Vision Science and the Liberal Arts

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AALAC Workshop, April 5-6, 2017

How does vision science fit within the liberal arts?

Art, Philosophy, Economics, Neuroscience, Sociology, Anthropology, Archaeology, Computer Science, Pop Culture, History, Phenomenology, Language, Graphic Design, Psychology, Optometry, Physics, Mathematics, Architecture, Perception, Navigation

Vision science is broadly appealing

We are all vision scientists

Goal of this workshop:

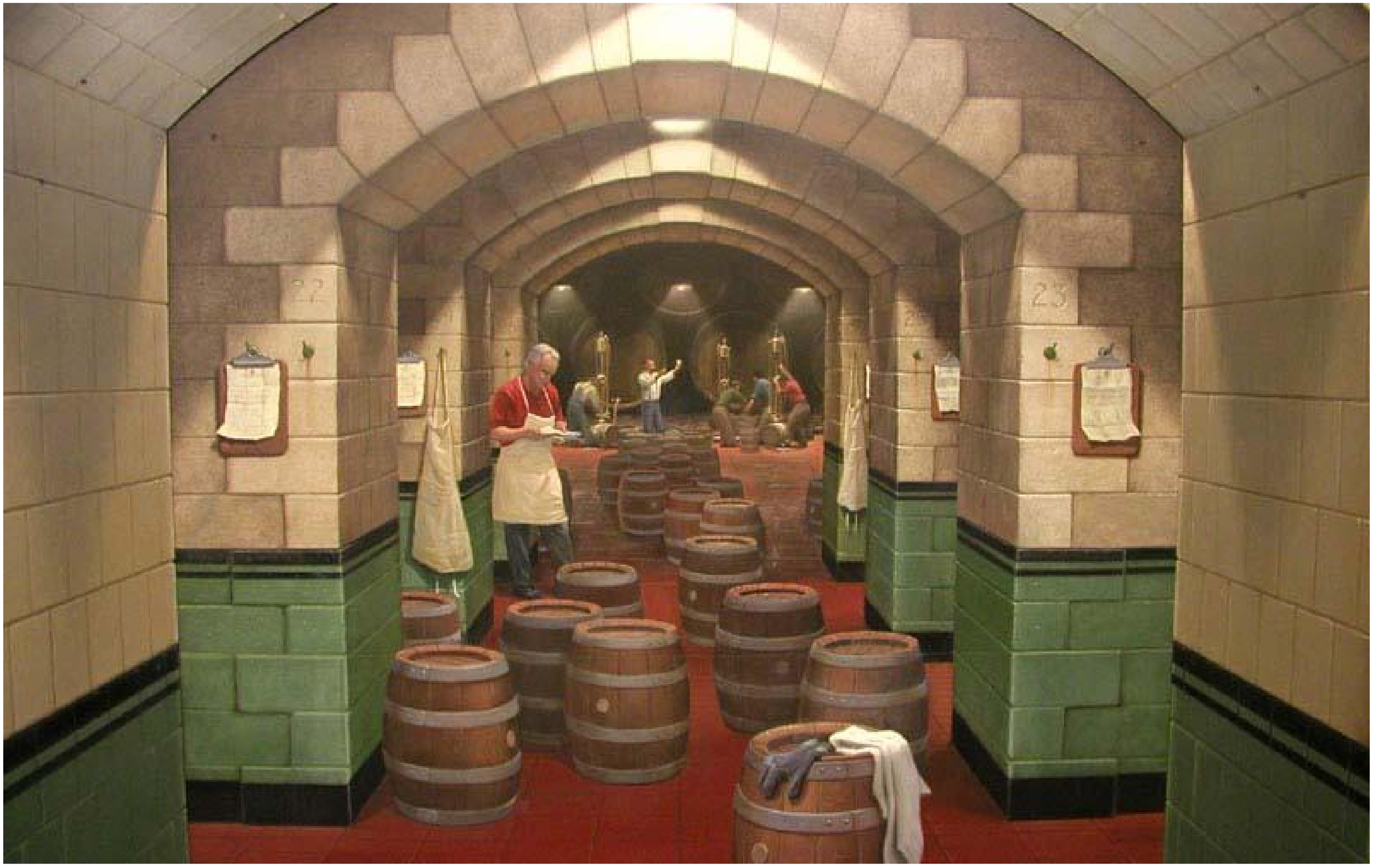
Explore the ways that art/philosophy/cinema and other disciplines can inform the vision sciences, and vice versa

Teaser

- Art
- Shadows and Reflections
- Linear Perspective
- Anamorphs
- Object Size and Distance

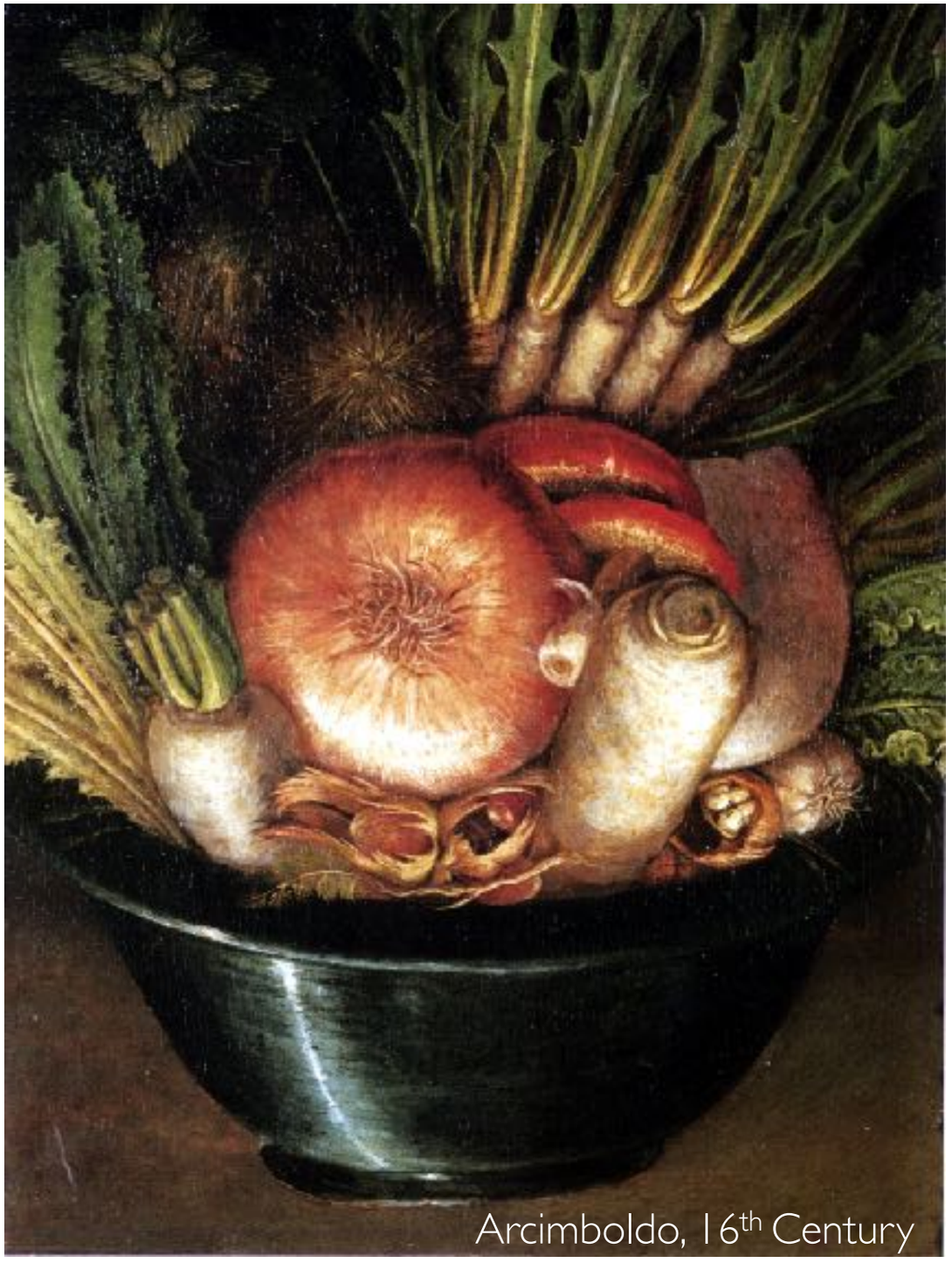
Art

Art



Art

Art



Arcimboldo, 16th Century

Art

Art

Georges Braque, 1906

The Incredibles

Pixar

Budget: $92 Million

Shadows and lighting: $ Millions & months of work.

Art informs us of the ‘rules’ of our perceptual systems

Reflections

Johannes Vermeer, 1665

Reflections

Reflections

Roland Fleming et al., 2004

Reflections

Linear Perspective

Linear Perspective: Geometry requires that parallel lines converge in the distance

Linear Perspective

Ruins at Myrtos Pyrgos, Greece

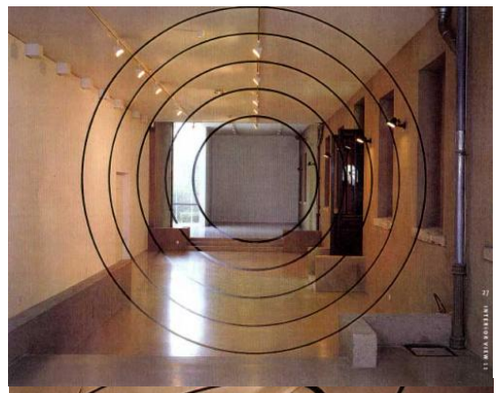
Linear Perspective

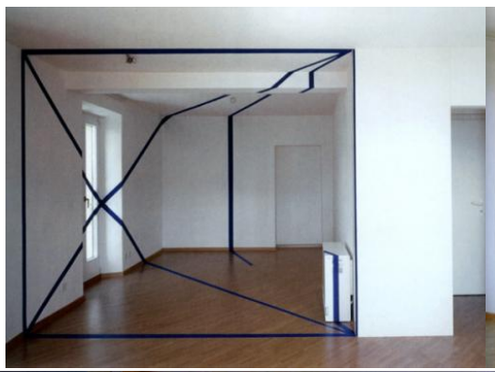
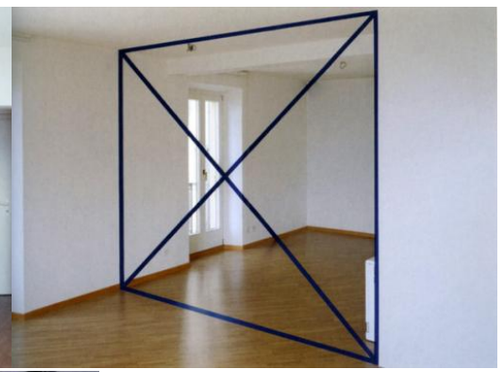
Perceptual rules can be manipulated in fun ways

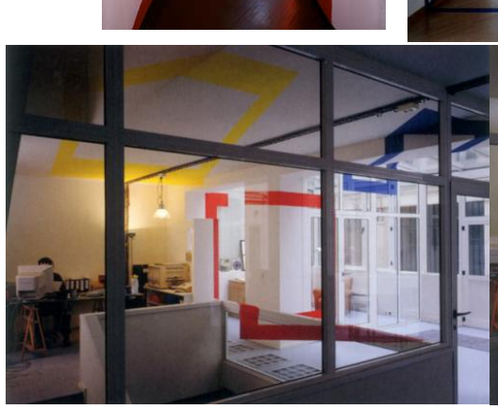
Anamorphs

Anamorphs







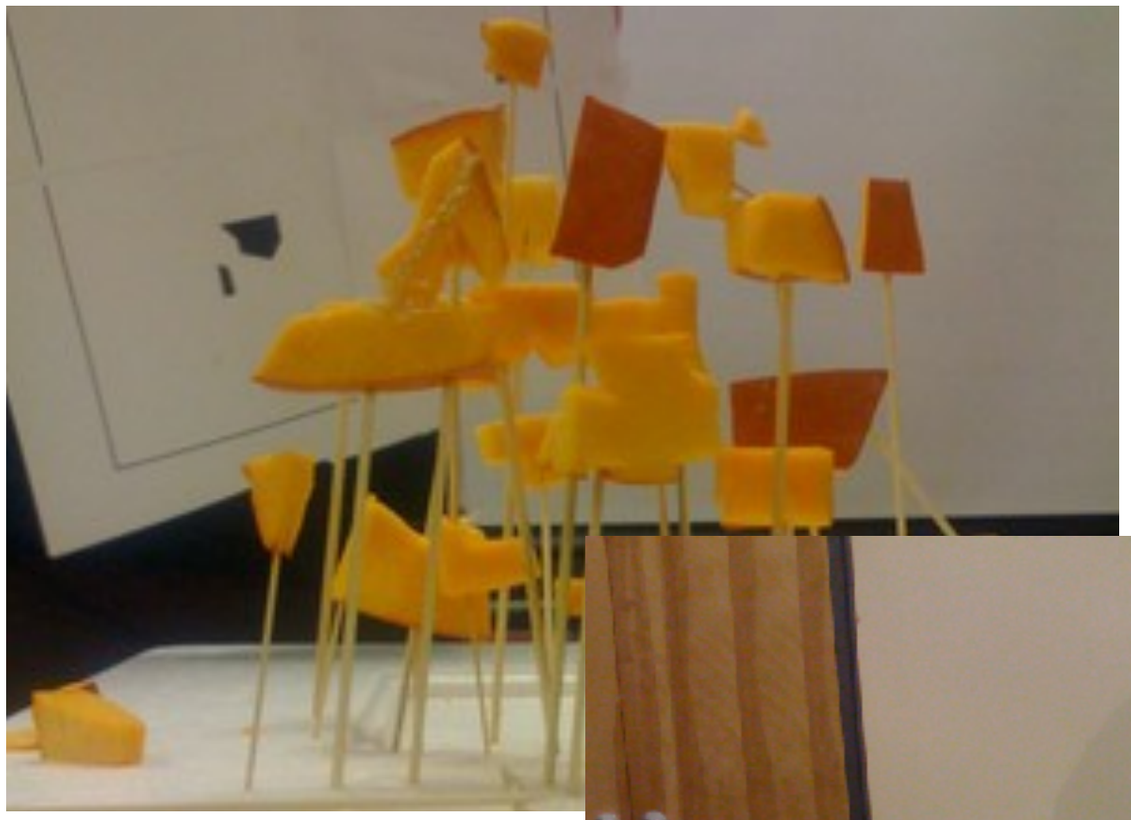

Anamorphs

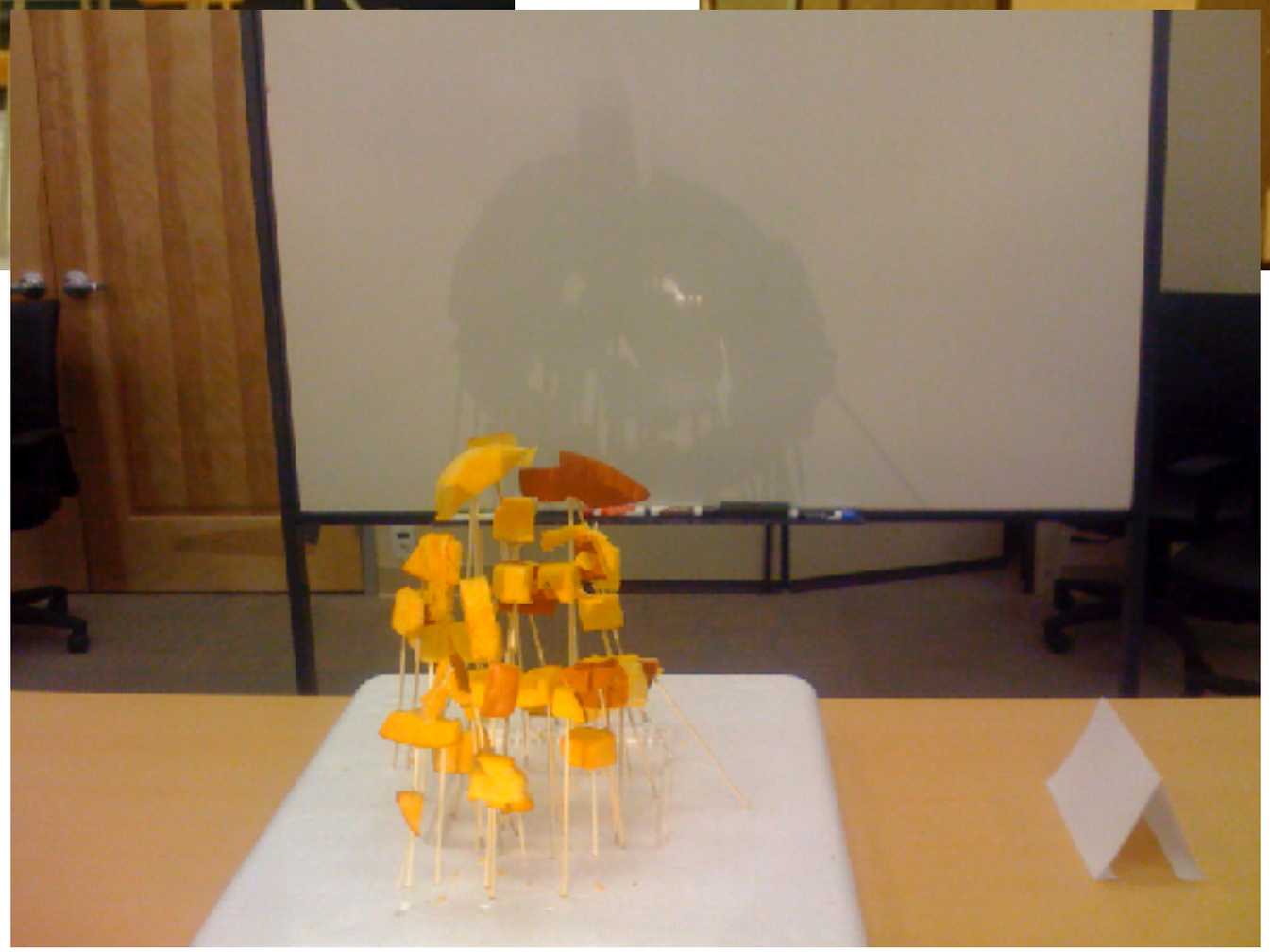
Anamorphic Projections (with Shadows!)

Fukuda

Anamorphs

Anamorphic Projections (with Shadows!)





Whitney Lab, 2008

Pop culture exploits perceptual rules to create ‘impossible’ situations

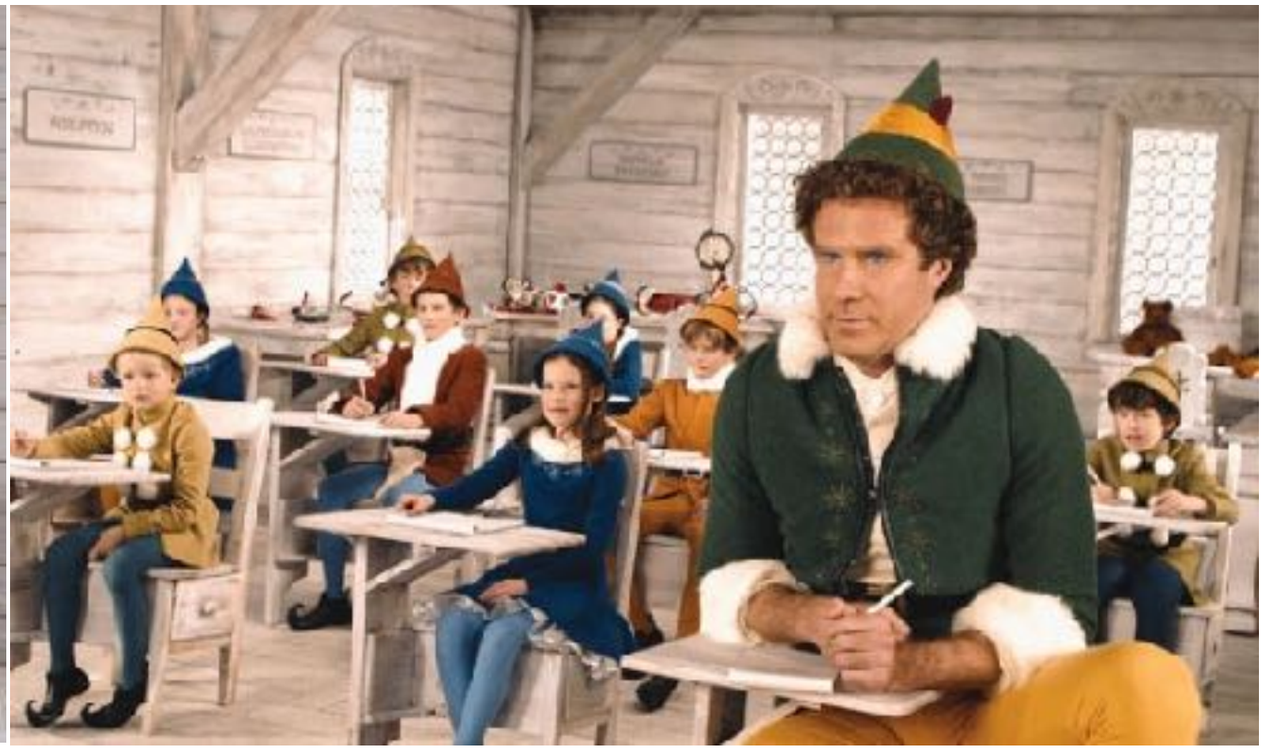
Object distance and size

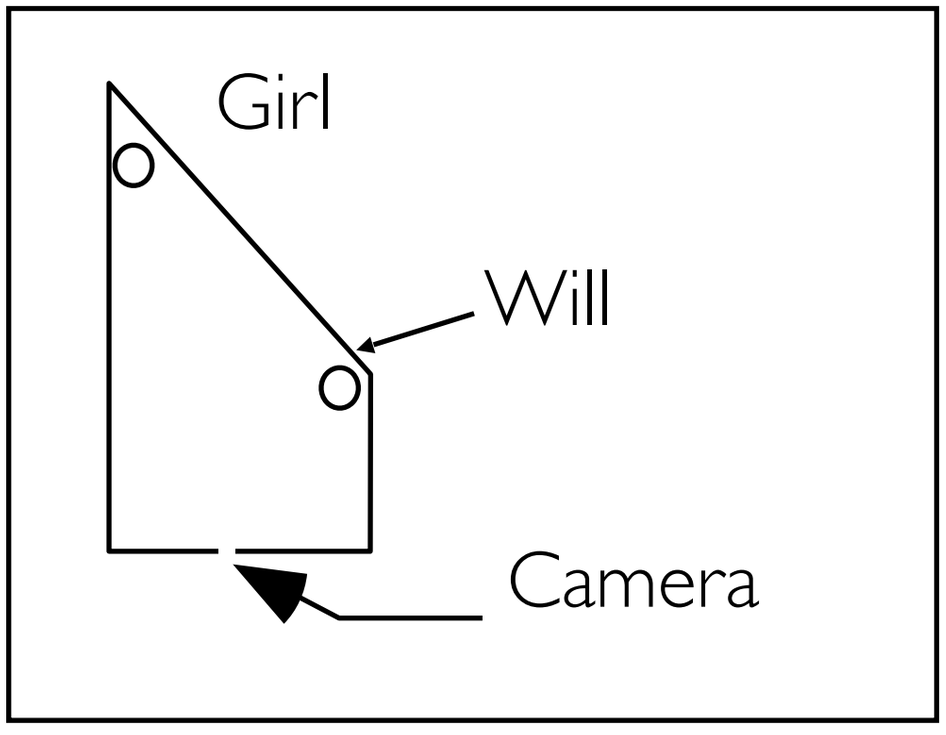
Emmert's Law

Perceived Size **α** = retinal image size (RI) X perceived distance (PD)

Object distance and size

Elf





Girl RI = small

Will RI = Big

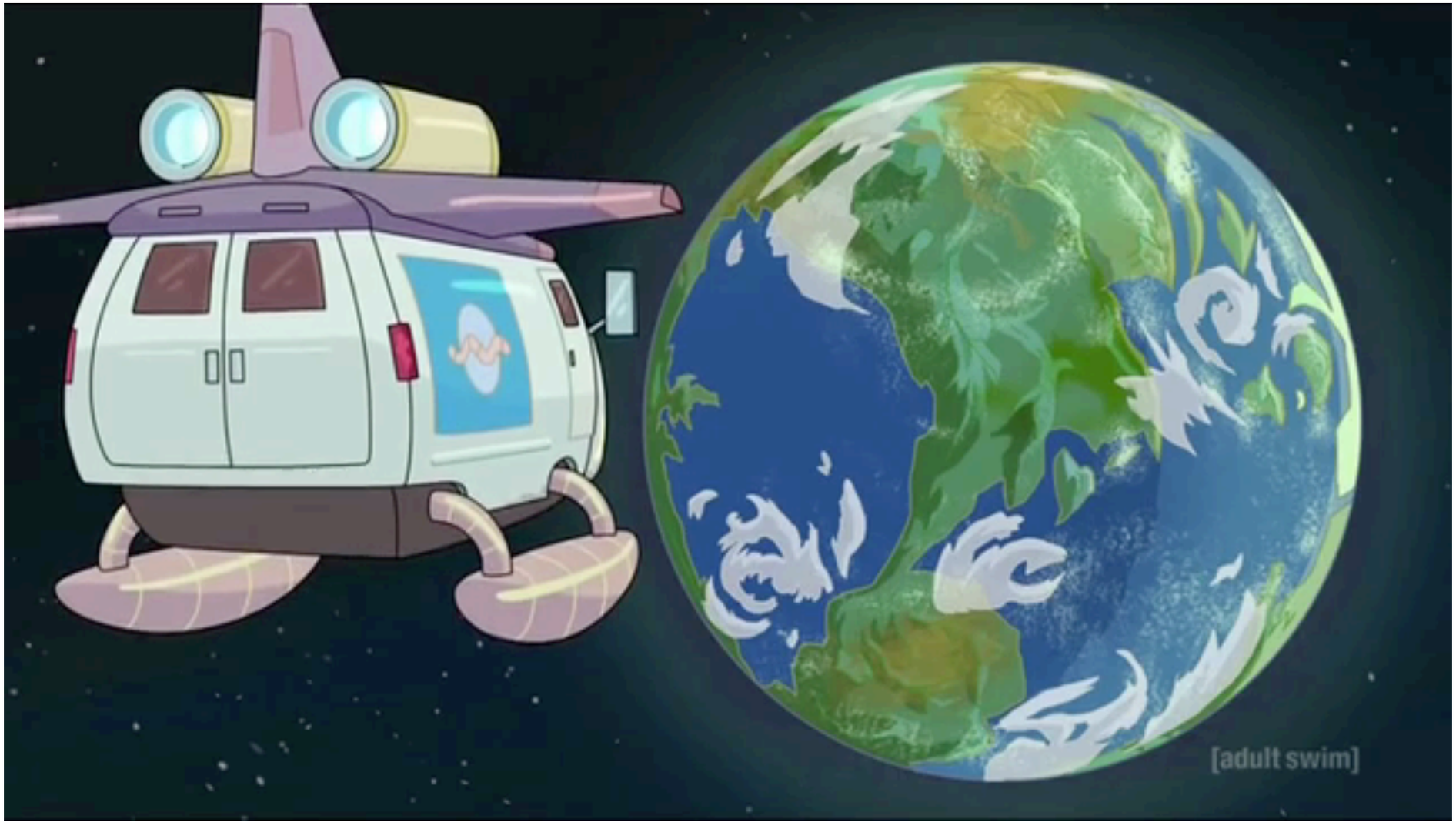
PD = Same for both girl and Will (special point of view!)

PS of Will = HUGE

Object distance and size

LOTR

Object distance and size



Rick and Morty, S2E10

Today and Tomorrow:

Aesthetic preferences, development, art, #thedress, functional organization, archaeology, cinema

We are all vision scientists — let's leverage our visual expertise to help us better understand the world

THANK YOU!