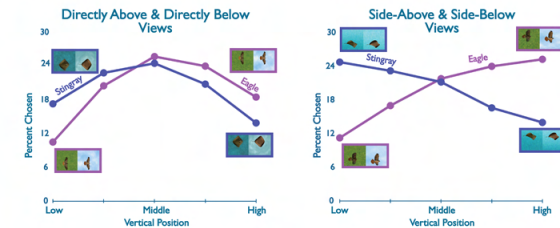
% placed in each of 7 equal-sized horizontal bins

Similar biases found in 2AFC designs and analyses of stock photography (Gardner et al., 2008).

Vertical Position

Center bias: Replicated for vertical position.

Height bias: Pictures are preferred when the typical height of the object in the world is reflected in the height of the object in the frame (Gardner & Palmer, VSS 2009).



Most preferred images are most similar to what we see in the world.

Perceptual fluency theory of aesthetic response: When objects are faster to be recognized, we like them better (Reber, et al., 2004). One way to make objects easier to recognize and remember is to place them in positions in the frame that mirror their position in the world (Estes, et al., 2008).

What about context?

Compositions with perceptually fluent objects are not always the best compositions.

For example, the context of an image can be changed by a title:



Research Questions

- 1) Can the context (in the form of a title) affect preferences for image compositions?
- 2) Are perceptually disfluent images preferred to fluent images, depending on the "fit" between the context and the composition?

Position & Context: Design

Two Categories of Titles



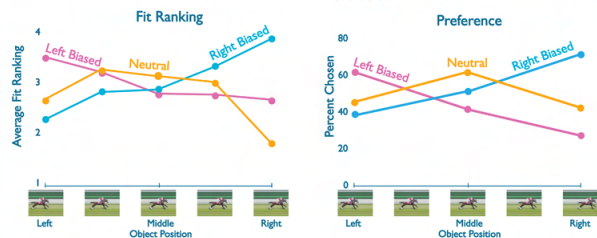
Fit experiment: Rank order images from best to worst fit for each title. Objects appeared at 5 positions (see above).

Preference experiment: 2AFC with all possible image-title pairs for all 3 titles and the best image for each title from Fit experiment. Objects appeared at 3 positions: the best Fit image for each title (Gardner & Palmer, VSS 2009).

Position & Context: Results

Image that fits best with one title fits the worst with another title.

"Non-default" object positions are more preferred, so long as they are justified by the title.

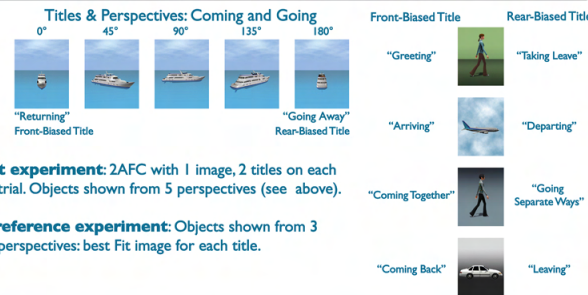


What accounts for preference of titled images?

Linear Regression Analysis shows that:

Fit between titles and images: 27.5% variance
Preference for titles alone: 15.2% variance
Total: 42.7% variance

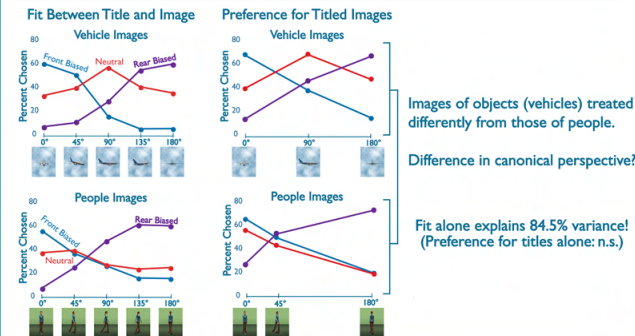
Perspective & Context: Design



Fit experiment: 2AFC with 1 image, 2 titles on each trial. Objects shown from 5 perspectives (see above).

Preference experiment: Objects shown from 3 perspectives: best Fit image for each title.

Perspective & Context: Results



Images of objects (vehicles) treated differently from those of people.

Difference in canonical perspective?

Fit alone explains 84.5% variance! (Preference for titles alone: n.s.)

Conclusions and Future Directions

Representational Fit unifies fluency with novelty and expectation violation.

Fluency is a specific case of Representational Fit in which the goal of the image is the "default" case: best presentation of the focal object (e.g., stock photography).

Future Directions

Manipulate context through image origin and categorization.
e.g., fine art, stock photograph, amateur snapshot

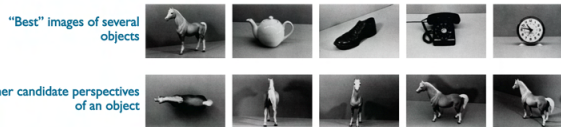
References & Acknowledgements

Estes, Z., Verges, M., & Barsalou, L.W. (2008). Head up, foot down: Object words orient attention to the objects' typical location. *Psychological Science*, 19(2), 93-97.
Gardner, J.S., & Palmer, S.E. (2009). Representational fit in aesthetic judgments of spatial composition. *VSS 2009*.
Gardner, J.S., Fowlkes, C., Nothelfer, C., & Palmer, S.E. (2008). Exploring aesthetic principles of spatial composition through stock photography. *VSS 2008*.
Khalil, S., & McBeath, M. (2006). Canonical representations: An examination of preferences for viewing and depicting 3-dimensional objects. *VSS 2006*.
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(3-5), 421-449.
Palmer, S.E., Rosch, E., & Chase, P. (1981). Canonical perspective and the perception of objects. In J. Long & A. Baddeley (Eds.), *Attention & Perception IX*. Hillsdale: Erlbaum.
Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: is beauty in the perceiver's processing experience. *Personality and Social Psychology*, 8(4), 364-382.

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Perspective & Context: Background

Canonical Perspective (Palmer, Rosch, & Chase, 1981)



Perspective and Preference (Khalil & McBeath, VSS 2006)

Canonical perspectives preferred in ratings of aesthetic response to images of everyday objects.

Research Question

As with position, can we shift preference for different perspectives with different titles?