The influence of understanding and having choice on children's prosocial behavior
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Humans are remarkable moral evaluators. A search through the NYtimes.com reveals that the words "good" and "bad" appeared nearly 3 million times in news articles since 1851; the words "morality" and "justice" nearly 700,000 combined. But one needs not look through news articles to appreciate our intuitive preoccupation with moral evaluation: The propensity for moral evaluation - to carve up the world into "oughts" and "ought nots" – is shared by ancient philosophers and modern day humans.

This inclination is also shared by very young children. Even infants are able to distinguish between those who harm and those who help others, preferring the latter over the former [1]. By the early preschool ages, children make those evaluations explicitly known through words such as "good" and "bad" [2], and through their verbal and behavioral protests when others don't accord with social norms [3,4].

We argue that even more striking, however, is our ability to move from mere *evaluators* to full-fledged moral *agents*, capable of changing the world to become not what it is, but also what it "ought" to be. This ability emerges initially as what is likely non-conscious and non-reflective prosocial behavior: Between the first and second year of life, children move from recognizing that others have intentions and goals [5,6] to helping others fulfill and enact those goals[7]. Similarly, children move from empathizing with those in distress or being content with observing people helping [8] to actively rectifying that distress through offering their own toys, resources, and comfort [9,10]. Thus, infants and young children eventually are not only capable of judging what ought to happen but actively ensure that it does.

During the preschool years, children become capable of reflecting on actions in a new way, and we argue that this in turn has important behavioral consequences. Around the ages of 4-5, children start to explicitly articulate beliefs about possible and impossible events [11] and, relatedly, possible and impossible human actions [12]. This emerging understanding of choice, which continues to develop into school-age, likely rests on more general abilities for counterfactual [13]and future thinking [14]. Peter may have established a habit of drinking milk every day for breakfast, but he is certainly capable of choosing to drink orange juice. Alice may have wanted to play with trains today, but she could have effectuated a different outcome and played with Legos instead. In short, in scenarios involving human actions, children not only consider what occurred in this world, but articulate beliefs about alternative possible worlds, as long as those worlds are "near" in the sense that they don't violate the physical and epistemic laws of ours [16, though see also 15 for alternative developmental accounts].

Critically, these developments have consequences for how young children think about their own actions. Just as children become able to imagine that events in the world could have been different from how they turned out [e.g., "my room could've been clean instead of messy today"], they can imagine how their own actions could have been different as well ["I could have made my room clean instead of messy"]. . As a result, children not only consider causes, effects, and alternative realities, but also place themselves as the causes of their own effects, capable of creating their own alternative realities. For example, by four years of age, a child will make a drawing, but then reflect that she didn't have to draw that, and could have in fact drawn something else instead [12,17]. As they do for others' actions, children appreciate that they themselves could have desired other things, drawn different shapes, effectuated alternative outcomes, so long as those outcomes follow the laws of the physical world. For example,

children appreciate that they can take a different path to go to school than the one they habitually take, but not if doing so meant they would have to walk through a brick wall [physical impossibility; [18] or if they don't know about the alternative path [epistemic impossibility; [12,19].

Finally, as part of this ability to construe their own actions as choices, children begin to recognize conflicting motives for the choices that they and others make. For example, they can appreciate conflicts between external motivations for behavior [e.g. moral and social norms] and internal ones [e.g. desires; [17,19]. They can reflect on conflicting internal motives as well; wanting one thing but choosing another [12] or wanting two things at once [20].

Along with considering conflicting motivations comes an ability to experience choices as *costly*; that is, to experience and construe actions which benefit others in light of possible alternatives that would have benefitted the self. In recent work, we've argued that the practice of making costly choices helps us situate ourselves more broadly as agents of change, capable of effectuating positive moral outcomes rather than just passively observing them. For example, in one recent study [9], preschoolers had an opportunity to effectuate kindness by giving up a sticker of theirs to make another agent [a puppet] feel better. We gave children varying amounts of agency [see Figure 1] in how they effectuated that kindness. One group of children was given no agency at all; another group was given minimal agency [told they could do the nice thing and give it to the puppet or hand it back to the experimenter to put away so that no one receives it]. This group of children had some choice over the eventual outcome, but the choice that didn't involve kindness wasn't a very good one. Finally, one last group of children -- the focal experimental group -- was given a difficult and costly choice, and thus the greatest amount of agency - they were told that they could either do the nice thing and make the puppet feel better by giving it a sticker *or* they could keep the sticker all for themselves. This group had a choice of kindness, but also clear evidence that kindness was not the only option - had they chosen to, they could have produced a selfish outcome instead.

Almost all children in all three groups ended up doing the kind thing of giving up that sticker to the puppet. But, what varied was what happened next: in a subsequent step, children were given an opportunity to engage in a new kind act towards a new individual -- they were given three more shiny stickers and told they could either keep all of them or they could share some with yet another puppet that was feeling sad. The group that was initially given full agency over their decisions [a choice of kindness with a very appealing alternative of selfishness] was the one most generous towards the new individual.

Having initial ability to freely choose their own prosocial actions facilitated children's ability to make similar costly prosocial decisions again. Those initial costly decisions, as compared with not so costly decisions or actions that weren't decisions at all, may have felt more internally motivating to preschool-aged children [21]. One possibility for why this may be the case is that having that initial choice helped children construe their own actions in a different light - in being able to experience the temptation of the alternative and actively choose against it, children may be forming, at least implicitly, ideas about the kinds of people they are, or the types of people they prefer to be. Seeing not only the causal impact of their actions, but also understanding the cost and sacrifice of that causal impact may help children feel particularly responsible for their prosocial behavior. Similarly, children's understanding of their own causal agency for negative actions fuels their guilt and responsibility for those negative outcomes [22,23]. For example, toddlers work harder to repair a broken toy when they believe that their actions caused the toy to break. Thus, the more causal impact children view themselves as having, the more they take

responsibility over their own actions, and the more likely they are to continue acting prosocially [either to repair negative actions or propel positive actions that they themselves had caused] in the future. In fact, work with adults suggests a prosocial construal feedback loop: in making difficult choices, people construe themselves as being good people, thus propelling future prosocial behavior [24].

The idea that kindness begets kindness is not new: the experience of being prosocial helps children be prosocial again[25]. But, importantly, not *all* experiences are the same - like adults, children appear to evaluate their own actions in the contexts in which they occur. Other work has shown that children's prosocial behavior increases after experiences with actions that are particularly costly: children become more subsequently prosocial after performing prosocial actions that went unrewarded with prizes [26] after performing actions that come at a proportional cost [i.e., after giving 100% of their resources vs. just 25%; [27], or after making the action in private [25]. Thus, the surrounding context in which children undertake their prosocial actions offers cues to help children interpret these actions. For example, when children act in private, they might believe that those actions must have been made independent of external influences such as watchful parents or experimenters. Similarly, when children undertake actions that are not rewarded materially, children appreciate that their actions are motivated intrinsically rather than extrinsically. Finally, when children expend high material costs to undertake their actions, they may come to believe that those actions were particularly desirable or necessary.

Children are also sensitive to how others react to their actions. For example, children are more prosocial after an adult labels their prosocial action as being internally-motivated [28], after an adult labels the helpfulness of the person, rather than the helpfulness of the action [29], or even after the mere recollection of having done something particularly nice in the past [30]. The last of these suggests that not only do children use adults' cues for how to interpret their prosocial acts, but that they themselves start to attach meaning and interpretations to their actions. The totality of this work suggests that prosocial identities are constructed not only through the actions children take, but also through the ways adults discuss such actions, and through the way children ultimately interpret them.

Conclusions

The preschool age may also be a particularly important developmental time window during which agentive experiences have downstream consequences for their behavior. While preschool-aged children are confident in their abilities to have effectuated different *physical* outcomes [e.g., drawn a circle instead of a square], children's tendency that they are capable of effectuating different *moral and social* outcomes is contextually, developmentally, and culturally sensitive [17,19]. The fact that children attend to, accept, and ultimately use adults' interpretations of their actions suggests that parenting and culture may play a strong role in shaping children's beliefs about early prosocial behavior. Future work may further explore this avenue by focusing on how different cultural contexts attach different meanings to the same prosocial behavior, and the consequences that such different meanings have on children's subsequent behavior. Thus, as with adults [31,32] morality constrains what children believe is possible [33]. Because culture, parenting, and one's social context more generally eventually shape how children interpret their own agency, adults can also be agents of change in young children's lives: imbuing children with agency when they make prosocial actions need not be solely the role of the child or the situation - adults and relevant others are able to provide opportunities for children to actively choose to do

the right thing, label their options in ways that allow children to recognize their own agency, and scaffold choice constructively -- all of which eventually help children recognize their own behavioral impact on the world.

Word Count: 1957

[1] Van de Vondervoort, Julia W, Hamlin JK. **Evidence for intuitive morality: preverbal infants make sociomoral evaluations.** Child Development Perspectives 2016; **10**[3]:143-148.

[2] Wright JC, Bartsch K. **Portraits of early moral sensibility in two children's everyday conversations.** Merrill-Palmer Quarterly 2008; **54**[1]:56-85.

[3] Schmidt MF, Svetlova M, Johe J, Tomasello M. **Children's developing understanding of legitimate reasons for allocating resources unequally.** Cognitive Development 2016; **37**:42-52.

[4] Rakoczy H, Kaufmann M, Lohse K. **Young children understand the normative force of standards of equal resource distribution.** J Exp Child Psychol 2016; **150**:396-403.

[5] Woodward AL. Infants' grasp of others' intentions. Curr Dir Psychol Sci 2009 2017; **18**[1]:53-57.

[6] Woodward AL, Sommerville JA. **Twelve-month-old infants interpret action in context.** Psychol Sci 2000; **11**[1]:73-77.

*[7] Warneken F, Tomasello M. **Altruistic helping in human infants and young chimpanzees.** Science 2006; **311**[5765]:1301-1303.

This paper demonstrated that providing 20-month-olds with material rewards after they perform a helping action decreases the future likelihood of children undertaking that action under non-reward conditions. Notable, children did not decrease their likelihood after being given non-material rewards [i.e., verbal praise]. This paper suggests that children may be interpreting rewarded actions as being externally, rather than internally motivated.

[8] Hepach R, Vaish A, Tomasello M. **Young children are intrinsically motivated to see others helped.** Psychol Sci 2012; **23**[9]:967-972.

[9] Chernyak N, Kushnir T. **Giving preschoolers choice increases sharing behavior. Psychol Sci 2013; **24**[10]:1971-1979.

Across two studies, this paper demonstrated that children are more likely to share with others after they had experience doing so in a costly way [versus a non-costly way and versus being instructed to do so]. This finding suggests that children interpret their own actions in light of alternative possibilities - children who shared in a costly manner had an alternative not to share and may have thus made an inference about their prosocial identity.

[10] Zahn-Waxler C, Radke-Yarrow M, Wagner E, Chapman M. **Development of concern for others.** Dev Psychol 1992; **28**[1]:126-136.

[11] Shtulman A, Carey S. Improbable or impossible? How children reason about the possibility of extraordinary events. Child Dev 2007;78[3]:1015-1032.

[12] Kushnir T, Gopnik A, Chernyak N, Seiver E, Wellman HM. **Developing intuitions about free will between ages four and six. Cognition 2015; **138**:79-101.

Across five experiments, this paper investigates preschool-aged children's initial beliefs about choice and free will. By age four, children have a rudimentary sense of their own agency and believe their actions could have been otherwise. By age six, children also believe that they were able to act against their own desires. This paper shows the emergence and developmental progression of our beliefs in our own agency.

** [13] Nichols S. **The folk psychology of free will: Fits and starts.** Mind & Language 2004; **19**[5]:473-502.

This paper showed that by the preschool age, children are able to entertain alternative possibilities for action for agents but not inanimate object. This basic ability may serve as the foundation for children's thinking about choice, agency, and free will.

[14] Atance CM, O'Neill DK. **Episodic future thinking. Trends Cogn Sci 2001**; **5**[12]:533-539.

[15] Rafetseder E, Cristi‑Vargas R, Perner J. **Counterfactual reasoning: Developing a sense of "nearest possible world"**. Child Dev 2010; **81**[1]:376-389.

[16] Beck SR, Robinson EJ, Carroll DJ, Apperly IA. **Children's thinking about counterfactuals and future hypotheticals as possibilities**. Child Dev 2006; **77**[2]:413-426.

[17] Chernyak N, Kushnir T. The self as a moral agent: **Preschoolers behave morally but believe in the freedom to do otherwise.** Journal of Cognition and Development 2014; **15**[3]:453-464.

[18] Schult CA, Wellman HM. **Explaining human movements and actions: Children's understanding of the limits of psychological explanation.** Cognition 1997; **62**[3]:291-324.

[19] Chernyak N, Kushnir T, Sullivan KM, Wang Q. **A comparison of American and Nepalese children's concepts of freedom of choice and social constraint. Cognitive Sci 2013; **37**[7]:1343-1355.

This paper investigated cross-cultural, developmental beliefs about choice by surveying children ages 4-11 in the US Nepal on their beliefs about choice. Children in both the US and Nepal endorsed the ability to choose to go against basic habits, but only older children in the US endorsed the ability to choose to act against moral and social constraints. This paper points out both universalities and cultural and developmental differences in our beliefs about choice.

[20] Lagattuta KH, Nucci L, Bosacki SL. **Bridging theory of mind and the personal domain: Children's reasoning about resistance to parental control.** Child Dev 2010; **81**[2]:616-635.

[21] Rapp DJ, Engelmann JM, Herrmann E, Tomasello M. **The impact of choice on young children's prosocial motivation.** J Exp Child Psychol 2017; **158:**112-121.

[22] Kochanska G, Casey RJ, Fukumoto A. **Toddlers' sensitivity to standard violations.** Child Dev 1995; **66**[3]:643-656.

[23] Weisberg DP, Beck SR. **Children's thinking about their own and others' regret and relief.** J Exp Child Psychol 2010; **106**[2]:184-191.

[24] Gneezy A, Imas A, Brown A, Nelson LD, Norton MI. Paying to be nice: **Consistency and costly prosocial behavior. Manage Sci 2012; **58**[1]:179-187.

This paper showed that the degree of cost one incurs when undertaking a prosocial action determines whether one will show self-consistency [i.e., repeat that action] or moral self licensing [i.e., decide that one has already "proved" oneself]. This paper found that perceive costly actions as being diagnostic of their underlying prosocial identities, which then increases the likelihood of them being prosocial again.

[25] Cialdini RB, Eisenberg N, Shell R, McCreath H. **Commitments to help by children: Effects on subsequent prosocial self-attributions.** British Journal of Social Psychology 1987; **26**[3]:237-245.

[26] Warneken F, Tomasello M. **Extrinsic rewards undermine altruistic tendencies in 20-month-olds.** Dev Psychol 2008; **44**[6]:1785-1788.

[27] Chernyak N, Trieu BY, Kushnir T. **Preschoolers' selfish sharing is reduced by prior experience with proportional generosity.** Open Mind 2017; **1**[1]: 42-52.

[28] Grusec JE, Redler E. **Attribution, reinforcement, and altruism: A developmental analysis.** Dev Psychol 1980; **16**[5]:525-534.

[29] Bryan CJ, Master A, Walton GM. **"Helping" versus "being a helper": Invoking the self to increase helping in young children. Child Dev 2014; **85**[5]:1836-1842.

Two experiments showed that 3-6-year-olds increase their helping behavior after an adult talks about the trait of "being a helper" versus the action of "helping". This finding shows that preschool-aged children may be more motivated to be prosocial when thinking about what their actions reveal about their underlying stable identities.

[30] Tasimi A, Young L. **Memories of good deeds past: The reinforcing power of prosocial behavior in children.** J Exp Child Psychol 2016; **147**:159-166.

[31] Barnes J, Black J. **Impossible or improbable: The difficulty of imagining morally deviant worlds.** Imagination, Cognition and Personality 2016; **36**[1]:27-40.

[32] Gendler TS. **The puzzle of imaginative resistance.** J Philosophy 2000; **97**[2]:55-81.

*[33] Phillips J, Cushman F. **Morality constrains the default representation of what is possible.** P Natl Acad Sci USA 2017; **114**[18]: 4649-4654.

This paper demonstrated that even adults' beliefs about what is possible is contrained by what is morally permissible. Across three studies, adults judged possibility for impossible, improbable, and morally wrong events under cognitive load or under reflective, non-load conditions. Adults under cognitive load were more likely to judge that immoral events were also impossible, suggesting that morality constrains
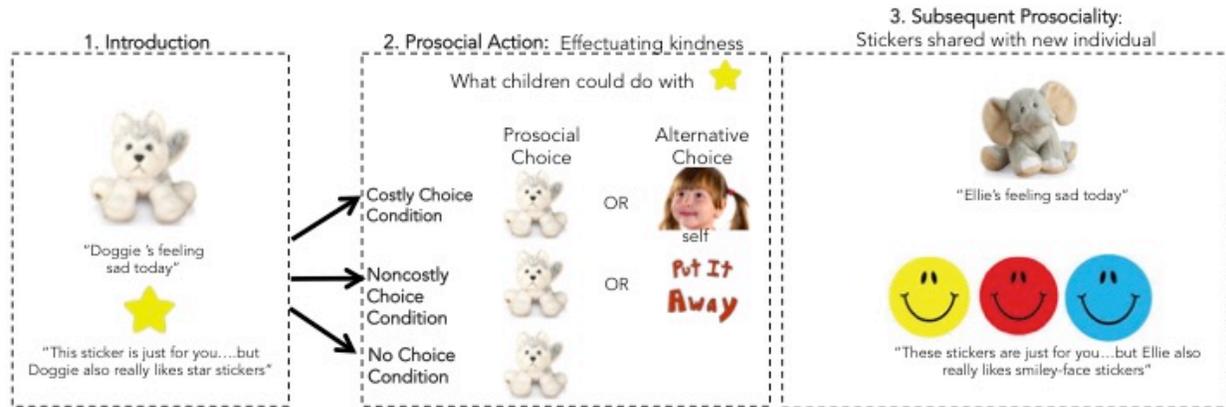
even adults' sense of possibility and agency.

Figure 1. Schematic of materials and procedure from Chernyak & Kushnir [2013]. In Step 1, children were introduced to a puppet who was feeling sad. In Step 2, children were randomly assigned to one of three groups: a *Costly Choice Condition* group that was told they could keep the sticker for themselves or give it to the puppet, a *Noncostly Choice Condition* group that was told they could have the experimenter put the sticker away or give it to the puppet, or a *No Choice Condition* group that was old they had to give the sticker to the puppet. In Step 3, all children were introduced to a new puppet, given three more stickers, and told they could split the stickers however they wished between themselves and the new puppet.