EXTENDED SUMMARY

Lesson #4: Oct. 13th 2014

Lecture plan:
GESTALT PSYCHOLOGY

- Nature and fundamental principles
- Principles of perceptive structure
  - Pregnanz
  - Closure
  - Attitude
  - Attitude

Extended lesson summary:
Good reference material about Gestalt can be found in:
http://www.scholarpedia.org/article/Gestalt_principles

GESTALT PSYCHOLOGY

- Nature and fundamental principles

FOUNDERS OF GESTALT PSYCHOLOGY

Max WERTHEIMER  Kurt KOFFKA  Wolfgang KÖHLER
CONTEXTUALIZATION

- Reaction against associationist elementarism;
- "The basic thesis of gestalt theory might be formulated thus: there are contexts in which what is happening in the whole cannot be deduced from the characteristics of the separate pieces, but conversely; what happens to a part of the whole is, in clear cut cases, determined by the laws of the inner structure of its whole." Max Wertheimer, Gestalt theory. *Social Research, 11* (translation of lecture at the Kant Society, Berlin, 1924).
- Christian von EHRENFELS (Über Gestaltqualitäten, 1890): "there are aspects of experience that cannot be explained through the properties of the sensations, regarded as their constituents".

- Two examples:
  - *Hearing* – when we listen to a melody, we can recognize it even if it is played in another key – all the notes are different. The melody is a gestalt entity.
  - *Vision* -

![Image](image_url)

The brown circle on the left figure looks smaller because it is surrounded by larger blue circles. It happens because we see the inner and outer circles as a whole.

NOTIONS OF GESTALT PSYCHOLOGY ABOUT THE NATURE OF PERCEPTION:

- **Perception:**
  1. is the sensory knowledge of settings or organized wholes with meaning;
  2. is a body experience;
  3. it's always a meaningful experience;
  4. the world itself is organized into meaningful shapes and complex structures;
  5. the perceived world is qualitative, meaningful, structured and we're in it as active subjects;
  6. the perceived world is an inter-systemic world;
  7. perception takes place in a perceptive field: complex relationship between systems in a field of meanings;
  8. perception involves our whole personality;
  9. perception involves our social life;
  10. perception is a form of knowledge and action;
  11. perception is not a confusion of inferior ideas as postulated by the traditional view, but is a way to have sensitive ideas or perceived meanings;
  12. perception is prone to a special kind of error – the visual illusion.
• **Principles of perceptual grouping**
  - Perception develops from two aspects:
    o conditions linked to how the stimuli is presented;
    o properties inherent to our perceptive system.
  - Three trends organizers of the stimuli in meaningful wholes:
    1. **Perceptual discrimination**: involves the ability to perceive the world in terms of figures embedded in a background;
    2. **Perceptual grouping**: tendency of elementary stimuli to group in organized and meaningful wholes on the basis of a principle of pregnância (prägnanz) or good shape;
    3. **Principle of closure**: trend of our perceptual systems to fully perceive objects or figures that are in reality incomplete;

**FIGURE-GROUND ARTICULATION**

- Why we see things and not the empty space, that is, the spaces between them?
- Wertheimer (1923) "when an object appears in a homogeneous visual field, will have to be a differentiation of this stimulus (des-homogeneity) in order that the object can be perceived."

Can you see the dog?
Can you see the cat?

Can you spot the 14 faces?

White swans or black swans?
Ambiguous figures

Rubin figure
Figure/background on communication design

Can you see the arrow in the FEDEX logo? Idea if motion and speed.

**PRÄGNANZ OR GOOD SHAPE**
- Tendency for perceptual grouping of more regular shapes, more simple, symmetrical and orderly, understandable and easier to memorize;
- The form that conveys the essence of something.

**PERCEPTUAL GROUPING**
- Psychic facts are organic units that individualize and limit in spatial and temporal field of perception or of representation;
- Organic units are multiple units, arrangements, groupings, settings, which are organized perceptively from an active attitude on the part of the observer.
- Unit forming factors that influence how elements are grouped or organized in wholes.
- The laws of perceptual grouping are:
- **Similarity**: The principle of similarity states that, all else being equal, perception lends itself to seeing stimuli that physically resemble each other as part of the same object, and stimuli that are different as part of a different object. This allows for people to distinguish between adjacent and overlapping objects based on their visual texture and resemblance. Other stimuli that have different features are generally not perceived as part of the object. Our brain uses similarity to distinguish between objects who may lay adjacent to or overlap with
each other based upon their visual texture. An example of this is a large area of land used by numerous independent farmers to grow crops. Each farmer may use a unique planting style which distinguishes his field from another. Another example is a field of flowers which differ only by color.

- **Proximity**: The principle of proximity states that, all else being equal, perception tends to group stimuli that are close together as part of the same object, and stimuli that are far apart as two separate objects. This allows for the grouping together of elements into larger sets, and reduces the need to process a larger number of smaller stimuli. For this reason, people tend to see clusters of dots on a page instead of a large number of individual dots. The brain groups together the elements instead of processing a large number of smaller stimuli, allowing us to understand and conceptualize information more quickly.
- **Common fate;** When visual elements are seen moving in the same direction at the same rate (optical flow), perception associates the movement as part of the same stimulus. For example, birds may be distinguished from their background as a single flock because they are moving in the same direction and at the same velocity, even when each bird is seen - from a distance - as little more than a dot. The moving 'dots' appear to be part of a unified whole.

Similarly, two flocks of birds can cross each other in a viewer's visual field, but they will nonetheless continue to be experienced as separate flocks because each bird has a direction common to its flock. This allows people to make out moving objects even when other details (such as the objects color or outline) are obscured. This ability likely arose from the evolutionary need to distinguish a camouflaged predator from its background.

The law of common fate is used extensively in user-interface design, for example where the movement of a scrollbar is synchronised with the movement (i.e. cropping) of a window's content viewport; The movement of a physical mouse is synchronised with the movement of an on-screen arrow cursor, and so on.
CLOSURE

- The principle of closure refers to the mind's tendency to see complete figures or forms even if a picture is incomplete, partially hidden by other objects, or if part of the information needed to make a complete picture in our minds is missing. For example, if part of a shape's border is missing people still tend to see the shape as completely enclosed by the border and ignore the gaps. This reaction stems from our mind’s natural tendency to recognize patterns that are familiar to us and thus fill in any information that may be missing.

- Closure is also thought to have evolved from ancestral survival instincts in that if one was to partially see a predator their mind would automatically complete the picture and know that it was a time to react to potential danger even if not all the necessary information was readily available.

In real life:

- **Law of Good Continuation**: When there is an intersection between two or more objects, people tend to perceive each object as a single uninterrupted object. This allows differentiation of stimuli even when they come in visual overlap. We have a tendency to group and organize lines or curves that follow an established direction over those defined by sharp and abrupt changes in direction.
PRINCIPLE OF ATTITUDE (EINSTELLUNG)

- When an ambiguous arrangement is perceived as part of a sequence, this sequence installs an attitude (einstellung) which then will influence the way it resolves the ambiguity.

In the sequence above, the first figure from the left can easily be identified as a man’s face. The first figure from the right can be easily identified as a woman’s body. But the way the two figures in the middle are identified depends on we start to see the sequence.

Faro, 10/7/2014
Professor in charge of CU: