

# DESIGNING WITH THE MIND IN MIND

Quang Vo

# PERCEPTUAL BIAS

- Perception  $\neq$  reality
- Impacted by 3 factors:
  - The past
  - The present
  - The future
- These factors are not mutually exclusive and can often interact with each other

A series of white, thin, overlapping geometric lines on a black background, forming various polygons and shapes, primarily concentrated on the left side of the image.

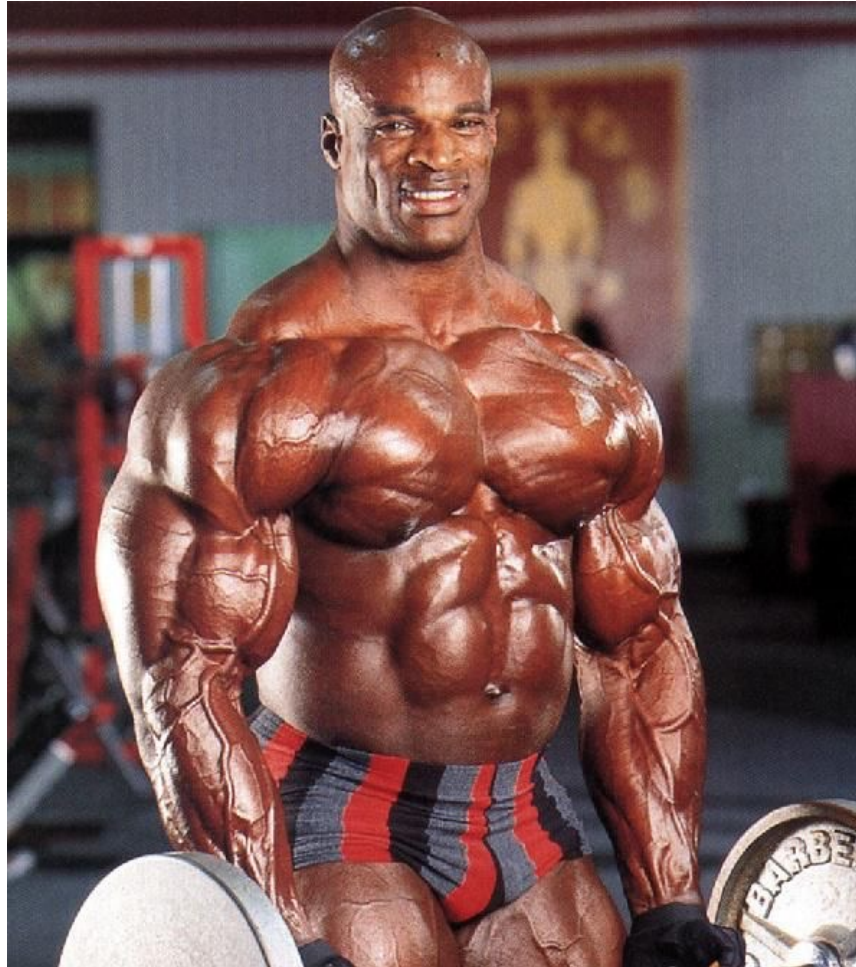
# THE PAST

or how experience impacts perception

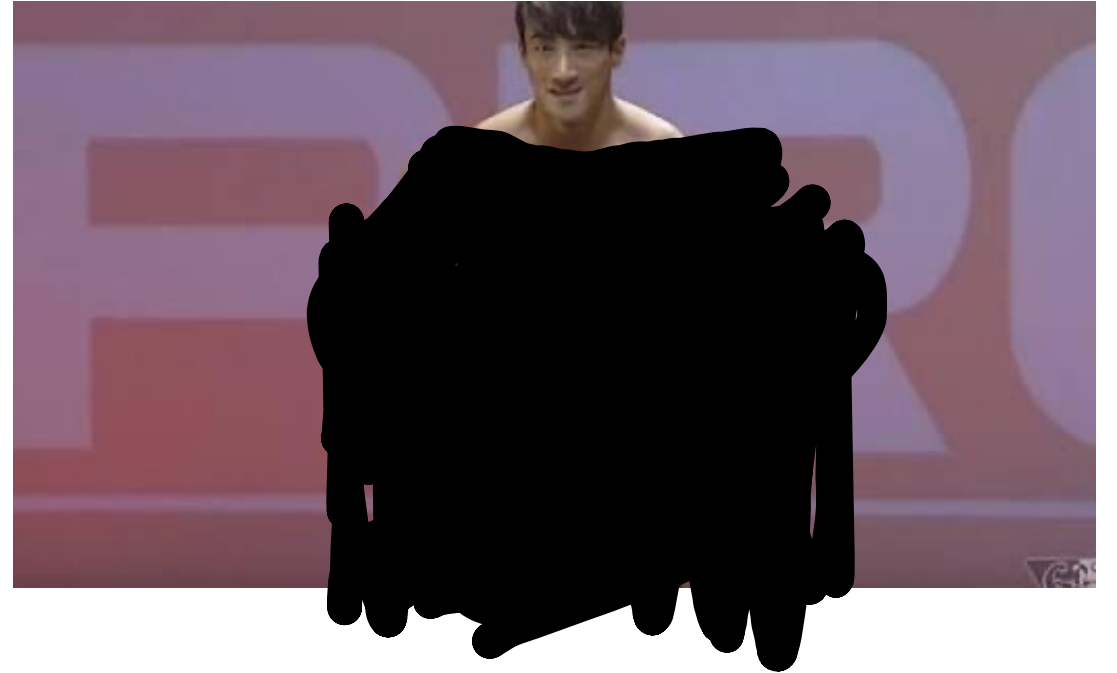
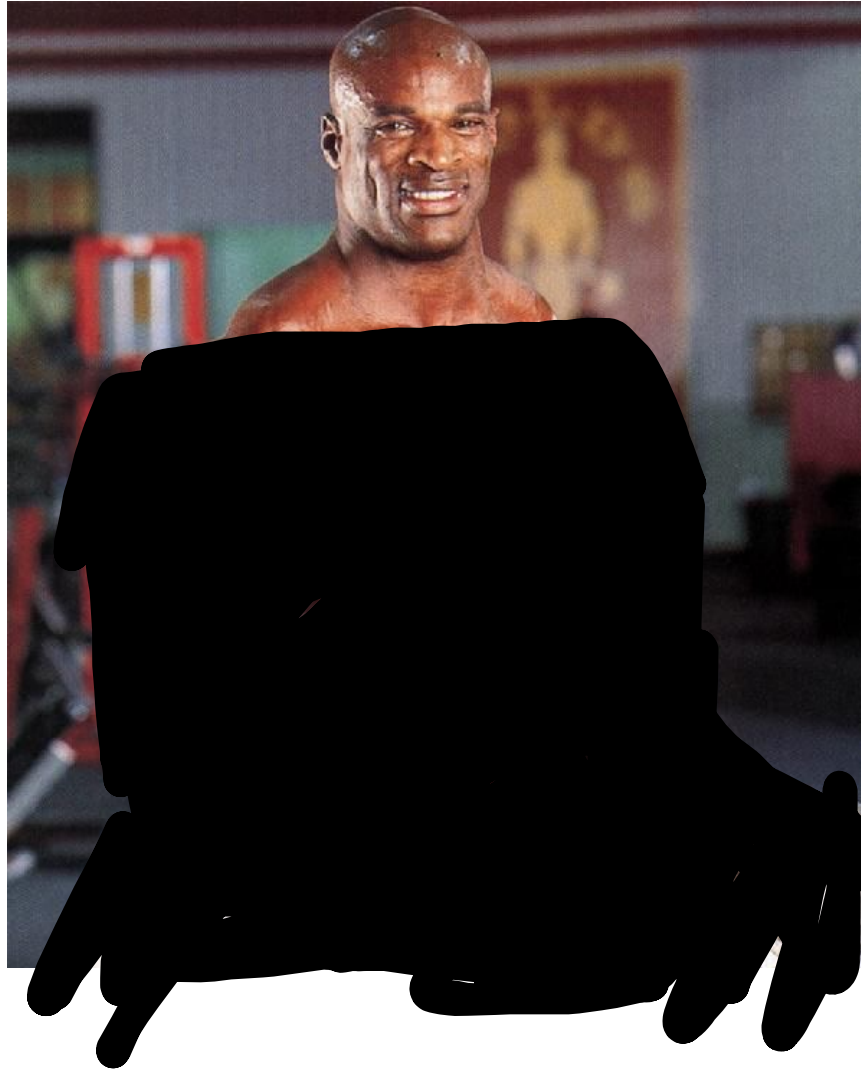
# PRIMING

- when information presented either before or after changes how your perception of something.
- In other words, you have been **PRIMED** to perceive something a certain way.

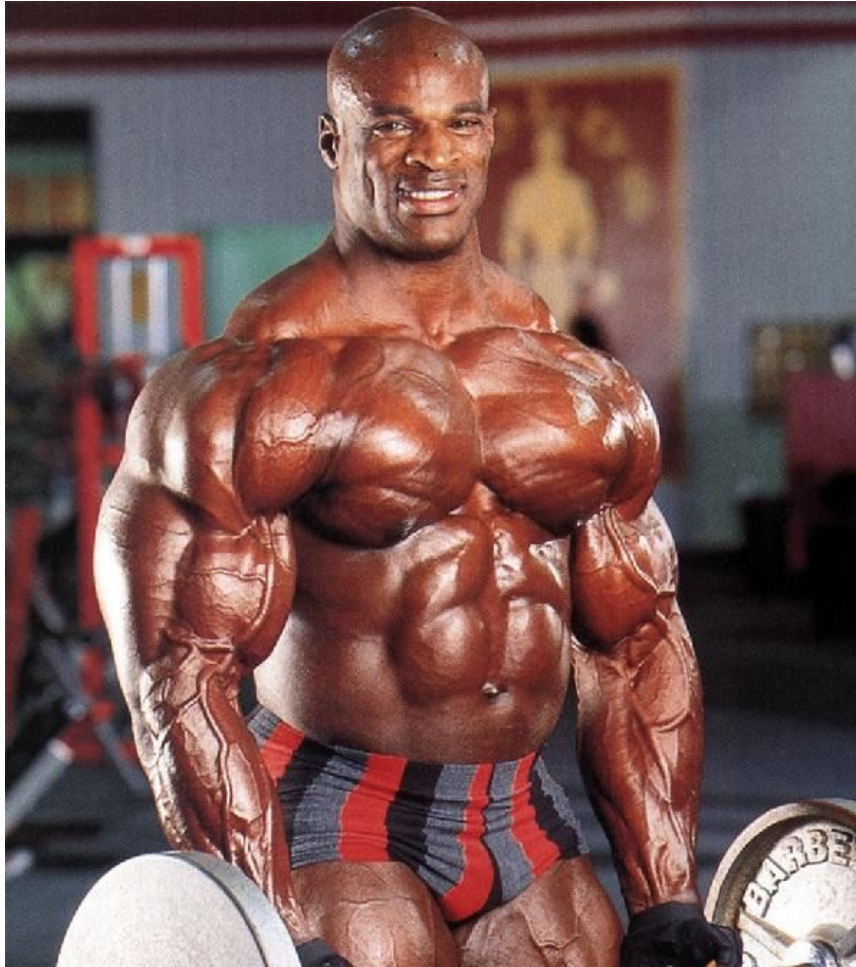
# PRIMING



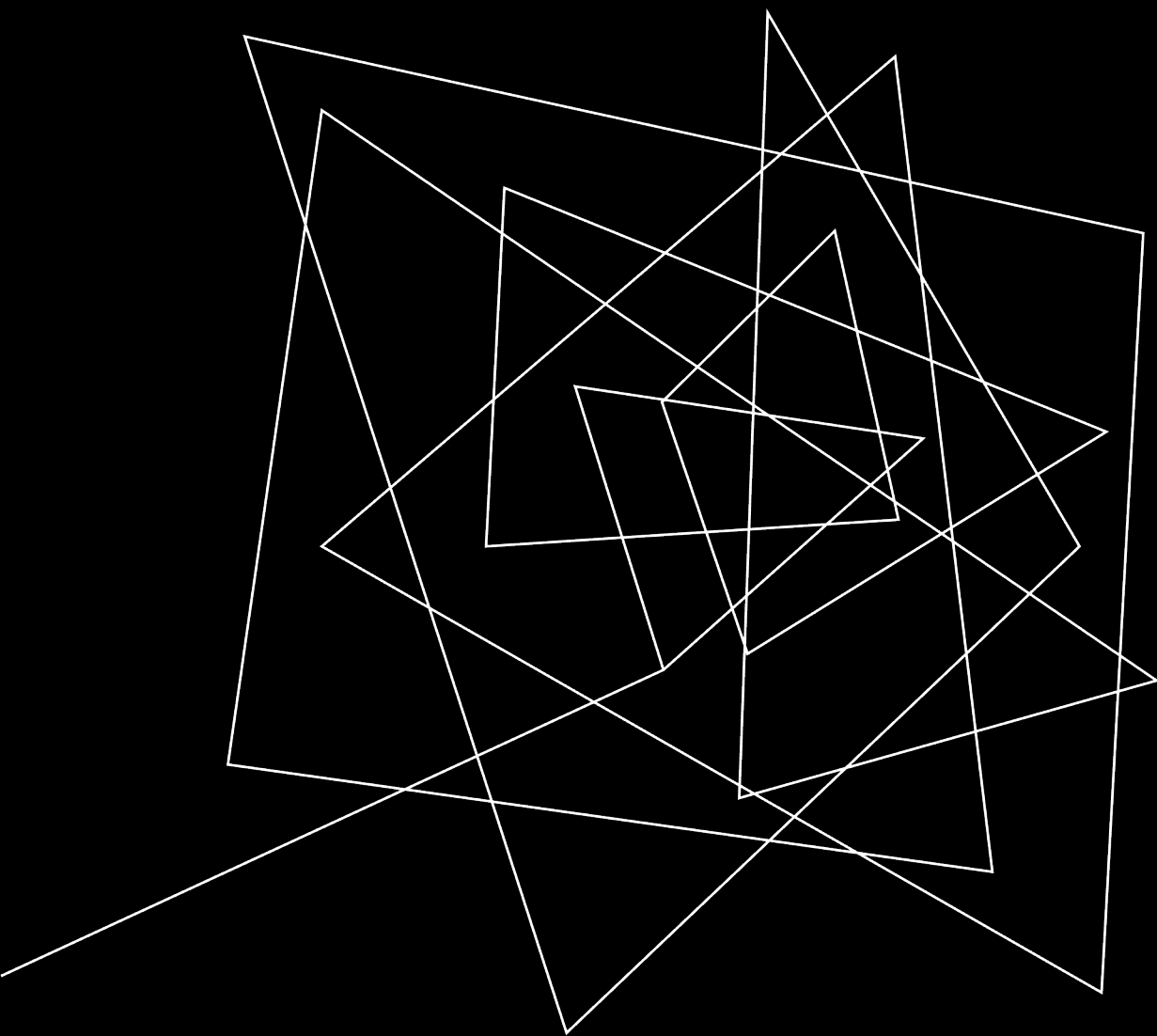
# PRIMING



# PRIMING



Primed to see skinny guys popping out a buff person's shell

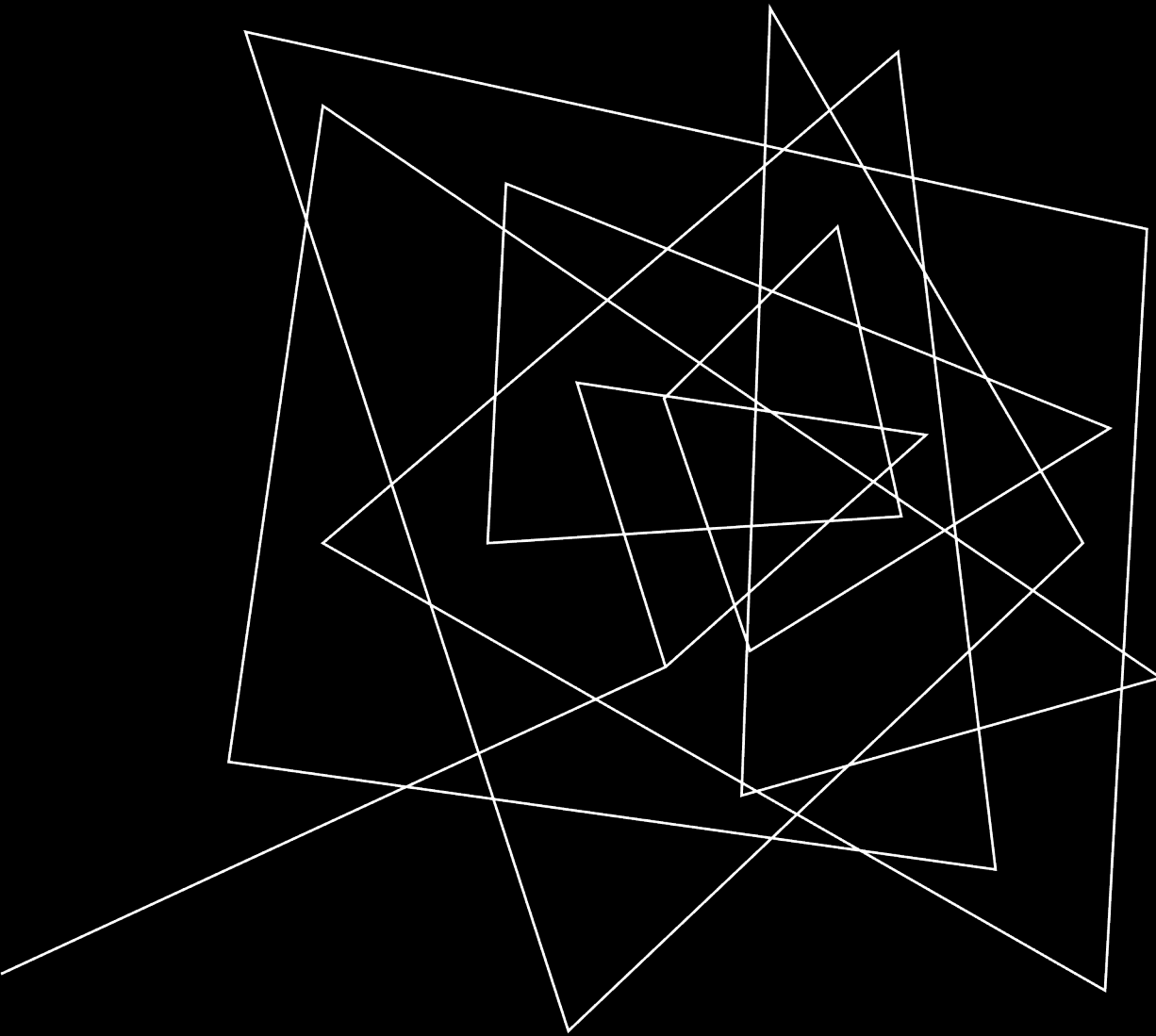


## FAMILIAR PERCEPTUAL PATTERNS OR FRAMES

- Repeated exposure builds a familiar perceptual pattern or frame in our mind
- Includes objects or events that are usually encountered and thus we expect to see them
- We then interact with similar situations through these frames



# FAMILIAR PERCEPTUAL PATTERNS OR FRAMES



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Create a password\*

SHOW

Date of birth\*

H&M wants to give you a special treat on your birthday

**ADD MORE** +

Yes, email me my member rewards, special invites, trend alerts and more.

Your inbox is about to get a lot more stylish! Get excited for exclusive deals, trend alerts, first access to our new collections, and more. Plus, don't miss out on all your Member rewards, birthday offer and special invites to events!

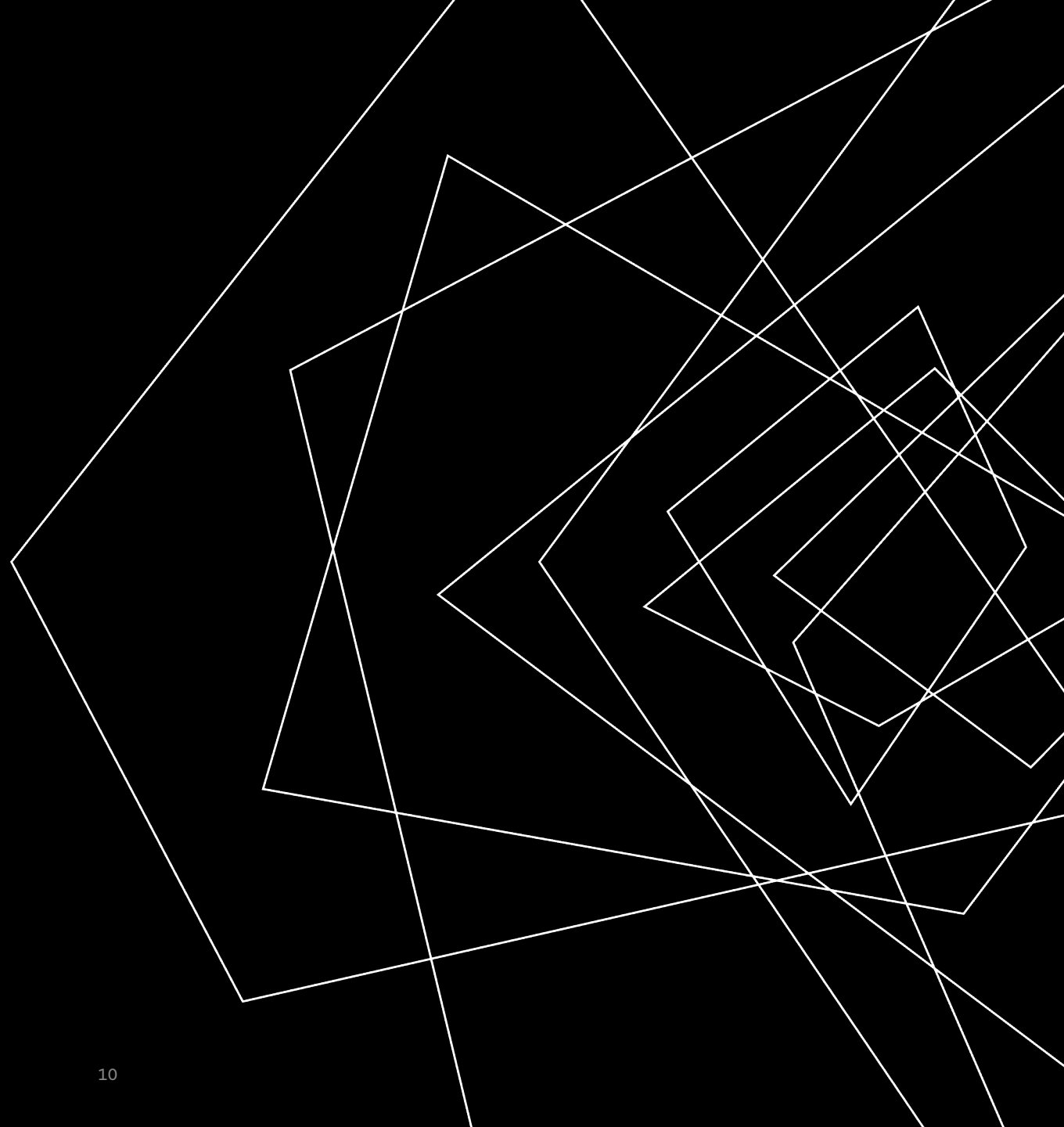
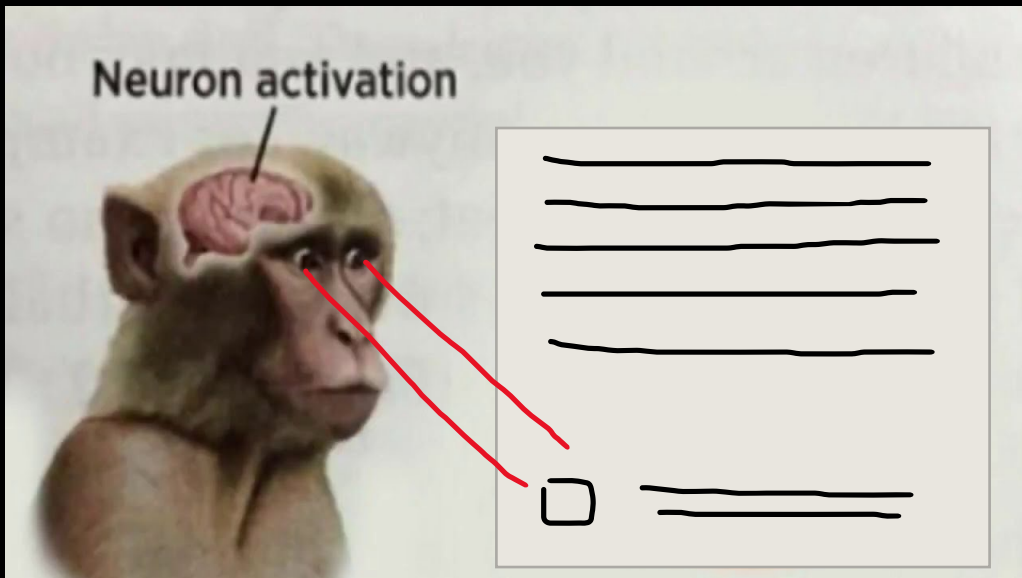
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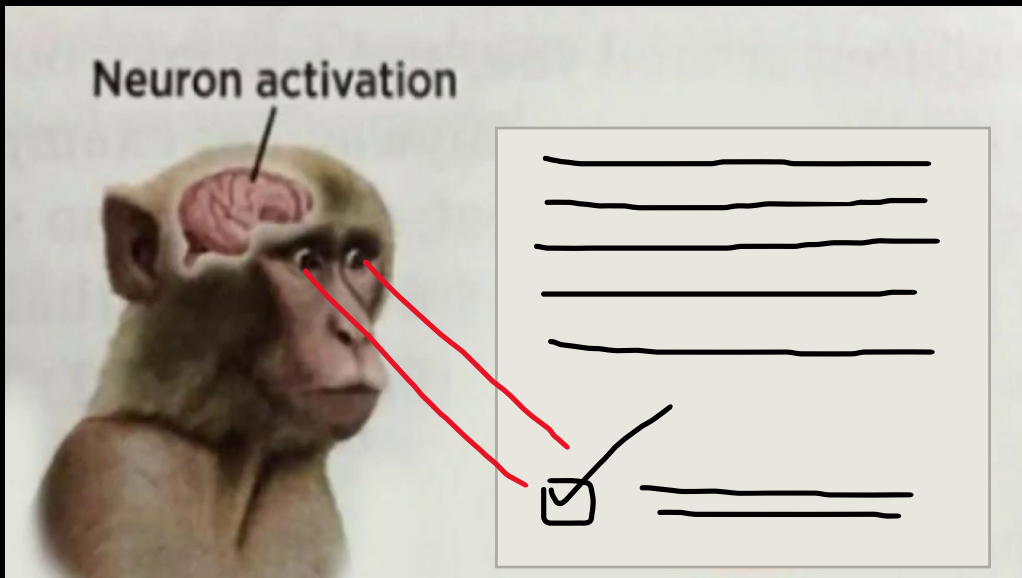
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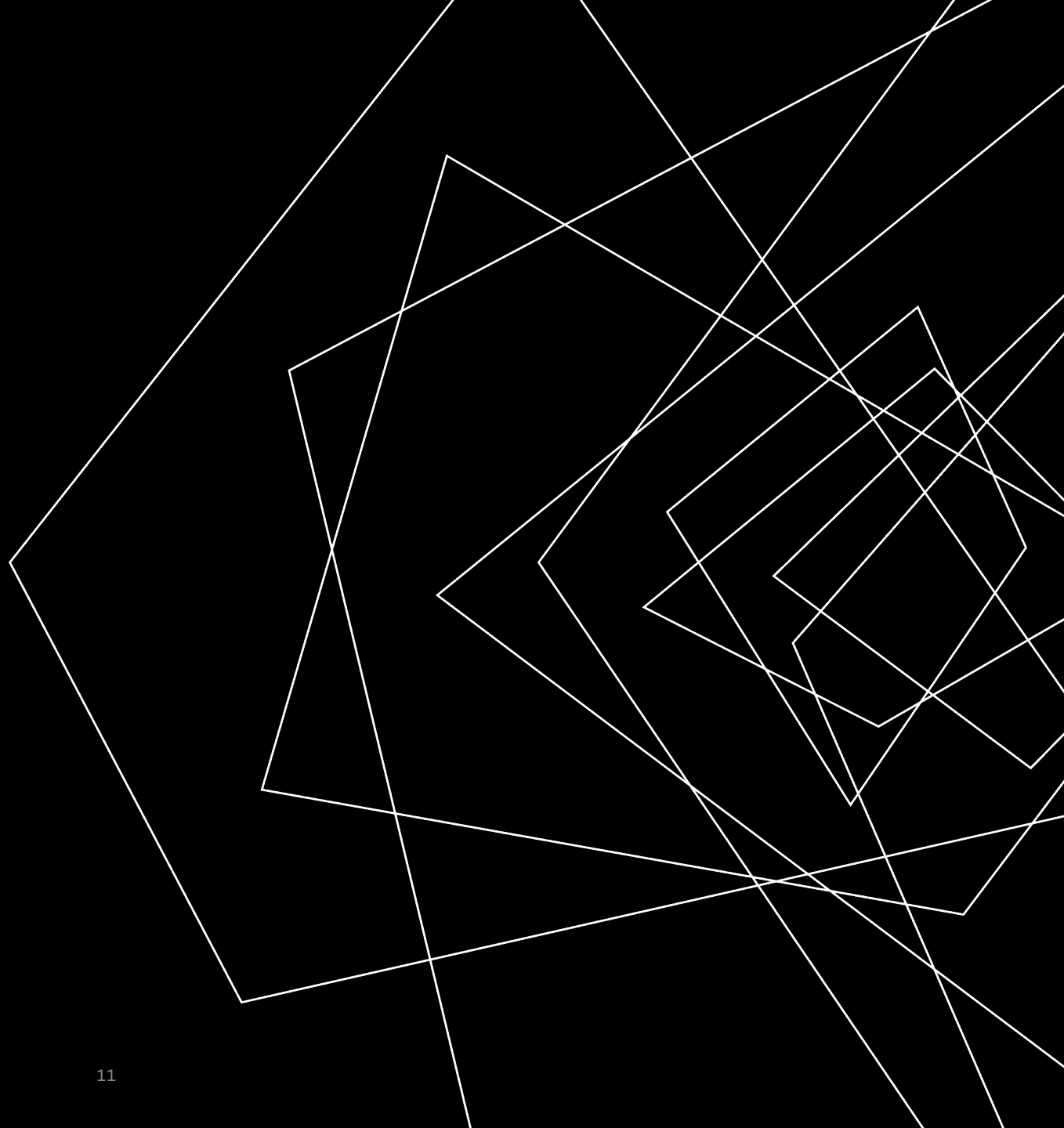
# FAMILIAR PERCEPTUAL PATTERNS OR FRAMES



# FAMILIAR PERCEPTUAL PATTERNS OR FRAMES



"I've done these before I must click to go next!"





Compose

Inbox

Starred

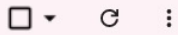
Snoozed

Sent

Drafts

More

Labels



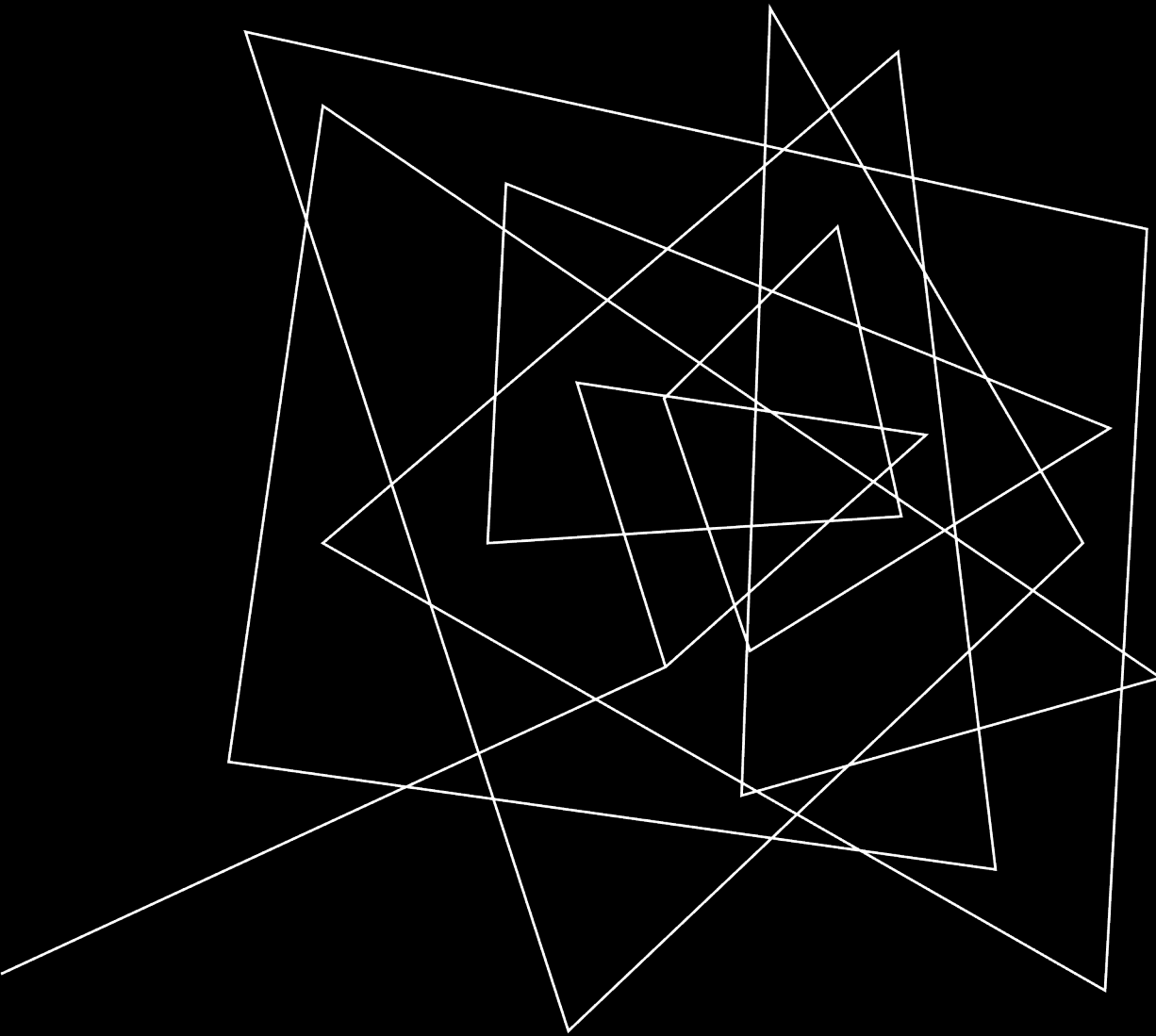
Important

1-25 of 166

- Dr. Martens The Jadon boot - The platform that broke the mold FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN ... 12 Sept
- Dr. Martens Dr. Martens x Engineered Garments - Our new collaboration is here NEW ORIGINALS WOMEN MEN KIDS FOR ALL FIND YO... 9 Sept
- Dr. Martens Dial it up - in the tough and timeless Bex platform FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN KI... 8 Sept
- Dr. Martens The 1461 shoe - The shoe that defies definition FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN KIDS... 7 Sept
- Dr. Martens The 1460 boot - The boot that started it all FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN KIDS FO... 4 Sept
- Dr. Martens Last chance: up to 40% off DM's - don't miss out FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN KI... 3 Sept
- Dr. Martens Kids' Docs are here - small in size. Big in attitude FREE SHIPPING ON ORDERS OVER \$50 NEW ORIGINALS WOMEN MEN KI... 2 Sept
- Dr. Martens DM's headliners - get to know our iconic styles FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens THE JADON BOOT | DEC... 1 Sept
- Dr. Martens Docs Originals - year-round styles built to last FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens SIX DECADES SAME DO... 31 Aug
- Dr. Martens The best pairs for back to class - hit the hallways with attitude FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens CAMPUS... 30 Aug
- Dr. Martens Stacked and packed with attitude - check out our collection of heels FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens N... 26 Aug
- Dr. Martens Don't miss out: our sale ends soon - get em' before they're gone FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens SALE |... 24 Aug
- Dr. Martens Go taller, tougher, and louder - in bold platform boots FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens STAND OUT | Disr... 22 Aug
- Dr. Martens Stay original - through fall and beyond FREE SHIPPING ON ORDERS OVER \$50 Dr. Martens ORIGINAL TO THE CORE | As tou... 21 Aug
- Dr. Martens Open up to check out our 40% off sale - for a limited time save on shoes, boots, and sandals FREE SHIPPING ON ORDERS ... 19 Aug



# FAMILIAR PERCEPTUAL PATTERNS OR FRAMES



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Date of birth\*

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**ADD MORE** +

Yes, email me my member rewards, special invites, trend alerts and more.

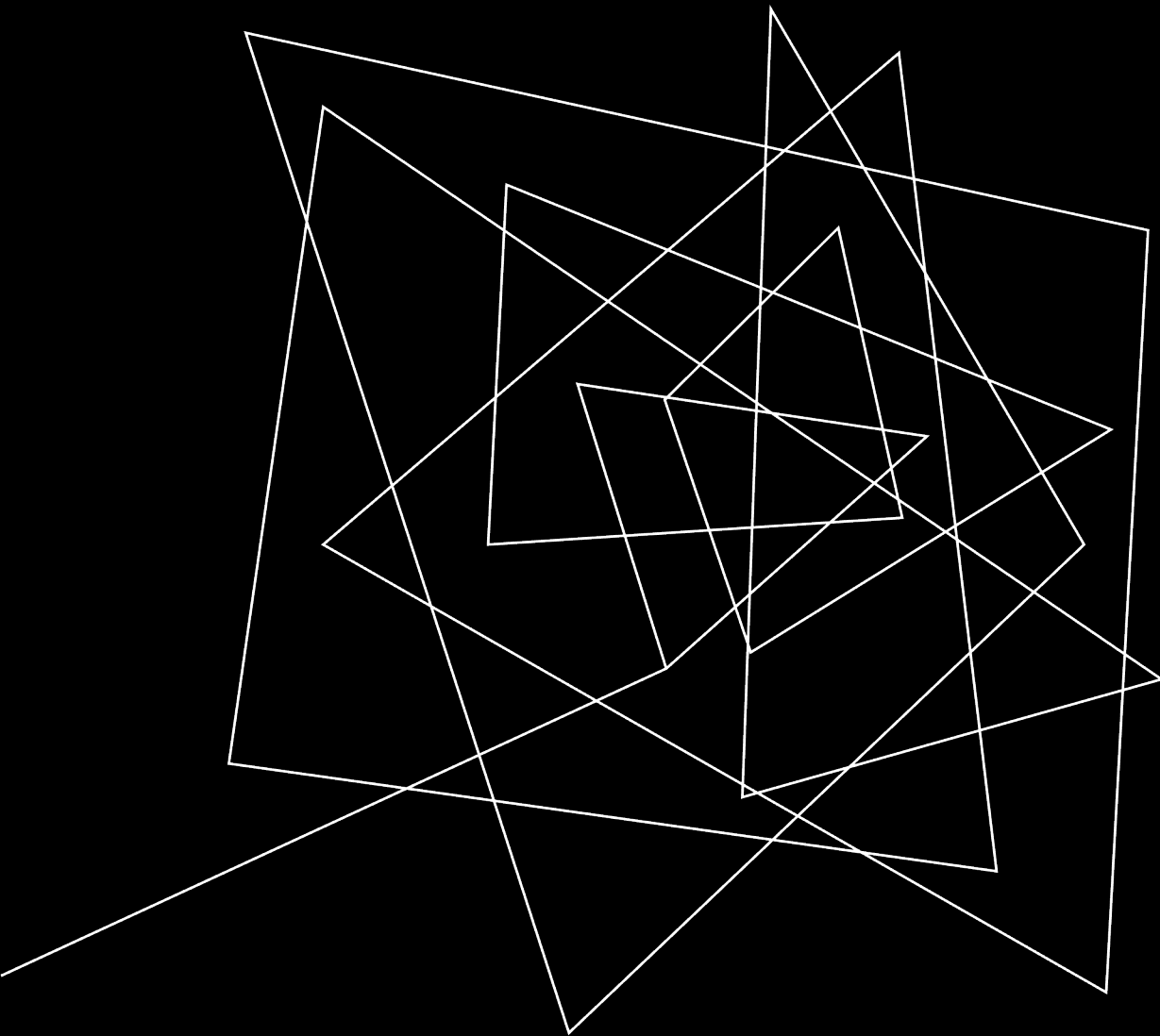
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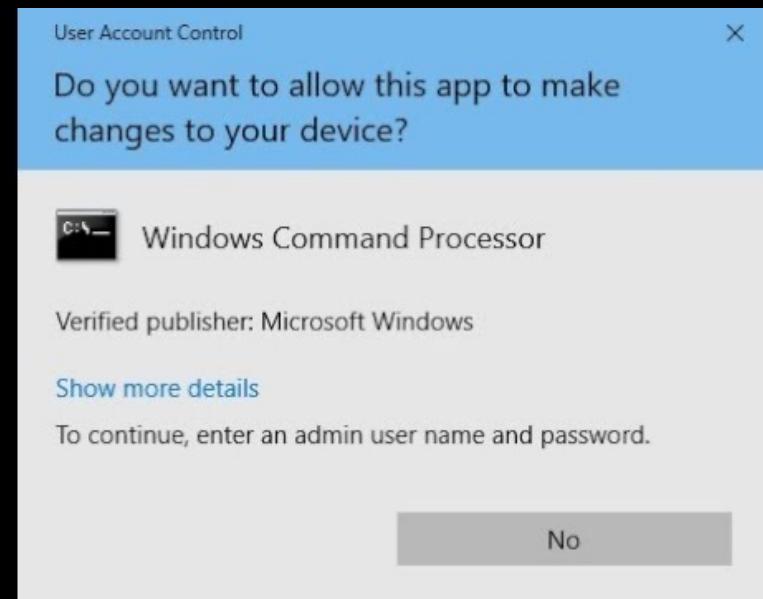
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# HABITUATION

- Repeated exposure to something dulls our perception of it
- Occurs at the neuronal level, very low level in nervous system



# ATTENTIONAL BLINK

- When important stimuli causes a brief lapse in attention
- Brain gets occupied processing the first stimuli, thus missing the next, even if our faculties are working right

# THE PRESENT

Or how current context impacts our perception



# BOTTOM-UP VS TOP-DOWN PROCESSING

- Bottom-up assumes perceptions starts with the lowest level of stimuli which then influences the larger perception of the stimuli
- Top-down looks at how “the bigger picture” influences smaller elements of stimuli
  - How the surrounding environment, context, influences stimuli

TOP-DOWN  
PROCESSING

SHOVEL

D\_G

HOLE

TOP-DOWN  
PROCESSING

SHOVEL

DIG

HOLE

# TOP-DOWN PROCESSING

CAT

D\_G

BUNNY

# TOP-DOWN PROCESSING

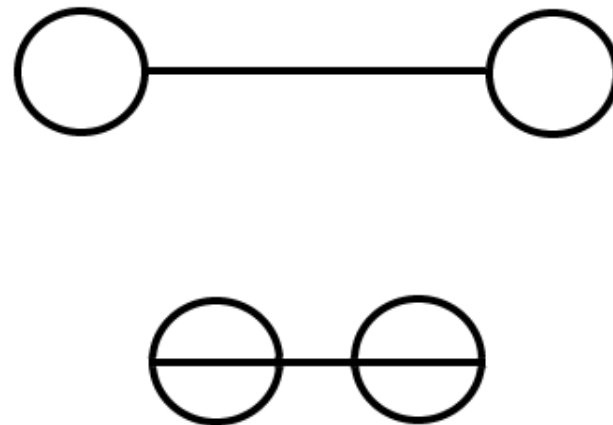
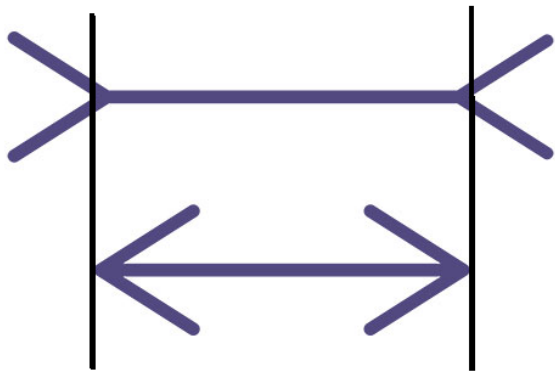
CAT

DOG

BUNNY

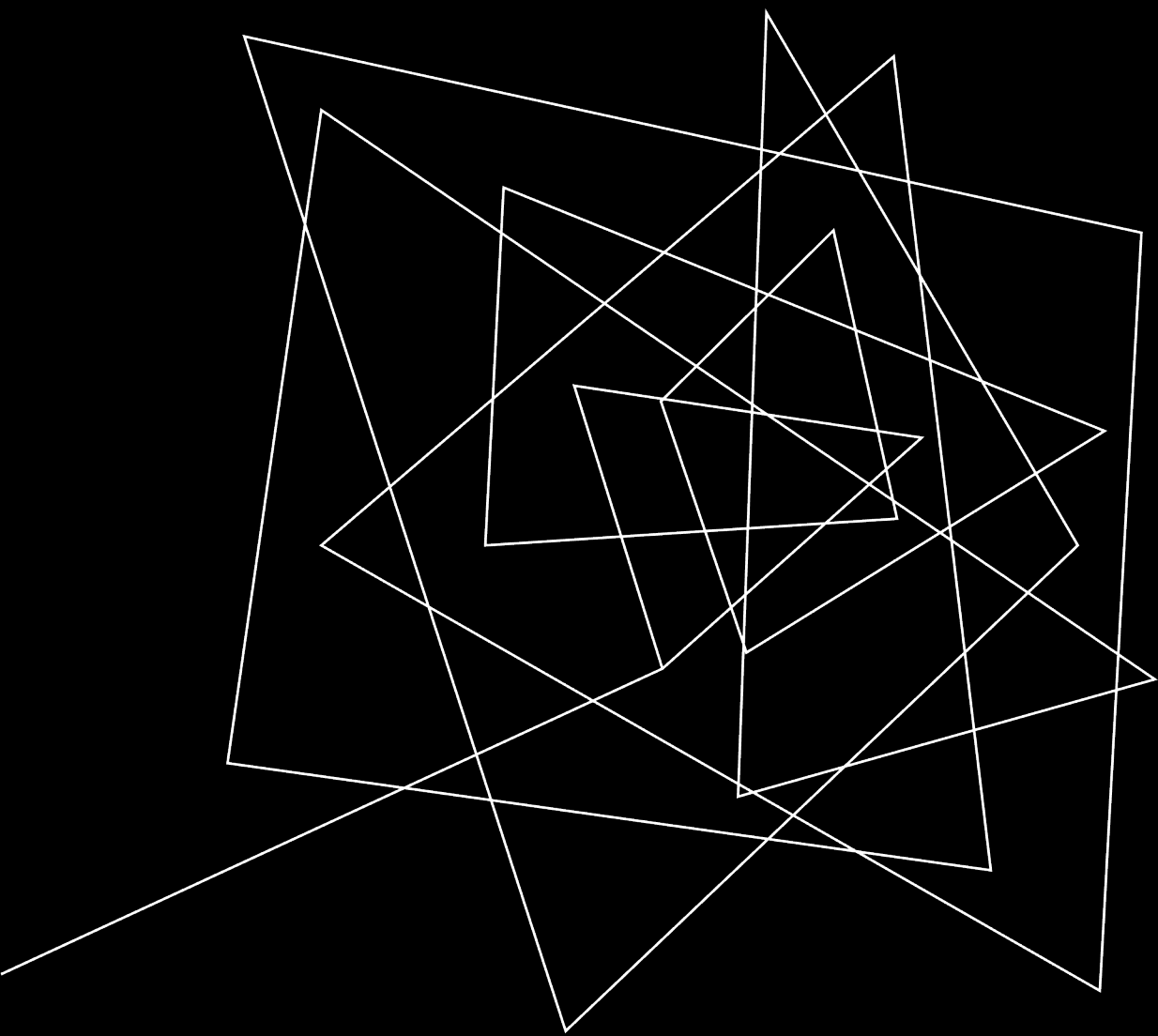
# VISUAL CONTEXT BIAS

- Context bias is occurs outside of reading comprehension
- The **Müller-Lyer illusion** is a famous illusions demonstrating how visual context skews our perception
- This works because of how our visual system has evolved, learns to infer and approximate what is seen



# CONTEXT BIAS BETWEEN SENSES

- Context bias can occur between different senses too
- **The McGurk Effect**
  - Hearing an illusion based on what is being seen, we unconsciously associate certain sounds with certain mouth movements
- **Ventriloquism**
  - We understand that talking must come from somewhere, leads to perceiving it coming out of doll mouth
- Also occurs in animals



# THE FUTURE

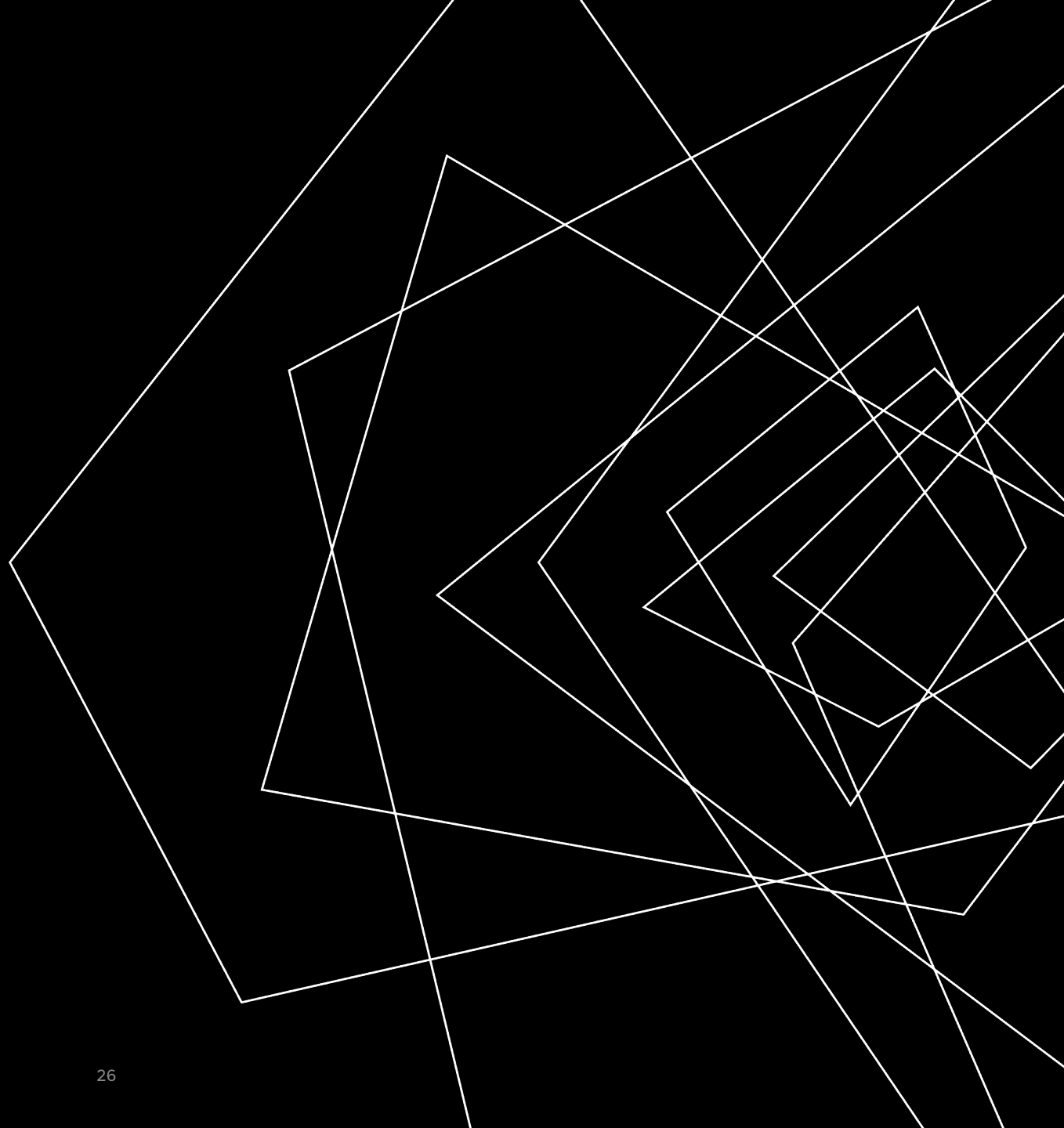
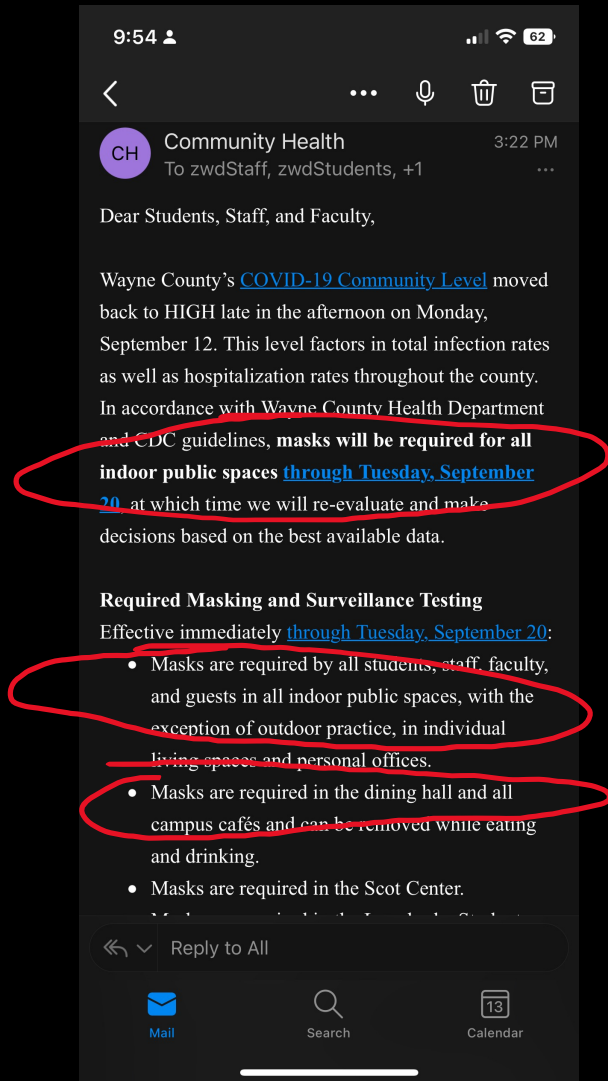
Or how our goals impact our perception



# OUR GOALS IMPACT OUR PERCEPTION

- Influences our **GUIDE** and our **FILTER**
- Our goals guide how we perceive something, showing us where to look
- They are then filtered preconsciously, only what is relevant to our goal is registered in our conscious mind

# VISUAL FILTERING

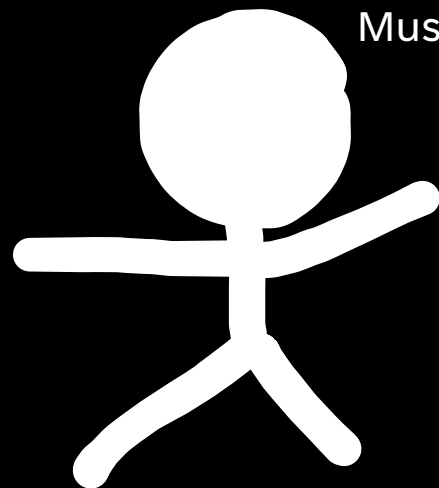


# OUR GOALS IMPACT OUR PERCEPTION

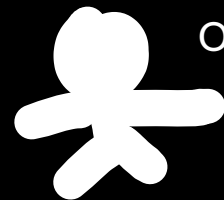
- **Cocktail party effect**
  - You can focus your attention, drowning out background noise even when people are near
  - Also works the other way when the conversation is weaker, causing you to focus on surrounding conversations
- Objective factors also influence the effect
  - How much noise there is, predictability, similarity of voice

# AGE DIFFERENCE IN PERCEPTUAL FILTERING

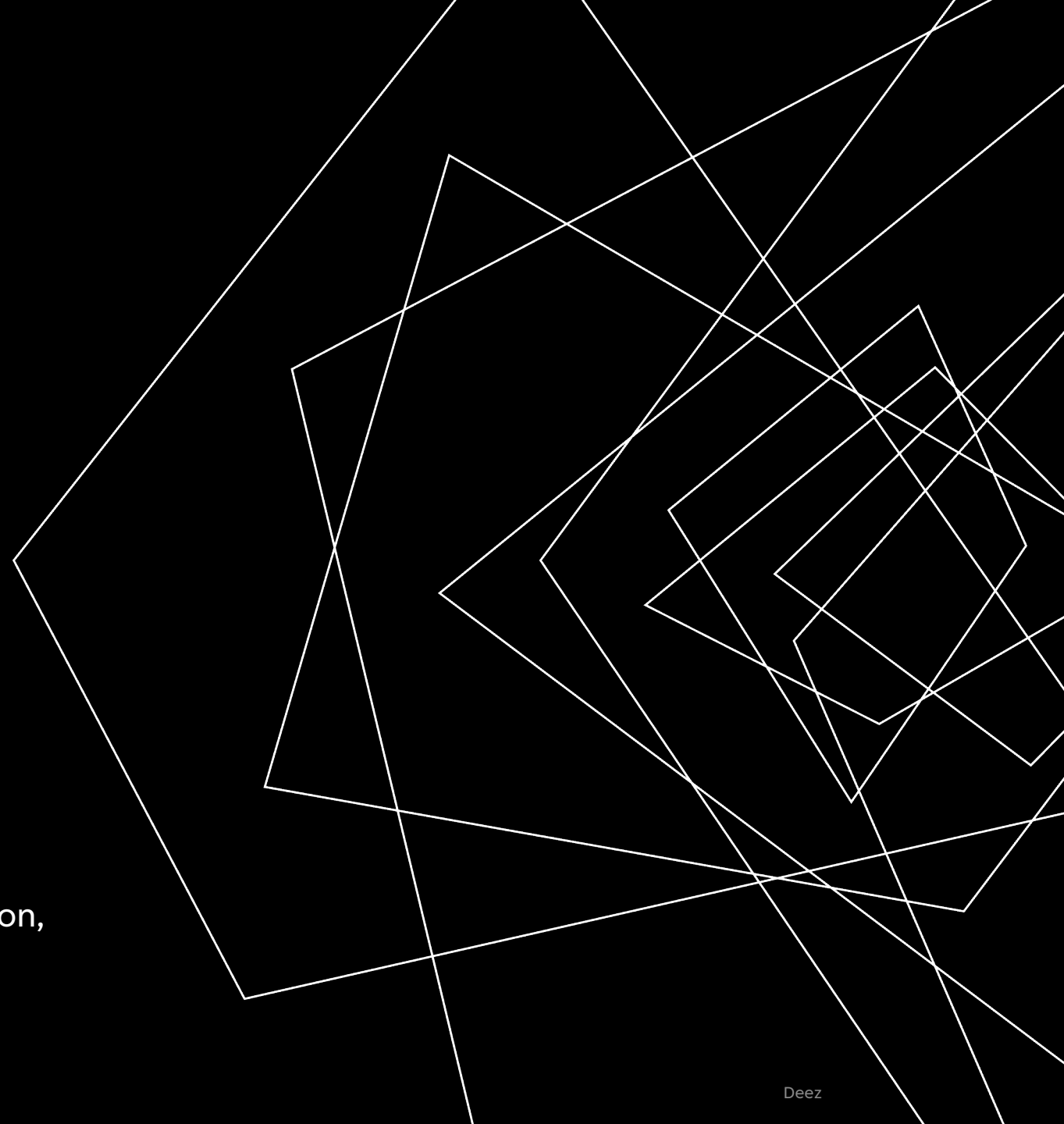
- Adults are more focused, and thus they are better at filtering extraneous info
- Children are more stimuli driven
  - Distracted by objects that interest them
  - Less susceptible to Goal bias



Must find spoon



Must find spoon,  
OH cool fork





# OUR GOALS IMPACT WHERE WE LOOK

- Perception is active, goals guide where you are looking, not just filtering all the info that comes at you
- Goals also sensitize our perception to what we are looking for

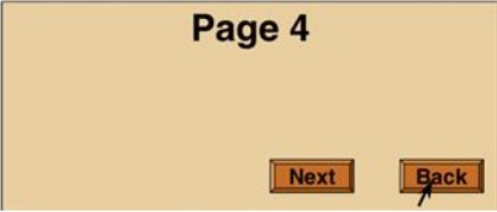
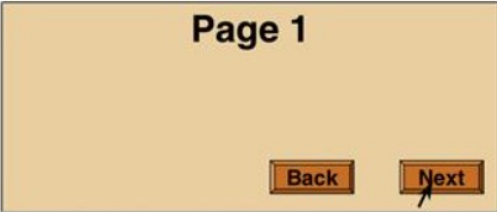
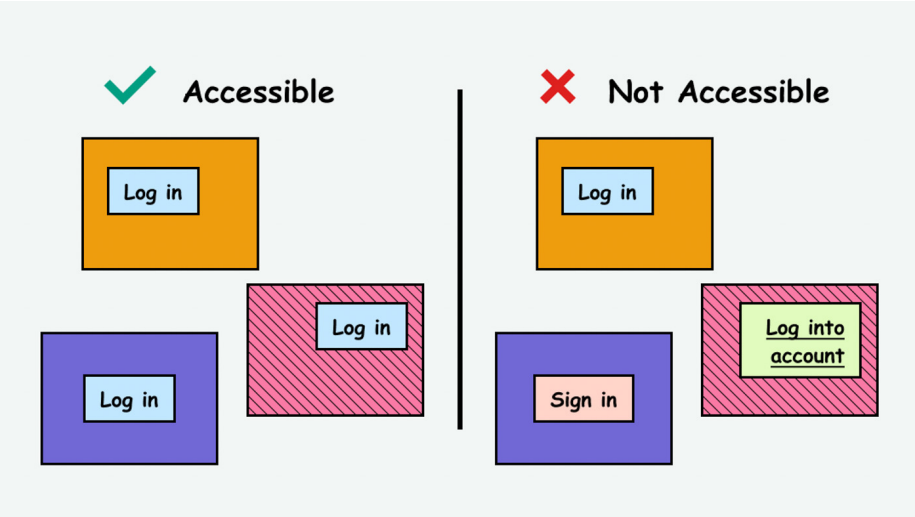
# HOW DO WE TAKE PERCEPTION INTO ACCOUNT

- Avoid ambiguity
- Be consistent
- Understand the goal

# AVOIDING AMBIGUITY

- Make sure that users interpret data the same intended way
- If not, make sure the design principles are consistent or prime users to resolve ambiguity

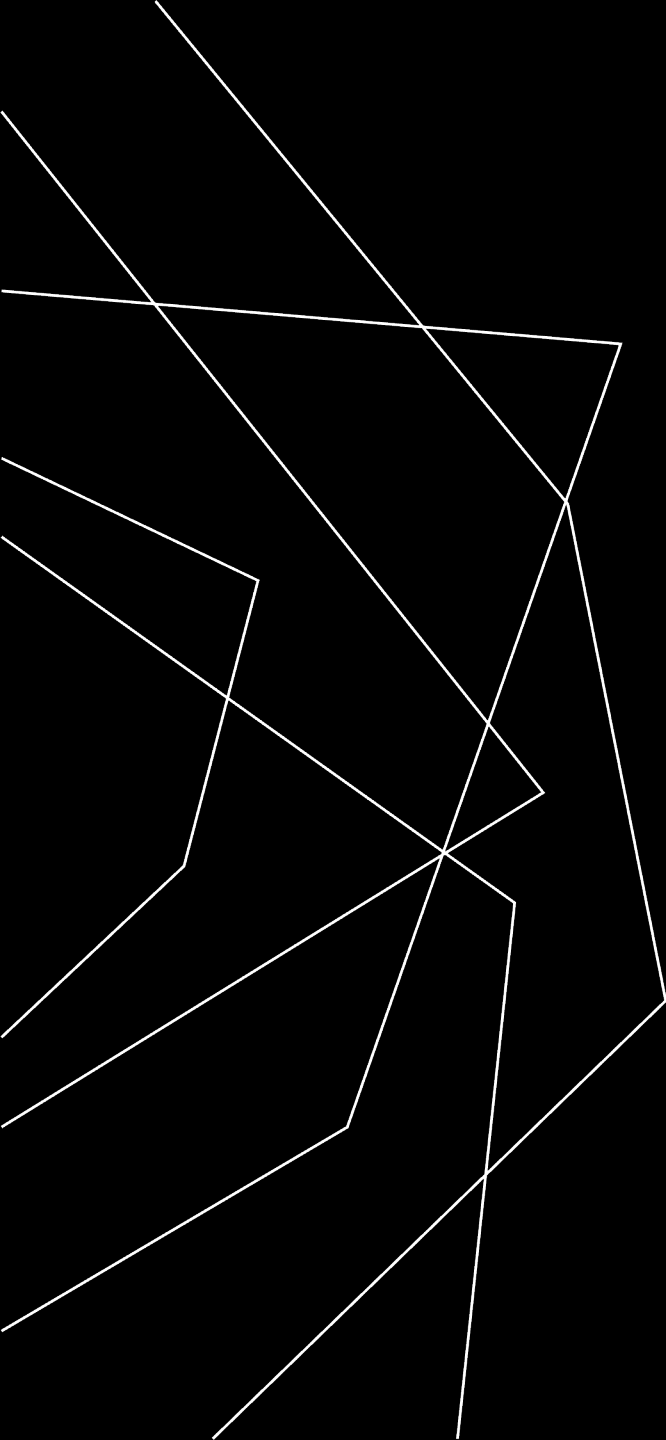
# CONSISTENCY IN DESIGN





# UNDERSTANDING THE USER'S GOAL

- Clearly highlight information that would be important to the user
- Make sure the user is able to notice the information in a quick scan



THANK YOU