# Designing Interactive Systems I

## A04 and Week 5 Discussion; Introduction to Week 6 and A05

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Winter term 2019/2020
**http://hci.ac/dis**

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# In-Class Exercise: Memex, Sketchpad, and NLS

- What are some features of Memex, Sketchpad, and NLS that we **currently** use? How have these features **evolved?**

- What are the features from these systems that do **not** currently exist? Why do you think they do not exist?



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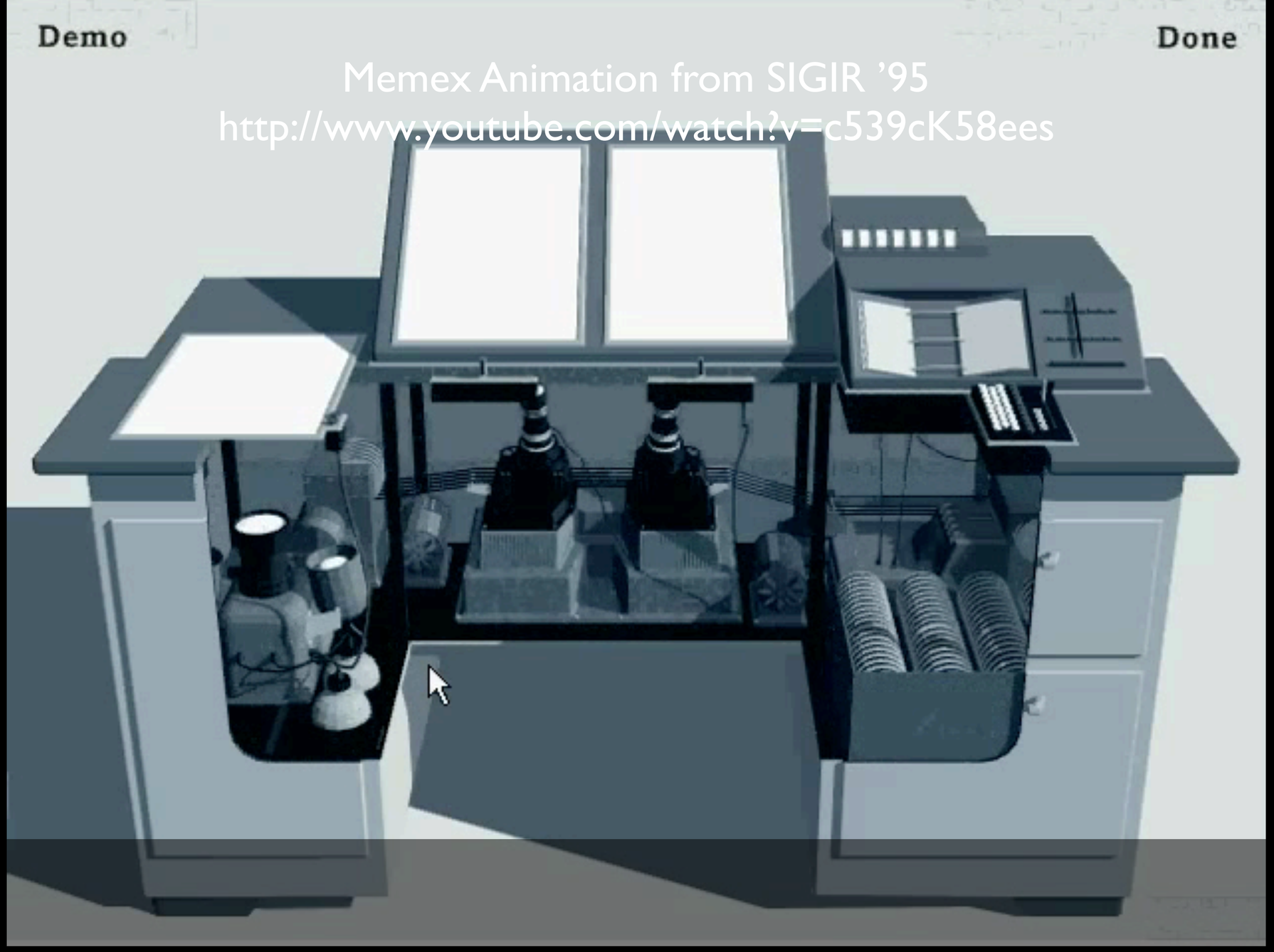


Memex Animation from SIGIR ’95
http://www.youtube.com/watch?v=c539cK58ees



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**Part 1: https://www.youtube.com/watch?v=USyoT_Ha_**
**Part 2: https://www.youtube.com/watch?v=BKM3CmRq**

**Mother of All Demos: https://www.youtube.com/watch?v=yJDv-z**



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# Midterm Exam Preparations



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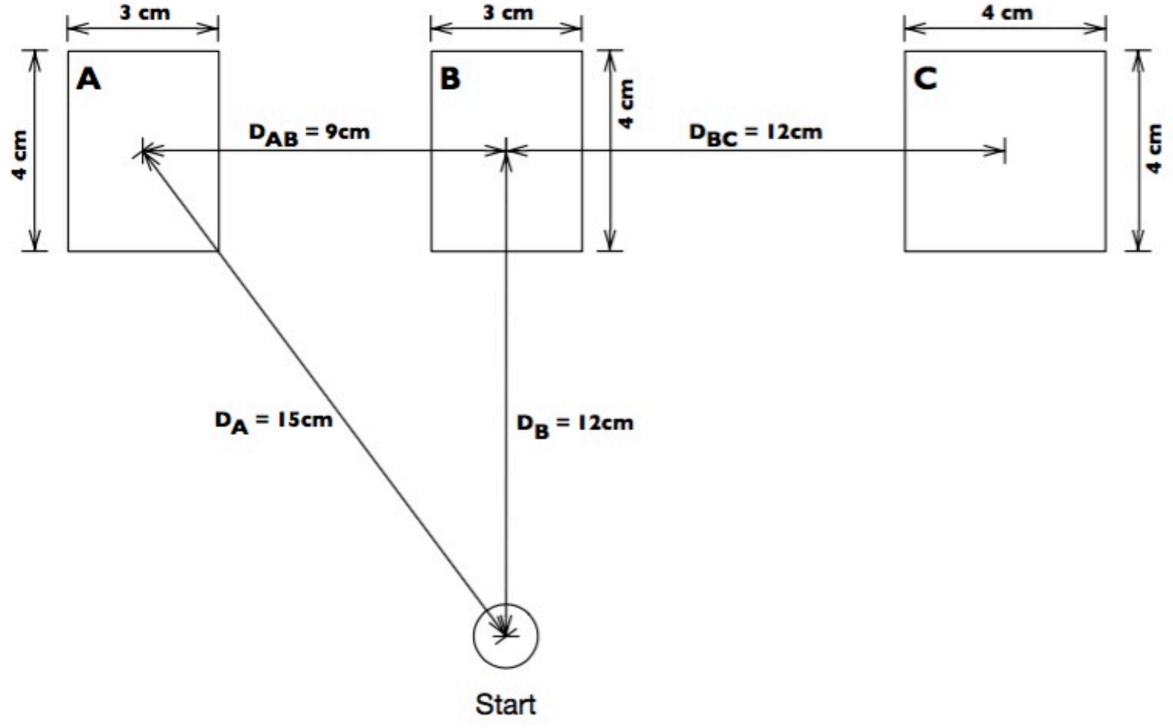
5. [9 points] Philipp is about to buy a new input device for his shooter games. He can either choose *SuperMouse* or *CheapMouse* that can only register horizontal and vertical movements. To make a decision, he applies a *Fitts' Law* test for the game screen shown below in which he has to click targets in a sequence.

   Philipp uses *Shannon's* formulation of Fitts' Law ($\mathbf{M_T = a + b * log_2(\frac{D}{W} + 1)}$) and knows the device specific parameters:

   **SuperMouse: a = 0 ms, b = 100** $\frac{ms}{bit}$

   **CheapMouse: a = 0 ms, b = 80** $\frac{ms}{bit}$




(a) [4 points] Using *SuperMouse*, Philipp clicks the targets along the following path: **Start** $\rightarrow$ **A** $\rightarrow$ **B** $\rightarrow$ **C**. Identify the corresponding $D$ and $W$ values (in cm) for Shannon's formula **and** calculate the total movement time.

| | S→A | A→B | B→C |
|---|---|---|---|
| D | | | |
| W | | | |

$M_T =$

(b) [4 points] Since *CheapMouse* cannot register diagonal movements, Philipp uses a different path for this device: **Start** $\rightarrow$ **B** $\rightarrow$ **C** $\rightarrow$ **A**. Identify the corresponding $D$ and $W$ values (in cm) for Shannon's formula **and** calculate the total movement time.

| | S→B | B→C | C→A |
|---|---|---|---|
| D | | | |
| W | | | |

$M_T =$

(c) [1 points] If Philipp had chosen the remaining path **Start** $\rightarrow$ **B** $\rightarrow$ **A** $\rightarrow$ **C** for *CheapMouse*, would $M_T$ be different compared to (b)? Justify your answer! (**No calculation necessary!**)

| a) | S→A | A→B | B→C |
|---|---|---|---|
| D | 15cm | 9cm | 12cm |
| W | 5cm | 3cm | 4cm |

$$M_T = 600ms$$ or: 200, 200, 200

| b) | S→B | B→C | C→A |
|---|---|---|---|
| D | 12cm | 12cm | 21 cm |
| W | 4cm | 4cm | 3cm |

$$M_T = 560ms$$ or: 160, 160, 240

c) Yes, because different direction of movement: different distance/width ratio



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# Slips

- Marcel is receiving a phone call. Instead of grabbing his button cell phone, he accidentally picks up the calculator.

  Name the slip Marcel made and briefly explain why it happened.

Description-similarity slip

“I need to pick up the device with the buttons.”

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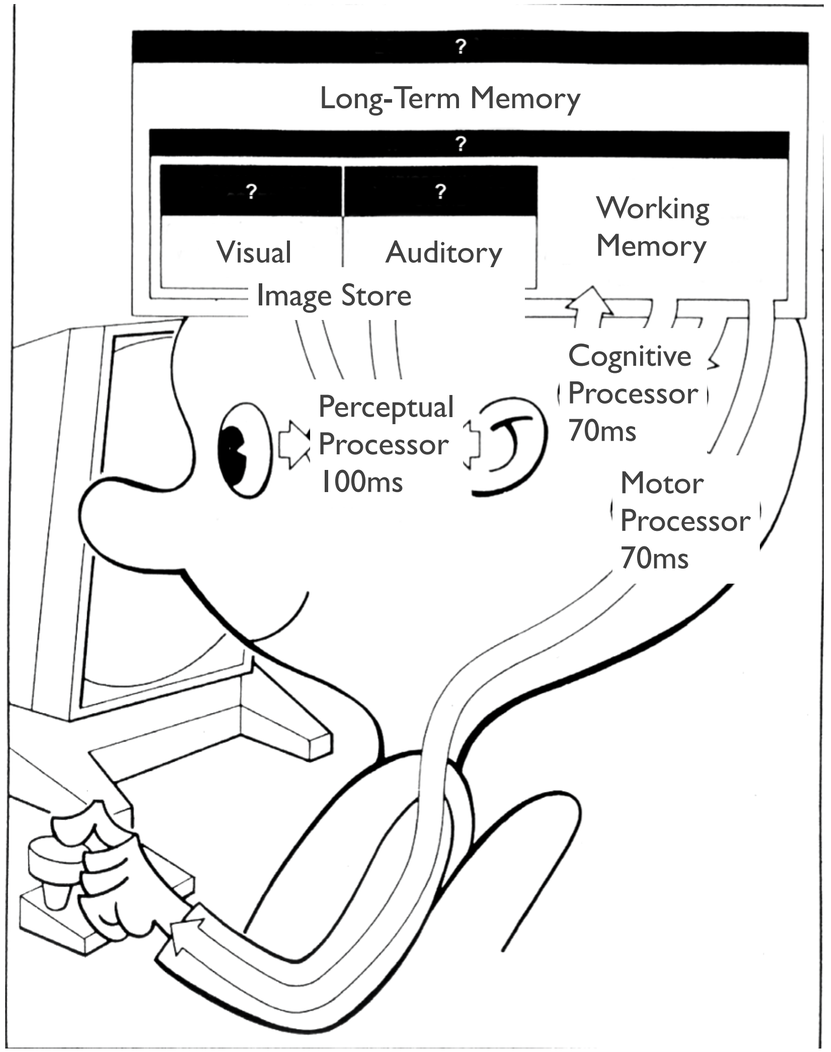
# CMN Model

- Fill in the blanks below each “?” in this diagram of the CMN model. For the processors, also give their average timings.



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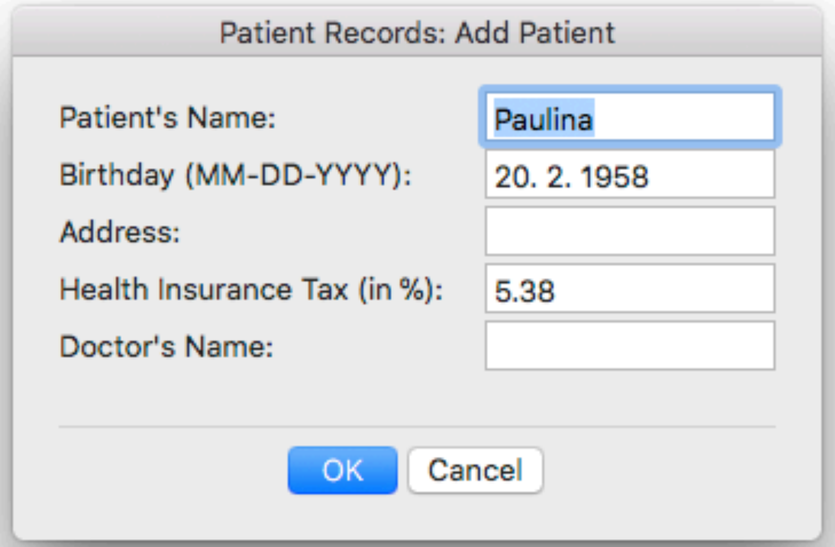
# Gestalt Laws

- Identify three Gestalt Laws that are violated in the interface below by marking the issue with a circle and writing the name of the law that has been violated next to it.



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# Gestalt Laws

- Which Gestalt law has been applied here? Justify your answer.

Law of proximity lets you see the U as a single object

Also law of similarity



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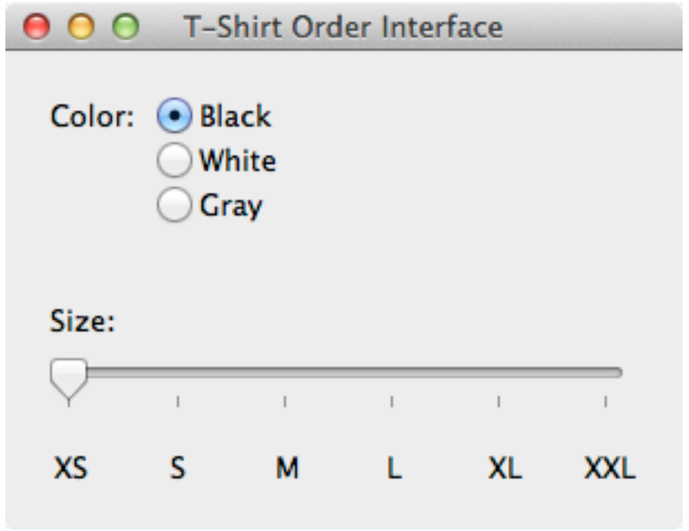
# Information Content

- What is the information content (in bits) for the following UI? Keep your answer in a mathematical formula.




$\log_2(3) + \log_2(6)$ bits (this is the same as $\log_2(3*6)$ bits)



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# How to Fail Easily

- Write down more than what is asked for. E.g., write down two examples of affordances, when we have just asked for one. (=> **No points for the answers.**)

- Write down the answers in other languages. E.g., “Hallo meine Freunde, das ist meine Antwort.” (=> **No points for the answer.**)

- Repeating yourself or writing down lengthy, verbose answers. E.g., “This is an example of an affordance because it affords the action of pressing it. An affordance is the action that is afforded by an object. In this case, the action is pressing the object. So, the affordance of the object is pressing it.” (=> **No points for the answer and 1 week detention.**)

- Writing the answers using a pink (i.e., not black or blue) pen or pencil. (=> **No points for the answer, but you do get some unicorn points. :)**)



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# A05: Understanding the Evolution of Interface Design



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# Course Content for Week 6



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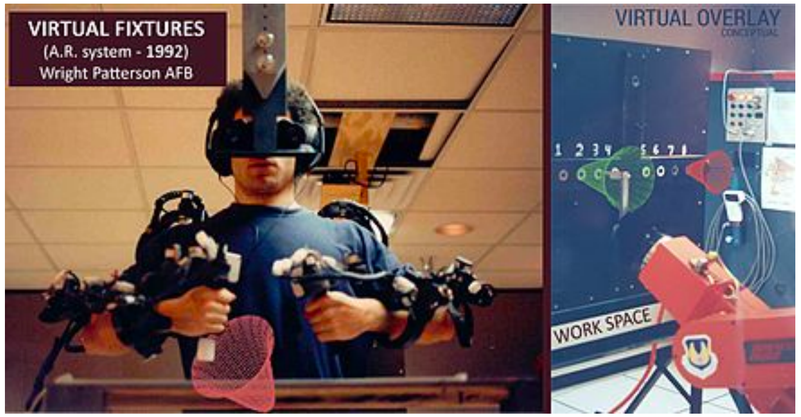
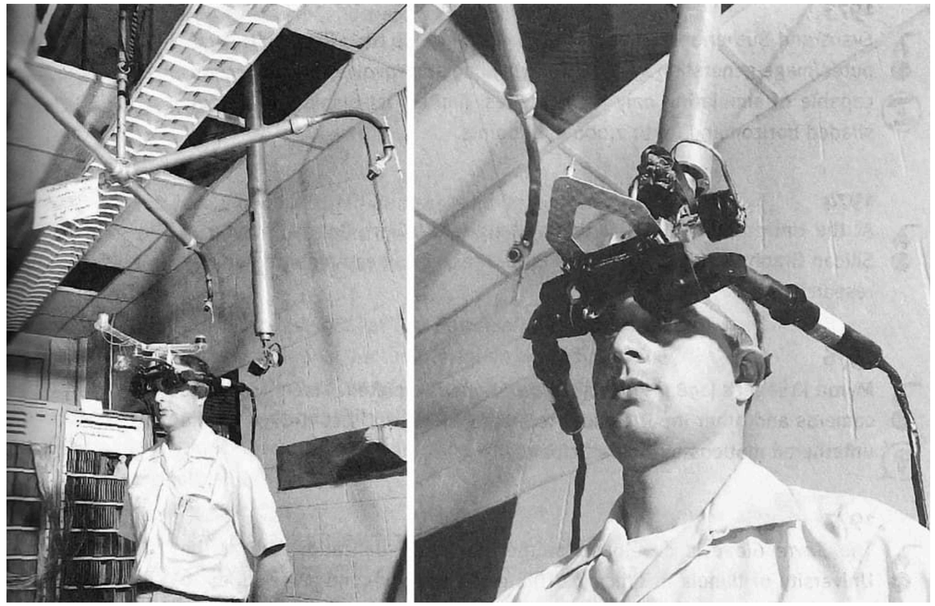
# Phases of Technology









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https://vimeo.com/166807261

# Ubiquitous Computing

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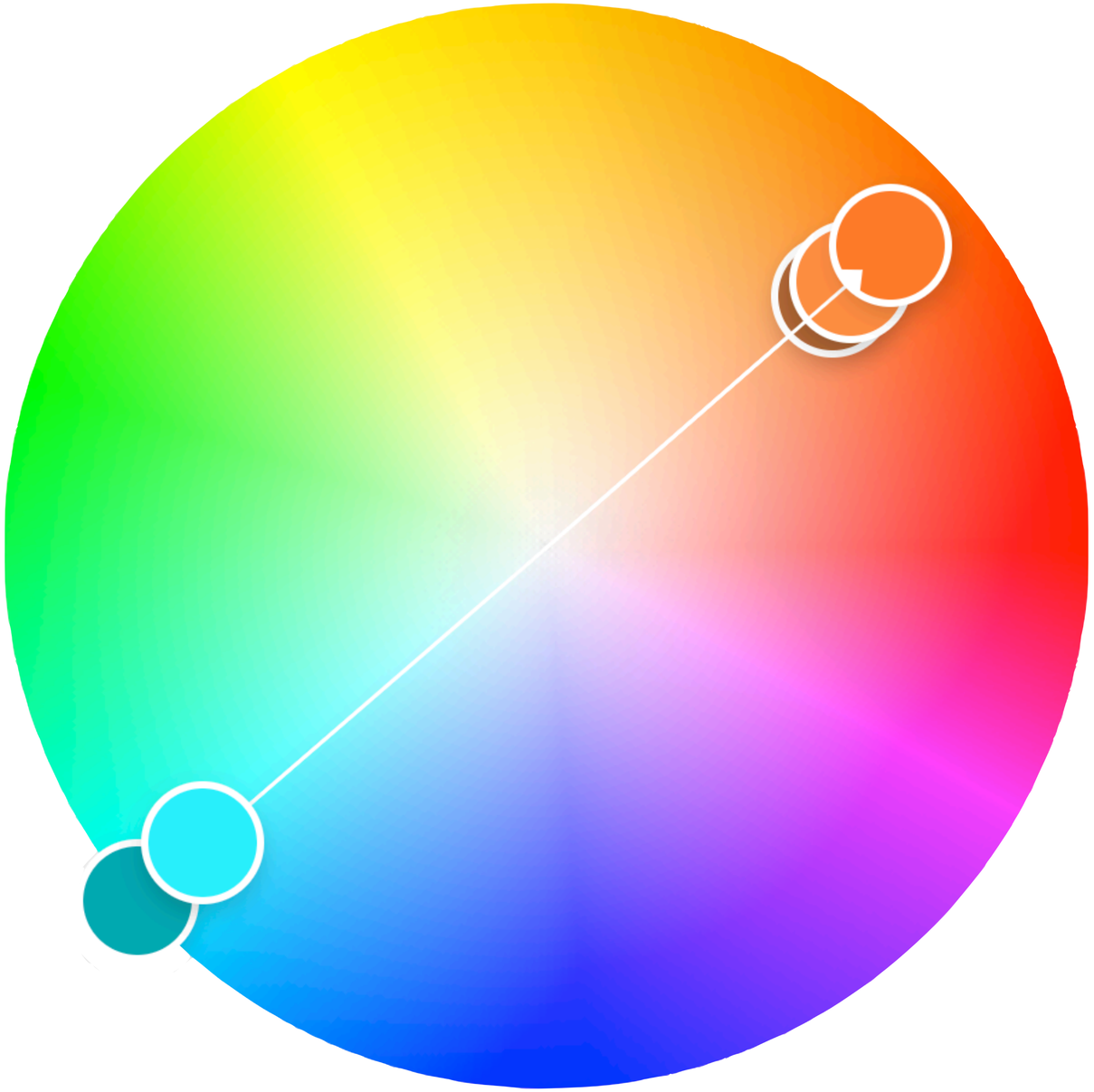



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# Weight

## Which one to use when?

2010-2012
2010–2012
2010—2012

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# What Next?

- By **Friday (Nov. 22), submit** A05
- By **Friday (Nov. 22), watch** Visual Design videos
- By **next Tuesday (Nov. 26), watch** the remaining videos of History 1 & 2
- Prepare for the midterm exam!
  **17:15–18:45** (for 60 min.) on **Wednesday (Nov. 27)** in room 0.109



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# A04 Presentations



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