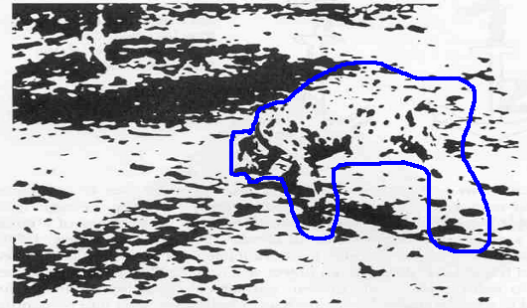


Perception: From Biology to Psychology

III. PERCEPTION: BIOLOGY TO PSYCH

A. Perception as Meaning Making

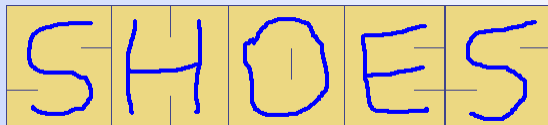
- What do you see?



III. PERCEPTION: BIOLOGY TO PSYCH

A. Perception as Meaning Making

- Perception is a process of **meaning-making** because we attach meanings to sensations.
- That is exactly what happened in perceiving the Dalmatian
 - Patterns of contrast were made meaningful by “seeing” a Dalmatian.
- Who sees shoes below?



III. PERCEPTION: BIOLOGY TO PSYCH

A. Perception as Meaning Making

- The view of perception as “meaning making”, where we try to figure out what sensations mean, challenges the folk psychological assumption of perfect perception: Perceiving exactly what is out there.
- Specifically, there is a price you pay in order to make meaning:
 - Ignoring differences that objectively exist in the proximal stimulus
 - Seeing differences that objectively do not exist in the proximal stimulus

III. PERCEPTION: BIOLOGY TO PSYCH

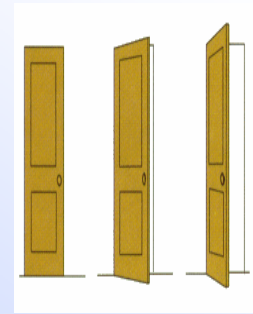
B. Consequences of Meaning Making

- **1. Constancies: Ignoring differences that exist in the projection of proximal stimuli on the retina.**
- **Size constancy:** The perceived size of an object is the same whether it is near by or far away
 - An elephant looks big even far away
 - An ant looks small even when close up.
- **Brightness constancy:** The apparent brightness of an object remains fairly constant despite changes in illumination?
 - A piece of paper looks to have the same brightness despite differences in illumination.

III. PERCEPTION: BIOLOGY TO PSYCH

B. Consequences of Meaning Making

- **Shape constancy:** The perceived shape of an object is independent of the angle from which it is viewed.
- An open and closed door each looks like a rectangle even though each projects a different shape on the retina..

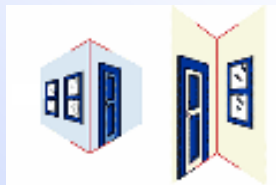
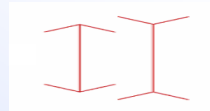


III. PERCEPTION: BIOLOGY TO PSYCH

B. Consequences of Meaning Making

- **2. Perceptual Illusions:** Perceiving differences that do not exist in the proximal stimulus.
- In the **Muller-Lyer** illusion we tend to perceive the line on the right as slightly longer than the one on the left because it appears to be further away,

Muller-Lyer Illusion

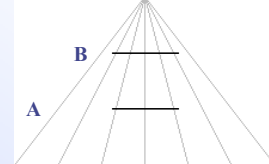


III. PERCEPTION: BIOLOGY TO PSYCH

B. Consequences of Meaning Making

- In the **Ponzo** illusion, we perceive B as larger than A.
- Depth cues make us correct our view of A's & B's size.
- The depth cues, like parallel railway tracks which appear to converge in the distance, makes B appear further away hence bigger.
- Two same-sized objects, with one appearing farther away, the one appearing farther away looks larger than the other

Ponzo Illusion



III. PERCEPTION: BIOLOGY TO PSYCH

B. Consequences of Meaning Making

- The folk psychological belief that we “see the world the way it is” is challenged by two phenomena so for:
 - 1. **Blind Spot:** There are holes in our perception of the world because no retinal stimulation can occur where the optic never leaves the eye, yet we don't see the hole.
 - 2. **Constancies & Illusions:** We do not see what it is there, rather we correct sensory experience in order to make it make sense:
 - Constancies: Doors are rectangular not trapezoid.
 - Illusions: Same-sized objects look different in size.

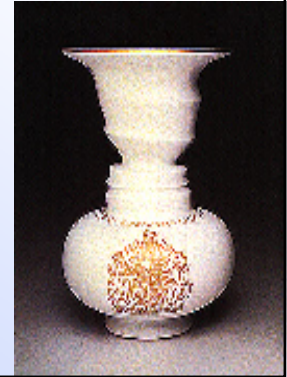
III. PERCEPTION: BIOLOGY TO PSYCH

C. Gestalt Psychology

In the 1940's **Gestalt Psychologists** began to examine perception not as a direct experience of reality, but as an act of interpreting reality.

The most significant contribution of the Gestalt Psychologists is the **figure/ground** distinction

What do you see: Face or Vase?



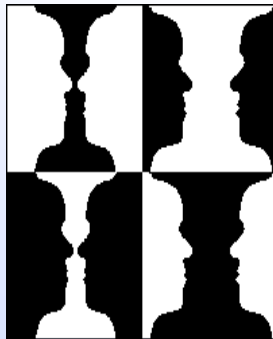
III. PERCEPTION: BIOLOGY TO PSYCH

C. Gestalt Psychology

Figure/ground phenomena show that identical patterns of retinal stimulation produce distinct perceptual experiences!

The figure in perception...

1. is more detailed and dense than ground.
2. appears to be in front of the ground.
3. has more form than ground, which just seems to go on forever.

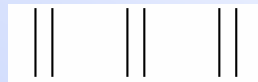


III. PERCEPTION: BIOLOGY TO PSYCH

C. Gestalt Psychology

Gestalts also identified other laws of perceptual organization, including the Law of Proximity and and of Similarity

What do you see...



Law of Proximity: Group together things that are next to each other.

What do you see...



Law of Similarity: Group together things that are similar to each other.

III. PERCEPTION: BIOLOGY TO PSYCH

D. Making Meaning: Depth Perception

- Perhaps the best example of how meaning is made in perception is how we judge depth.
 - While retinal stimulation is 2D, we see a 3D world.
- How do we extract depth information?
 - Two cues to depth: Monocular and Binocular cues.
- **Binocular cues.** Cues to depth or distance based on a both eyes together.
 - **Convergence:** Turning inward of the eyes, which occurs when they focus on a nearby object
 - **Retinal Disparity:** Slight differences in the information reaching each eye because of their separation.

III. PERCEPTION: BIOLOGY TO PSYCH

D. Making Meaning: Depth Perception

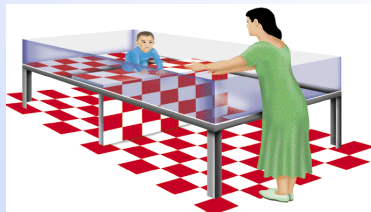
- **Monocular Cues:** Cues to depth or distance based on a single eye alone
 - **Interposition:** An object in front of another is closer.
 - **Relative Size:** Smaller of two similar-sized objects on the retina is further away.
 - **Texture gradients:** Distant parts of a uniform surface appear denser and less individuated.
 - **Linear Perspective:** Parallel lines will appear to converge in the distance
 - **Relative Clarity:** Distant object may appear to be hazier, duller, or less detailed than closer ones.

III. PERCEPTION: BIOLOGY TO PSYCH

E. Origins of Making Meaning

- Infants are born with the capacity to make meaning and see differences between many different types of perceptions.
 - They prefer faces but can discriminate many different patterns of lines.

Infants are not able to perceive depth until about 6-8 months old



III. PERCEPTION: BIOLOGY TO PSYCH

F. Influences on Meaning Making

- A number of factors influences what we see and how we see it.
- **Needs:** Biological needs affect perceptions.
 - Hunger cause people to see food faster and read food words faster.
- **Emotions:** Emotional states affect perceptions.
 - Children fearful in a dark room will see monsters and ghosts.
 - Pain is affected by emotions.
- **Beliefs:** What we hold to be true affects what we see.
 - Stereotypes work this way

III. PERCEPTION: BIOLOGY TO PSYCH

F. Influences on Meaning Making

- **Expectations:** Previous experiences affect what we see.
 - Perceptual Set: Typical way of perceiving based on expectations.
 - Role of Context (What letter is A?)

C
A A T
T

III. PERCEPTION: BIOLOGY TO PSYCH

G. Issues in Meaning Making

- **Two basic process in perception:**
 - **Bottom-up:** Process to detect and organize the features of the sensory stimulus
 - **Top-down:** Processes that use preexisting knowledge, expectancies, to direct attention to relevant features and to recognize an object

