

9.85 Cognition in Infancy and Early Childhood

Moral Reasoning

Development of moral reasoning

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Questions about moral development

- Does it develop early or late?
- Is it a “cold” process (moral evaluation) or a “hot process” (emotional reaction)
- Do children distinguish moral rules from other rules?
- Are children’s moral judgments based on the agent’s intention or the outcome of the agent’s action?
- What is the relationship between believing something is wrong and believing that something should be punished?
- Is moral reasoning universal?
- What brain mechanisms might underlie moral reasoning?

Does it develop early or late?

- Piaget
 - Progression from egocentric reasoning to abstract reasoning in general ...
 - Moral development similarly went from self-serving to abstract rules.
- Kohlberg (1958) -- structured moral interviews

Kohlberg interviews

- Man needs to get a drug that can save his wife's life from cancer. He is able to save \$1,000. The costs for manufacturing and marketing the drug are \$200 but the drug stores refuse to sell the drug for less than \$2,000. Can the man rob the store to get the drug for his wife?

Kohlberg

- Level 1 (Pre-conventional)
 - 1a) Avoiding punishment (“no, he’ll put you in jail”; “yes, her dying would be awful”)
 - 1b) Self-interest (“no, why risk it?”; “yes she needs it”)
- Level 2 (Conventional)
 - 2) Interpersonal accord and conformity (“no the drug store owner will be mad”; “yes, how would your wife feel if you didn’t?”)
 - 3) Authority and social order (“no it’s against the law”; “yes, the drug store owner is being unreasonable”)
- Level 3 (Post-conventional)
 - 4) Social contract (“no, if we want a world where people make medicines, we need to commit to paying the asking price for them”; “yes, as a society we privilege life over money”)
 - 5) Universal ethics (“no, stealing is immoral”; “yes, the value of a human life is pre-eminent”)

Age and Percentage of Individuals at Each Kohlberg Stage

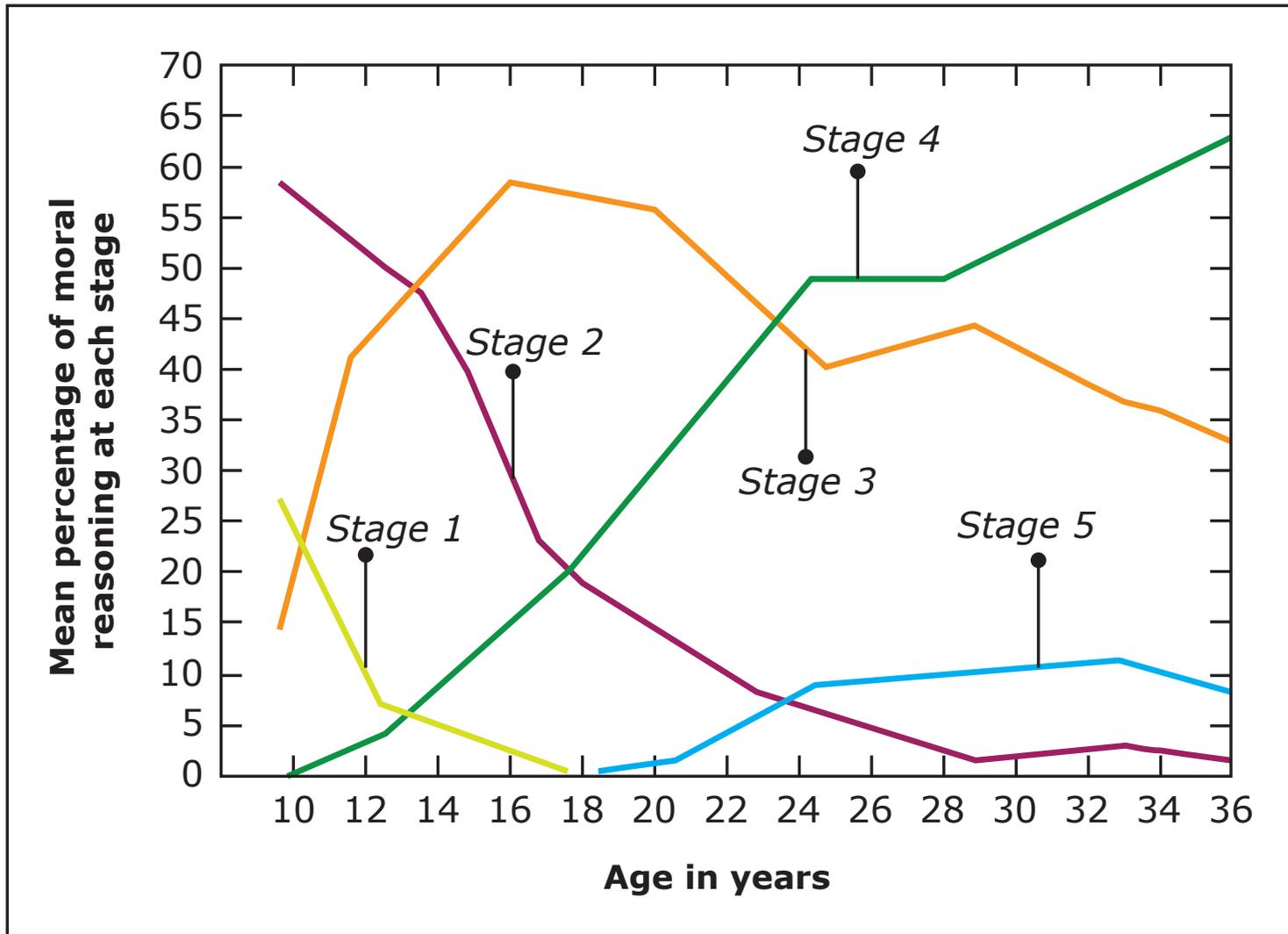


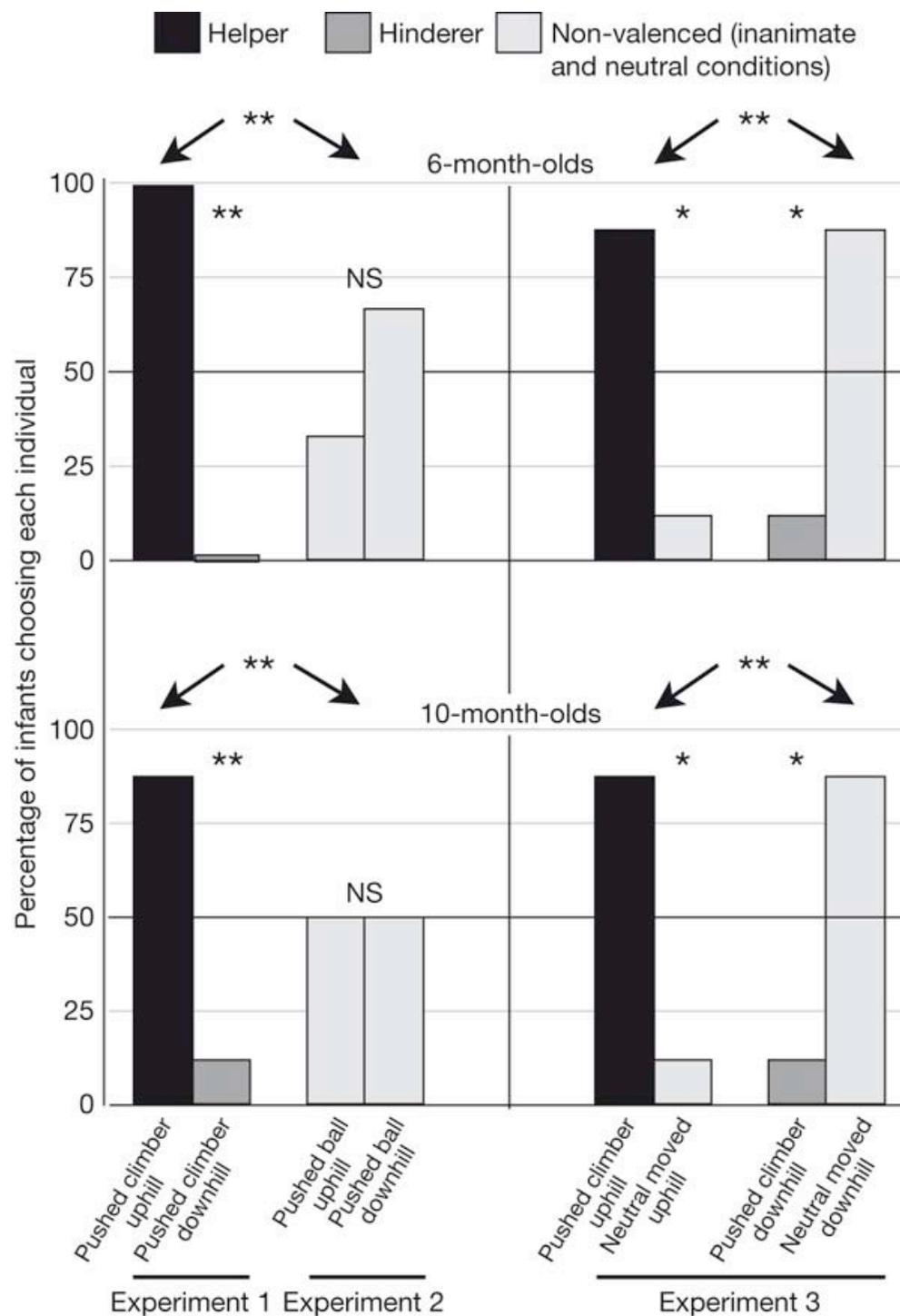
Image by MIT OpenCourseWare. Based on Figure 1. Colby, Ann, Lawrence Kohlberg, John Gibbs, et al. "A Longitudinal Study of Moral Judgment." Monographs of the Society for Research in Child Development 48, no. 1/2 (1983): 1-124.

Criticisms

- Carol Gilligan, *In a Different Voice*, suggested women disproportionately favored social order and harmony, unfairly penalized by Kohlberg
- Largely discredited but influential
- Mainly however, inherits the problems of structured interviews. Communicative sophistication vs. moral sophistication?

Hamlin, J. Kiley, Karen Wynn, and Paul Bloom.
“[Social evaluation by preverbal infants.](#)” *Nature* 450
(2007):557-559.

- [helping](#)
- [hindering](#)
- [test 1](#)
- [test 2](#)
- In Experiment 2, showed that the effect did not obtain if the thing being “helped” or “hindered” was an object, not an agent.
- In Experiment 3, introduced a [neutral agent](#)
- Babies preferred the helper to the neutral agent and the neutral agent to the hinderer.



And generalizes to other stimuli

F Ydf]bhYX`VmdYfa`jgg]cb`Zfca`A UVÅ`J`Ub`Di`V`jg\Yfg`@hX.`BUh`fY`
 Gci`fW.`<Ua`]bž`>`?`]Ymž`?`UFYb`K`mbbž`Yh`U`"Í`GcVYU`Yj`U`i`Uh]cb`
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Moreover, 10-month-olds recognize that “helping” is not just a congruent action. It is responding to another’s goals.

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Infants showed a preference for the “helper” only when the helpful elephant knew the lion’s preference

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SUHYHLEDOLQIDQW DQG D FRP SXV0VRODOP RGHO' *Developmental Science* OR

Moral reasoning

- But is it moral reasoning?
- Babies could simply prefer (and expect other agents to prefer) those who assist with their goals.
- (“Titles invoke social evaluation” and “social reasoning” not “moral reasoning”)
- Are infants motivated to engage in helpful behavior themselves?

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Infant empathy

- From early infancy, babies cry when other babies cry.
- Are they just annoyed by the noise itself or are they 'upset' by the other babies' distress?
- Played tapes of another baby crying or the own baby crying: 6-month-olds only cried in response to the unknown baby.
- Older than 6-months they grimace rather than cry. At 13-months they try to comfort the baby themselves (patting, bringing toys, bringing their own mom over).

Warneken & Tomasello

- altruism in toddlers
- altruism in chimps (although chimps are less skillful at reading through goals)
- Intrinsically motivated -- stays the same if never rewarded, falls off if first rewarded and then rewards cease.

And helping is selective ...

- Two agents, each offer the child a toy.
 - One fails because the toy rolls out of reach
 - One “fails” because she just teases the child with the toy
- When a new toy falls to the ground between the two agents and they both reach for it, the child hands it to the nice agent. (Kuhlmeier)

Moral reasoning

- But is it moral reasoning?
- Do children distinguish things you're not allowed to do because they are "against the rules" from things you're not allowed to do because they are wrong?

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Children take rules seriously

- http://supp.apa.org/psycarticles/supplemental/dev_44_3_875/dev_44_3_875_supp.html

But believe that some rules are more inviolable than others

- Moral reasoning versus conventional reasoning (Elliott Turiel)

Moral versus conventional

- Children as young as 42 months make this distinction
- But sociopaths don't (felons not diagnosed with sociopathy do).

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Consequences versus intentions

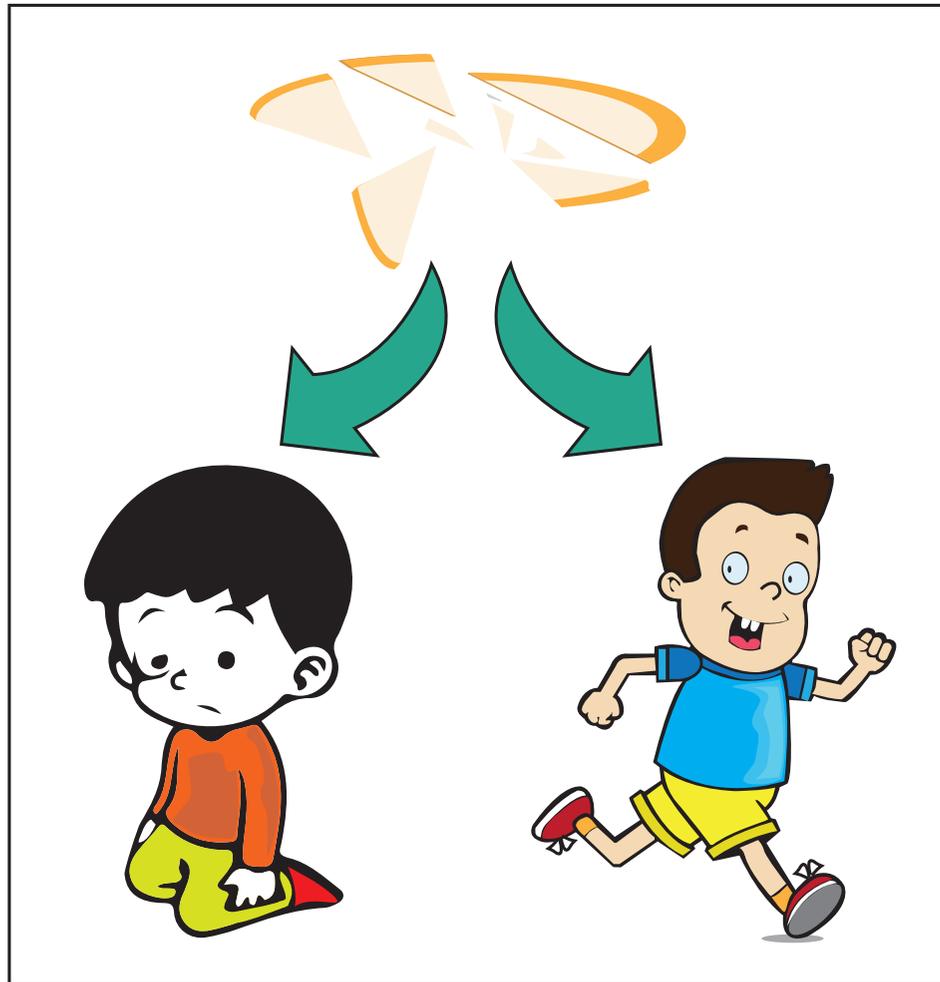


Image by MIT OpenCourseWare.

Consequences versus intentions

Do children younger than 5 and 6 think intentions are irrelevant to moral judgments?

In Piaget's study, both the intentions and the consequences changed and both consequences were bad. (pitted good intentions and very bad outcomes against bad intentions and less bad outcomes)

What if you simplify the task?

Consequences v intentions

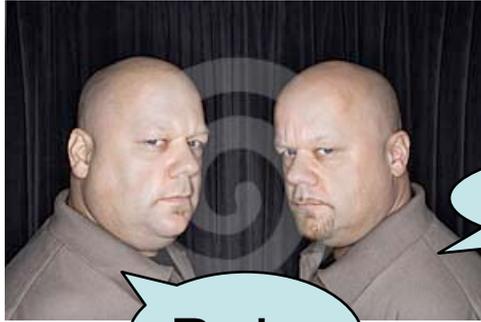
	Ms. Brown walked in and said “Oh I’m glad -- I was just going to clean that box and you got off to a good start!”	Ms. Brown walked in and said “Oh what a mess! And we have company coming over!”
Michael was angry so he dumped the toys out of the box to scatter them.	Negative intention Positive outcome	Negative intention Negative outcome
Michael wanted to organize his toy box so he dumped the toys out of the box to sort them.	Positive intention Positive outcome	Positive intention Negative outcome

Table removed due to copyright restrictions. Table 1. Nelson, Sharon A. "Factors Influencing Young Children's Use of Motives and Outcomes as Moral Criteria." *Child Development* 51, no. 3 (1980): 823-9.

Questions about moral development

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Distinguishing 'wrongness' from 'punishment'



Bob

Jack



\$250 fine

2.5-15 years for manslaughter

Cushman, Cognition, 2008



Harm agent *intends* vs. harm agent *causes*

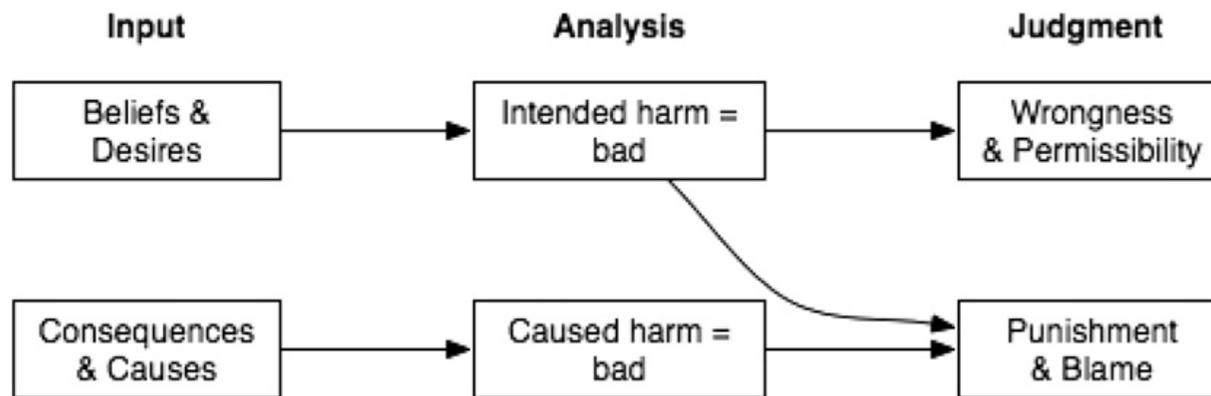


Fig. 3. A two process model of moral judgment.

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Outcomes vs. intentions and moral judgment vs. punishment

	Good outcome	Bad outcome
Good intention	Judge good Don't punish	Judge good Might punish
Bad intention	Judge bad Don't punish	Judge bad Punish

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An analogy: Language & Morality

- Noam Chomsky
 - Universal grammar

- John Mikhail
 - Universal Moral Grammar

Universality

- Deontic concepts seem to be universal
 - Every natural language has words or phrases to express the three main deontic concepts

(a)	Obligatory	Permissible	Forbidden
	'must'	'may'	'must not'
	<i>debitum</i>	<i>licitus</i>	<i>interdictum</i>
	<i>wajib</i>	<i>mubah</i>	<i>haram</i>
	<i>obligat</i>	<i>zulassig</i>	<i>verboten</i>
	<i>devoir/il faut</i>	<i>pouvoir</i>	<i>ne...pas</i>
	<i>deber</i>	<i>poder</i>	(neg)
	<i>bora</i>	<i>matte</i>	<i>far inte</i>
	<i>ya hay/tway</i>	<i>to tway</i>	<i>myen a tway</i>
	<i>swanelo</i>	<i>sibaka</i>	<i>mwila</i>

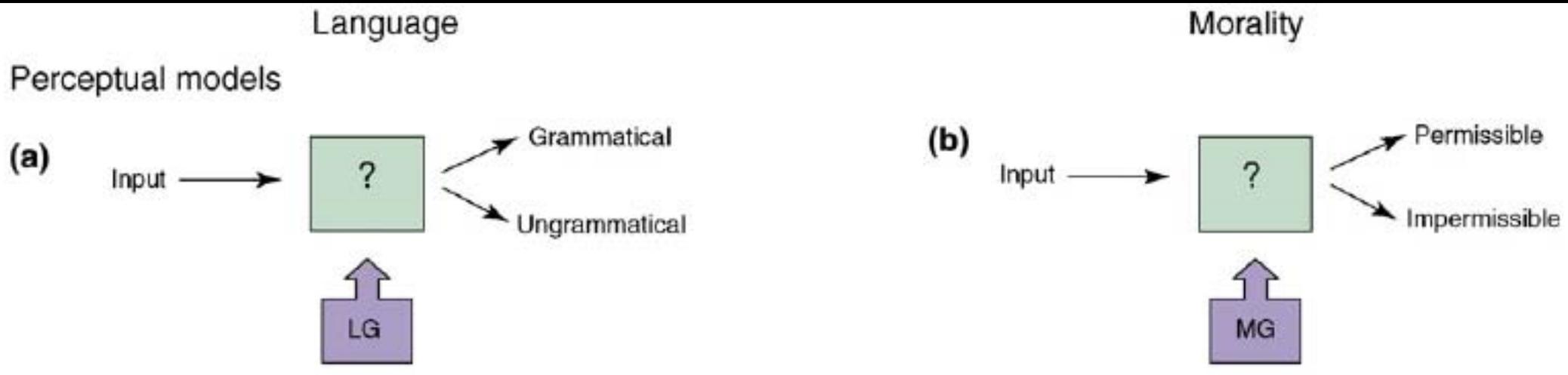
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Universal Moral Grammar

- Fundamental Questions
 - What constitutes moral knowledge?
 - How is moral knowledge acquired?
 - How is moral knowledge put to use?

Universal Moral Grammar - perception

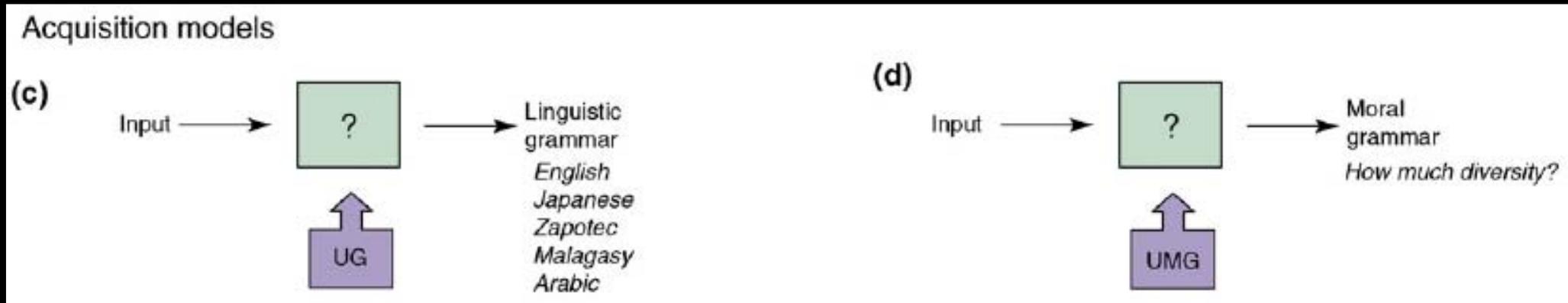
- Argument for moral grammar
 - Complex, domain-specific set of rules, concepts, and principles
 - Generates and relates various mental representations



Courtesy of Elsevier, Inc., <http://www.sciencedirect.com>. Used with permission.

Universal Moral Grammar - acquisition

- Argument from the poverty of input
 - At least some of the core attributes of moral grammar are innate
 - Neither explicitly taught, nor derivable from sensory experience
 - Triggered and shaped by experience



Universal Moral Grammar

- How do we test these models?
 - Have individuals provide their intuitions about real or hypothetical situations
 - Do people draw stable and systematic judgments?
 - Is this systematicity a result of some implicit, specific moral knowledge that people possess?

Trolley Problem

- Denise is a passenger on a trolley whose driver has just shouted that the trolley's brakes have failed, and who then fainted of the shock. On the track ahead are five people; the banks are so steep that they will not be able to get off the track in time. The track has a side track leading off to the right, and Denise can turn the trolley onto it. Unfortunately there is one person on the right hand track. Denise can turn the trolley, killing one; or she can refrain from turning the trolley, letting the five die.

Is it morally permissible for Denise to switch the train to the side track? Y or N

Footbridge Problem

- Frank is on a footbridge over the trolley tracks. He knows trolleys and can see that the one approaching the bridge is out of control. On the track under the bridge there are five people; the banks are so steep that they will not be able to get off the track in time. Frank knows that the only way to stop an out-of-control trolley is to drop a very heavy weight into its path. But the only available, sufficiently heavy weight is a large man wearing a backpack, also watching the trolley from the footbridge. Frank can shove the man with the backpack onto the track in the path of the trolley, killing him; or he can refrain from doing this, letting the five die.

Permissible or Impermissible?

Figure removed due to copyright restrictions. Figure 6. Mikhail, John. "Aspects of the Theory of Moral Cognition: Investigating Intuitive Knowledge of the Prohibition of Intentional Battery and the Principle of Double Effect." Georgetown Law and Economics Research, Paper no. 762385, May 2002. Available at <http://dx.doi.org/10.2139/ssrn.762385>

Trolley Problems

- 1. Elicit rapid, intuitive judgments
- 2. Made with certitude
- 3. Similar judgments across diverse populations
 - Cannot be predicted by age, gender, race, religion, or education

Men vs Women

Figure removed due to copyright restrictions. Figure 7. Mikhail, John. "Aspects of the Theory of Moral Cognition: Investigating Intuitive Knowledge of the Prohibition of Intentional Battery and the Principle of Double Effect." Georgetown Law and Economics Research, Paper no. 762385, May 2002. Available at <http://dx.doi.org/10.2139/ssrn.762385>

Chinese

Figure removed due to copyright restrictions. Figure 14. Mikhail, John. "Aspects of the Theory of Moral Cognition: Investigating Intuitive Knowledge of the Prohibition of Intentional Battery and the Principle of Double Effect." Georgetown Law and Economics Research, Paper no. 762385, May 2002. Available at <http://dx.doi.org/10.2139/ssrn.762385>

Children

Figure removed due to copyright restrictions. Figure 22. Mikhail, John. "Aspects of the Theory of Moral Cognition: Investigating Intuitive Knowledge of the Prohibition of Intentional Battery and the Principle of Double Effect." Georgetown Law and Economics Research, Paper no. 762385, May 2002. Available at <http://dx.doi.org/10.2139/ssrn.762385>

Trolley Problems

- 1. Elicit rapid, intuitive judgments
- 2. Made with certitude
- 3. Similar judgments across diverse populations
 - Cannot be predicted by age, sex, race, religion, or education
- 4. Difficult to provide justifications for these judgments

Rationale for your choice?

- “Very odd. I don’t know why I chose differently in the second scenario. I just went with my gut response – and now I am intrigued with how to reconcile them”
- “It’s amazing that I would not throw a person but would throw a switch to kill a person”
- “My reaction is intuitive and I realize not logically justifiable. I am reluctant to grade life and thus equate the value of one life as being less than five, even though I know this can be done”

Emotions? hot vs. cold..

- What matters is the degree of emotional engagement
 - Is the harm personal or impersonal? (i.e., Greene et al., 2001)

Figure removed due to copyright restrictions. Figure 1. Hauser, Marc, Fiery Cushman, et al. "A Dissociation Between Moral Judgments and Justifications." *Mind & Language* 22, no. 1 (2007): 1-21.

- Brain areas engaged in emotions are more active during 'personal' moral dilemmas
 - Green et al., 2001

Figure removed due to copyright restrictions. Greene, Joshua D., R. Brian Sommerville, et al. "An fMRI Investigation of Emotional Engagement in Moral Judgment." *Science* 293, no. 5537 (2001): 2105-8.

Inevitable side effect vs. means to an end

Figure removed due to copyright restrictions. Figure 1. Hauser, Marc, Fiery Cushman, et al. "A Dissociation Between Moral Judgments and Justifications." *Mind & Language* 22, no. 1 (2007): 1-21.

(3a) **Drop man:** Victor is standing next to a switch, which he can throw, that will drop a heavy object into the path of the train, thereby preventing it from killing the men. The heavy object is a man, who is standing on a footbridge overlooking the tracks. Victor can throw the switch, killing him; or he can refrain from doing this, letting the five die. Is it morally permissible for Victor to throw the switch?

12%

Moral grammar involves a causal analysis: morally permissible to harm someone as a side effect of a helpful action but not as a means to an end. (Kant)

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Relationship between the paradoxes?

- When harm is a means to an end it may be considered more intentional (and therefore less permissible) than when it is a side effect.

Universal moral reasoning?

- Cultures have diverse moral codes just as they have diverse languages ... but this diversity might be generated by a common, innate, implicit system of rules.
- Individuals might make fast, fluent judgments of the 'rightness' and 'wrongness' of some situations (just as they can make rapid grammaticality judgments) without any conscious access to what the particular rules are.

Intentions & Consequences

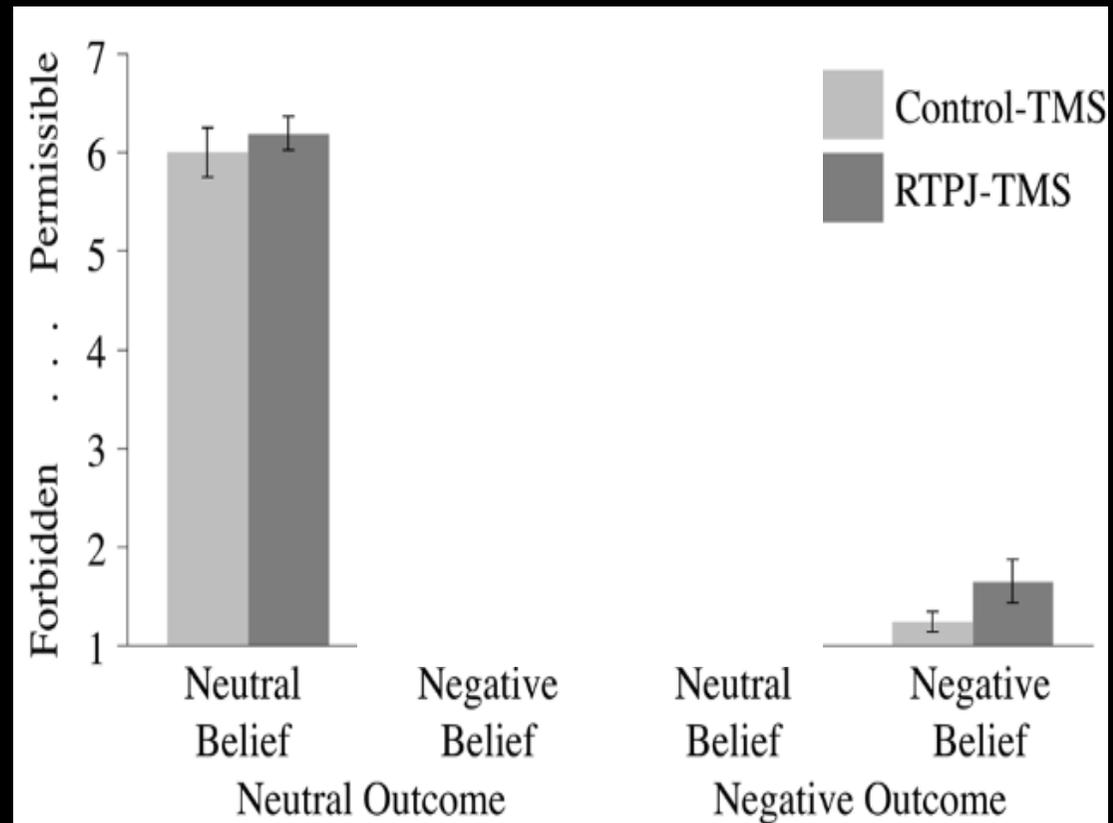
- What if rTPJ activity is disrupted?
 - TMS (Transcranial Magnetic Stimulation)

Grace and her friend are taking a tour of a chemical plant. When Grace goes over to a coffee machine to get some coffee, Grace's friend asks for some sugar in hers.

Young, et al. "Disruption of the Right Temporoparietal Junction with Transcranial Magnetic Stimulation Reduces the Role of Beliefs in Moral Judgments." *Proceedings of the National Academy of Sciences* 107, no.15 (2010): 6753-8.

b

		Outcome	
		Negative	Neutral
Belief	Negative	Grace thinks the powder is toxic. It is toxic. Her friend dies.	Grace thinks the powder is toxic. It is sugar. Her friend is fine.
	Neutral	Grace thinks the powder is sugar. It is toxic. Her friend dies.	Grace thinks the powder is sugar. It is sugar. Her friend is fine.



Summary

- Even infants seem to show empathy when others and distinguish agents based on whether they help or hinder agent's goals.
- As young as we can test, children seem to distinguish moral wrongs from 'conventional' wrongs.
- Possibly some moral rules (cannot harm others as a means to an end) are universal.
- The ability to use beliefs to modulate our moral judgment appears to depend on specific brain regions
- However, researchers are still trying to understand the gaps between our beliefs about moral judgment (right and wrong) and our beliefs about punishment.

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