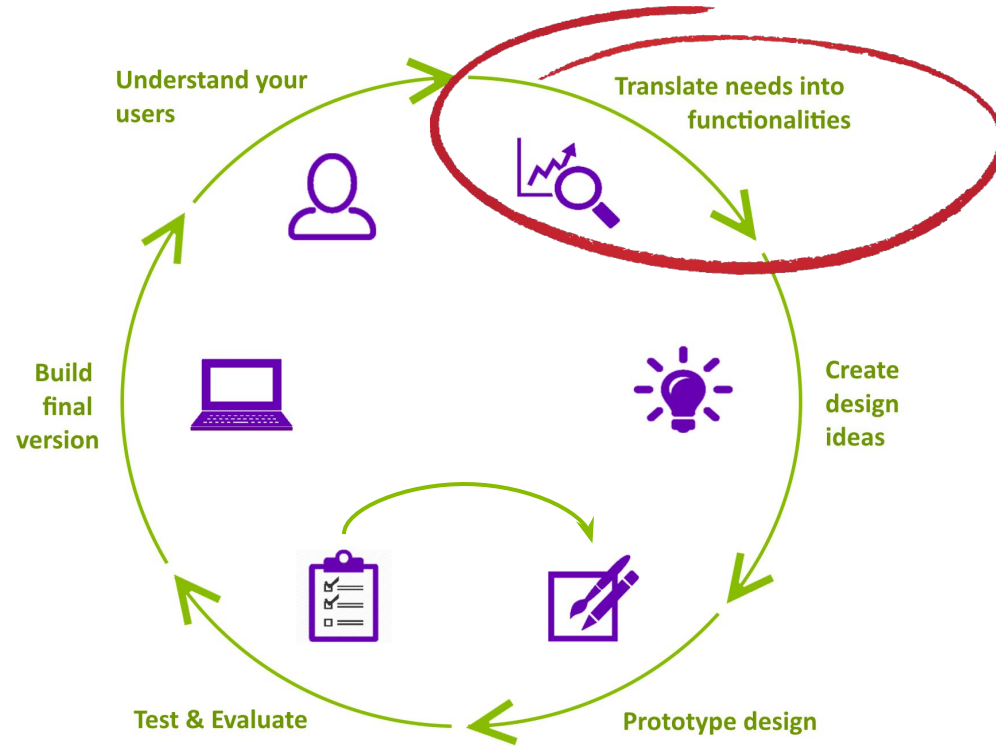


CS449/649: Human-Computer Interaction

Spring 2017

Lecture VI

Anastasia Kuzminykh



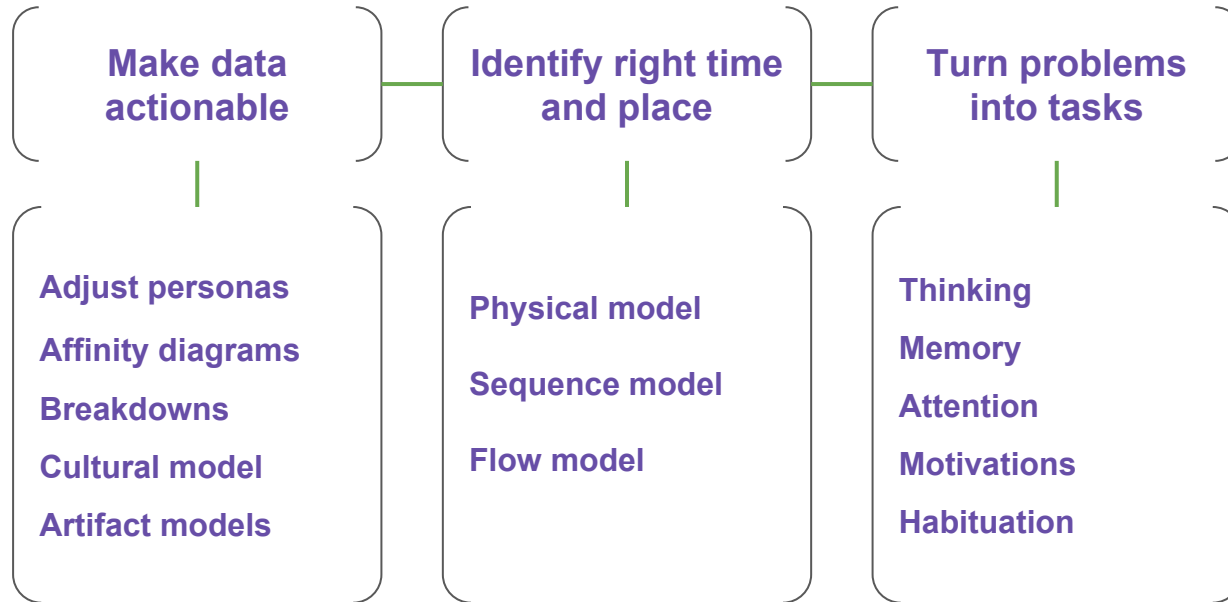


Translating Needs Into Functionalities



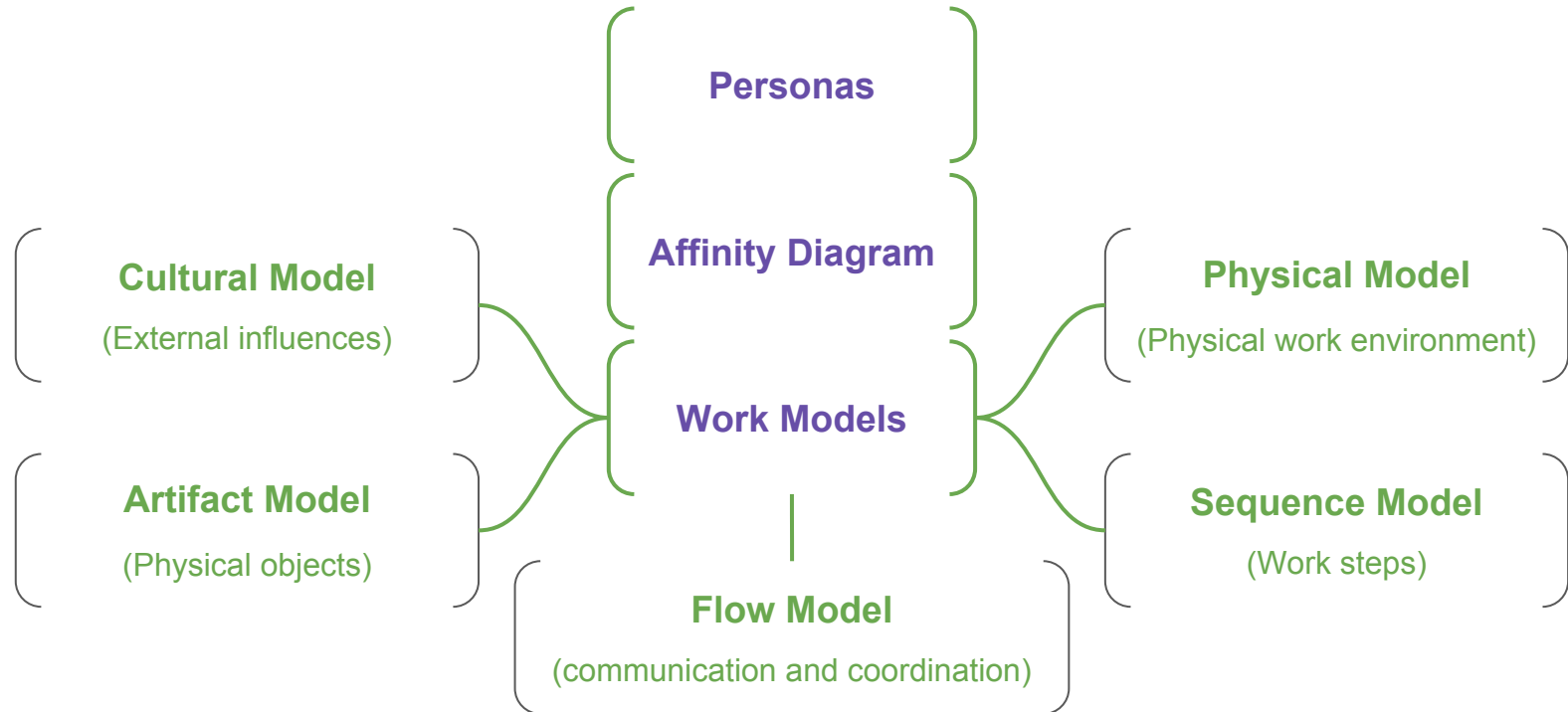


Translating Needs Into Functionalities



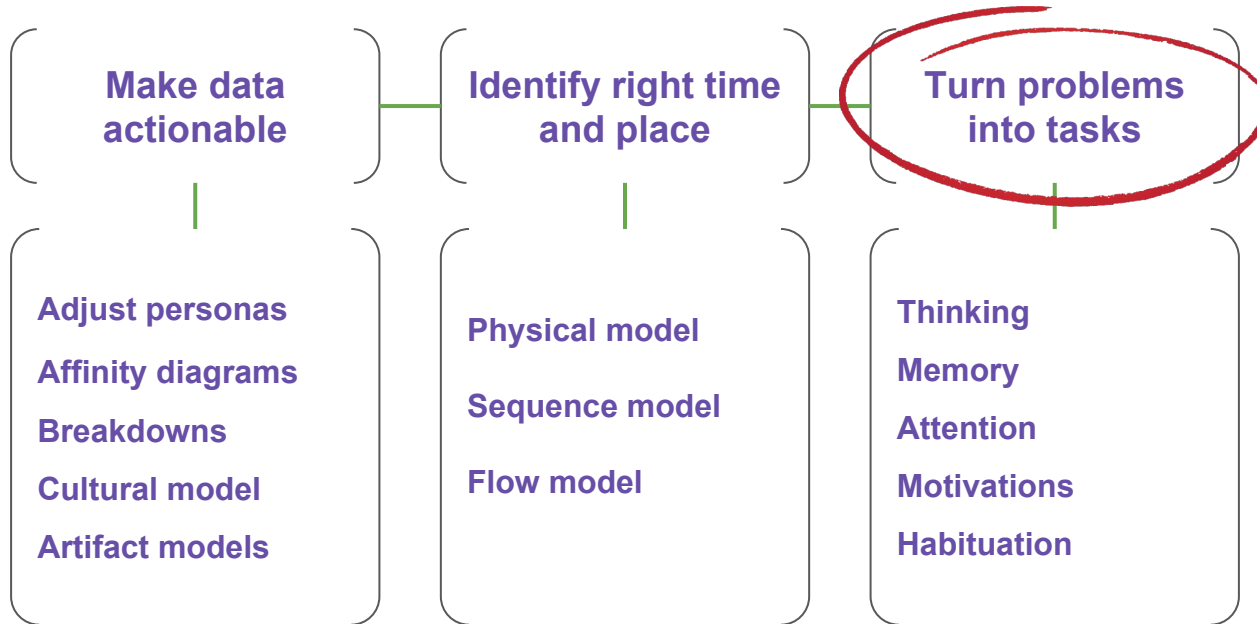


Translating Needs Into Functionalities: Preparation



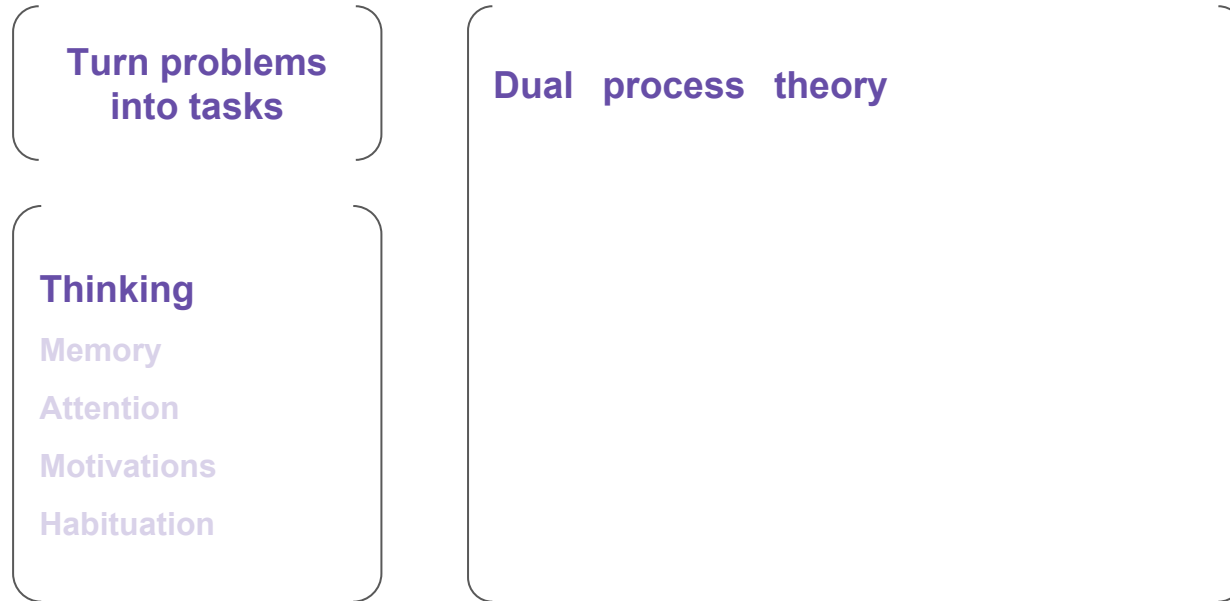


Translating Needs Into Functionalities





Translating Needs Into Functionalities





Translating Needs Into Functionalities

System 1

$$4 / 2 = ?$$



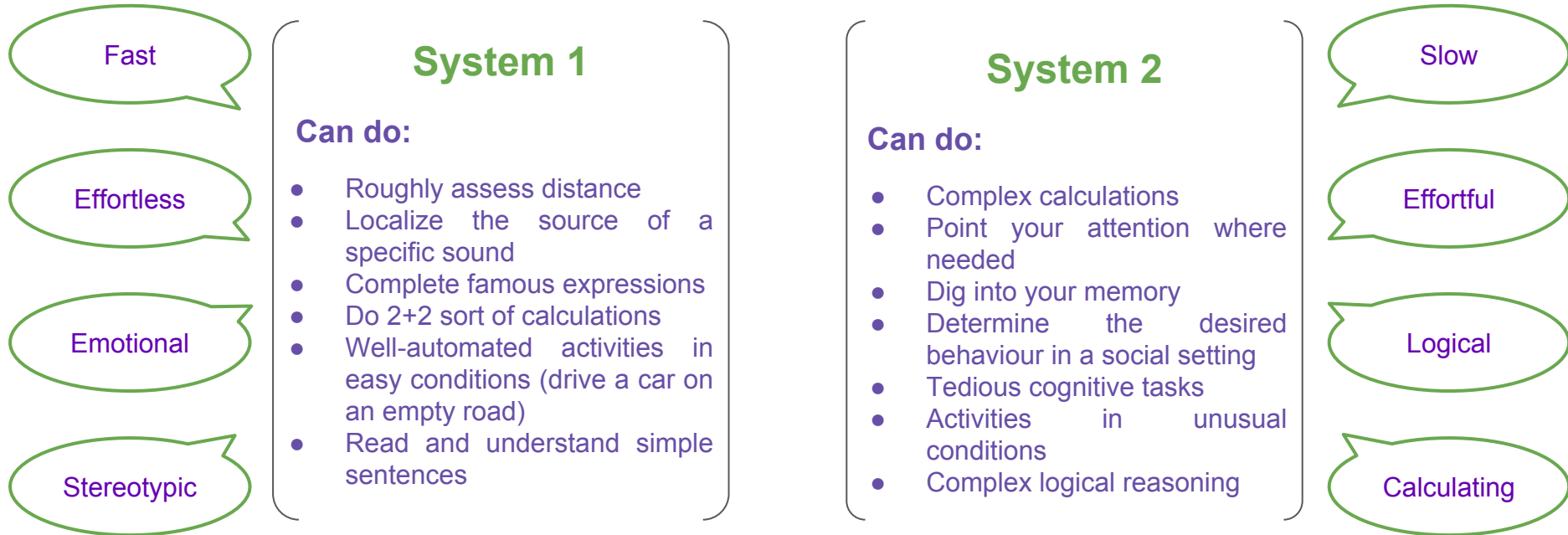
System 2

$$734 / 2.5 = ?$$





Translating Needs Into Functionalities





Translating Needs Into Functionalities

Jonathan St. B. T. Evans & Richard E. Petty
1975, 175, 176

The heuristic-analytic theory of reasoning: Extension and evaluation

Richard E. E. Petty

University of Plymouth, Plymouth, England

In recent years, a number of researchers in the psychology of thinking and reasoning have advanced dual-process theories of cognition (Evans, 1975). I have suggested that people's behavior reflects the operation of two distinct thinking systems. However, these systems are not necessarily independent. I have argued that the systems interact in a complex way and that people use the systems in a variety of ways. I have also argued that the systems interact in a complex way and that people use the systems in a variety of ways. I have also argued that the systems interact in a complex way and that people use the systems in a variety of ways.

own, this comes with a lot of baggage. It is not just a matter of adding a new process to the existing dual-process model. It is a matter of re-examining the entire model. I have argued that the systems interact in a complex way and that people use the systems in a variety of ways. I have also argued that the systems interact in a complex way and that people use the systems in a variety of ways. I have also argued that the systems interact in a complex way and that people use the systems in a variety of ways.

Evans, J. B. T. (1975). A dual-process model of cognition. *Psychological Review*, 82, 106-130.

Copyright 2004 Psychonomic Society, Inc.

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Advances in Experimental Social Psychology

Volume 19, 1986, Pages 123-205



The Elaboration Likelihood Model of Persuasion

Richard E. Petty

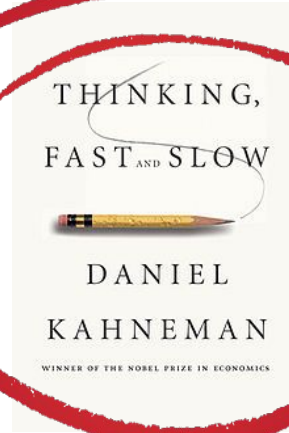
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[https://doi.org/10.1016/0065-2601\(86\)90214-2](https://doi.org/10.1016/0065-2601(86)90214-2)

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Publisher Summary

This chapter outlines the two basic routes to persuasion. One route is based on the thoughtful consideration of arguments related to the issue, whereas the other is based on the affective associations or simple inferences tied to peripheral cues in the persuasion context. This chapter discusses a wide variety of variables that proved instrumental in affecting the elaboration likelihood, and thus the route to persuasion. One of the basic postulates of the Elaboration Likelihood Model—that variables may affect persuasion by increasing or decreasing accuracy of message arguments—has been highly useful in accounting for the effects of a seemingly diverse list of variables. The reviewers of the attitude change literature have been disappointed with the many conflicting effects observed, even for ostensibly simple variables. The Elaboration Likelihood Model (ELM) attempts to place these many conflicting results and theories under one conceptual umbrella by specifying the major processes underlying persuasion and indicating the way many of the traditionally studied variables and theories relate to these basic processes. The ELM may prove useful in providing a guiding set of postulates from which to interpret previous work and in suggesting new hypotheses to be explored in future research.



The intuition-reasoning theory,
Daniel Kahneman,
2003

Personality and Social Psychology Review

2004, Vol. 8, No. 1, 136-247

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Lawrence Erlbaum Associates, Inc.

Reflective and Impulsive Determinants of Social Behavior

Fritz Strack and Roland Deutsch

University of Würzburg

University of Würzburg

The article describes a 2 × 2 factorial study on the determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior.

In the history of attempts to describe the causes of human behavior, the most influential explanation has been the cognitive-behavioral model. This model has been based on the assumption that human beings do what they do because of the way they think. This model has been based on the assumption that human beings do what they do because of the way they think.

The article describes a 2 × 2 factorial study on the determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior. The study found that the reflective and impulsive determinants of social behavior are related to the reflective and impulsive determinants of social behavior.

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The heuristic-analytic
theory of reasoning,
Jonathan St. B. T. Evans, 1975

The elaboration likelihood model,
Richard E. Petty, John Cacioppo,
1986

The reflective and impulsive
determinants theory,
Fritz Strack, Roland Deutsch, 2004



Translating Needs Into Functionalities

**Turn problems
into tasks**

Thinking

Memory

Attention

Motivations

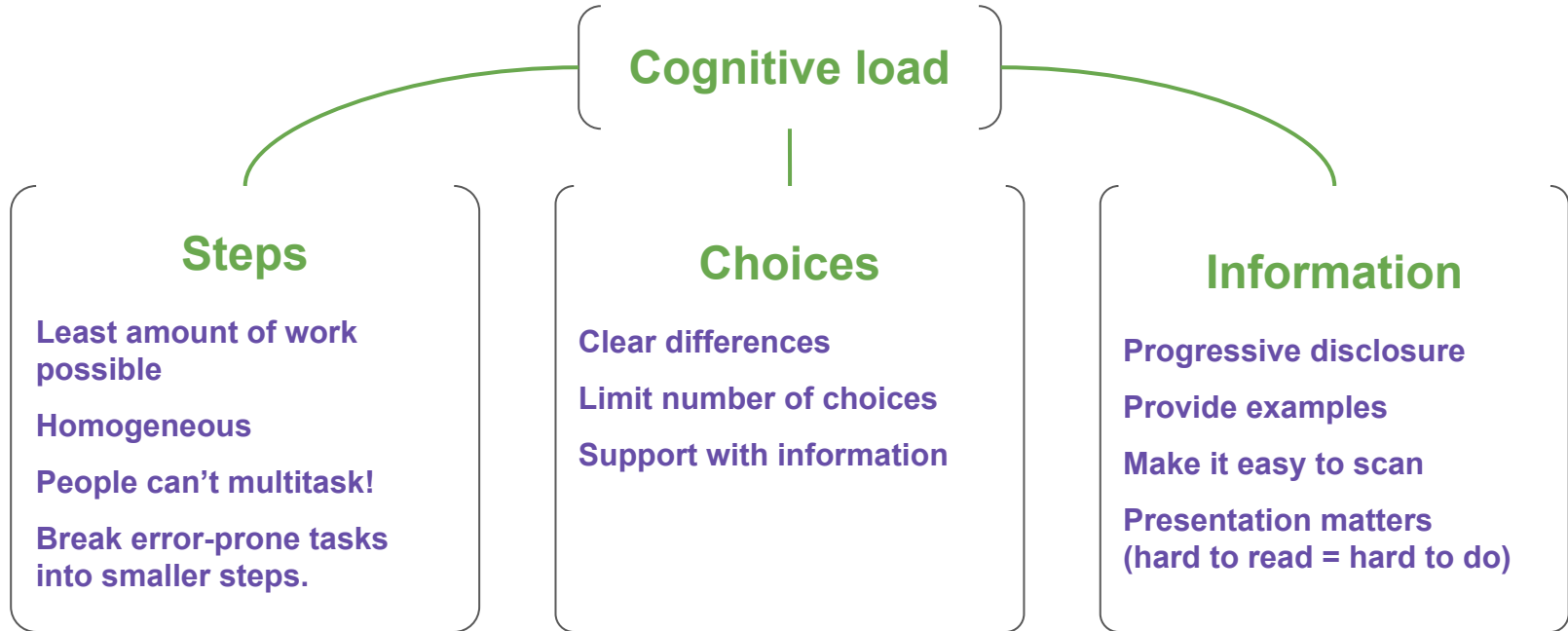
Habituation

Dual process theory

Cognitive load



Translating Needs Into Functionalities





Translating Needs Into Functionalities

Microinteractions by Dan Saffer

Trigger

Rules

Feedback

Loops and modes

Single task
only

Single piece of
data

Controlling an
ongoing
process

Creating a
small piece of
content

Adjusting a
setting

Turning
feature on
and off



Translating Needs Into Functionalities

**Turn problems
into tasks**

Thinking

Memory

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Motivations

Habituation

Dual process theory

Cognitive load

Anticipate mistakes

(should be easy to undo, avoid error-prompt tasks)



Translating Needs Into Functionalities

**Turn problems
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Thinking

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Habituation

Dual process theory

Cognitive load

Anticipate mistakes

(should be easy to undo, avoid error-prompt tasks)

Perception biases

(expectations determine perception)



Translating Needs Into Functionalities

**Turn problems
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Habituation

Dual process theory

Cognitive load

Anticipate mistakes

(should be easy to undo, avoid error-prompt tasks)

Perception biases

(expectations determine perception)

**Age, socioeconomic status, cognitive
abilities influence decision making**



[Are we in control of our decisions? | Dan Ariely](#)



Translating Needs Into Functionalities





Translating Needs Into Functionalities

**Turn problems
into tasks**

Thinking

Memory

Attention

Motivations

Habituation

Perception - storage - retrieval

Recognition rather than recall



Translating Needs Into Functionalities

**Turn problems
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Memory

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Perception - storage - retrieval

Recognition rather than recall

**People can remember ~3-4 items at a
time.**



Translating Needs Into Functionalities

**Turn problems
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Memory

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Habituation

Perception - storage - retrieval

Recognition rather than recall

People can remember ~3-4 items at a time.

Zeigarnik effect - interrupted tasks are easier to remember (depends on the importance of the interrupted task for the person)



Translating Needs Into Functionalities

Turn problems
into tasks

Thinking
Memory
Attention
Motivations
Habituation

Focused attention is limited and
selective



Translating Needs Into Functionalities

**Turn problems
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**Focused attention is limited and
selective**

Inattentional blindness



Translating Needs Into Functionalities

**Turn problems
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Thinking

Memory

Attention

Motivations

Habituation

Focused attention is limited and selective

Inattentional blindness

Surface (awareness of features) **and content attention** (awareness of information)



Translating Needs Into Functionalities

**Turn problems
into tasks**

Thinking

Memory

Attention

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Habituation

Focused attention is limited and selective

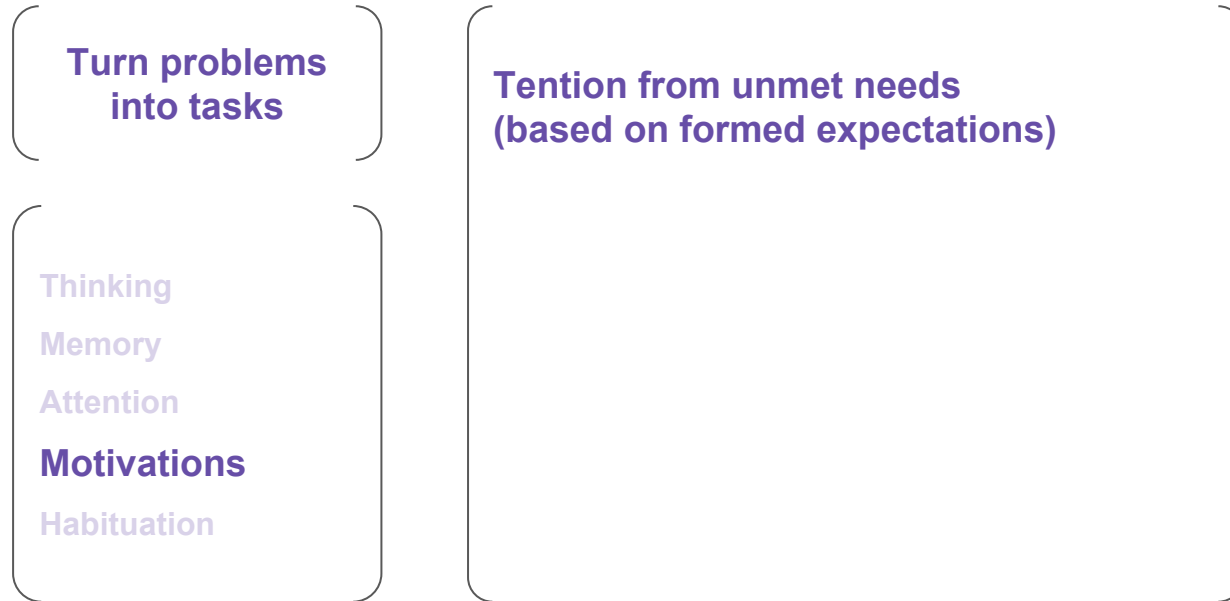
Inattentional blindness

Surface (awareness of features) **and content attention** (awareness of information)

Attention is dynamic - allow hierarchy



Translating Needs Into Functionalities





Translating Needs Into Functionalities

**Turn problems
into tasks**

Thinking

Memory

Attention

Motivations

Habituation

**Tention from unmet needs
(based on formed expectations)**

Work must be meaningful



Translating Needs Into Functionalities

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**Tention from unmet needs
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Work must be meaningful

Reward wisely



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Habituation

**Tention from unmet needs
(based on formed expectations)**

Work must be meaningful

Reward wisely

Desire to belong to a group

In-group/out-group biases



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**Tention from unmet needs
(based on formed expectations)**

Work must be meaningful

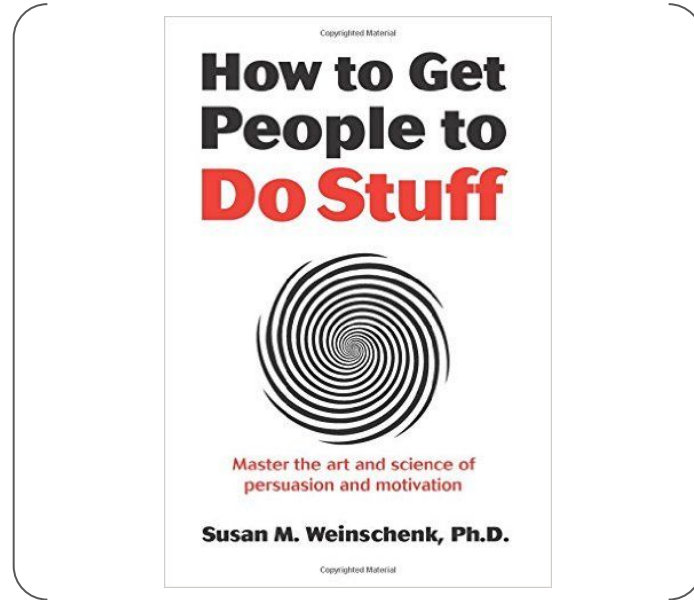
Reward wisely

Desire to belong to a group

In-group/out-group biases

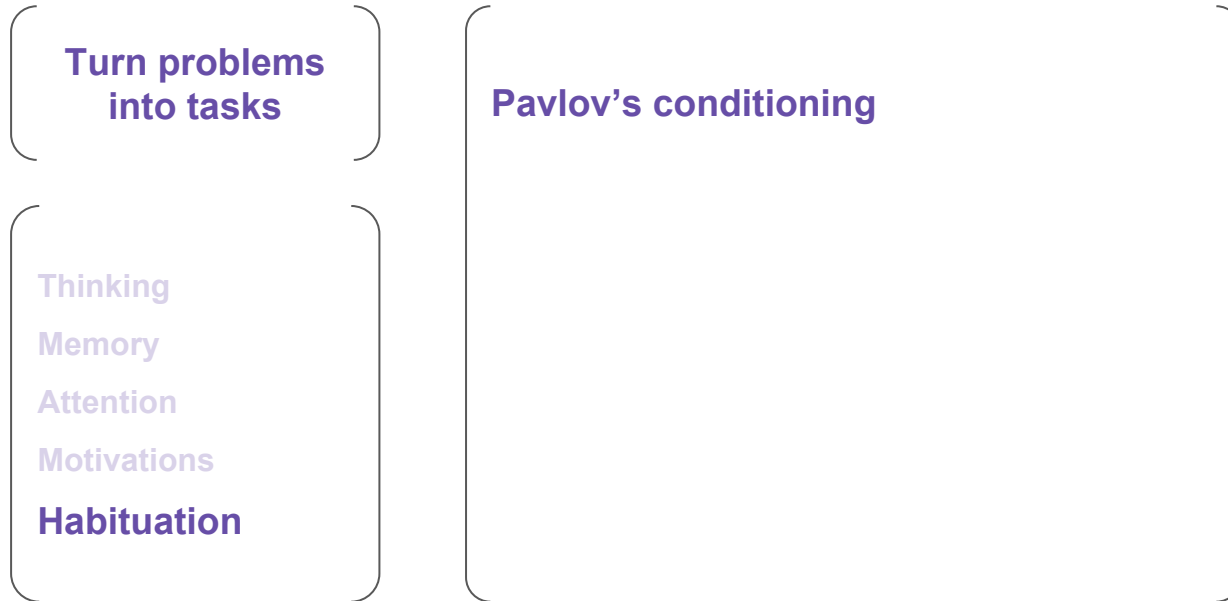


Translating Needs Into Functionalities





Translating Needs Into Functionalities





Translating Needs Into Functionalities

**Turn problems
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Thinking

Memory

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Motivations

Habituation

Pavlov's conditioning

Skinner's operant conditioning (with
reinforcement)



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Pavlov's conditioning

Skinner's operant conditioning (with
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Based on formed patterns



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Pavlov's conditioning

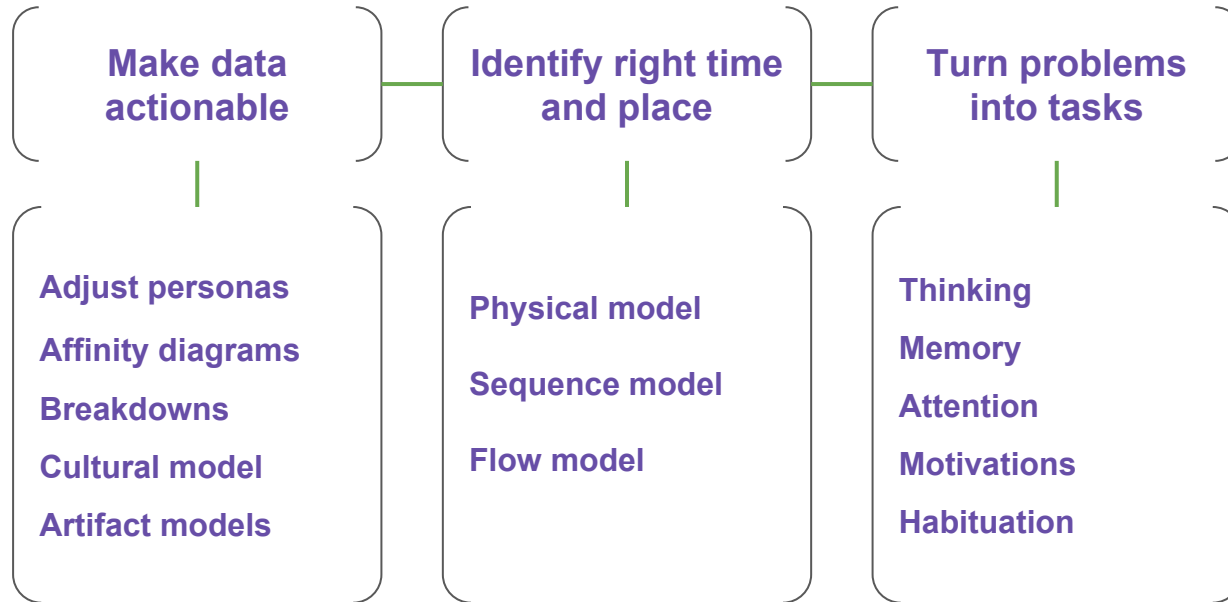
Skinner's operant conditioning (with reinforcement)

Based on formed patterns

Creating new habits: stimulus - response; breaking the pattern



Translating Needs Into Functionalities



Week 3 take-away

- Affinity diagrams
- Breakdowns
- Work models: cultural, artifact, physical, sequence, flow models
- Psychology basics for design understanding:
 - Thinking
 - Memory
 - Attention
 - Motivations
 - Habituation