Perception

Review

Top-Down vs Bottom-Up

- Top-down processing involves our brain's experiences and expectations shaping our perceptions. Think of it as starting at the brain (top) and moving toward the eyes (down).
- Bottom-up processing starts at the sensors (eyes, ears, mouth, etc) and then goes to the brain in order to get understood. Think of how babies figure things out.

Perceptual Set

- This is simply our tendency to perceive one thing, rather than another. It's heavily tied to prior experiences, and is therefore a top-down process.
  - Example: Gestalt illusions usually reflect our perceptual set.

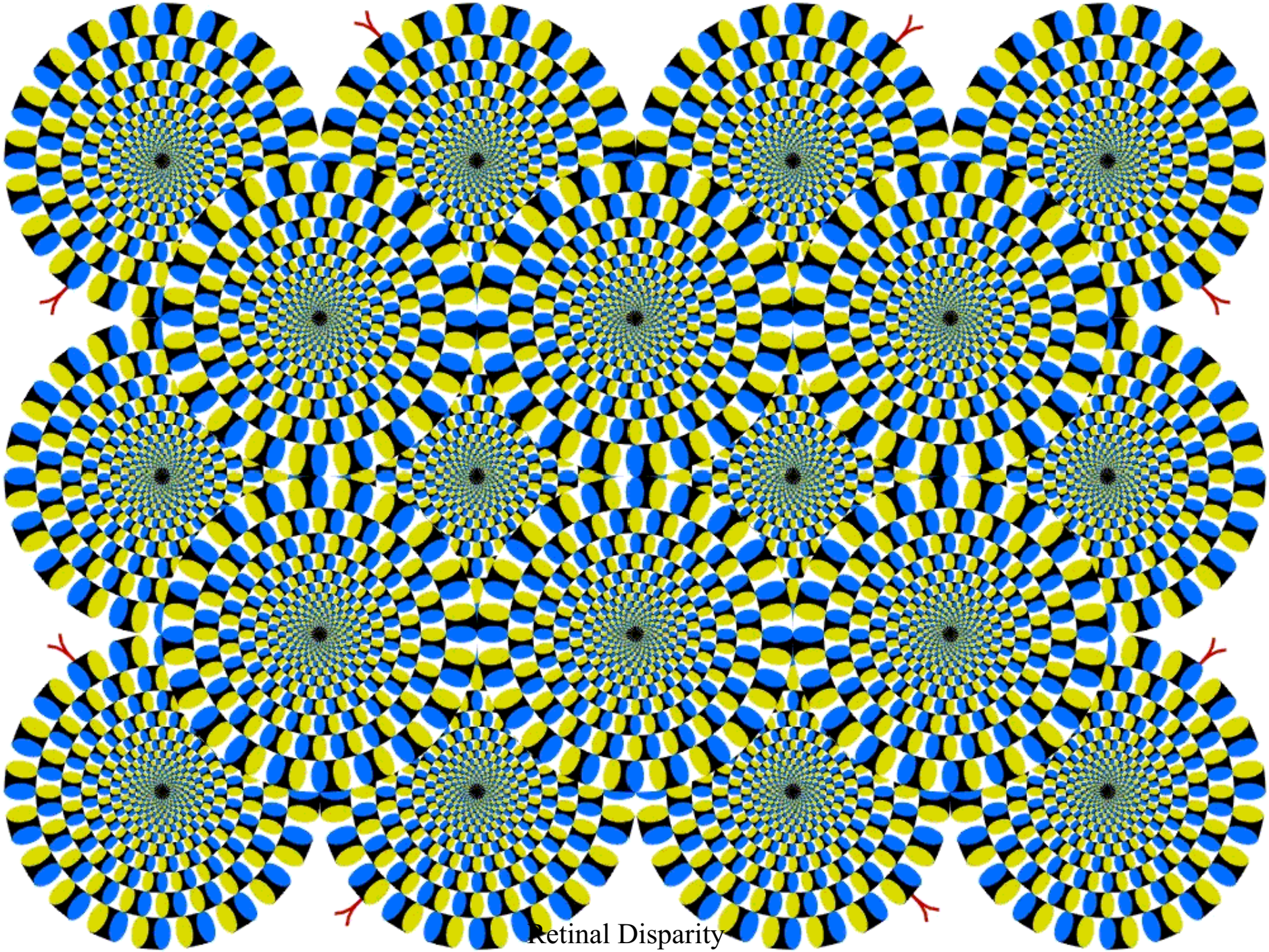
Mnemonic: you can associate **perceptual set** with the **prototypes** that make up the representativeness heuristic. Both start with P.

Distance Cues

- Distance cues come in two flavours.
  - Binocular cues. These rely on both eyes working together. Think of “binoculars,” with their two lenses.
  - Monocular cues. These occur in each eye independently. “Mono” means “one,” like…
    - Monoplane (having one wing).
    - Monotonous (at one volume).
    - Monotype (a Corsiva).
    - Monolith (one stone, standing by itself).

Binocular Cues

- Two main techniques:
  - Retinal disparity. This computes distance by measuring the differences in when and how light hits both retinas. "Disparate" means "different;" "parity" is another term for "equality."
  - Convergence. This occurs as things get closer to you. Your eyes **converge** inward; think of being cross-eyed as an example of extreme convergence. And they both conveniently start with C.



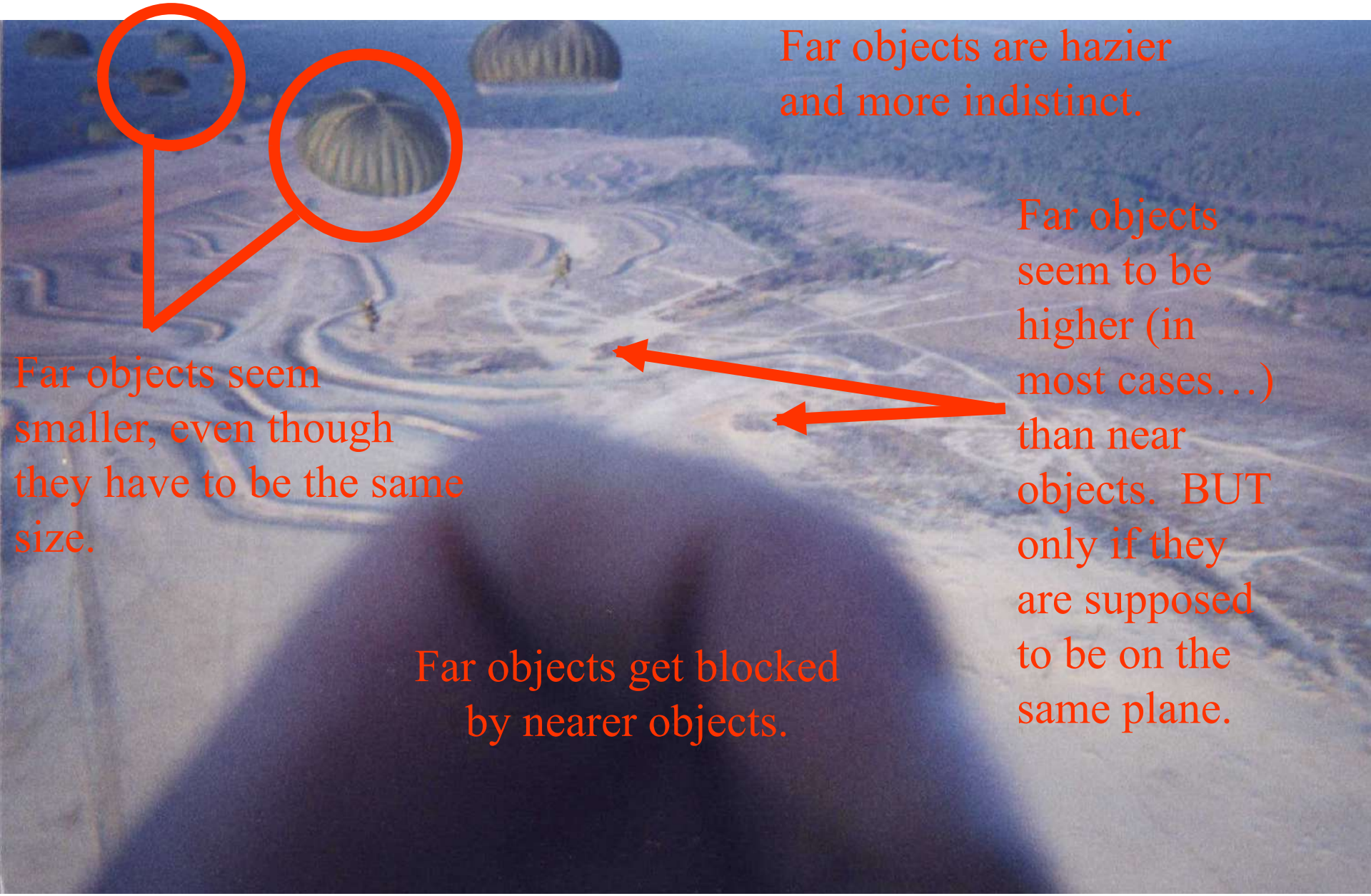
Retinal Disparity

Monocular Cues

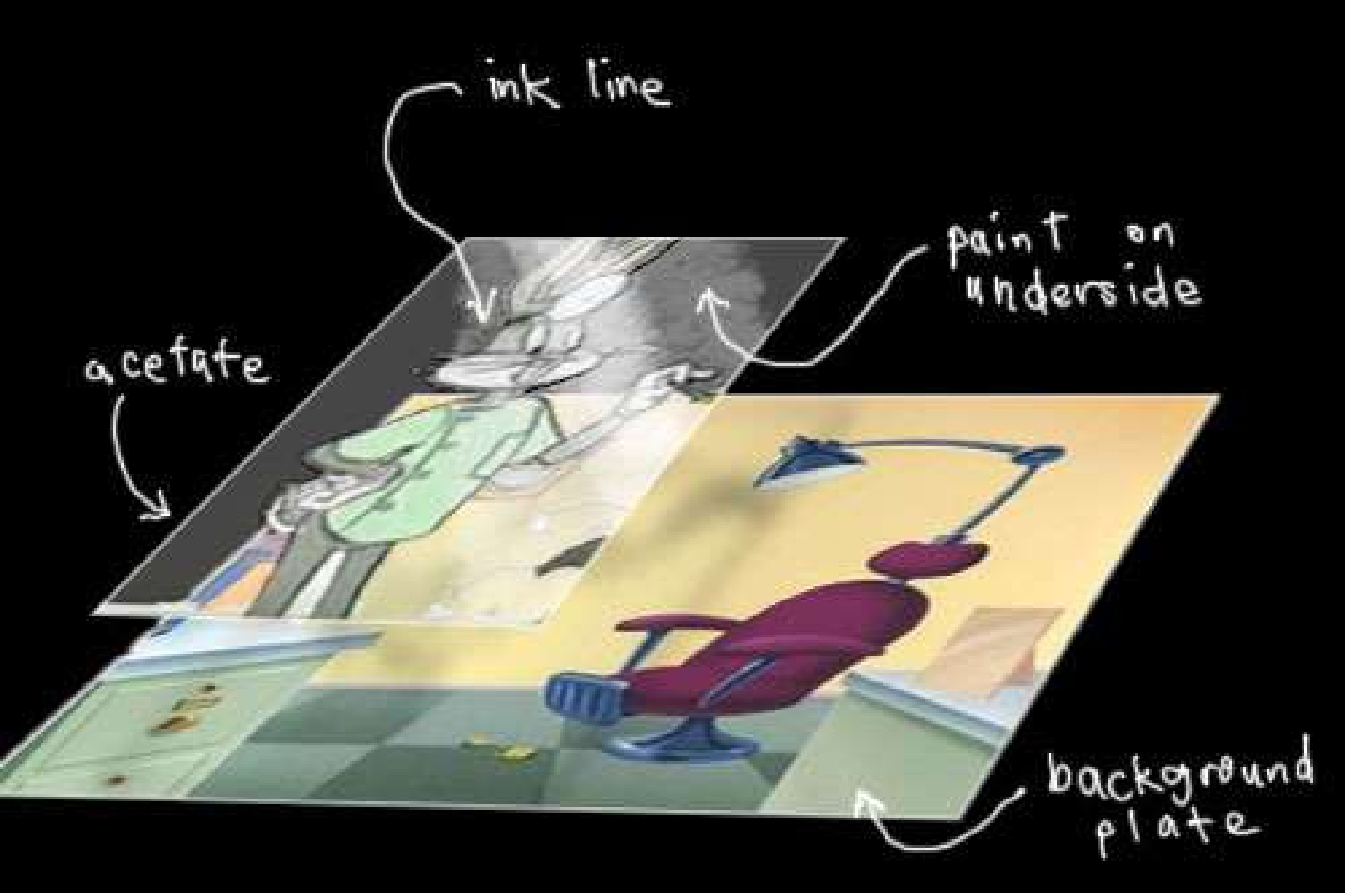
- These are tougher, but only because there are more of them.

- In what ways can you tell that depth exists in the following picture?

In general, dimmer objects are farther away… though not always.



How can you perceive depth?



Cartoons use monocular cues…

Mnemonics for Monocular Cues:

- Some of these are in your text, some are not.
  - Relative Size. Self-explanatory if you know what “relative” means.
  - Interposition. Think of “intermission.”
  - Relative Clarity. Same as relative size. This describes the “haziness” into which distant objects disappear.
  - Texture Gradient. Near objects are more finely-detailed than far ones. Think of paper, or pavement.

Mnemonics for Monocular Cues:

- Continued:
  - Relative Height. Same as all the other "relatives."
  - Relative Motion/Motion Parallax. Think of stars, which are moving much faster than they look.
  - Linear Perspective. Think of double lines on a highway, receding into the distance…
  - Light and Shadow. Similar to relative clarity and texture gradient, but deals with light reflection.