

THE NEW YORK TIMES BESTSELLER

THINKING,
FAST AND SLOW



DANIEL
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

“[A] masterpiece . . . This is one of the greatest and most engaging collections of insights into the human mind I have read.” —WILLIAM EASTERLY, *Financial Times*

Idea Lab

System 1 vs. System 2

“*System 1* operates automatically and quickly, with little or no effort and no sense of voluntary control.”

p.20

Operations of System 1

- Detect that one object is more distant than another.
- Orient to the source of a sudden sound.
- Complete the phrase “bread and . . .”
- Make a “disgust face” when shown a horrible picture.
- Detect hostility in a voice.
- Answer to $2 + 2 = ?$

Operations of System 1

- Read words on large billboards.
- Drive a car on an empty road.
- Find a strong move in chess (if you are a chess master).
- Understand simple sentences.
- Recognize that a “meek and tidy soul with a passion for detail” resembles an occupational stereotype.

“*System 2* allocates attention to the effortful mental activities that demand it, including complex computations. The operations of *System 2* are often associated with the subjective experience of agency, choice, and concentration.”

Operations of System 2

- Brace for the gun in a race.
- Focus attention on the clowns in a circus.
- Focus on the voice of a particular person in a crowded and noisy room.

Operations of System 2

- Look for a woman with white hair.
- Search memory to identify a surprising sound.
- Maintain a faster walking speed than is natural for you.
- Monitor the appropriateness of your behavior in a social situation.

Operations of System 2

- Count the occurrences of the letter *a* in a page of text.
- Tell someone your phone number.
- Park in a narrow space (for most people except parking garage attendants).

Operations of System 2

- Compare two washing machines for overall value.
- Fill out a tax form.
- Check the validity of a complex logical argument.

Kahneman says that the two systems are “useful fictions”.

“ ‘System 2 calculates products’ ... is shorthand for ‘Mental arithmetic is a voluntary activity that requires effort, should not be performed while making a left turn, and is associated with dilated pupils and an accelerated heartbeat.’ ”

The Add-1 Task

Start beating a steady rhythm (or better yet, set a metronome at 1/sec). Remove the blank card and read the four digits aloud. Wait for two beats, then report a string in which each of the original digits is incremented by 1. If the digits on the card are 5294, the correct response is 6305. Keeping the rhythm is important.

1



2



“Much like the electricity meter outside your house or apartment, the pupils offer an index of the current rate at which mental energy is used.”

System 2 and the electrical circuits in your home both have limited capacity, but they respond differently to threatened overload. A breaker trips when the demand for current is excessive, causing all devices on that circuit to lose power at once. In contrast, the response to mental overload is selective and precise: **System 2 protects the most important activity, so it receives the attention it needs; “spare capacity” is allocated second by second to other tasks.**

Tasks that Deplete Self-Control

- avoiding the thought of white bears
- inhibiting the emotional response to a stirring film
- making a series of choices that involve conflict
- trying to impress others
- responding kindly to a partner's bad behavior
- interacting with a person of a different race (for prejudiced individuals)

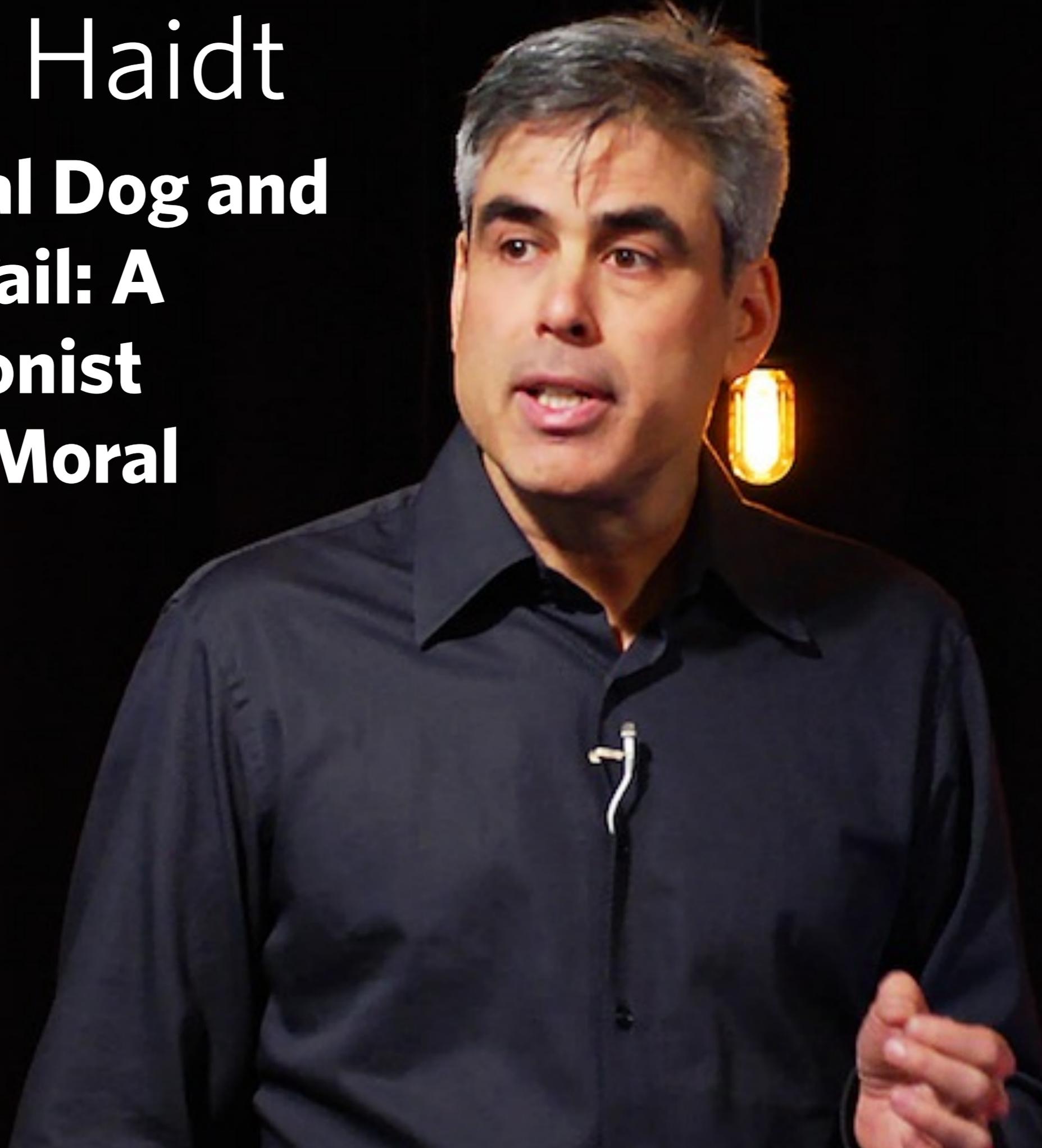


Symptoms of Ego Depletion

- deviating from one's diet
- overspending on impulsive purchases
- reacting aggressively to provocation
- persisting less time in a handgrip task
- performing poorly in cognitive tasks and logical decision making

Jonathan Haidt

**The Emotional Dog and
Its Rational Tail: A
Social Intuitionist
Approach to Moral
Judgment**



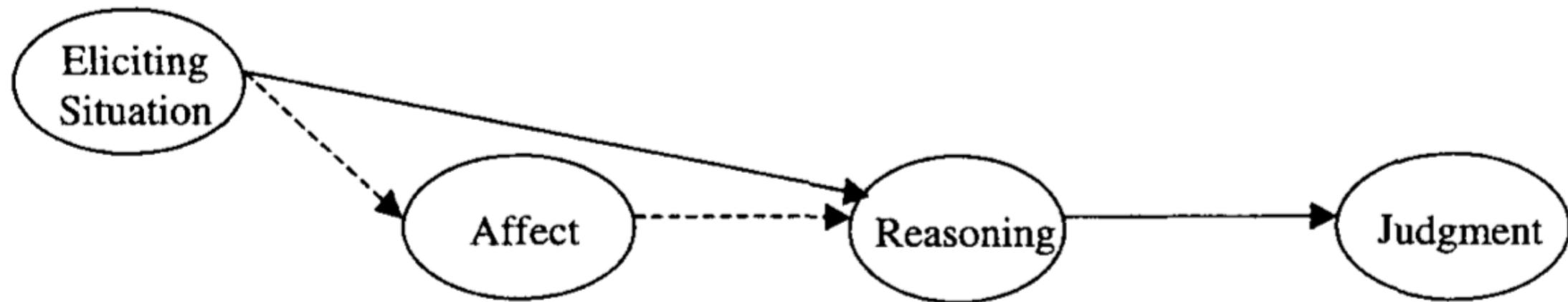


Figure 1. The rationalist model of moral judgment. Moral affects such as sympathy may sometimes be inputs to moral reasoning.

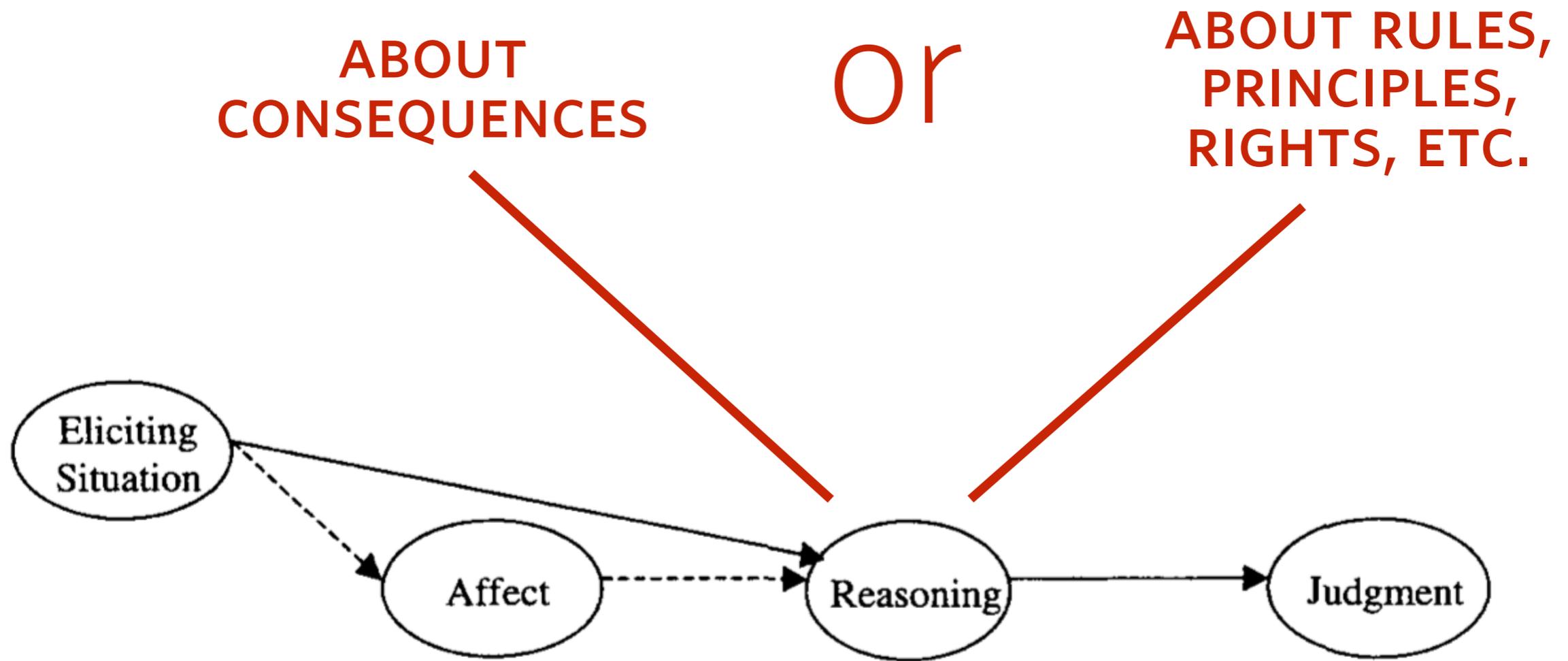


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ABOUT
CONSEQUENCES

Or

ABOUT RULES,
PRINCIPLES,
RIGHTS, ETC.

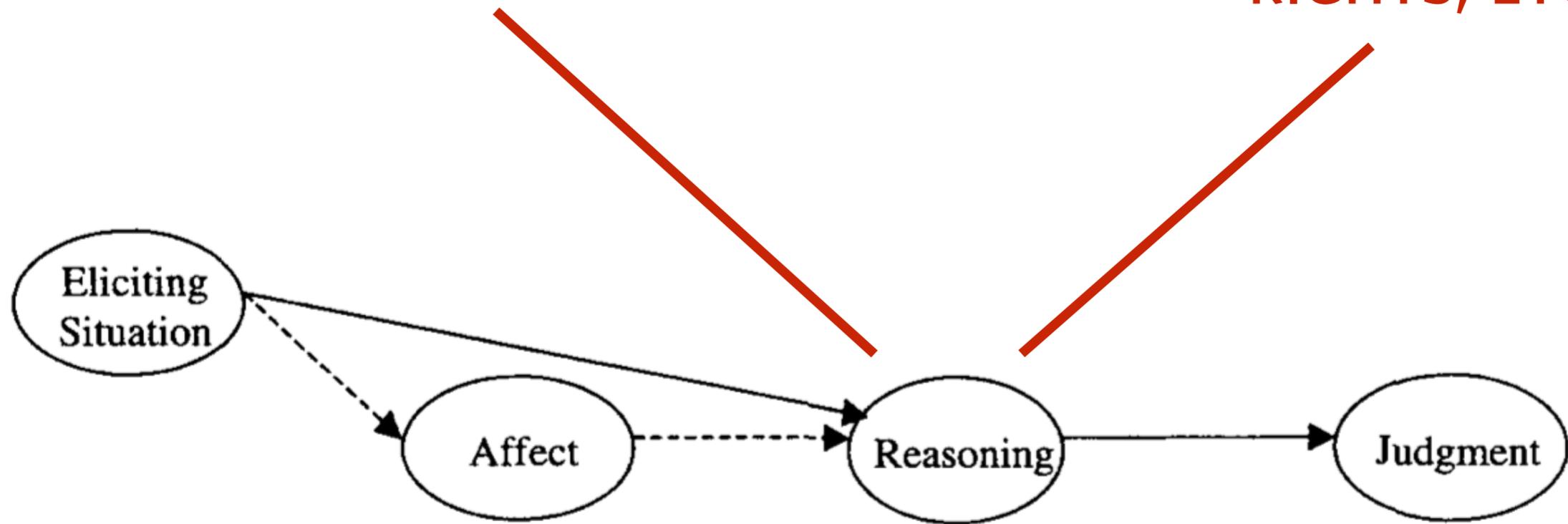
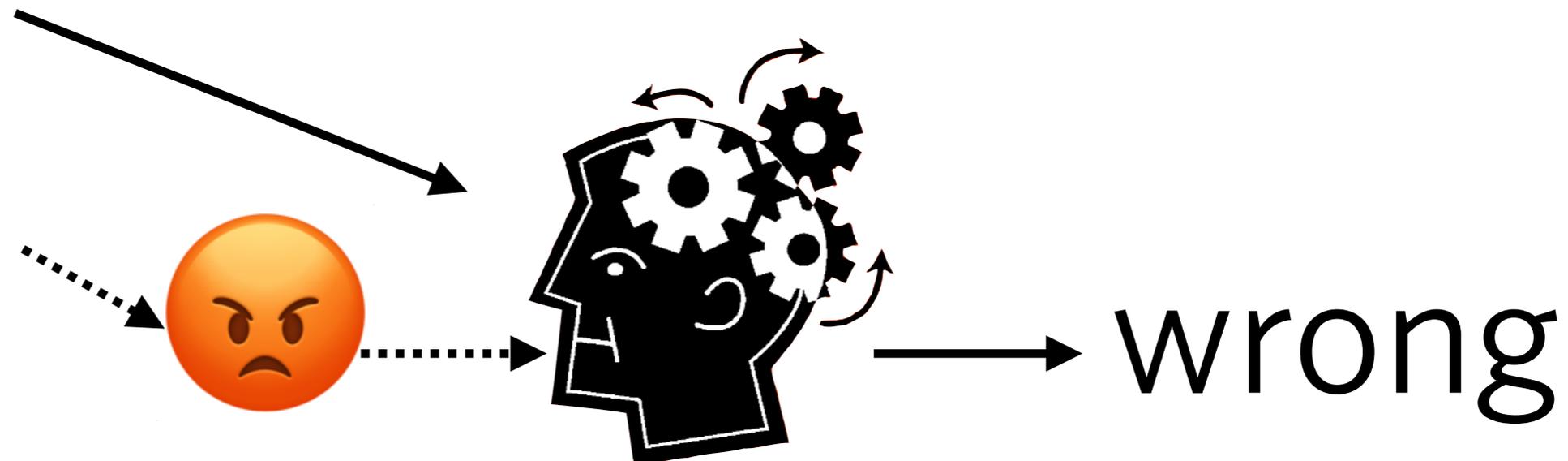


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Haidt's Incest Case

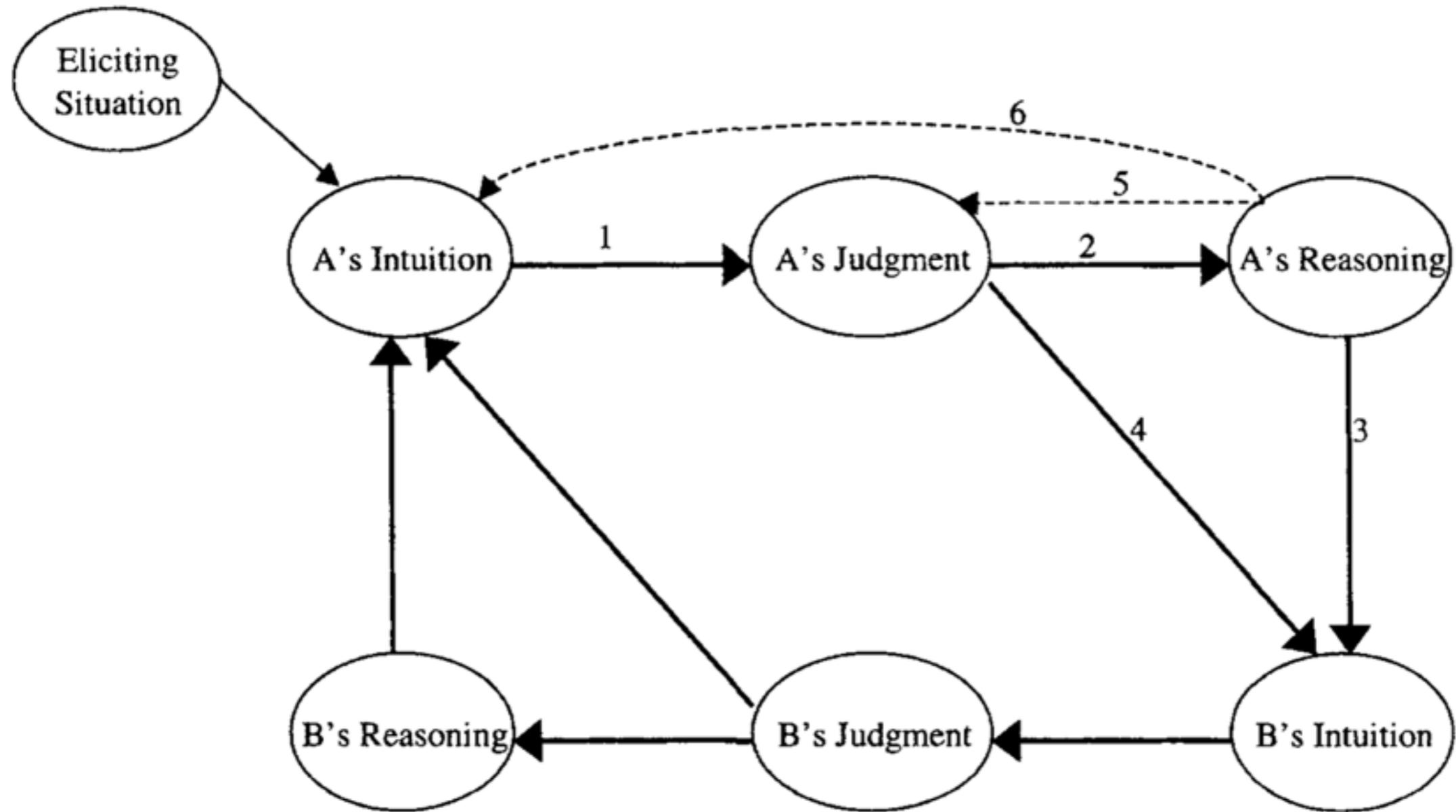


Figure 2. The social intuitionist model of moral judgment. The numbered links, drawn for Person A only, are (1) the intuitive judgment link, (2) the post hoc reasoning link, (3) the reasoned persuasion link, and (4) the social persuasion link. Two additional links are hypothesized to occur less frequently: (5) the reasoned judgment link and (6) the private reflection link.

1. The Dual Process Problem

2. The Motivated Reasoning Problem

3. The Post Hoc Problem

4. The Action Problem

A portrait of Joshua Greene, a man with curly brown hair and light eyes, wearing a light blue collared shirt and a grey sweater. He is looking directly at the camera with a slight smile. The background is a warm, yellowish wall. To the left, there is a green plant. To the right, a window shows a green lawn.

Joshua Greene

**The Secret Joke of
Kant's Soul**

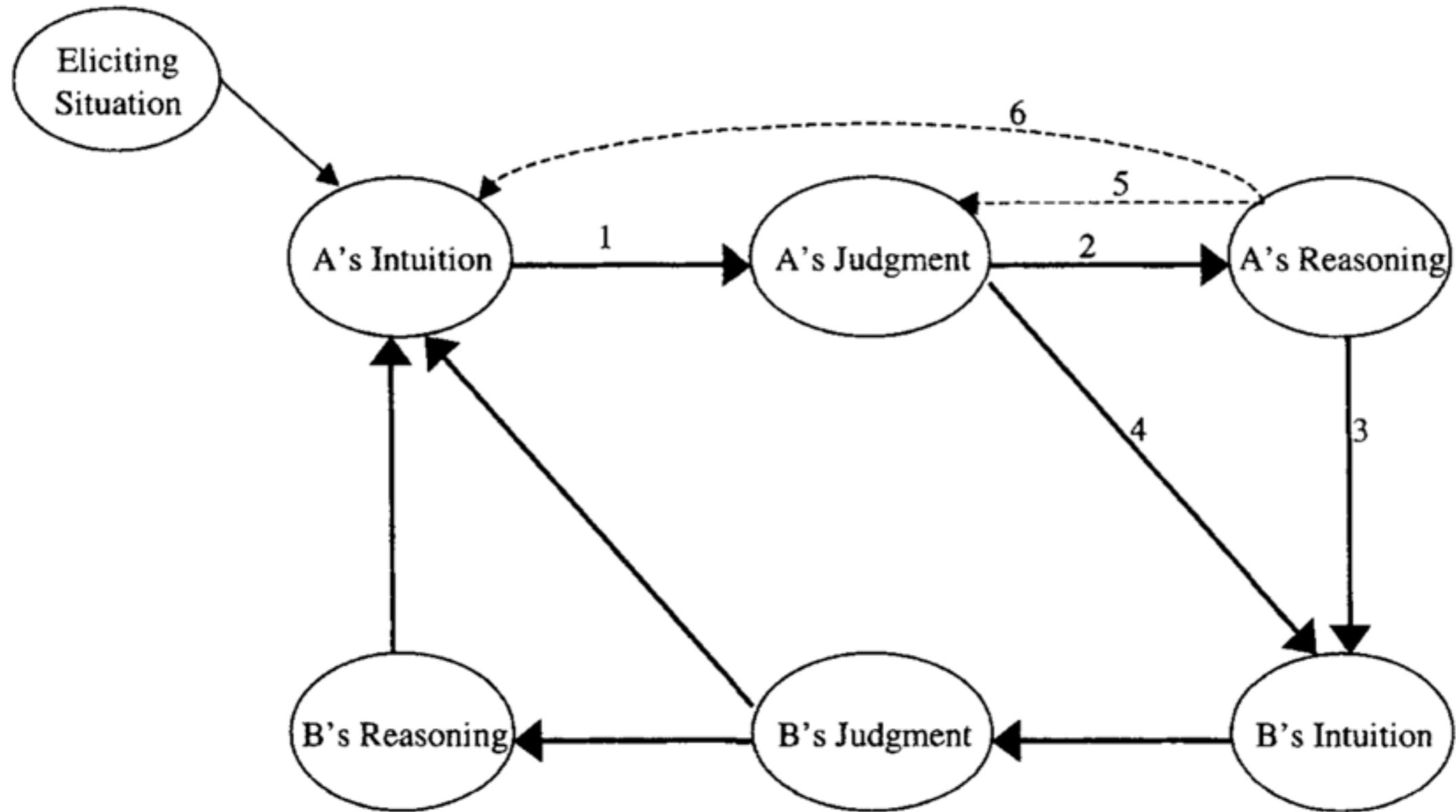
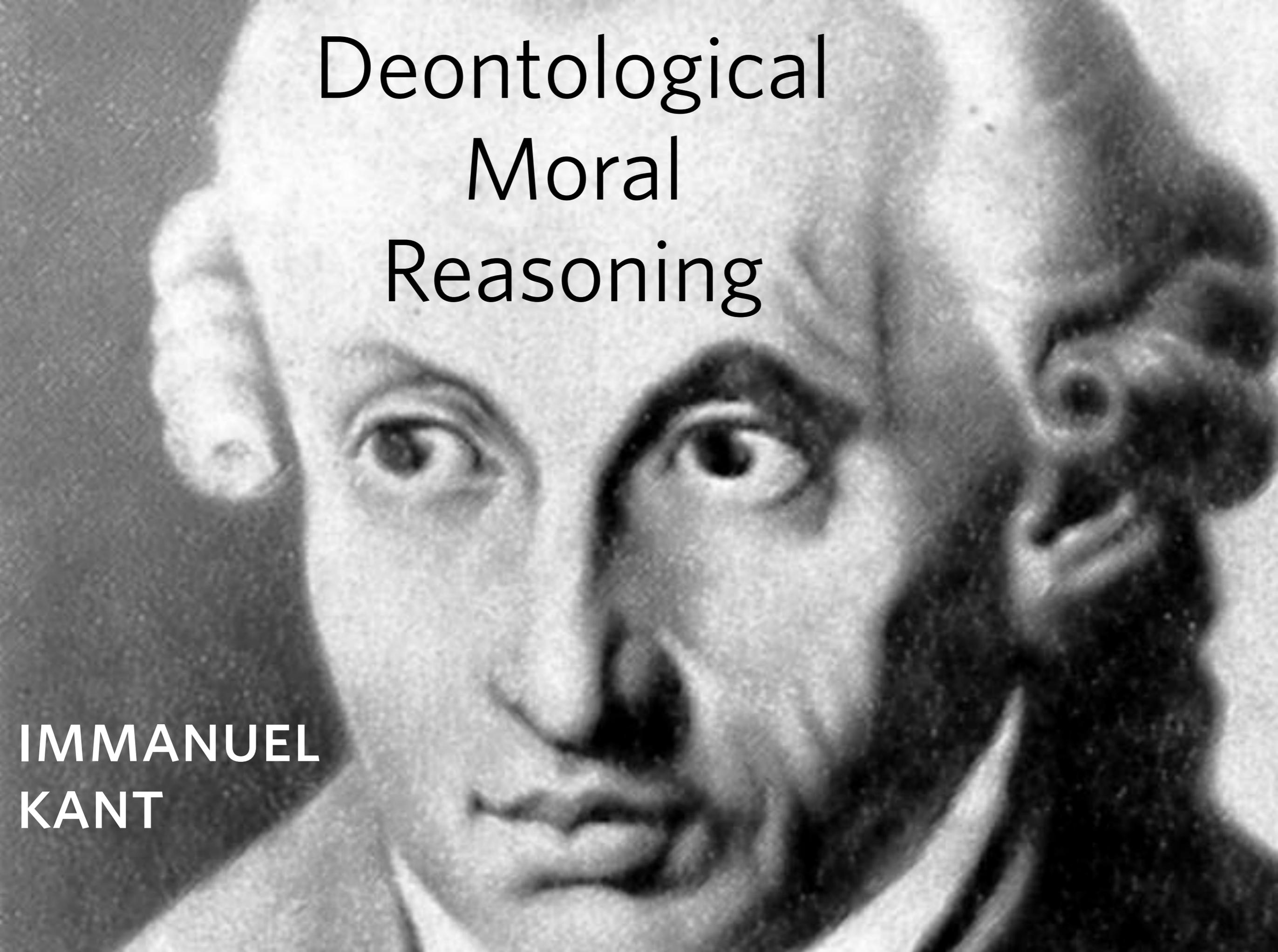


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Deontological Moral
Reasoning

Consequentialist Moral
Reasoning

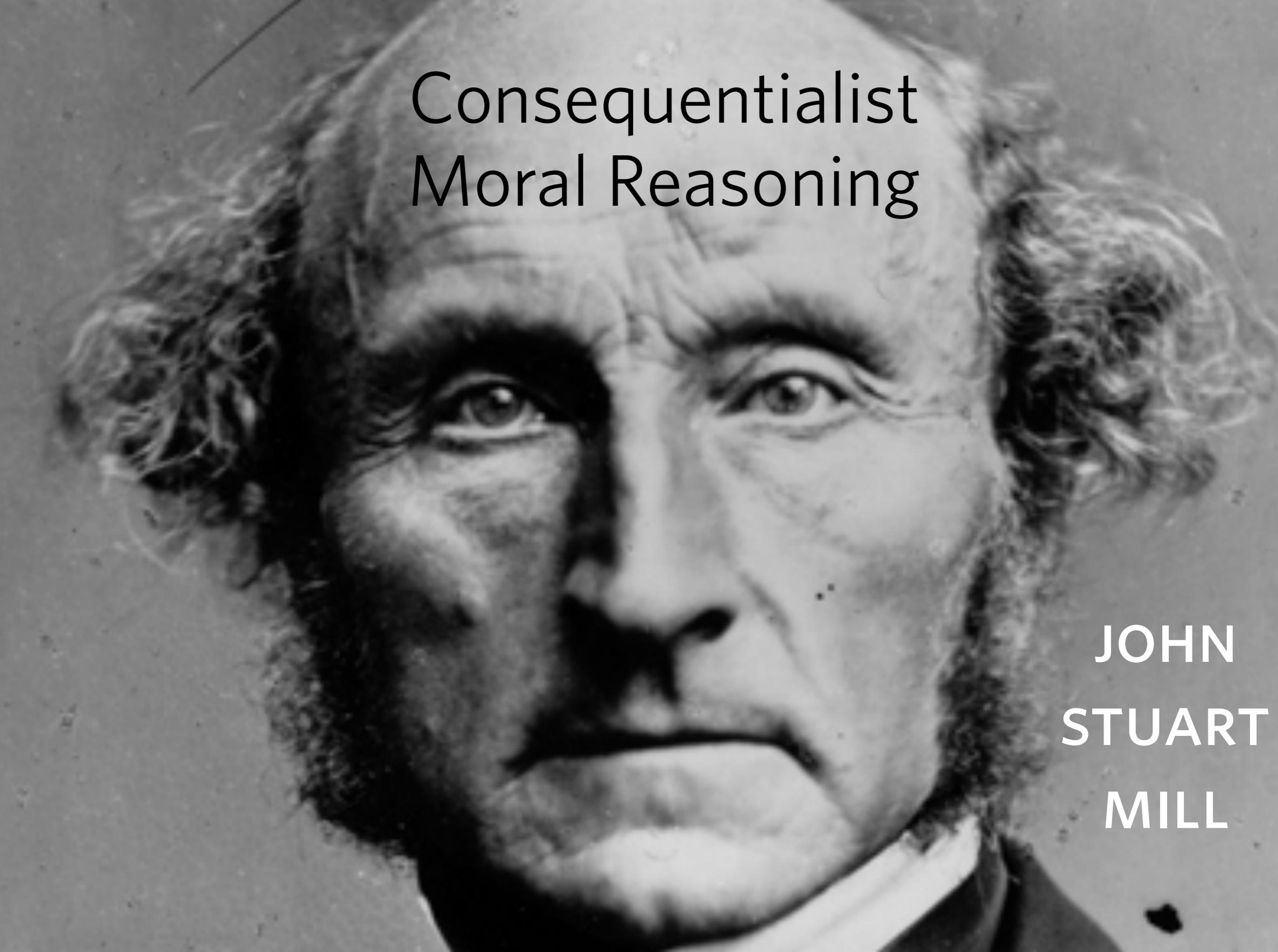


Deontological Moral Reasoning

**IMMANUEL
KANT**

Kant's Categorical Imperative

Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end.

A black and white portrait of John Stuart Mill, showing him from the chest up. He has thick, wavy hair and a full beard. He is wearing a dark suit jacket over a white shirt with a high collar. The background is a plain, light color.

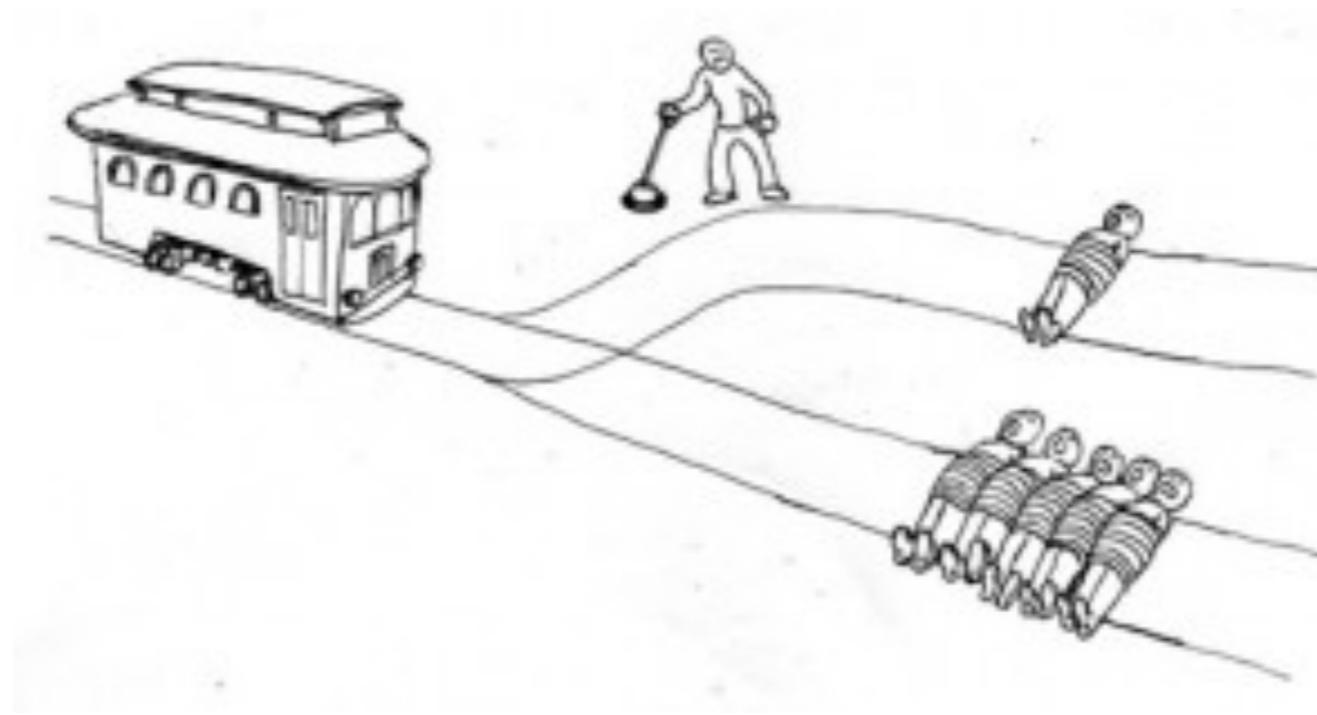
Consequentialist Moral Reasoning

JOHN
STUART
MILL

Mill's Utilitarianism

Act so as to maximize
happiness and minimize
suffering.

"Trolley"



"Footbridge"



Nearby Drowning Child

vs.

Faraway Starving Child



Tamar Gendler

Alief in Action

A frog laps up the BB that bounces past its tongue. A puppy bats at the 'young dog' in the mirror in front of him. A sports fan watching a televised rerun of a baseball game loudly encourages her favorite player to remain on second base. A cinema-goer watching a horror film 'emits a shriek and clutches desperately at his chair'. A man suspended safely in an iron cage above a cliff 'trembl[es] when he surveys the precipice below him'. An avowed anti-racist exhibits differential startle responses when Caucasian and African faces are flashed before her eyes.

So what is alief? To have an alief is, to a reasonable approximation, to have an innate or habitual propensity to respond to an apparent stimulus in a particular way. It is to be in a mental state that is (in a sense to be specified) **a**ssociative, **a**utomatic and **a**rational. As a class, aliefs are states that we share with non-human **a**nimals; they are developmentally and conceptually **a**ntecedent to other cognitive attitudes that the creature may go on to develop. Typically, they are also **a**ffect-laden and **a**ction-generating.

- *Associative*: Aliefs encode patterns of responses to particular (internally or externally prompted) mental images.
- *Automatic*: Though a subject may be consciously aware of her aliefs, aliefs operate without the intervention of conscious thought.
- *Arational*: Though aliefs may be useful or detrimental, laudable or contemptible, they are neither rational nor irrational.

- *Shared by human and non-human animals:* Any creature capable of responding differentially to features of its environment that impinge upon its sensory organs has aliefs.
- *Conceptually antecedent to other cognitive attitudes that the creature may go on to develop:* Aliefs are more primitive than beliefs or desires. While it may be possible to paraphrase the content of aliefs using the language of belief and desire, alief cannot be factorized into belief and desire.⁸
- *Action-generating:* Aliefs typically activate behavioral proclivities (though these may not translate into full-blown actions), and can do so directly, without the mediation of classic conative attitudes like desire.⁹
Affect-laden: Aliefs typically include an affective component.

a subject in paradigmatic state of alief is in a mental state whose content is representational, affective and behavioral: she alieves *r, a, d*.

The frog alieves (all at once, in a single alief): small round black object up ahead; appealing in a foody sort of way; move tongue in its direction. The puppy alieves (again, all at once): dog-shaped dog-motiony creature in front of me; attractive and threatening in a my-size-conspecific sort of way; engage in (play-)fighting. The suspended man alieves (all at once): high up above the ground right now, dangerous scary place to be, tremble.