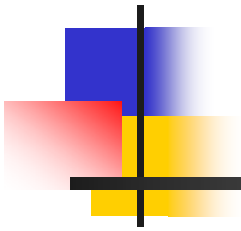
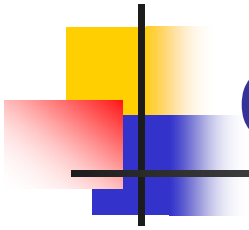


History of Cognition: Basic Principles



Overview

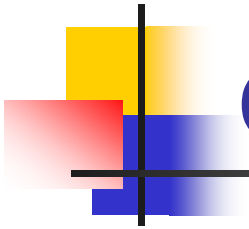
- Cognition

  - **Humans operate as "information processors"**

    (1) Environment provides data

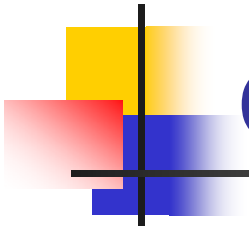
    (2) Some information selected for processing

    (3) Behavioral impact, attitude formation, etc.



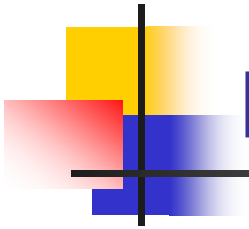
Overview

- **Mental representations**
  - Used to interpret and convey meaning
  - Two major facets
    - (1) the **format** used to represent concepts
    - (2) the **content** or meaning of concepts



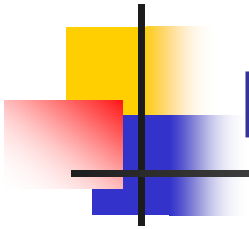
Overview

- **Mental processing**
  - Mental input generates mental output
  - Human-as-a-computer analogy
    - (1) Environment provides data
    - (2) Information selected for processing
    - (3) Behavioral impact, attitude formation, etc.



History

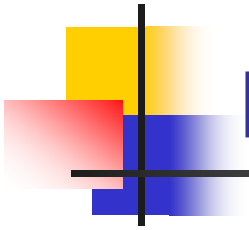
- **Wundt** (1879)
  - Established first psychological research laboratory in Germany
  - Many early psychologists started in Wundt's lab, including cognition researchers
  - Problem: used introspection to report functions of consciousness, memory, and attention



History

- **Ebbinghaus** (1879)
  - Nonsense syllables and "forgetting curve"
  - Like Wundt, also drew heavily on introspection
  - Used a singular test subject throughout his entire career – himself!

lig	bap	yug
deg	nos	fep
waz	sav	sab
pij	fiv	div
suz	dac	nes
wox	sij	pak
vug	kag	fov
huk	xuz	lim
suf	kuj	waf

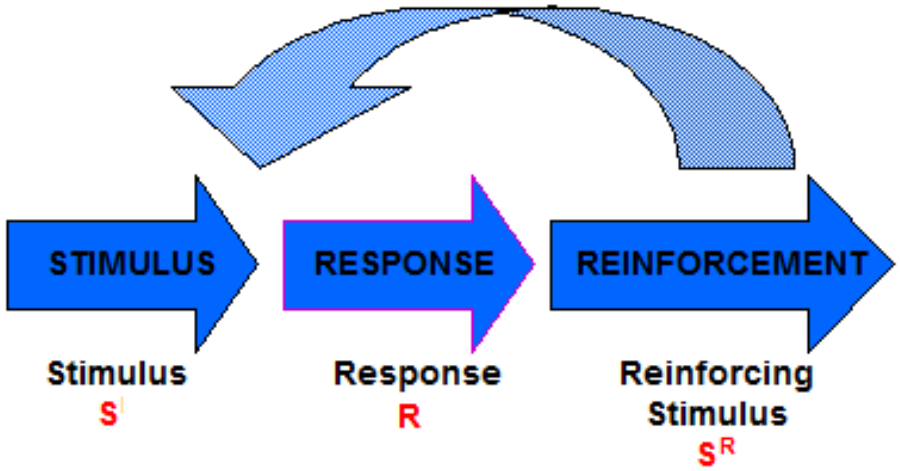


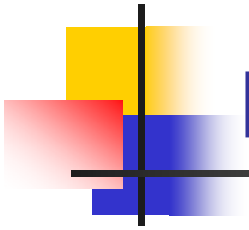
History

- **William James** (1879)
  - Also a student of Wundt's lab
  - Began career by asking questions like "Why?" (and not very successful answering them)
  - How does the mind adapt to new circumstances?
  - Proposed '*Functionalism*'

History

- **Behaviorism** (1910-1960s)
  - Major paradigm in psychology for decades
  - Mind as a 'black box'
  - Stimulus ⇨ Response model



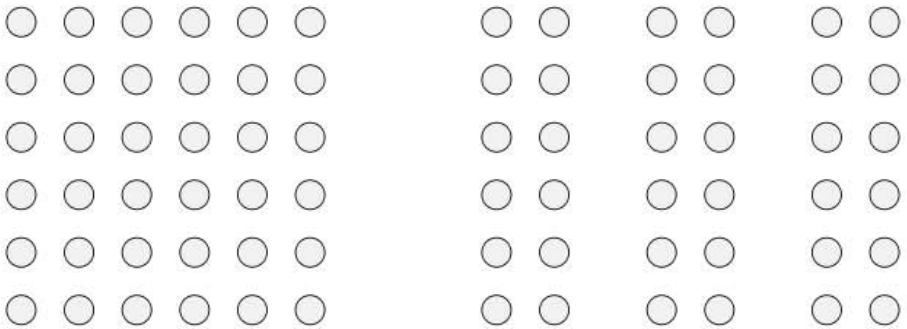


History

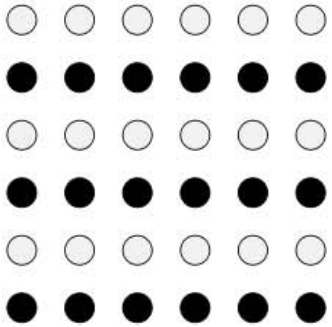
- **Gestalt psychology** (1920s-1940s)
  - The mind reacts to external stimuli as a whole, rather than the sum of their parts
  - How we interpret stimuli is what matters

Gestalt Grouping Principles

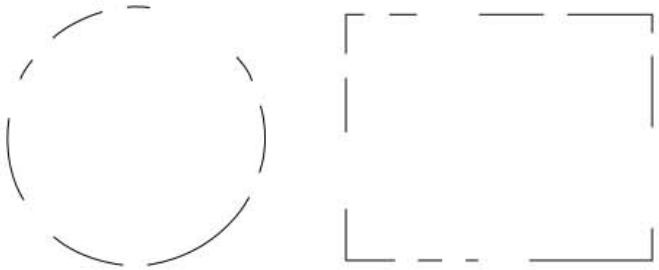
Law of Proximity



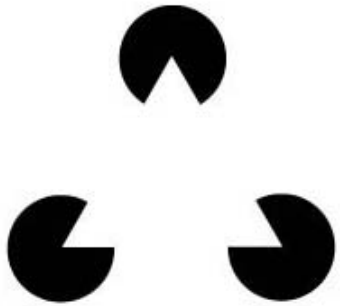
Law of Similarity



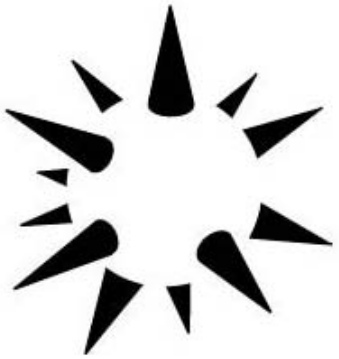
Law of Closure



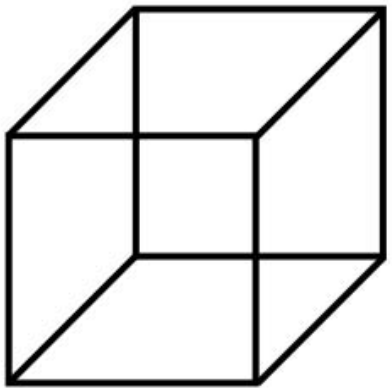
Law of Continuity

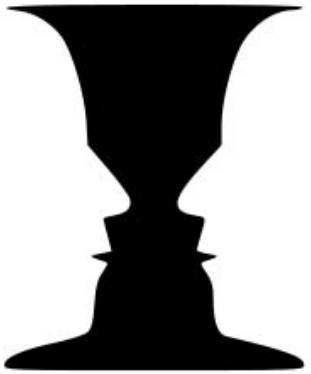


Reification

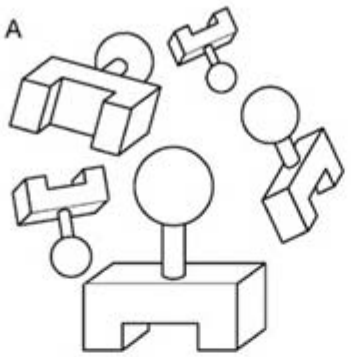


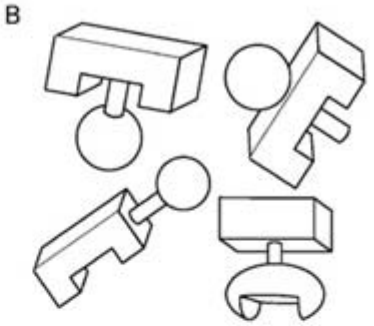
Multistability

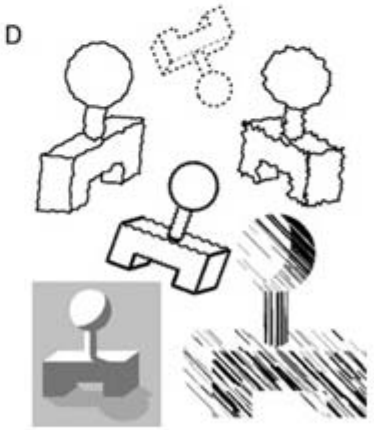


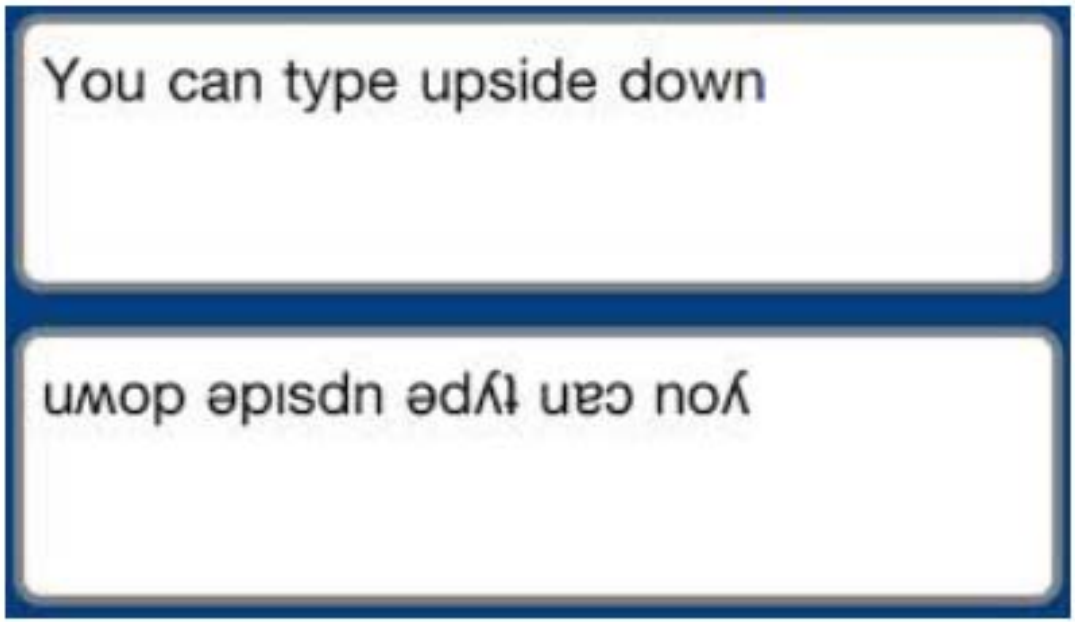


Invariance








You can type upside down
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IF YOU CAN READ THIS, YOU HAVE A STRONG MIND

TH15 M3554G3
53RV35 T0 PR0V3 H0W 0UR M1ND5
C4N D0 4M4Z1NG TH1NG5.
1MPR3551VE TH1NG5.
1N TH3 B3G1NN1NG 1T WA5 H4RD BUT N0W,
0N TH15 L1N3 YOUR M1ND 1S R34D1NG
4UT0M4T1C4LLY W1TH 0UT 3V3N
TH1NK1NG 4B0UT 1T, B3 PR0UD.
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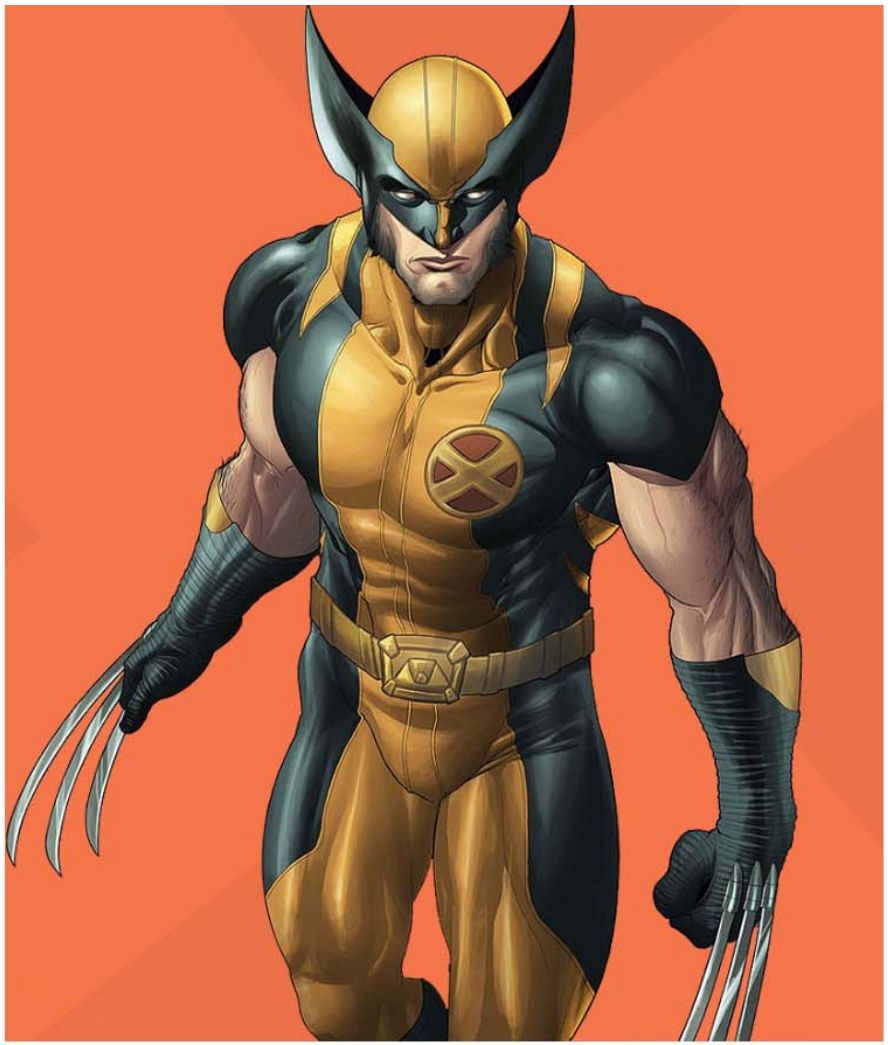
HIT (LIKE) AND SHARE IF YOU CAN UNDERSTAND

WOLVERINE?....

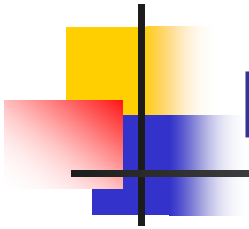
OR 2 BAT MEN?



WOLVERINE?....

OR 2 BAT MEN?

Maple leaf or two faces arguing?

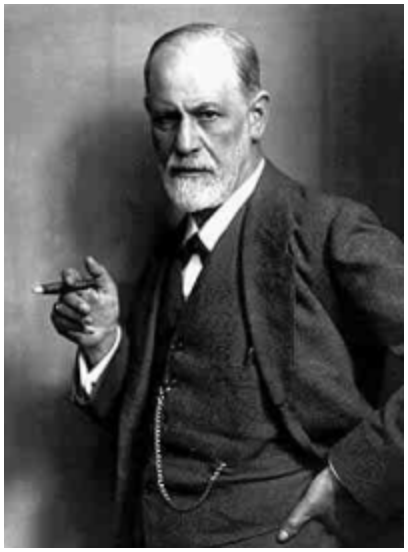


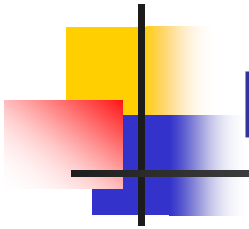
History

- Human performance and mental health (1940s)
  - Scientists from different fields during WWII joined efforts on human cognition
  - Many military studies on attention/perception
    - Best practices to train soldiers to use radio and radar, signal detection, sonar…

History

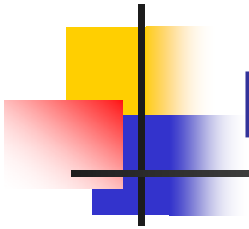
- Other perspectives: Psychoanalysis (1910-1950s)
  - Freud
    - Existed
    - Now he doesn't
  - Moving on…





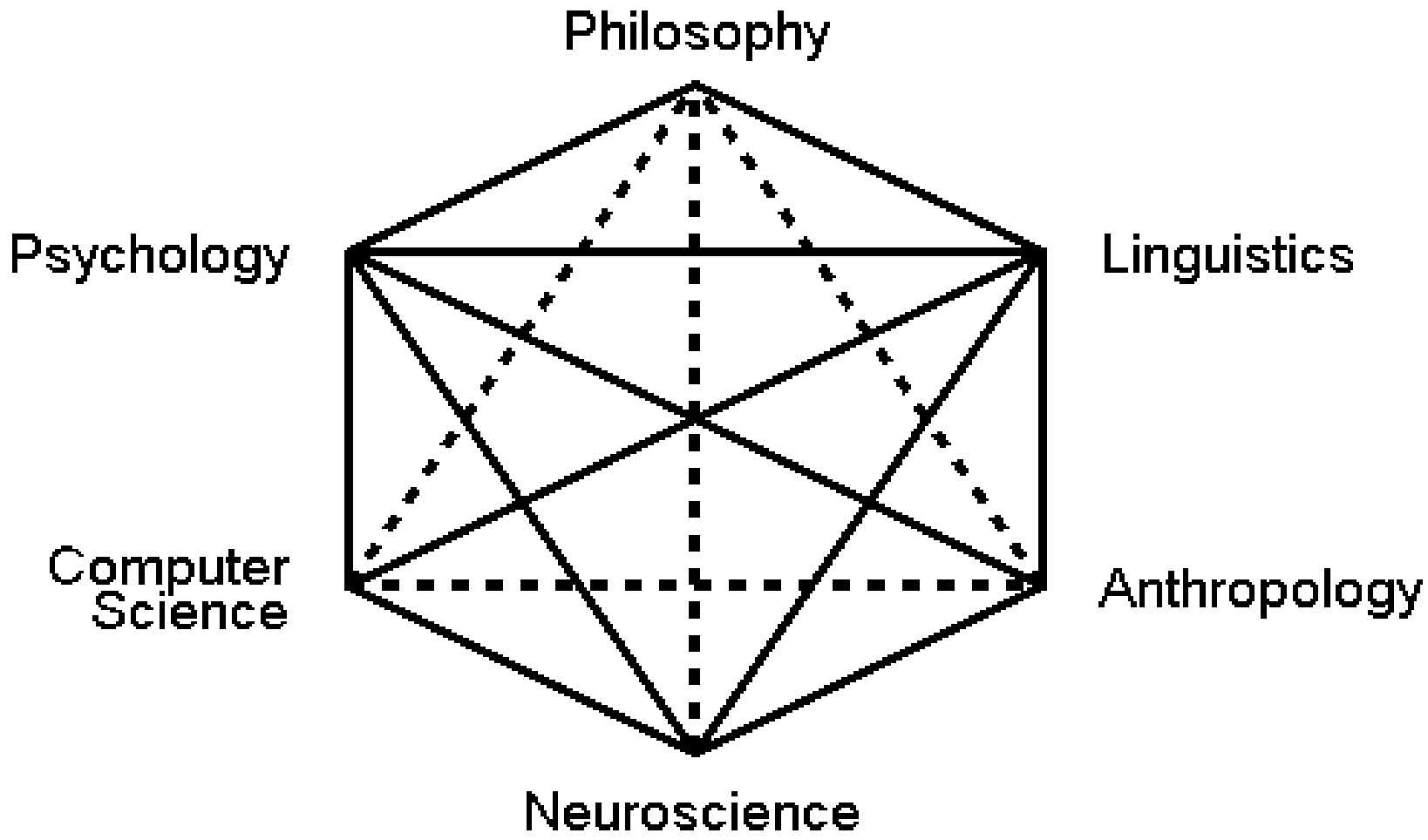
History

- **Artificial intelligence** (1940s-present)
  - How can we make computers behave intelligently?
  - Human-technology interface
- **Linguistics** (1950s)
  - Interest in cross-cultural language development
  - Behaviorism fading as new models emerge for language acquisition and complexity (e.g., Chomsky)



History

- **Cognitive revolution** (1960s)
  - Increased dissatisfaction with Behaviorism
  - Convergence of several fields during WWII (linguistics, human performance, AI)
  - Mental processes/structures CAN be revealed, studied, and predicted through proper observation and measurement


Philosophy
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Linguistics
Computer Science
Anthropology
Neuroscience