

- “Time flies when you’re having fun”
- “So much to do, so little time”
- “A watched pot never boils”
- “The bad news is time flies. The good news is you're the pilot”
- “Time is too slow for those who wait, too swift for those who fear, too long for those who grieve, too short for those who rejoice, but for those who love time is eternity”
- “The distinction between past, present and future is only an illusion, however persistent”

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### Time is of the essence

- Physical time
  - units
- Organization & Information
  - meals, classes, etc.
  - change
    - sudden onset
    - movement
  - order of occurrence

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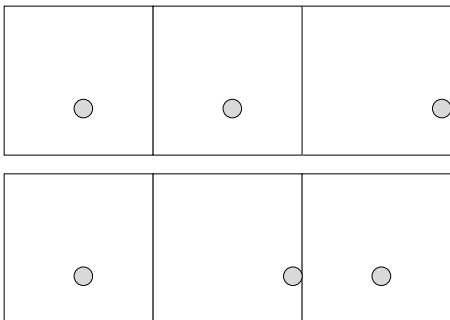
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## Time & Space

- Tau Effect
- Kappa Effect
- Display Size

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## Time Perception

- Where is the receptor that registers the passage of time?
- “events”
- Visible Persistence
- Temporal Summation

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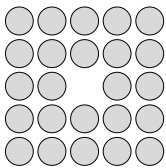
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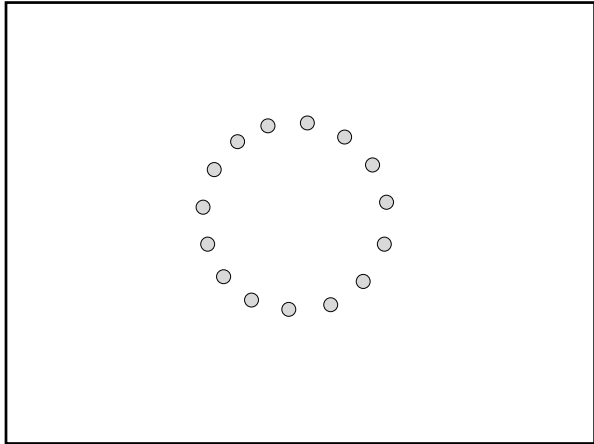
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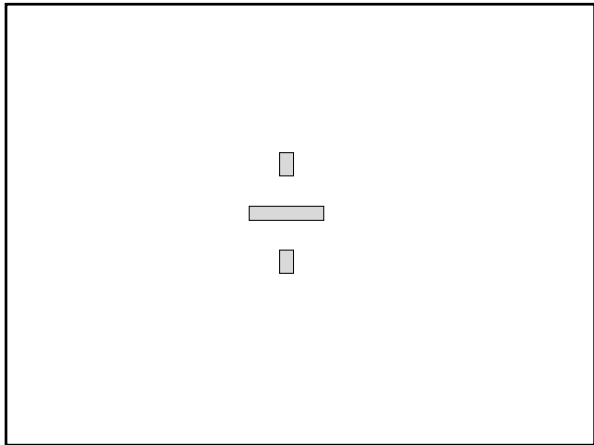
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- Spotlight of attention
- Spatial Analyses
  - Local
  - Global
- Need for processing time



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## Biological Clock

- circadian rhythms
  - light is the primary zeitgeber
  - entrainment
  - free-running experiments
  - temperature
    - body
    - external
  - time of day studies
    - autopilot

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## Biological Mechanism

- Suprachiasmatic Nucleus (SCN)
  - hypothalamus near optic chiasm
- Pineal Gland – melatonin (Dracula hormone)
  - depresses body temp. and facilitates sleep onset

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## Passage of Time

- Units of Psychological Time
  - perceptual moments
- Biological pacemaker
- Cognitive clocks

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## Biological Pacemaker

- speed of physiological processes dictate perception of passage of time
  - Hoagland (1933) – wife with fever ( $98^{\circ} = 52s$ ,  $103^{\circ} = 37.5s$ )
  - Baddeley (1966) – scuba divers ( $97.39^{\circ} = 64.48s$ ,  $95.03^{\circ} = 70.44s$ )
- fatigue or anaesthetic gases – slow processes, shorten perceived time interval
- stimulants – accelerate processes, lengthen perceived time interval

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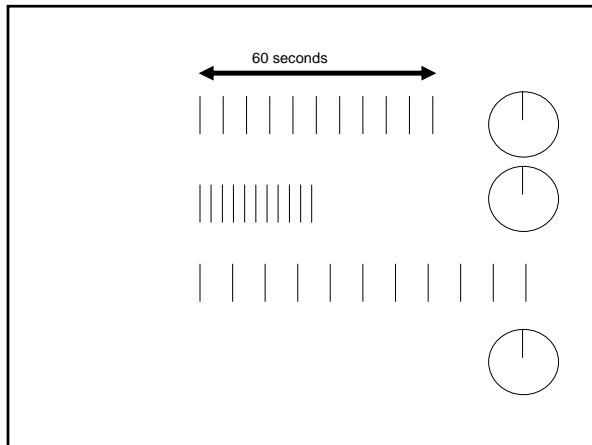
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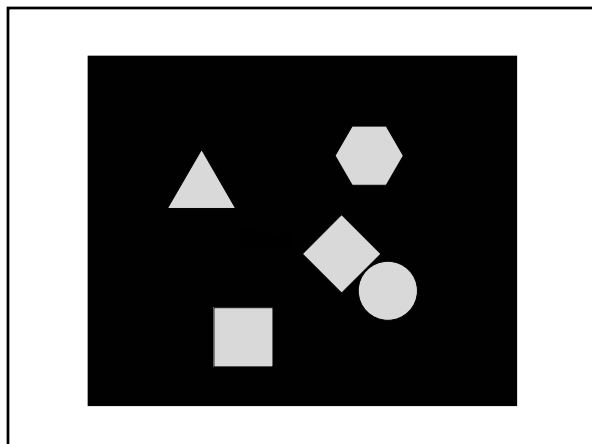
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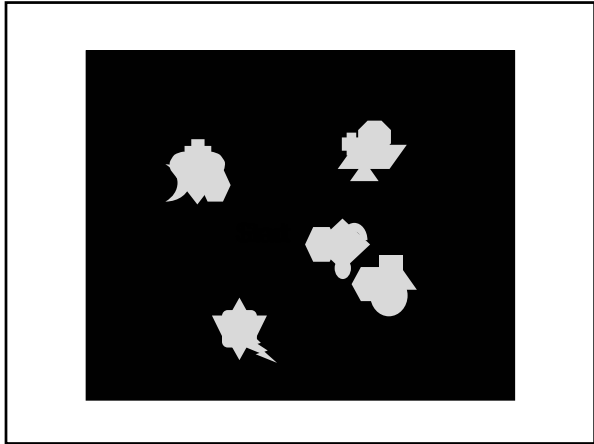
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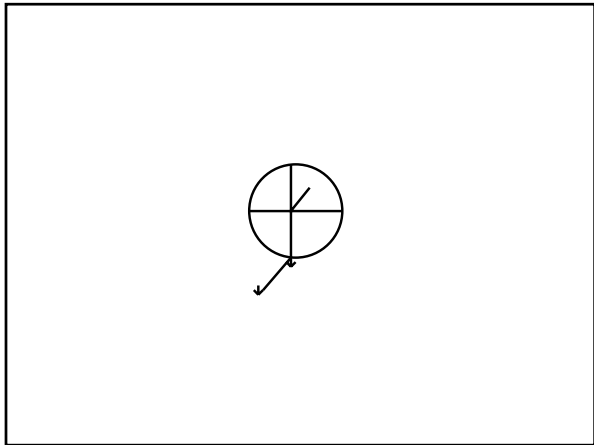
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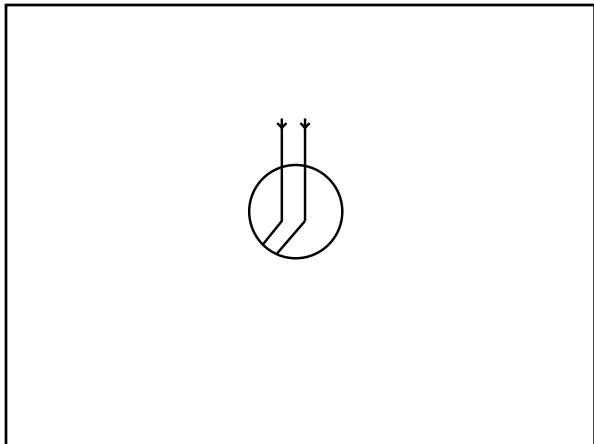
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## Cognitive Clocks

- # of events – more events, interval judged longer
- stimulus complexity – more complex, interval judged longer
- memory – more items or better remembered, interval judged longer

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## Attending to Time

- “Time flies when you’re having fun”
- “A watched pot never boils”
- Temporal processing model
  - information processor
  - cognitive timer

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## Age and the passage of time

- As we get older time seems to pass more quickly
  - ratio explanation
  - dopamine

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