Product Realization Group
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Keynote Speaker – Sunil Maulik

How to Design Products that lead to Long-Term Behavioral Change

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About Me:

"T-Shaped" Approach To My Career. **Deep** in science for the first fifteen years:

- B.Sc.'s *Physics & Biology*, Kings College. (Maurice Wilkins, Nobel Laureate.)
- M.Sc. *X-Ray Crystallography*, Birkbeck College. (Sir Tom Blundell.)
- Ph.D. *Biophysics*, Brandeis University (Donald Caspar & Aaron Klug, Nobel Laureate.)

Broad for the past fifteen years: Sales, Marketing, Business Development, Product-Market Fit, Design:

- Mining Data for Actionable Insights
- Iterating & Refining Hypotheses ("Models")
- Changing Behaviors With Improved Models

Each Shift in Computing Unlocks Opportunities for Innovation in New Disciplines
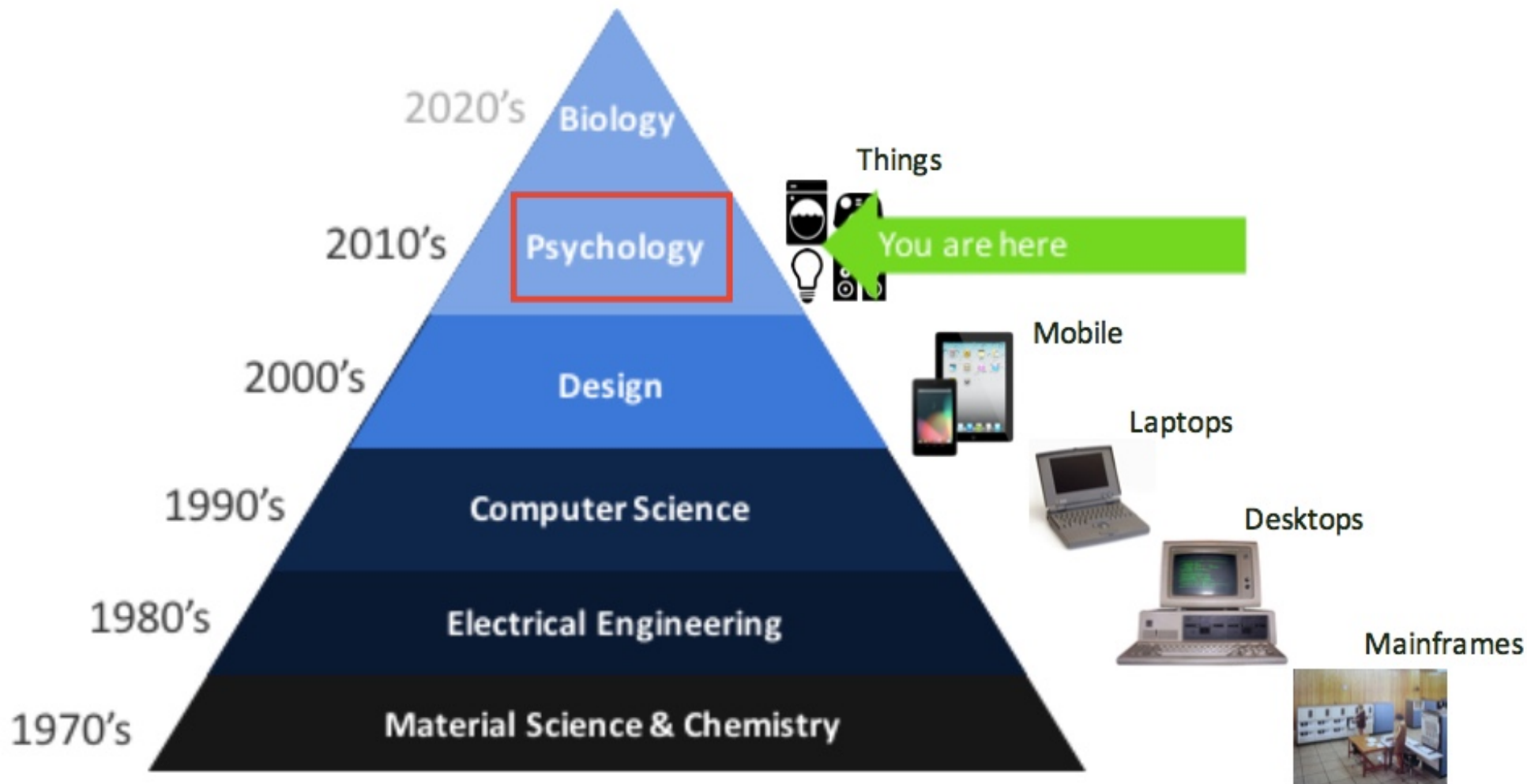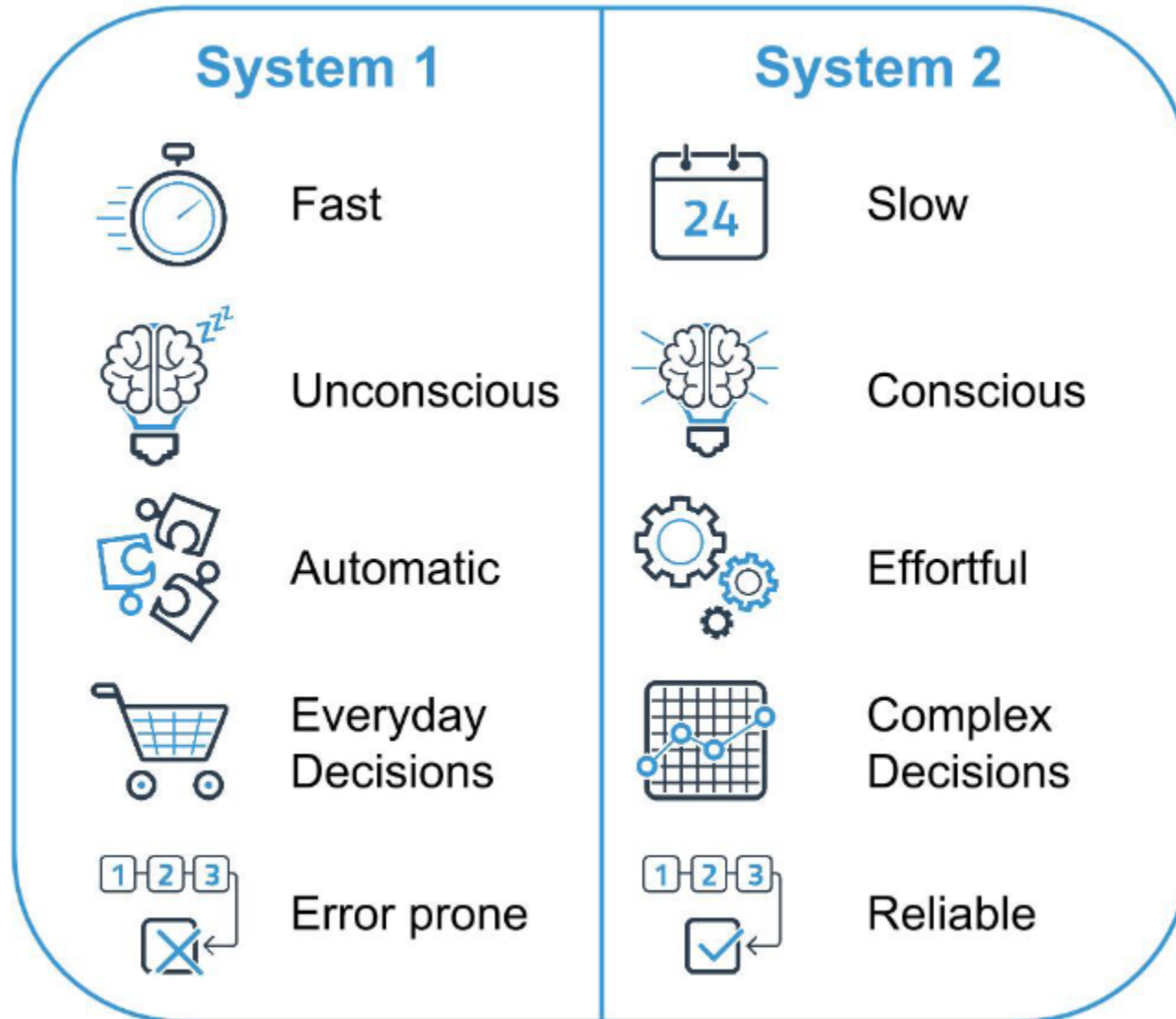
Why We Behave The Way We Do

MANKOFF

"I'm sorry, dear. I wasn't listening. Could you repeat what you've said since we've been married?"
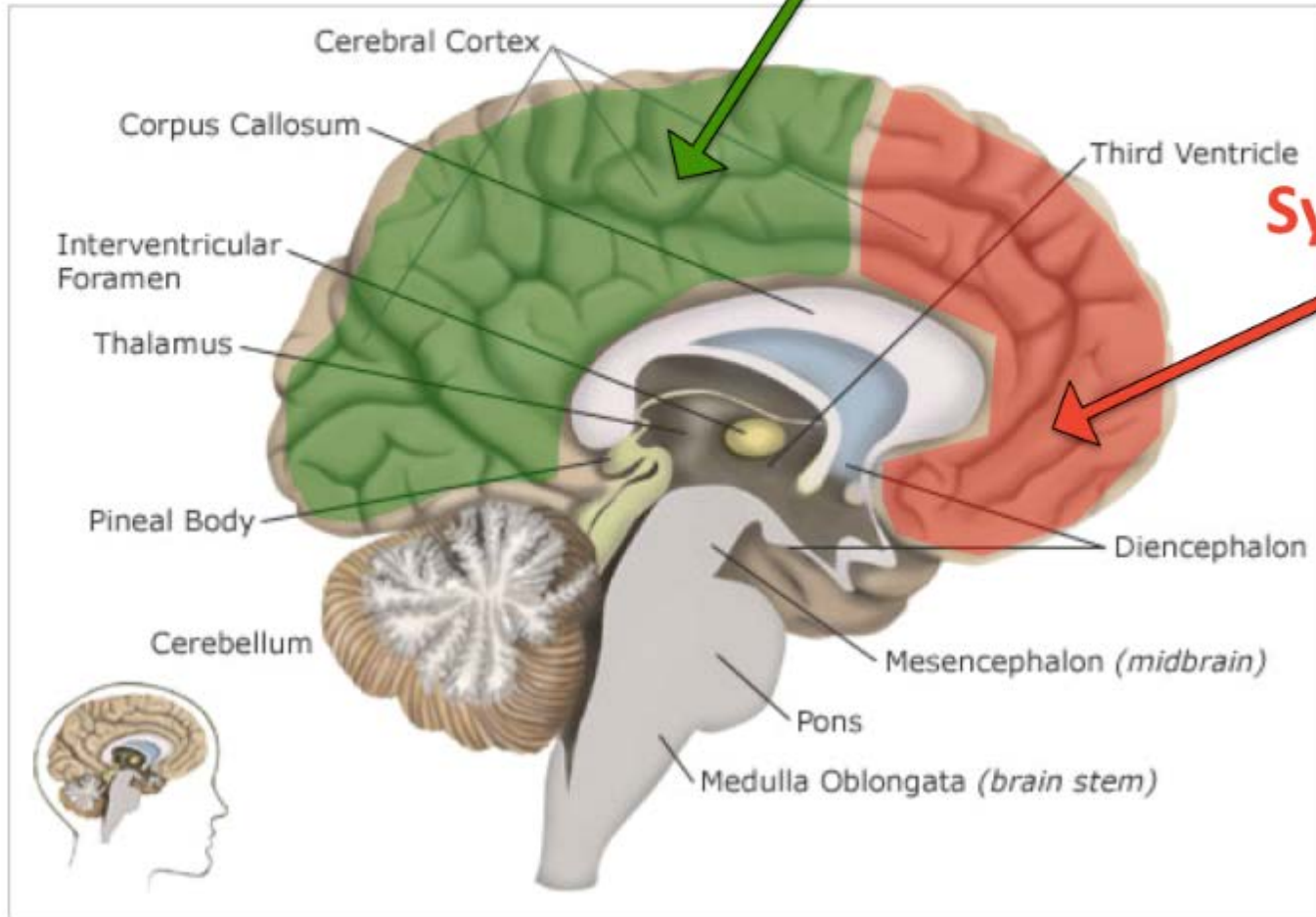
Our *System 1* & *System 2* Minds

"Thinking Fast & Slow" - Daniel Kahnemann

Basic Neuroscience:

System 1

System 2

Cerebral Cortex
Corpus Callosum
Interventricular Foramen
Thalamus
Pineal Body
Cerebellum
Third Ventricle
Diencephalon
Mesencephalon (*midbrain*)
Pons
Medulla Oblongata (*brain stem*)

Weight: 3lbs
O_2 consumption: 25% of total O_2
Caloric Consumption: 20% of total calories
Power Requirement: 12W
Capillaries: 400 miles
No. of Neurons: 86 billion
No. of Connections: 5×10^{14} (500 trillion)
Calculations/s: 10^{16} (10 quadrillion)
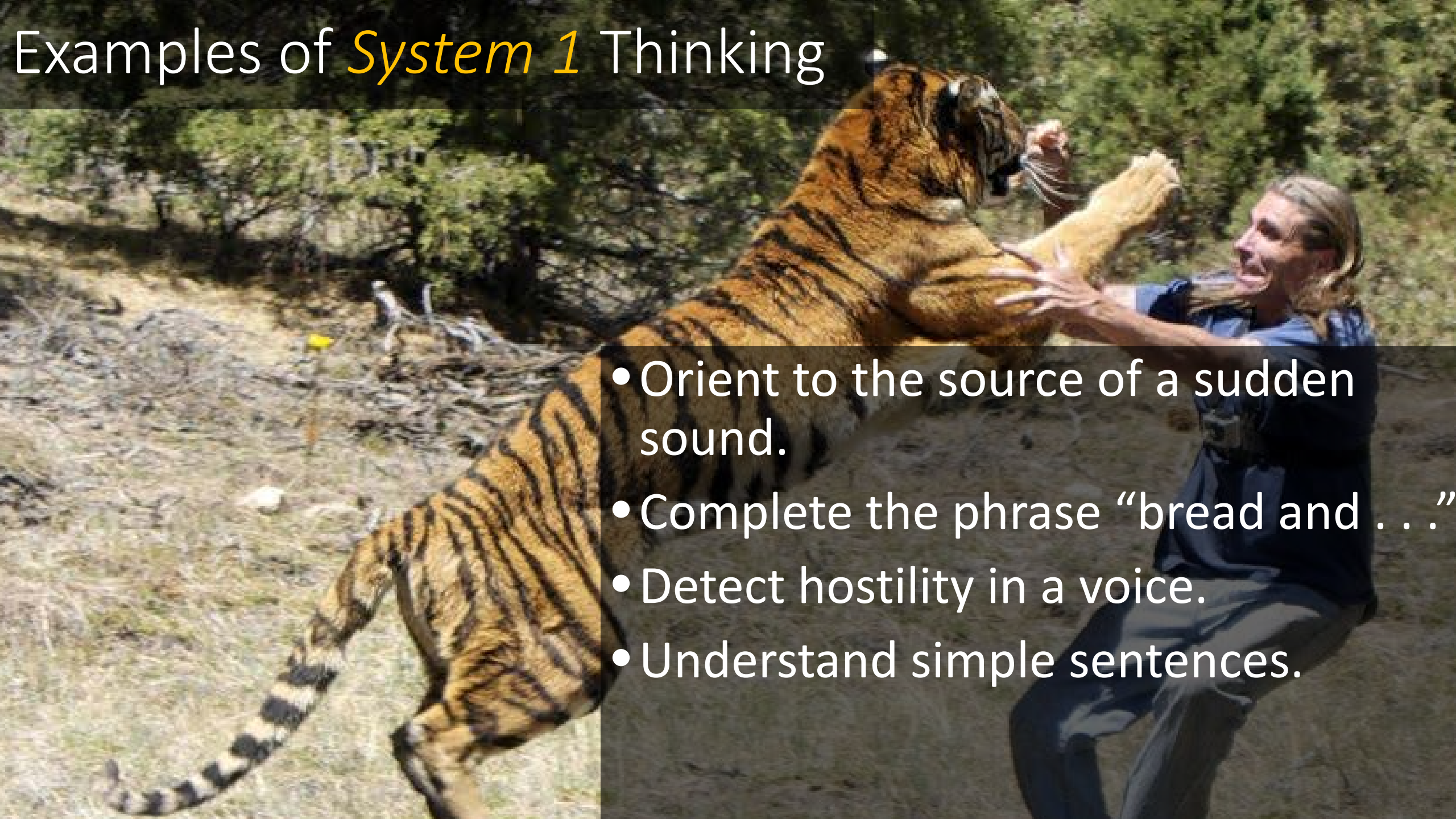**No. Action Potentials/s:** 17.2×10^{12} (17.2 trillion)
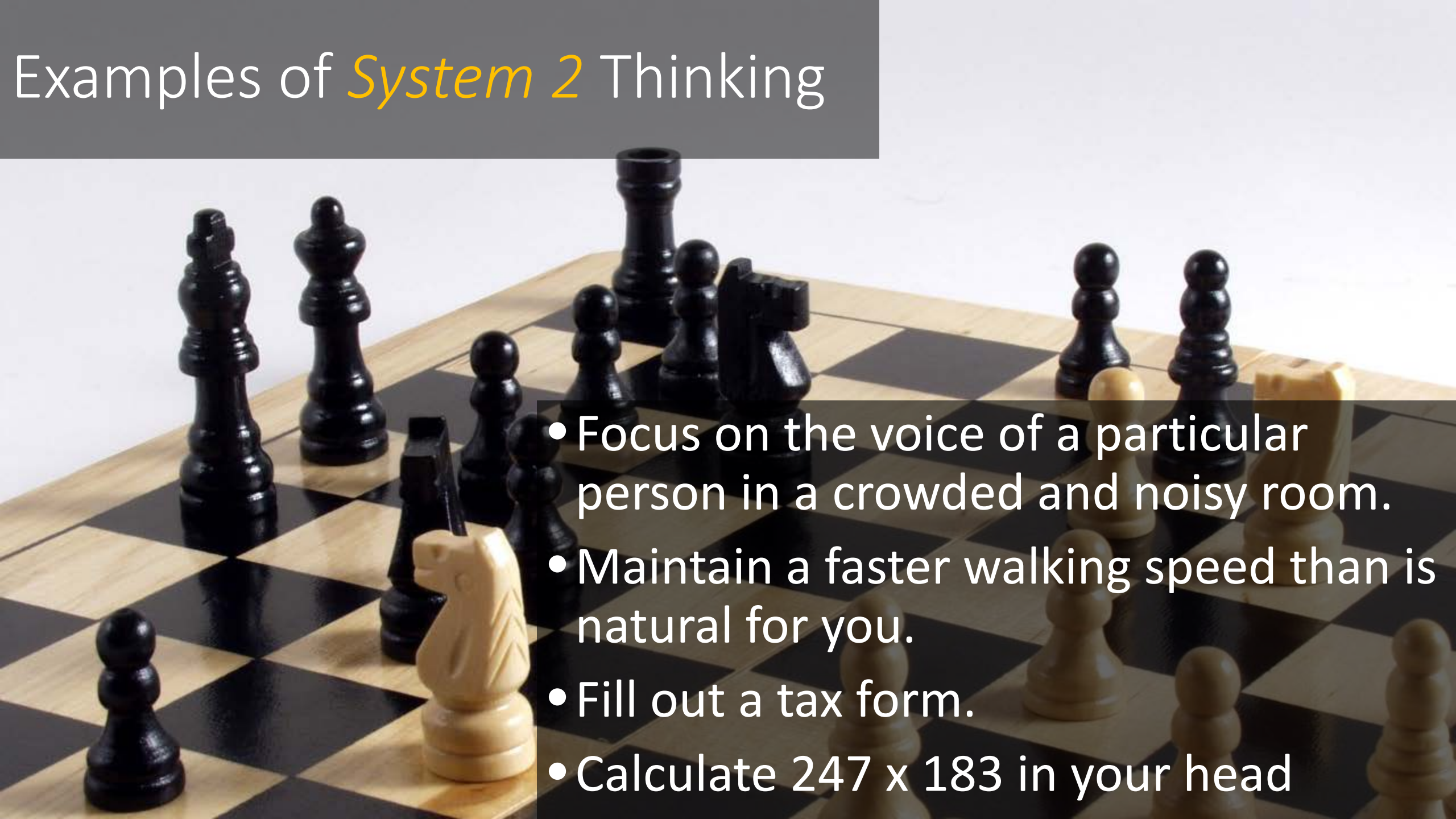**Sensory Processing:** 40 million bits/s
Cognitive Processing: 8000 bits/s
Conscious/Subconscious Processing: 0.02%!

Examples of *System 1* Thinking

- Orient to the source of a sudden sound.
- Complete the phrase "bread and . . ."
- Detect hostility in a voice.
- Understand simple sentences.

Examples of *System 2* Thinking

- Focus on the voice of a particular person in a crowded and noisy room.
- Maintain a faster walking speed than is natural for you.
- Fill out a tax form.
- Calculate 247 x 183 in your head

"The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant but has forgotten the gift." – Albert Einstein.

How We Make Most Of Our Decisions

- Most of the time, **we are not consciously deciding** what to do next.

- We often act **based on habits.**

- We often make **intuitive, immediate decisions** based on past experiences.

- When consciously thinking, we often **avoid hard work.** We often "wing it" with rough guesses.

- We look to **other people,** especially peers and experts.

MANKOFF

"Look, I can't promise I'll change, but I can promise I'll pretend to change."

Making Better Decisions:
Unconscious Biases

- Excessive Optimism
- Overconfidence
- Confirmation Bias
- Anchoring
- Groupthink
- Egocentrism
- Loss Aversion
- Sunk-cost fallacy
- Escalation of commitment
- Controllability bias
- Status quo bias
- Present bias

Priming:

Students primed with words about Florida walked slower than students primed with words about New York.

[A reminder of a feature tees up behaviors reminiscent of that feature.]

Anchoring:

Shoppers showed $10, $30 and $149 bottles of wine bought the $30 bottle more often than if just shown the $10 and $30 bottles.

[Behaviors cluster around a comparison to supposed "norms".]

Framing:

With a sign "limit 12 per customer" for soup cans, people take 5 on average rather than 2.

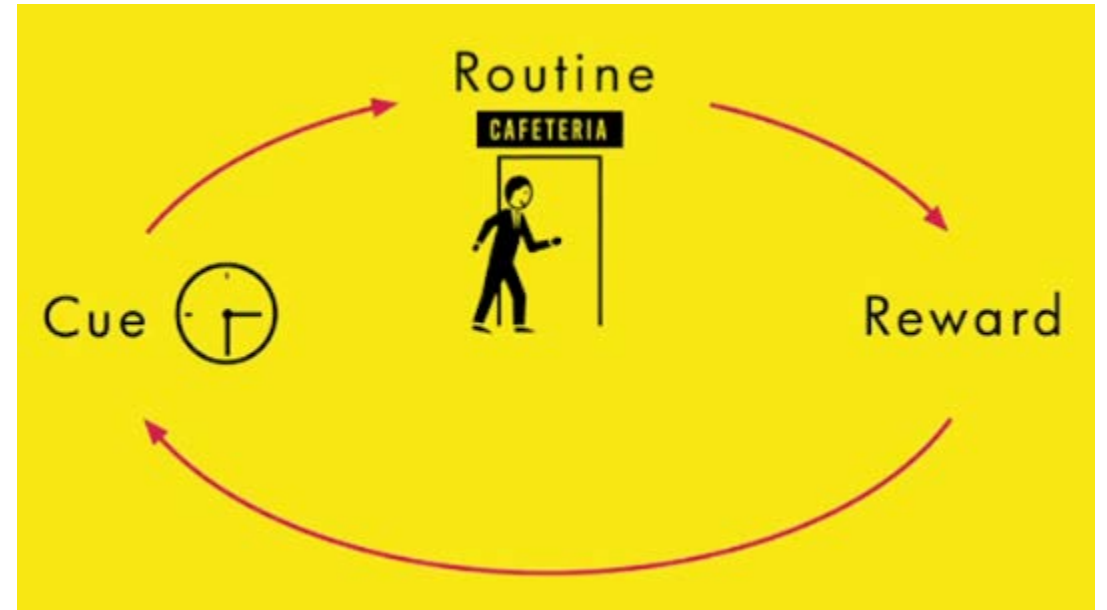*[Decisions get framed around a linguistic concept.]*

Loss Aversion:

Traders sell shares that have been going up sooner than shares that have been going down.

[Behaviors typically minimize loss rather than maximize gain.]

Habit Design

"Never trust an overweight habit designer." – Nir Eyal

Habits: Behaviors done with little conscious thought

"The Power of Habit" Charles Duhigg.

How do we turn decisions into habits?

Spectrum Of Thinking Interventions

Very familiar; No thinking		Semi-familiar; Limited thinking		Unfamiliar; Intensive Thinking
Habits	Intuitive Responses and Assessments	Intuitive Check of Self-Concept	Heuristics	Conscious, Cost-benefit Calculations

Persuasive Technology

High motivation

TRIGGERS
Succeed Here

MOTIVATION

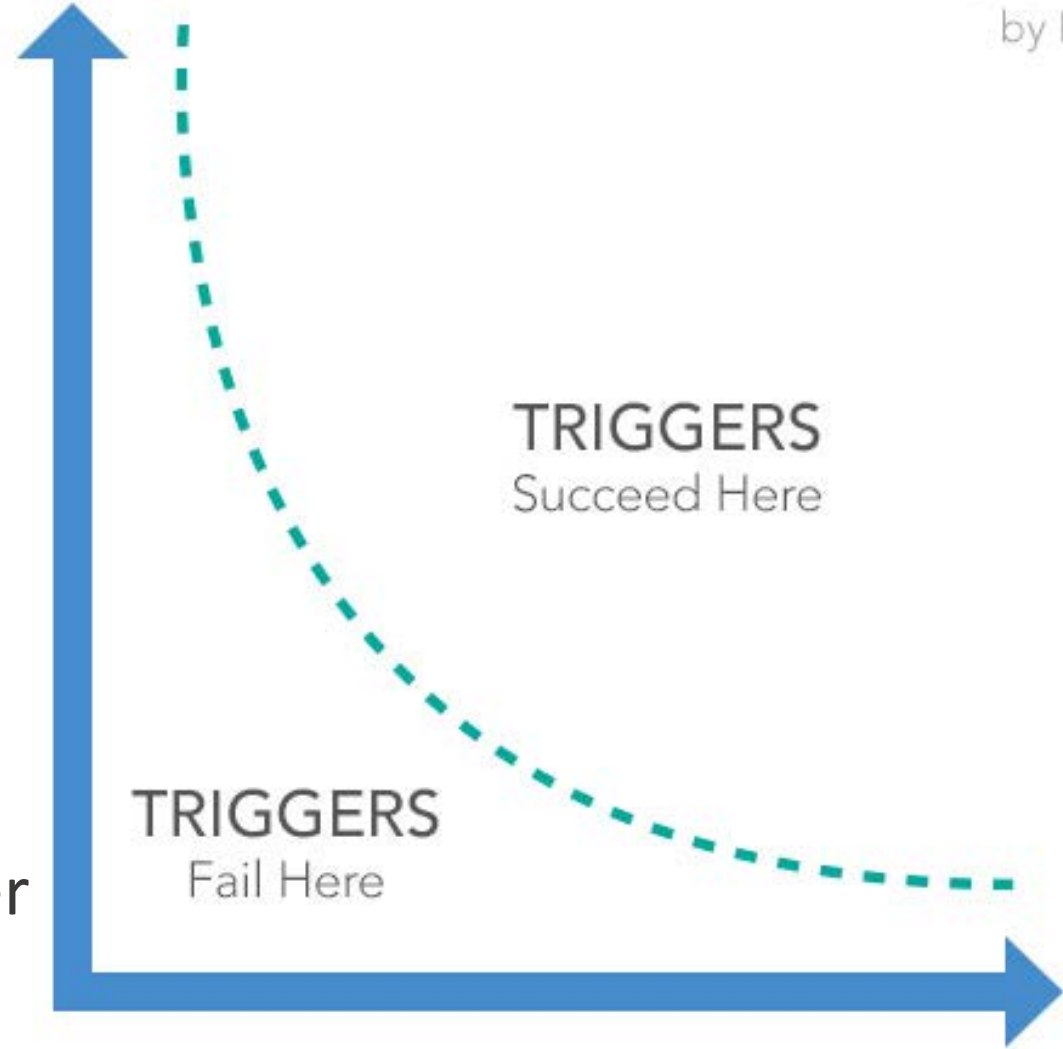**TRIGGERS**
Fail Here

Behavior = Motivation + Ability + Trigger
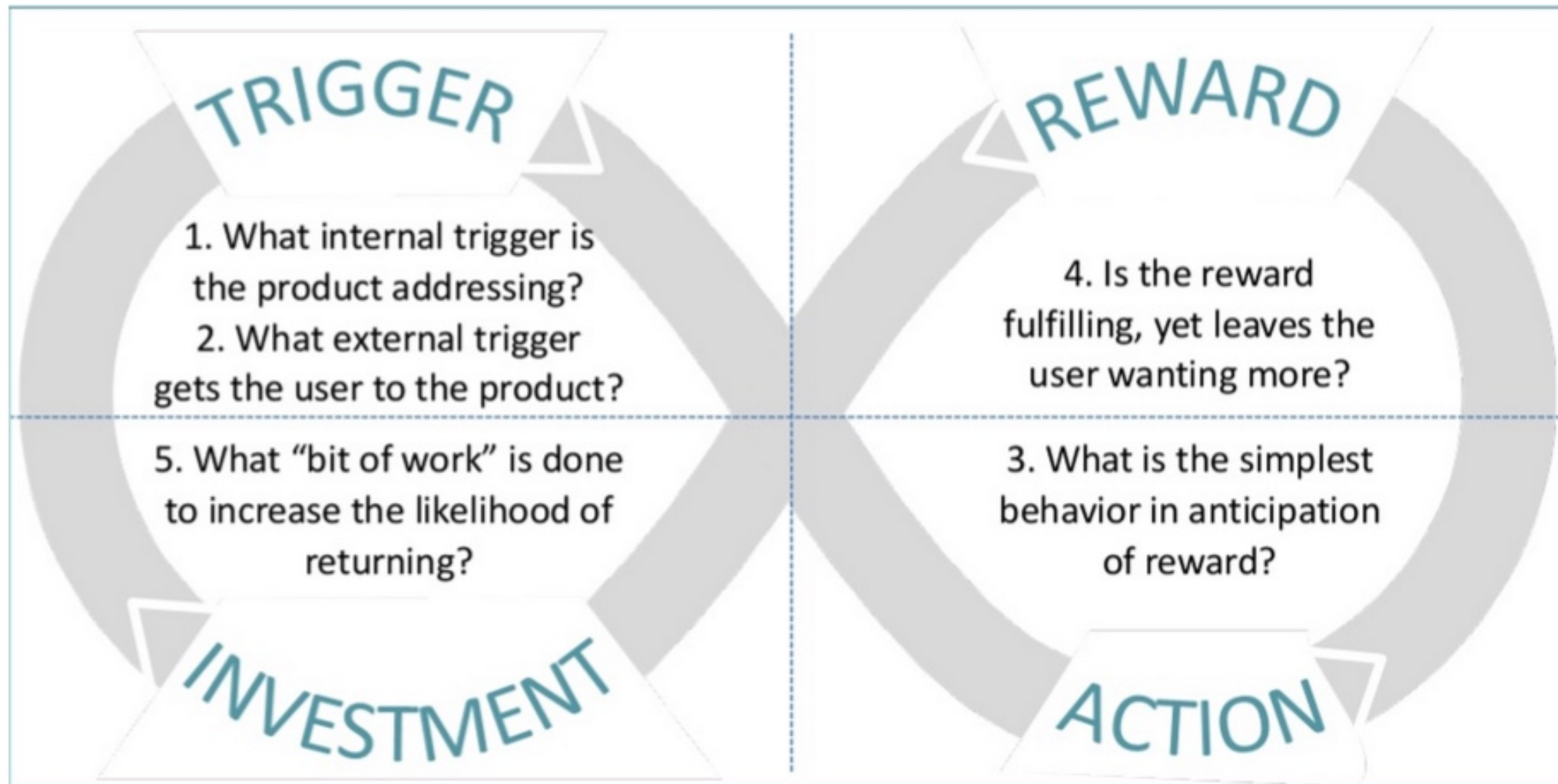
ABILITY   Easy to take action

Hook Model of Habit Design

- *Hooks* are experiences designed to *connect the user's problem to a solution* frequently enough to form a habit

- To form a habit, people must do the behavior *frequently*.

The Hook

Trigger

External

Internal

Action

Investment

Variable Reward

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Implementing "The Hook"

TRIGGER

1. What internal trigger is the product addressing?
2. What external trigger gets the user to the product?

REWARD

4. Is the reward fulfilling, yet leaves the user wanting more?

INVESTMENT

5. What "bit of work" is done to increase the likelihood of returning?

ACTION

3. What is the simplest behavior in anticipation of reward?

External Triggers:

Cues that tell the user what to do next:
- A button (click to Tweet, play or start)
- A flashing light or sound
- A progress-bar or completion chart

Internal Triggers:

Internal triggers are **emotions** that we associate with an activity:

- When we're *lonely*, we check Facebook
- When we're *uncertain*, we check Google
- When we're *bored*, we check YouTube or Pinterest

Using Triggers for Behavior Change

- Remove **user work** wherever possible
- **Automate the action** behind the scenes
- Initiate with a **meaningful** trigger
- Provide an **immediate, variable reward**
- Ask for some **investment** from the user
- **Build new behaviors** on top of existing ones.

"What if we don't change at all … and something magical just happens?"

Behavioral "Lenses" that Trigger Better Decisions

"What people say, what people do, and what people say they do are very different things." - Margaret Mead

Positioning pedestrian-crossing push-button units at an angle makes it more likely that pedestrians will turn to look at oncoming traffic.

Error-Proofing Lens: *Interlock*

Modern ATM Machines won't dispense cash until after you remove your card, making it less likely that you'll leave it behind. (Changed with new chip-cards, however!)

Interaction Lens: *Feedforward/Simulation*

savings & loan *simulators* can influence users' future behavior and decisions.

Ludic (Playful) Lens: *Unpredictable Reinforcement*

Providing variable, unpredictably-timed rewards leads to greater consistency when changing people's behaviors

Perceptual Lens: *Transparency*

Dyson's transparent dust container both demonstrates the vaccum cleaner's effectiveness and encourages users to empty it more often.

Perceptual Lens: *Perceived Affordances*

Reshaping the holes on trash bins to match the 'form' of different types of waste increases recycling.

Cognitive Lens: *Social Proof*

Amazon's recommendations can help buyers expand their buying decisions, while subtly pressurizing them to conform to social norms.

Making Products "Scale" into their Target Markets

"To predict the behavior of ordinary people in advance, you only have to assume that they will always try to escape a disagreeable situation with the smallest possible expenditure of intelligence." - Friedrich Nietzsche

Scale: *Creating mass behavior change*

- **Dynamically adjust** data/content shown to users based on success of past content.
- Explore new content with a **new target minority** of users.
- Add new content **if it is successful** at eliciting the desired behavior in the new target market.

- Identify areas where cycling through the habit-model becomes **faster**, more **frequent**, or more **rewarding**.
- Identify **nascent behaviors**. These are new behaviors that may fulfil a **mass-market** need.
- Create new **triggers** that stimulate these behaviors.

Scaling: *Make scaling contagious*

- Identify **social currency**, such as remarkability, scarcity or exclusivity. Create an emotional response; either **awe, anxiety** or **arousal**.
- Enable **social display** e.g. "behavioral residue" – traces of the product or service.
- Allow for **storytelling** – give the user every opportunity to relate their experience

Examples:

In Conclusion…

"The idea is to not only grow our piece of the pie, but to expand into other nearby pastries."

"The only way of discovering the limits of the possible is to venture a little way past them into the impossible." – Arthur C. Clarke

Need Help Designing Your Products? – See Me!

Thank You

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