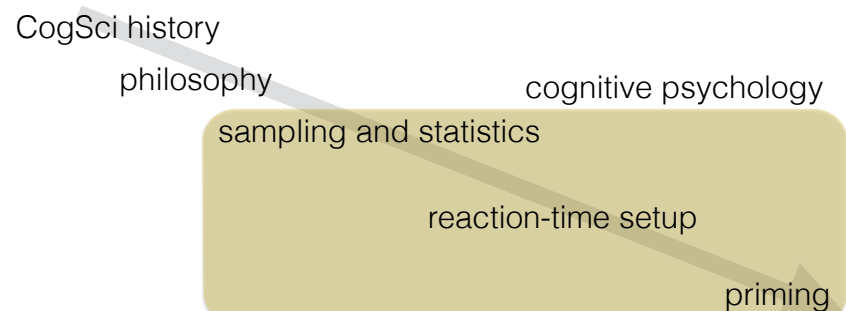# COGS 105

Research Methods for Cognitive Scientists
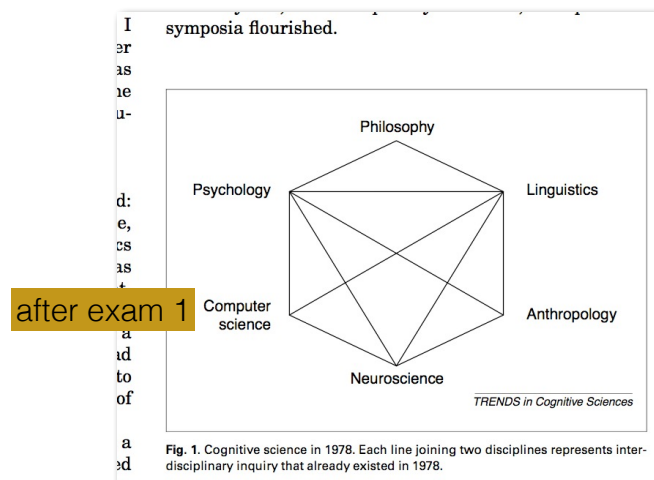
Week 5, Class 1:
Behavioral Methods III: Social Cognition and Priming

Our Path So Far

- Remember, cognitive science is a radically interdisciplinary field, so we will be covering a diverse array of material.

CogSci history

philosophy

cognitive psychology

sampling and statistics

reaction-time setup

priming

Cognitive Revolution!

symposia flourished.

Philosophy

Psychology

Linguistics

after exam 1   Computer science

Anthropology

Neuroscience

TRENDS in Cognitive Sciences

Fig. 1. Cognitive science in 1978. Each line joining two disciplines represents interdisciplinary inquiry that already existed in 1978.
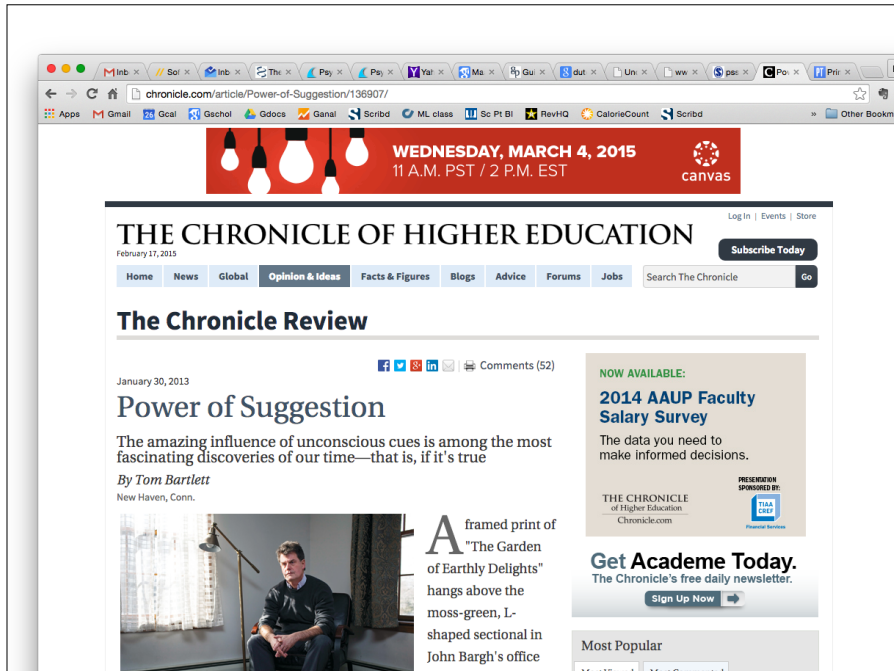

Social Cognition and Priming

- "The pervasive role of automaticity in psychological theory and research."

- "some basic social-perceptual processes … could have efficient [but] unintentional components (… operat[ing] outside of one's awareness]." (Bargh et al. reading)

Feature Review

Automaticity in social-cognitive processes

John A. Bargh, Kay L. Schwader, Sarah E. Hailey, Rebecca L. Dyer, and Erica J. Boothby

Slide 1

THE CHRONICLE OF HIGHER EDUCATION

The Chronicle Review

Power of Suggestion

The amazing influence of unconscious cues is among the most fascinating discoveries of our time—that is, if it's true

By Tom Bartlett
New Haven, Conn.

Slide 2

Priming

- Definition: Priming is a **family of methods** where we bias a decision or response through presenting subtle (even sometimes unconscious) information to a participant.

- For example, classic work with RT has shown that you can prime related words.

  - E.g., in LDT you can prime a response to "dog" using "cat" even if "cat" is shown for just milliseconds and subconsciously before the "dog" stimulus appears.

Slide 3

"bias"

Types of Priming

Prior Priming   prime ⟶ target

Concurrent Priming   prime prime prime / target

Context Priming   prime

target

Slide 4

Example Prior Priming

- Semantic priming. Here, respond to a word with your right hand only if the word you see relates closely to a semantic category: **dogs**.

leash
oven
fetch
leaf
branch
roots
bark

slowed RT due to priming by tree-related concepts

Priming Types

- Not all primes are "unconscious" in the subliminal sense. They may be unconscious in the sense that they are "not noticed" as affecting participant behavior.

  - Prior priming can be "unconscious" if you present the prime quickly so that it is not immediately processed (though it may have been **implicitly perceived and processed**).

  - Concurrent primes can be unconscious in the sense that the primes **may not seem to be related to the outcome** of the task; but participants get affected anyway.

  - Context primes may be unconscious in that the **participants are unaware that you have setup a context** to prompt them to think of a decision or solution or perception.

Plan

- Priming in high-level visual perception

- Priming in social cognition: behavior contagion

- The embodied nature of social priming

- Moderators in behavior contagion

- Developmental issues in social priming

- Unconscious thought theory

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In Vision

- You can subtly prime a wide variety of cognitive processes, including visual ones. What do you see in this picture?

  left side

  dog

  sniffing

Examples...

mendacity

cheater

dishonest

Priming experiment...

They chatted

The birdies sipped

Priming

There Is No Naked Eye:
How Higher-Order Social Concepts Clothe Visual Perception

Balcetis TEDx Talk

https://www.youtube.com/watch?v=QeIrdqU0o9s

Priming

- One reason priming works is that our perceptions and decisions and judgments are made under great **uncertainty**.

- Priming — the subtle influence of related information — can **help our cognitive system resolve some of that uncertainty**, even if it is sometimes unconscious.

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Social Priming

- You can prime in all sorts of ways. The method is widespread in social psychology.

  - The study of social cognition seems to often involve the activation of a source concept (say, a stereotype), and then we see how decisions or behaviors are affected.

Slide 1

Feature Review

Automaticity in social-cognitive processes

John A. Bargh, Kay L. Schwader, Sarah E. Hailey, Rebecca L. Dyer, and Erica J. Boothby

Yale University, Department of Psychology, 2 Hillhouse Avenue, New Haven, CT 06520, USA

Over the past several years, the concept of automaticity of higher cognitive processes has permeated nearly all domains of psychological research. In this review, we highlight insights arising from studies in decision-making, moral judgments, close relationships, emotional processes, face perception and social judgment, motivation and goal pursuit, conformity and behavioral contagion, embodied cognition, and the emergence of higher-level automatic processes in early childhood. Taken together, recent work in these domains demonstrates that automaticity does not result exclusively from a process of skill acquisition (in which a process always begins as a conscious and deliberate one, becoming capable of automatic operation only with frequent use) – there are evolved substrates and early childhood learning mechanisms involved as well.

The pervasive role of automaticity in psychological theory and research

If there is one major trend in research on automaticity of the higher mental processes over the past few years, it is that the concept has now permeated nearly all psychological domains. What began 30 years ago with some tentative steps into the notion that some basic social-perceptual and prejudice in adults (see [2]); instead we devote attention to the new emerging research on attitudes and prejudice in very young children (see the section on development).

The second major trend in automaticity research has been the growing recognition that not all higher-level automatic processes are put in place via a process of skill acquisition (e.g., [3]), in which a mental process starts out as conscious and effortful and only with frequent and consistent practice and experience becomes efficient and automatic. Early childhood studies and research on embodied influences have shown how innate processes and those acquired in very early childhood (such as concepts about the physical world and physical experiences) can exert an automatic, nonconscious influence on the higher mental processes, without starting out as a conscious process (see [4]).

Several forms of automatic influence are driven by effortless perceptual activity regarding the outside world, such as behavioral contagion or conformity effects triggered by the perception of others' behavior and immediate impressions of others based on their facial features or expressions alone, whereas others are driven by automatic sensory perception and the perception of internal states as

Slide 2

Behavior Contagion

- Example: Elderly primes.
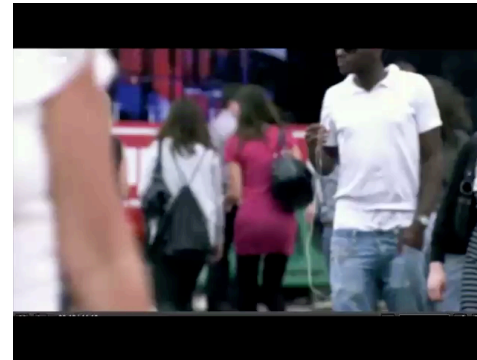
https://www.youtube.com/watch?v=5g4_v4JStOU

Slide 3

Behavior Contagion

- "Behavior contagion" through priming.

  - Sneak subtle meanings inside a language task; do so in a way that participants cannot notice it.

- Track the behaviors of the participants

- Bargh et al. claim that priming is "whole system" — it is embodied; you can find many types of behavior that are affected.

Slide 4

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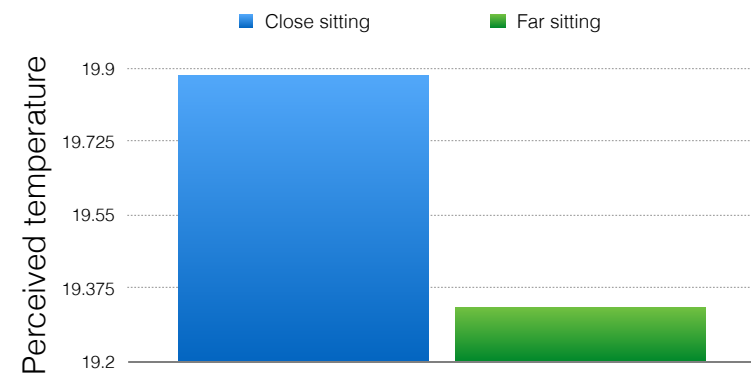- Developmental issues in social priming

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Embodiment

- "…strong associations between metaphorically related physical and psychological concepts."

- E.g., "briefly holding a warm cup of coffee produces feelings of social warmth." (Williams & Bargh, 2008)

- And are they bidirectional? Social warmth may lead one to think room temperature is higher? (IJzerman & Semin, 2010)
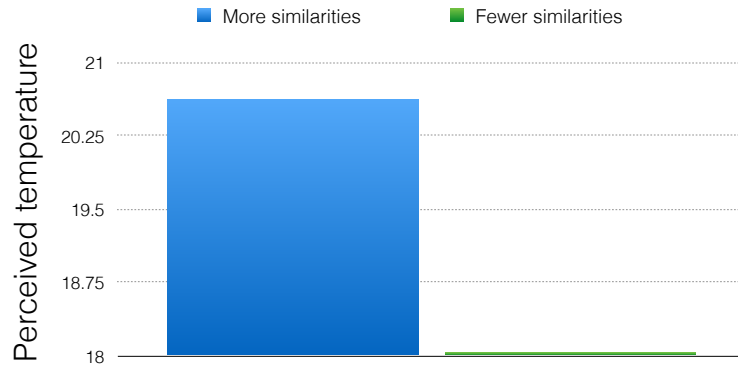
IJzerman & Semin, 2010

- One participant joined two 'participants' (who were really confederates blind to the experiments' purpose), in a room where temperature was held constant.

- Confederates sat either close (50 cm) or far (270 cm) from the target participant.

  - Naturally, they made sure that the temperature near the participant was actually constant.

Close Sitting!

Similarities Game

Legend: ■ More similarities ■ Fewer similarities

Perceived temperature (y-axis): 21, 20.25, 19.5, 18.75, 18

Similarities Game

Legend: ■ More similarities ■ Fewer similarities

Perceived temperature (y-axis): 21, 15.75, 10.5, 5.25, 0
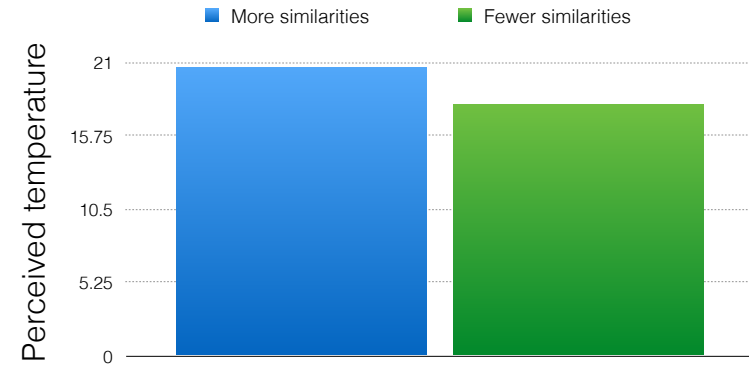
start axis at 0, effect does not look so big…

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Moderators

- Bargh et al. argue that social cognition researchers widely accept that social priming happens, but…

- Now we want to know about "moderators" — who shows these effects and who not — what **moderates** the effects?

- E.g., **self-consciousness** may be a moderator.

  - Those who are more self-conscious can be more likely to show social priming effects (Hull et al., 2002, cited in Bargh et al.).

  - Measured self-consciousness with series of questions: E.g. "I'm concerned about what other people think of me."

Hull et al., 2002

HULL, SLONE, METEYER, AND MATTHEWS

Legend: ■ Low Private SC, ▨ High Private SC

Y-axis: Standardized Walking Time (-1 to 1)
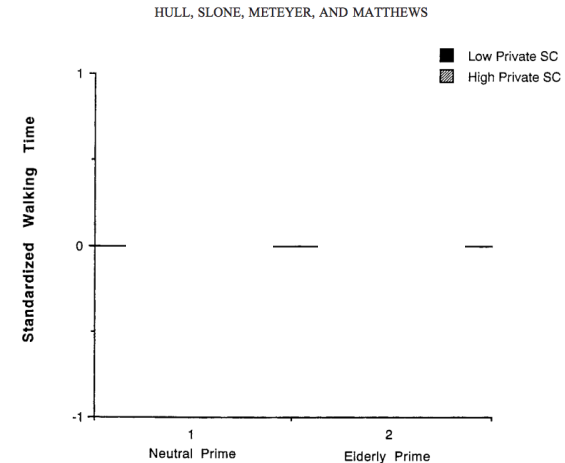X-axis: 1 Neutral Prime, 2 Elderly Prime

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What About Kids?

- Recent work suggests interesting patterns in the judgments of young children, and has implications for how these priming effects develop.

- Do kids first explicitly learn social biases, for example, or do they come about implicitly, possibly even being innate?

  - *The latter question (innateness) is highly controversial and still much debated;* **we could use your help.**

- Over & Carpenter, 2009: Primed children (18 mos!) with images to be affiliative; tested whether they were willing to help the experimenter.

Over & Carpenter

60 infants, between-subject design (15 per condition)…
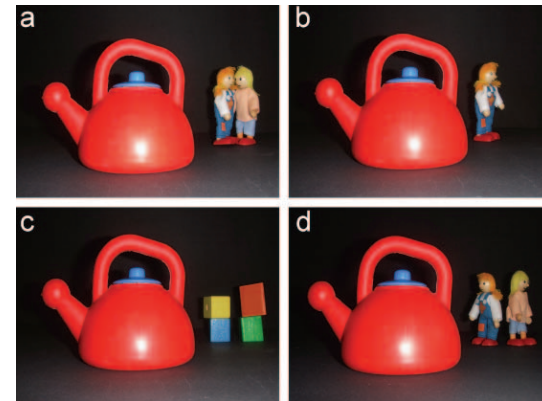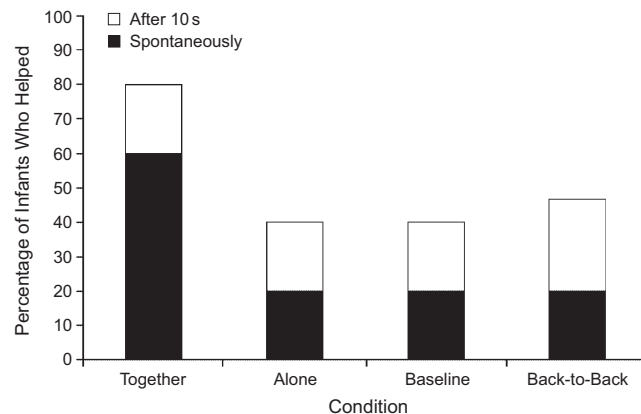

Over & Carpenter

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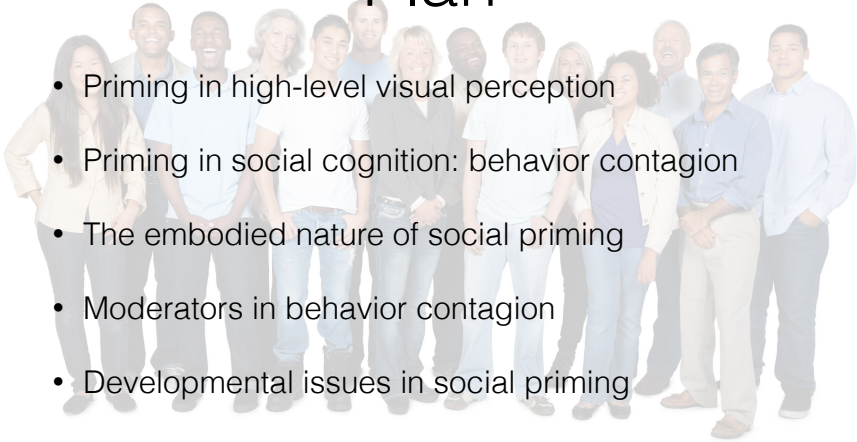- **Developmental issues in social priming**

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Decision Making

- The "**unconscious thought theory**" (UTT) is a provocative new idea that decisions made quickly (even unconsciously) are, on average, better than those you make deliberately.

- Recent theorizing has found more **balance**, arguing that some decisions are made better unconsciously, while others may be better made consciously.

scious decision-making seem merited.

   Briefly, UTT holds that, after a first period of conscious thought in which the judgment relevant information is acquired (such as the relative merits of different products or apartments, across several dimensions, such as price and quality) and conscious intention is formed to make the best decision (this is why UTT is a form of goal-dependent automaticity), a period of deliberation using unconscious thought (while conscious thought is directed elsewhere) produces better quality judgments than does an equally long period of conscious deliberation. Theoretical reasons for this prediction include the greater efficiency of uncon-

Dijksterhuis & Nordgren

- Conscious thought can sometimes lead to worse stereotype activation.

- Participants were asked to form an impression of a target person.

- They get a cultural stereotype activation ("this person is Moroccan"), then read more detailed information.

- Half of participants were **given time to consciously deliberate**; half were distracted for the same period of time.

- **Distracted participants showed less biased evaluation and memories**! Judged the individual in a more balanced way from the information.

Why?

produces better quality judgments than does an equally long period of conscious deliberation. Theoretical reasons for this prediction include the greater efficiency of unconscious thought and the tendency of conscious thought to unequally weigh some dimensions over others, because of the limited focus of conscious thought at any one time.

Schnall et al., 2009

- Participants who washed their hands (prime) evaluated a moral violation as less wrong than participants who did not wash their hands!

Immediately after the priming task, participants rated six moral dilemmas (as used by Schnall et al., 2008): "Dog" (eating one's dead dog), "Trolley" (switching the tracks of a trolley to kill one workman instead of five), "Wallet" (keeping money inside a found wallet), "Plane Crash" (killing a terminally ill plane crash survivor to avoid starvation), "Résumé" (putting false information on a résumé), and "Kitten" (using a kitten for sexual arousal). Participants rated how wrong each action was from 0 (*perfectly OK*) to 9 (*extremely wrong*). Participants subsequently indicated their feelings at the moment for the items related

Results

TABLE 2

Mean Ratings for Moral Vignettes in Experiment 2

Condition	Dog	Trolley	Wallet	Plane Crash	Résumé	Kitten
Hand washing (n = 21)	5.33 (1.88)	2.81 (1.08)	4.62 (1.53)	5.38 (1.80)	4.24 (1.67)	6.00 (1.18)
No hand washing (n = 22)	5.73 (0.98)	3.64 (1.05)	5.73 (1.28)	6.05 (1.21)	5.09 (1.15)	6.36 (1.00)

Note. Response scales ranged from 1 (*nothing wrong at all*) to 7 (*extremely wrong*). Standard deviations are given in parentheses.

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Next Time

- Very important emerging issues regarding research ethics that we've known for quite a long time but need important reminders.

- Recent "Open Science" agenda to encourage positive research ethics.

- Also, some "Jerry Springer" moments…

  - Dramatic outbursts among individuals and swaths of others gaining enjoyment from the potential misfortunes of others…

- **Study guide will be posted by Thursday, along with all slides.**