



Where did we leave it?

- Course structure and grading
- I want to learn about your background
- Two innocent exercises
- Something to watch



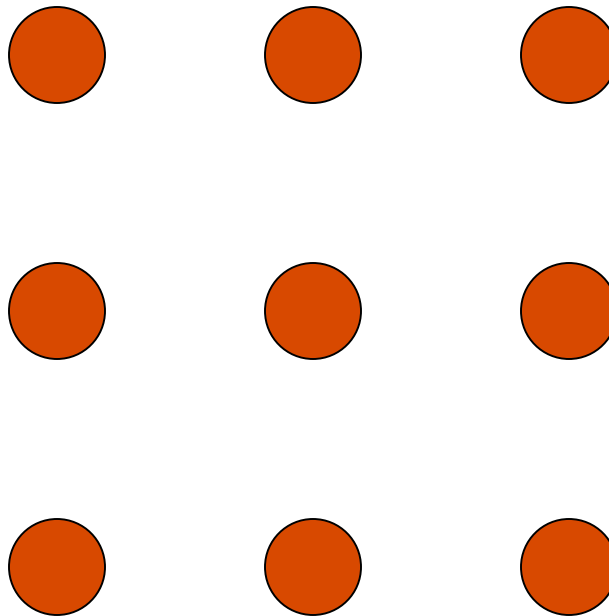
What will be do today?

- Review the lessons we learned from the exercises of the previous lecture
- Explore creativity blocks
- What were your answers to the open questions?
- Creativity and innovation
- Some homework



Two innocent exercises (I/II)

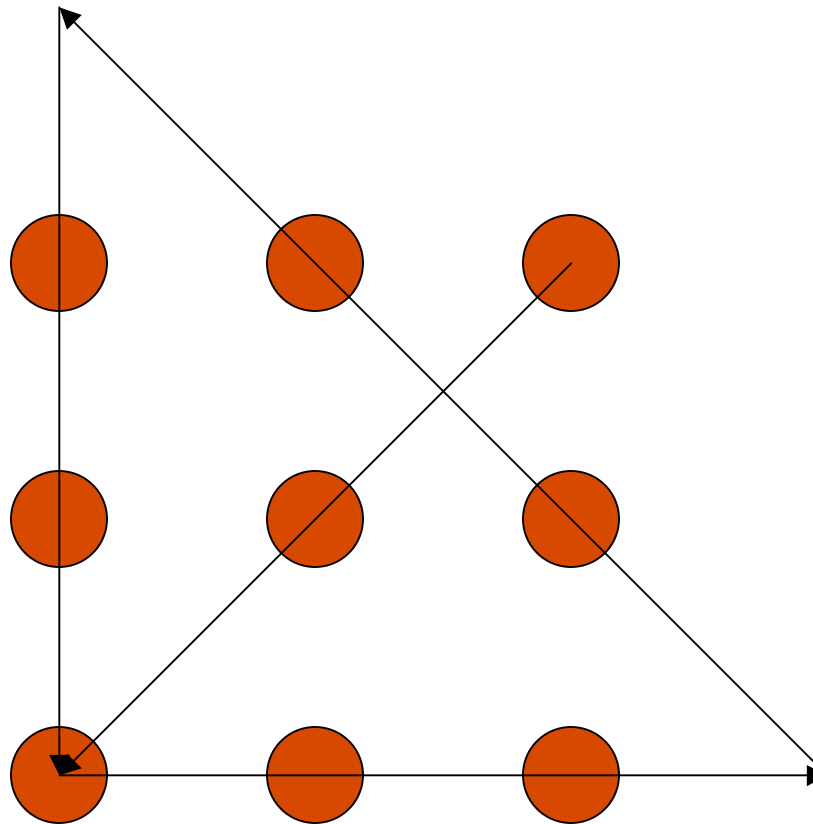
- Exercise 1:
Using only four strokes, and without lifting the pen, connect all the dots



(Michal Michalko (1994). *Thinkertoys*, Ten Speed Press, 1994)



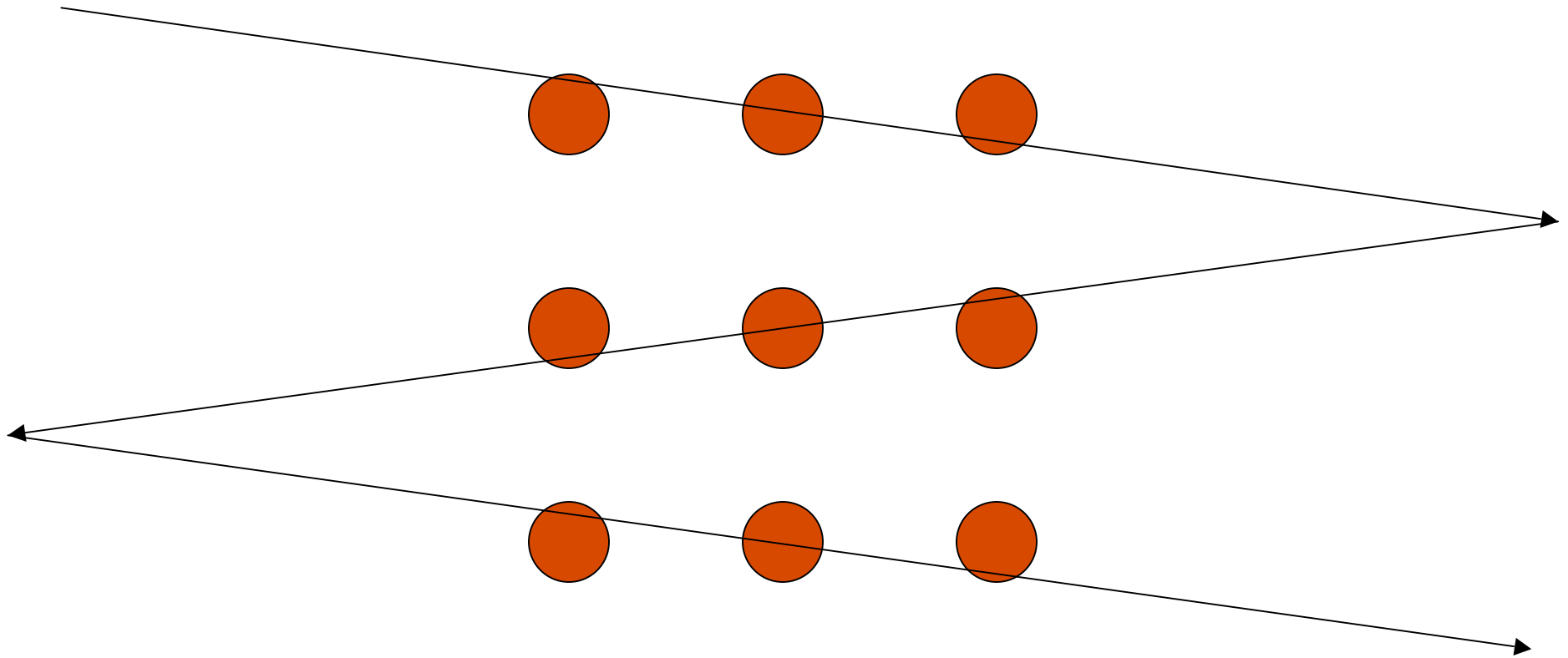
Two innocent exercises (I/II)



Can you do it again only with 3 strokes?



Two innocent exercises (I/II)





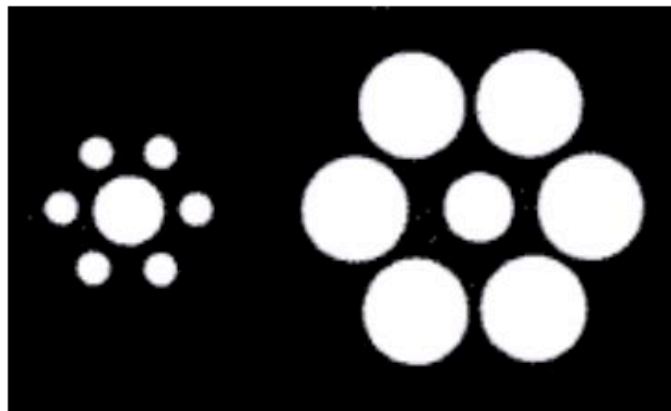
Why was this exercise tricky?

- Adams, J.L.(1986). *“Conceptual blockbusting: A guide to better ideas”*. Reading, MA:Adisson-Wesley.
- Creativity blocks
 - Perceptual
 - Emotional
 - Cultural/environmental
 - Intellectual/expressive
 - ...



Perception Tricks

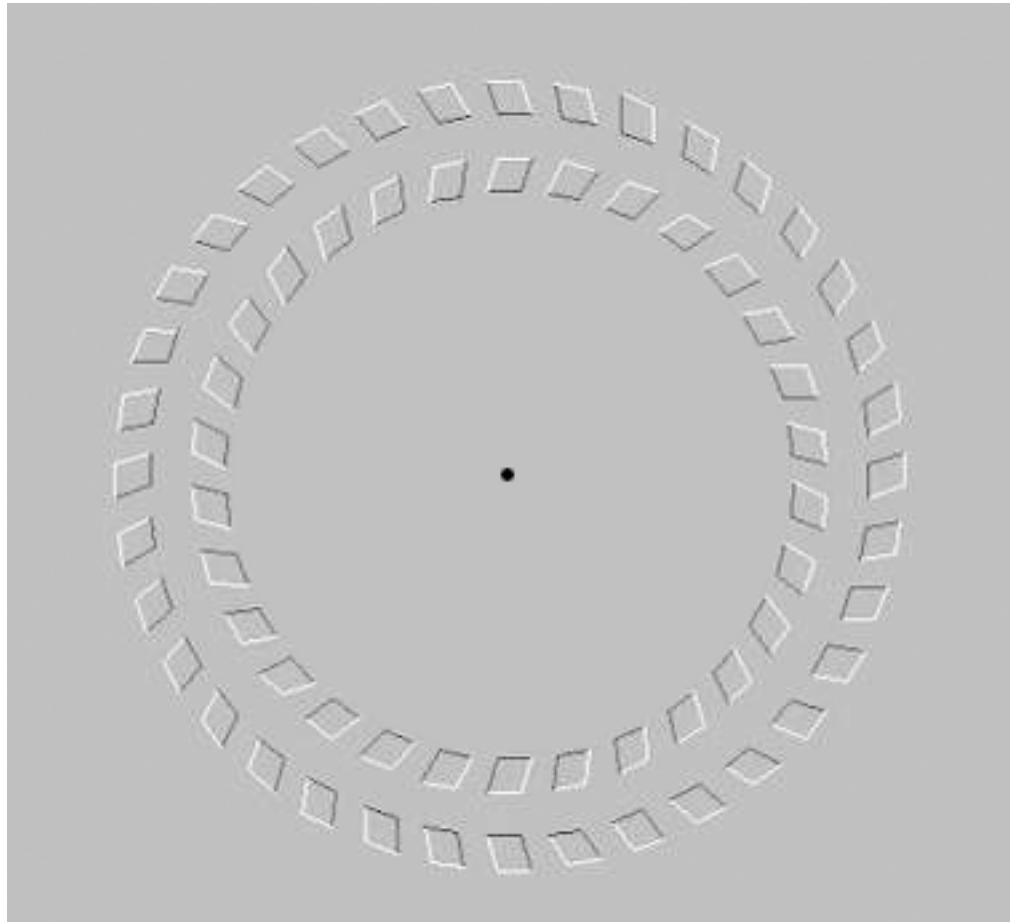
Is the left center circle bigger?



<http://www.washburn.edu/cas/psychology/pmacdonald/perceptiontricks.html>



Perception Tricks



http://en.wikipedia.org/wiki/Optical_illusion



Emotional blocks

- Types of blocks
 - Fear of mistakes
 - Inability to tolerate ambiguity
 - Premature judgment
 - Inability to incubate
 - Change as a problem or an addiction
 - Relation between fantasy and reality



Cultural and environmental blocks

- Taboos (language usage, people interaction...)
- Fantasy and reflections as marginal poor-valued activities
- Children can play, adults cannot
- Social pressure (remember your high school times?)
- Plato acknowledge intuition; Descartes swiped it under the rug (too much brain, no heart)
- Tradition is good (change is evil)
- Capitalism (money can fix anything)
- ...



Intellectual and expressive blocks

- Language (visual, rhetoric, formal...)
- Language as responsible for the wiring of your brain (Feral children, François Truffaut's 1970 film *L'Enfant Sauvage*)
- Language and its expressive boundaries
- Assumptions for free (remember the bounding box in the dots exercise?)
- Catastrophic: “*The exact formulation is the **only** way to go*”
- ...



Two real-examples

- Text production
 - By hand (middle ages monks)
 - Revolution (Gutenberg's press)
 - Typewriter
 - Digital computers
 - Word processors and PCs
- Automobile: Henry Ford
 - “If I had asked people what they wanted, they would have said faster horses.”



What is creativity?

- Definitions:
 - My Mac: “The use of imagination or original ideas, especially in the production of artistic work.”
 - Wikipedia: “Creativity (or creativeness) is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts.”
 - Google:
 - “Creativity is the ability to solve problems that are worth solving. It is the ability to create knowledge. Creativity is subject-specific: it is the meta-knowledge of how to solve a specific class of problems. So there is no such thing as raw, undifferentiated creativity.”



What is creativity?

- Definitions:
 - Google:
 - “Generating and sharing ideas is everyone's job.”
 - “The production of previously non-existent information. All new items of information are based on preceding ones, and they are *new* because they restructure the preceding items and/or insert foreign informational elements ("noises") into them.”
 - “The fact that endlessly the past is blended with the possible in order to make new units of reality.”
 - “A measure of an artist’s command over the tension in an artwork.”
 - “*An increasingly rare crime.*”



Let's break it down in to pieces

- Imagination
- Mental process
- Ideas (original ideas)
- New associations among existing ideas
- Problem solving oriented (What about Jackson Pollock, Salvador Dalí, Edgar Degas?)
- Problems worth to solve (Who decides?)
- Only possible in presence of a problem (What about activities?)
- Sharing! (social process)
- Iterative process (old gets revamp into something new)
- Reality construction
- A criminal activity!
- Diversity!!! (dancing and tomato chunks)



Levels

- Individual activity
 - How we can boost individuals creativity
- Group activity
 - If it can be boosted in individuals, why not to boost it in groups
- Social component
 - Creativity and its diffusion processes



Creativity and innovation?

- Let's make one distinction
- Creativity:
Create a new idea, concept, or association, from pre-existing or specifically created ones.
- Innovation:
“Creativity + commercialization = innovation”

