"I should have known!" How foreseeability influences children's experiences of regret

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Abstract

People often experience regret when we consider counterfactuals to our past actions, which can help us improve our future behaviours. However, existing developmental measures of regret typically involve no means of foreseeing the eventual outcome, which means that any reported experiences of regret may not aid children in making better choices in similar future situations. We investigated if 4- to 9-year-olds (N = 144) experienced stronger regret towards a choice where they could have foreseen the eventual outcome. Children selected one box each from two pairs of boxes, with both selected boxes leading to sub-optimal outcomes. Critically, one pair of boxes had windows on the bottom, such that children could have apparently foreseen the sub-optimal outcome of their choice if only they had first looked underneath the boxes. Not until 8 years of age did many children feel worse about the box selection with the foreseeable outcome.

Keywords: counterfactuals; counterfactual thinking; counterfactual emotions; regret; controllability; foreseeability

Introduction

The capacity to consider alternative outcomes to events that have already occurred is known as *counterfactual thinking* (Beck & Riggs, 2014; Epstude & Roese, 2008; Rafetseder & Perner, 2012). When we judge that an alternative choice in the past would have led to a more appealing version of the present, we may also experience a *counterfactual emotion*, such as regret (Epstude & Roese, Weisberg & Beck, 2012). For example, after failing an exam, you may consider that if you had studied more, you could have passed the exam, causing you to feel regret towards your past actions. It is often possible to consider many different counterfactuals for a given past event, yet the functional theory of counterfactual thinking posits that reflecting on counterfactuals within our control (rather than counterfactuals out of our control) is more beneficial for learning to behave adaptively in the future (Roese & Epstude, 2017). For instance, if you want to prevent failing an exam in the future, it would be more beneficial to consider an aspect of the past that you had control over (e.g., if you had not procrastinated, if you had implemented effective study methods, if you had scheduled enough time to study) than an aspect of the past that was out of your control (e.g. if the exam had been scheduled at a later time, if the exam questions had been easier, if you had a different lecturer).

Research broadly suggests that, in line with the functional theory of counterfactual thinking, adults focus more on counterfactuals that were within their control compared to out of their control (Ferrante et al., 2013; Frosch et al., 2015; Maloney & Egan, 2017; Mercier et al., 2017; Straga et al., 2022; see Nyhout & Ganea, 2020, for a similar pattern of results in children). When people perceive counterfactuals to have greater controllability, it is likely because the actual and counterfactual outcome of a past choice could have been foreseen. As in the previous example, you probably could have foreseen failing an exam if you had chosen not to study, but you probably could not have foreseen failing an exam because of the unexpected questions. Indeed, foreseeability may be a critical factor for determining the controllability of counterfactuals (Markman & Tetlock, 2000).

Developmental tasks that measure regret typically involve children being presented with two boxes—one concealing a large prize and one concealing a small prize—and asked to select one box to open (Amsel & Smalley, 2000). After making their selection and rating their emotion towards the contents of the chosen box, children are then shown the contents of the alternative box. Such studies usually find that children begin to report a negative change in emotion (i.e., regret) after seeing a better alternative prize around 6 years of age (Gautam et al., 2022; Guerini et al., 2020; Jones et al., 2024; O'Connor et al., 2015; O'Connor et al., 2012; Van Duijvenvoorde et al., 2014; Weisberg & Beck, 2010, 2012). However, during these tasks children typically have no genuine control over the eventual outcome, as they could not have possibly known what was inside each box before the contents were revealed (i.e., they cannot foresee the outcome of their choice). Assuming that the locations of the prizes would be randomized each time, this means that there is no way that children could have learned to make a better selection in the future. Therefore, even though children appear to be reporting experiences of regret, we cannot infer from these findings that children prefer to consider counterfactuals that would aid future decision making.

Although the perceived foreseeability of past events is associated with increased counterfactual thinking in adults (Markman & Tetlock, 2000), it remains unclear whether

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children likewise account for foreseeability when thinking counterfactually. In one relevant developmental study, McCormack et al. (2016) manipulated the degree of risk in a box selection task, such that 6- to 9-year-olds could either choose a box that would lead to 7 or 10 points (low risk), or a box that would lead to 1 or 16 points (high risk). One interpretation of this set-up is that the potential outcome of the low-risk box was less variable and therefore more foreseeable than the potential outcome of the high-risk box. The results showed that children's likelihood of experiencing regret and relief did not vary with risk-taking, suggesting that the degree of foreseeability did not impact their counterfactual emotions. A more direct test of the role of foreseeability in children's counterfactual emotions, however, would compare their emotional experiences following choices where the actual and counterfactual outcomes could have and could not have been precisely foreseen.

Therefore, the current study examined if 4- to 9-year-old children felt stronger regret following a selection for which they could have foreseen a negative outcome, compared to a selection for which they could not have foreseen an identical negative outcome. Children were presented with two pairs of boxes with stickers concealed inside. They were instructed to select a box from each pair, and before making their selections they were given time to handle the boxes in any manner they wished (except for opening the lids and looking inside). Critically, one pair of boxes had windows on the bottom, such that if the children had looked through these windows, they could have seen the number of stickers inside and thus apparently foreseen[1] the actual and counterfactual outcomes of their choice. Unbeknownst to children, however, the contents of the boxes were surreptitiously manipulated, such that both chosen boxes (foreseeable and unforeseeable) always contained 1 sticker and both unchosen boxes (foreseeable and unforeseeable) always contained 5 stickers—with the purpose of prompting feelings of regret towards each chosen box. Finally, after seeing the contents of all these boxes and finding out about the windows, children were asked about their degree of sadness towards the two chosen boxes.

In line with the functional theory of counterfactual thinking, it would benefit children to experience stronger feelings towards the boxes with the foreseeable outcomes, as focusing on these outcomes should enable them to make more adaptive decisions when confronted with similar choices with foreseeable outcomes in the future.

Method

Participants

As pre-registered (https://osf.io/zwt68/viewonly) 144 children (72 males and 72 females) aged between 4.01 and 9.91 years (M = 6.96 years, SD = 1.70 years) were included in the analyses, with 24 children each aged 4, 5, 6, 7, 8, and 9 years. An additional 3 children were excluded due to an existing clinical diagnosis (n = 2) or a language barrier (n = 1). Children were tested at a public museum (n = 89) and in a university lab space (n = 58).

Procedure

Children were first introduced to a 7-point Likert scale of emotional faces (ranging from extremely happy to extremely sad), which was accompanied by a 3-pronged arrow (these arrows represented relative emotions of *happier*, *sadder* or *the same*, respectively; see Figure 1).

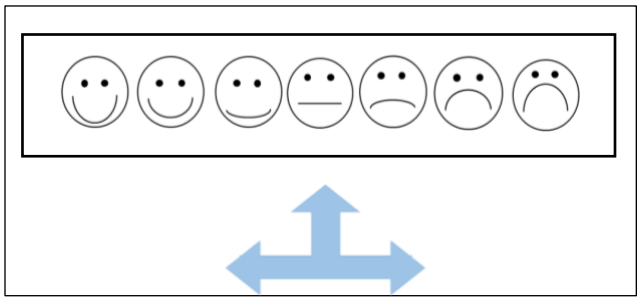

Figure 1: 7-point scale of faces (from Gautam et al., 2017) explained to children from left to right: "*This face is extremely happy, this face is very happy, this face is a little bit happy, this face is not happy or sad, this face is a little bit sad, this face is very sad, and this face is extremely sad*. 3-pronged arrow explained to children as (from left to right): *"These are arrows that go on top of any of the faces like this. Now wherever these arrows are placed, each arrow always means the same thing. This arrow means happier; this is because it is always point towards the happy faces. This arrow means the same as the face that was pointed to. This arrow means sadder; this is because it is always pointing towards the sad faces.*

The experimenter presented two pairs of closed orange boxes and explained to children that they would be selecting one box from each pair to search for stickers. Prior to each choice, however, children were given 15 seconds in which they could pick up and manipulate the boxes in any manner except for opening the top lids. Children that looked through the windows would have been excluded from analyses[2], as the foreseeability aspect needed to be revealed with the alternative outcome to prompt regret. After children made their two selections, the experimenter revealed that each of the two chosen boxes contained 1 sticker, and children reported their initial emotions about each chosen box on the 7-point Likert scale of faces. Next, the contents of the non-chosen boxes were revealed to contain 5 stickers. Critically, the experimenter then demonstrated that one pair of boxes had windows on the bottom, such that children could have

[1] Children could have genuinely looked through the windows before selecting a box. However, because the outcomes were surreptitiously assigned *after* their choice, children would not have actually been able to see the final outcomes at this time.

[2] No children actually looked through the windows during the study.

foreseen the outcome of their choice if only they had looked underneath the boxes. The experimenter also demonstrated, by contrast, that the other pair of boxes had no such windows (see Figure 2). Children were asked to look through the bottom of each box and confirm if they could see stickers or not.

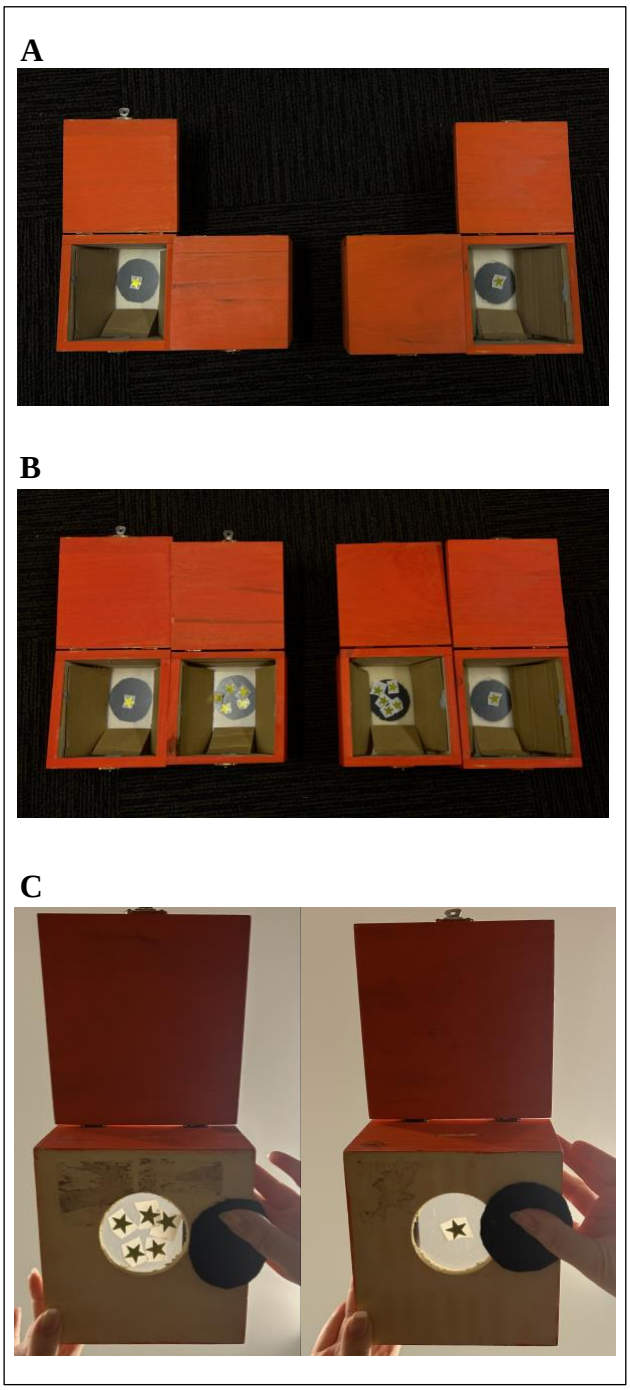

Figure 2: Features of the boxes as revealed to children. (A) Both chosen boxes are first revealed to have 1 sticker each. (B) Both non-chosen boxes are then revealed to have 5 stickers each. (C) One pair of boxes is finally revealed to have windows on the bottom. The experimenter demonstrates that if you pick up the boxes and look through the bottom you can see the number of stickers inside.

We then measured children's change in emotion for each selected box with the 3-pronged arrow (i.e., "do you feel happier, sadder or the same about this box you chose?"). Importantly, we next directly asked children if they felt worse about the chosen box with a window or the chosen box without a window (see Figure 3 for the visual aid we used to help children respond to this measure), and children were also prompted to provide a verbal justification for their response (i.e., "why do you feel worse about this box?"). Lastly, children were asked two manipulation checks: the first questions were to check if children understood they could use the windows on the foreseeable boxes to prevent the negative outcome (i.e., "if we were to play the game again what would you do in the 15 seconds before choosing your box for the boxes with windows?" and "what would you do in the 15 seconds before choosing your box for the box with no windows?"), and the second question was to check that children actually wanted to receive more stickers (i.e., "if you could choose your boxes again which boxes would you want?". All children received 12 stickers at the end of the task.

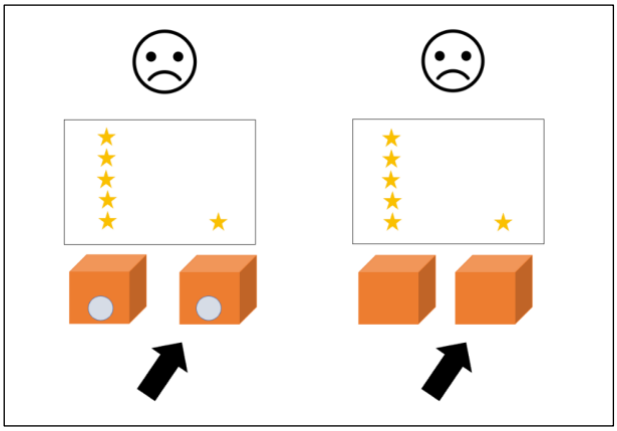

Figure 3: An example stimulus sheet used to assist the comparison question. For all children, the figure showed that the chosen foreseeable box and the chosen unforeseeable box both had 1 sticker, whereas the non-chosen boxes both had 5 stickers. Note that the arrangement of the boxes in the stimulus sheets shown to each child mapped onto the actual outcomes of that child's selections.

Counterbalancing

We counterbalanced the position of the boxes such that the pair of the boxes with windows were either on the left or right. We also counterbalanced the order in which children selected the boxes, such that they either first selected from the boxes with windows or the boxes without windows. The

measures for each selected box were then administered in the same order in which children had selected them.

Results

Initial emotion ratings

There was no significant difference between the initial emotion ratings on the 7-point scale (range from -3 = extremely sad to 3 = extremely happy) after opening each chosen box (foreseeable, M = 1.63, SD = 1.48, and unforeseeable, M = 1.55, SD = 1.48), $F(1, 142) = 0.38$, p = .541. This finding indicates that children were generally happy about receiving 1 sticker from each chosen box. Critically, as intended by the task design, it also indicates that children did not differentiate between the foreseeable and unforeseeable boxes before being shown that the foreseeable boxes had windows.

Emotion change ratings

After the contents and foreseeability of each alternative box were revealed, children could select from three emotion change ratings (*happier, sadder* or *the same*) towards each chosen box. We first examined if children's "sadder" responses significantly differed from an *a priori* chance level of 33.3%. A binomial test revealed that, across ages, children reported feeling sadder significantly more often than chance after the alternative boxes were revealed for the foreseeable boxes (n = 65/144, 45.1%, p = .002) and the unforeseeable boxes (n = 59/144, 41%, p = .032). Point-biserial correlations were then conducted to examine whether these effects varied as a function of age. These revealed children's likelihood of feeling sadder significantly increased with age for both the foreseeable and unforeseeable boxes, $r(143) = .40$, $p < .001$, $r(143) = .23$, $p = .005$, respectively. Additional binomial tests revealed that, across ages, children reported feeling the same no different than chance after the alternative boxes were revealed for the foreseeable boxes (n = 49/144, 34%, p = .458) and the unforeseeable boxes (n = 56/144, 38.9%, p = .092). Additionally, across ages, children reported feeling happier significantly less than chance after the alternative boxes were revealed for the foreseeable boxes (n = 30/144, 20.8%, $p < .001$) and the unforeseeable boxes (n = 29/144, 20.1%, $p < .001$).

A generalised linear mixed model examined whether children's change in emotion differed depending on the foreseeability of each box. A significant main effect of age revealed that with increasing age children were more likely to report feeling sadder after the alternative outcome was revealed for both selections, $\chi^2(1, N = 144) = 17.25$, $p < .001$, w = 0.35. However, children were not more likely to report feeling sadder about the foreseeable box compared to the unforeseeable box, $\chi^2(1, N = 144) = 0.52$, p = .469, w = 0.06. A non-significant Foreseeability × Age interaction revealed that children were not more likely to report feeling sadder about the foreseeable box compared to the unforeseeable box with increasing age, $\chi^2(1, N = 144) = 3.02$, p = .085, w = 0.15 (see Figure 4). When excluding children (post-hoc) who failed the first manipulation check (n = 17; 4-year-olds, n = 10; 5-year-olds, n = 4; 6-year-olds, n = 3), however, the interaction was significant, $\chi^2(1, N = 127) = 5.13$, p = .024, w = 0.20. Among the children who passed the first manipulation check, older children were significantly more likely than younger children to report feeling sadder about the foreseeable box but not the unforeseeable box (see Figure 4).

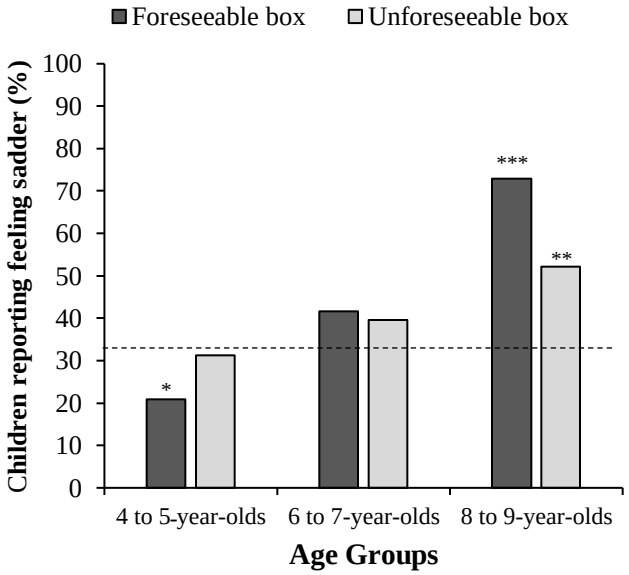

Figure 4: Percentage of children reporting feeling sadder about the foreseeable and unforeseeable boxes after the alternative outcomes were revealed by age groups. Asterisks indicate responses that differed significantly from chance (33.3%). * $p < .05$. ** $p < .01$. *** $p < .001$.

Comparison question analyses

As children could select feeling worse about the foreseeable box or the unforeseeable box after seeing inside the alternative boxes, we first examined if their responses significantly differed from *a priori* chance level of 50%. A binomial test revealed that, across ages, only 33.3% of children reported feeling worse about the foreseeable box, which was significantly *less* often than chance, $p < .001$. Critically, however, a point-biserial correlation revealed that children's responses significantly varied with age, $r(143) = .37$, $p < .001$. As shown in Figure 5, there was a large change in the percentage of children selecting the foreseeable box between the two younger age groups (15.6% on average) and the 8- to 9-year-olds (64.5%). When excluding children (post-hoc) who failed the first manipulation check, the significant association with age remained, $r(125) = .39$, $p < .001$. In summary, younger children unexpectedly possessed a bias towards feeling worse about the choice where they could *not* have foreseen the outcome, whereas older children did not possess this bias.

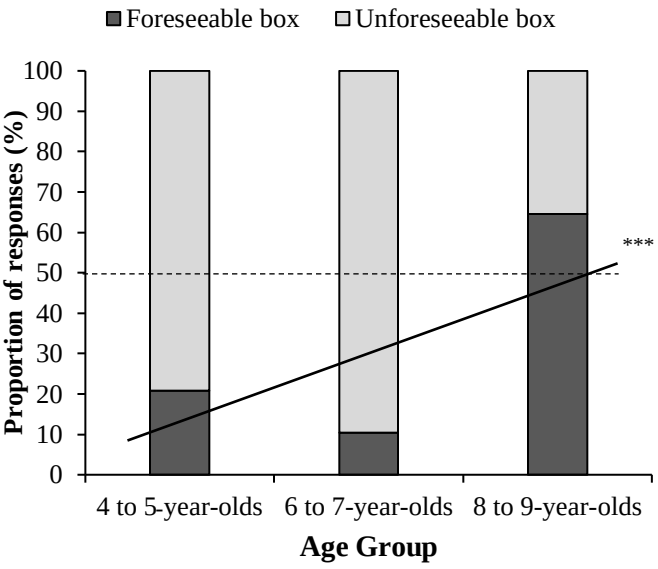

Figure 5: Proportion of children who reported feeling worse about the foreseeable box (with window) or the unforeseeable box (without window) by age group. Both younger groups of children selected the foreseeable box significantly less often than chance (50%), both $p < .001$, whereas 8- to 9-year-olds' responses did not significantly differ from chance, $p = .060$.

Verbal responses

Children's verbal responses were coded for whether they referred to a counterfactual in their justification following the comparison question. An example of a response without a counterfactual aspect is "*because it has no window*", and an example of a response with a counterfactual aspect is "*it has a window, and I could've looked through but the other boxes have no window so I would just have to guess*". A total of 19 children provided no response. Among the 125 children who provided a response, a point biserial correlation examined whether the likelihood of referring to a counterfactual (39.2% of these children; n = 49) varied as a function of age. This analysis revealed that the children who responded were significantly more likely to mention a counterfactual with increasing age, $r(124) = .57$, $p < .001$. Next, an exploratory logistic regression examined whether the children who reported feeling worse towards the foreseeable chosen box were more likely to refer to a counterfactual in their justification, when controlling for age. Among children who provided verbal responses, this analysis revealed that children were significantly more likely to mention a counterfactual if they reported feeling worse towards the foreseeable box (76.9% of 39 children) than the unforeseeable box (22% of 86 children), b = 1.89, SE = .52, Wald χ^2 (1, N = 125) = 13.05, p < .001, w = 0.32. The age effect was weaker but still significant, b = 0.35, SE = .17, Wald χ^2 (1, N = 125) = 4.15, p = .042, w = 0.18, and the age x counterfactual response interaction was not significant, b = .39, SE = .35, Wald χ^2 (1, N = 125) = 1.21, p = .272, w = 0.10.

Discussion

The current study directly assessed whether children were more likely to experience regret when they apparently could have foreseen the outcome before making a choice compared to when they could not have foreseen the outcome. The change in emotion results suggested that, with increasing age, children experienced a negative change in emotion after the contents of the non-chosen boxes and the window mechanism were revealed for both the foreseeable and unforeseeable boxes. Consistent with past literature (O'Connor et al., 2015; O'Connor et al., 2012; Van Duijvenvoorde et al., 2014; Weisberg & Beck, 2010, 2012), this may indicate that older children were in general more likely than younger children to experience a counterfactual emotion after each alternative outcome was revealed.

When children were explicitly asked to compare the selected boxes with and without windows, 4- to 7-year-old children were unexpectedly more likely than chance to feel worse about the selected box that had no window. One potential interpretation of this finding is that children of this age were genuinely more likely to regret the box they chose when they could not have possibly foreseen the outcome. This interpretation seems unlikely, however, when considering that these younger children failed to report feeling sadder towards either selection significantly more often than chance (i.e., when using the three-pronged arrow), suggesting that most of these children may not have experienced regret about their box selections at all.

A more likely interpretation, perhaps, is that younger children were focusing on the future utility of each box when answering the counterfactual comparison question. That is, if children were thinking about which box would result in less favourable outcomes for *future* decisions, they then might feel worse about the unforeseeable boxes because the lack of windows would preclude them from certainly winning more stickers in the future (as compared to the boxes with windows). This possibility is supported by the fact that children who reported feeling worse towards the unforeseeable box were much less likely to mention a counterfactual in their verbal justifications, suggesting these children may not have been reflecting on the past. In line with this interpretation, one theoretical perspective suggests that young children might more readily think about future possibilities than counterfactual past possibilities (Gautam et al., 2019; Redshaw & Suddendorf, 2020), because thinking about such counterfactual possibilities requires the hierarchical understanding that in the actual past there were alternative possible futures available (Hoerl & McCormack, 2016; McCormack & Hoerl, 2017).

By contrast, when 8- to 9-year-olds were asked to directly compare the two chosen boxes, they were many times more likely than younger children to report feeling worse about the box with a window. This clear shift away from the initial baseline tendency to choose the box without a window

suggests that the older children were approaching the question in a different manner to younger children, potentially reflecting a shift from a *possible-future orientation* to a *counterfactual-past orientation*. Supporting this interpretation, choosing the foreseeable box was uniquely and significantly associated with the likelihood of children referencing a counterfactual in their verbal justification. Nonetheless, even these older children did not quite select the box with a window significantly above chance levels, perhaps indicating that many 8- and 9-year-olds continued to focus on the future functionality of the boxes.

Our results provide preliminary evidence that an increased tendency to experience regret when an outcome was foreseeable may not begin to emerge until around the age of 8 years. This finding suggests that a predilection to focus on more functional counterfactuals (Roese & Epstude, 2017) may emerge later in development than the more basic capacity to think counterfactually, reflecting a protracted development of counterfactual reasoning. However, future research will be required to more directly investigate what is driving the change in children's responses across ages. For example, studies could systematically examine whether younger children do in fact preferentially focus on future possibilities and whether older children do in fact preferentially focus on counterfactual past possibilities, especially in situations where these possibilities might prompt opposite emotions. Further research is also needed to determine whether children who regret a foreseeable outcome are more likely to make better decisions in subsequent tasks.

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References

Amsel, E., & Smalley, J. D. (2000). Beyond really and truly: Children's counterfactual thinking about pretend and possible worlds. *Children's reasoning and the mind, 22*(5), 121-147.

Beck, S. R., & Riggs, K. J. (2014). Developing thoughts about what night have been. *Child Development Perspectives*,*8*(3),175-179. https://doi.org/10.1111/cdep.12082

Epstude, K., & Roese, N. J. (2008). The functional theory of counterfactual thinking. *Personality and Social Psychology Review*, *12*(2), 168-192. https://doi.org/10.1177/1088868308316091

Ferrante, D., Girotto, V., Stragà, M., & Walsh, C. (2013). Improving the past and the future: a temporal asymmetry in hypothetical thinking. *Journal of experimental psychology. General*, *142*(1), 23–27. https://doi.org/10.1037/a0027947

Frosch, C. A., Egan, S. M., & Hancock, E. N. (2015). The effect of controllability and causality on counterfactual thinking. *Thinking & Reasoning, 21*(3), 317-340.

Gautam, S., Bulley, A., von Hippel, W., & Suddendorf, T. (2017). Affective forecasting bias in preschool children. *Journal of Experimental Child Psychology, 159*, 175-184. https://doi.org/10.1016/j.jecp.2017.02.005

Gautam, S., Suddendorf, T., Henry, J. D., & Redshaw, J. (2019). A taxonomy of mental time travel and counterfactual thought: Insights from cognitive development. *Behavioural Brain Research, 374*, 112108. https://doi.org/10.1016/j.bbr.2019.112108

Gautam. S., Suddendorf. T., & Redshaw. J. (2022). Counterfactual thinking elicits emotional change in young children. *Philosophical Transactions of the Royal Society B.* https://doi.org/10.1098/rstb.2021.0346

Guerini, R., FitzGibbon, L., & Coricelli, G. (2020). The role of agency in regret and relief in 3- to 10-year-old children. *Journal of Economic Behavior & Organization, 179*, 797-806. https://doi.org/10.1016/j.jebo.2020.03.029

Hoerl, C., & McCormack, T. (2016). Making decisions about the future: Regret and the cognitive function of episodic memory. In K. Michaelian, S. B. Klein, & K. K. Szpunar (Eds.), *Seeing the future: Theoretical perspectives on future-oriented mental time travel*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190241537.003.0012

Jones, A. K., Gautam, S., & Redshaw, J. (2024). Young children experience both regret and relief in a gain-or-loss context. *Cognition & emotion*, *38*(1), 163–170. https://doi.org/10.1080/02699931.2023.2258586

Maloney, D., & Egan, S. (2017) The effect of autonomy on counterfactual thinking about controllable events, *Journal of Cognitive Psychology*, *29*(3), 337-351. https://doi.org/10.1080/20445911.2016.1277731

Markman, K. D., & Tetlock, P. E. (2000). 'I couldn't have known': Accountability, foreseeability and counterfactual denials of responsibility. *British Journal of Social Psychology*, *39*(3), 313-325. https://doi.org/10.1348/014466600164499

McCormack, T., O'Connor, E., Beck, S., & Feeney, A. (2016). The development of regret and relief about the outcomes of risky decisions. *Journal of Experimental Child Psychology, 148*, 1-19. https://doi.org/10.1016/j.jecp.2016.02.008

McCormack, T., O'Connor, E., Cherry, J., Beck, S. R., & Feeney, A. (2019). Experiencing regret about a choice helps children learn to delay gratification. Journal of *Experimental Child Psychology, 179*, 162-175. https://doi.org/10.1016/j.jecp.2018.11.005

Mercier, H., Rolison, J. J., Stragà, M., Ferrante, D., Walsh, C. R., & Girotto, V. (2017). Questioning the preparatory

function of counterfactual thinking. *Memory & Cognition, 45*(2), 261-269. doi:10.3758/s13421-016-0660-5

Nyhout, A., & Ganea, P. A. (2020). What is and what never should have been: Children's causal and counterfactual judgments about the same events. *Journal of Experimental Child Psychology*, 192, 104773. https://doi.org/10.1016/j.jecp.2019.104773

O'Connor, E., McCormack, T., & Feeney, A. (2012). The development of regret. *Journal of Experimental Child Psychology, 111*(1), 120-127. https://doi.org/10.1016/j.jecp.2011.07.002

O'Connor, E., McCormack, T., Beck, S. R., & Feeney, A. (2015). Regret and adaptive decision making in young children. *Journal of Experimental Child Psychology, 135*, 86-92. https://doi.org/10.1016/j.jecp.2015.03.003

Rafetseder, E., & Perner, J. (2012). When the alternative would have been better: Counterfactual reasoning and the emergence of regret. *Cognition & Emotion, 26*(5), 800-819. https://doi.org/10.1080/02699931.2011.619744

Redshaw, J., & Suddendorf, T. (2020). Temporal junctures in the mind. *Trends in Cognitive Sciences, 24*(1), 52-64. https://doi.org/10.1016/j.tics.2019.10.009

Roese, N. J., & Epstude, K. (2017). The functional theory of counterfactual thinking: New evidence, new challenges, new insights. In J. M. Olson (Ed.), Advances in experimental social psychology. Elsevier Academic Press.

Stragà, M., Faiella, A., Santini, I., & Ferrante, D. (2023). "The game would have been better for me if…": children's counterfactual thinking about their own performance in a game, *Thinking & Reasoning*, *29*(4), 663697, DOI: 10.1080/13546783.2022.2130428

Van Duijvenvoorde, A., Huizenga, H., & Jansen, B. (2014). What is and what could have been: Experiencing regret and relief across childhood. *Cognition & emotion, 28*(5), 926-935. https://doi.org/10.1080/02699931.2013.861800

Weisberg, D. P., & Beck, S. R. (2010). Children's thinking about their own and others' regret and relief. *Journal of Experimental Child Psychology, 106*(2-3), 184-191. https://doi.org/10.1016/j.jecp.2010.02.005

Weisberg, D. P., & Beck, S. R. (2012). The development of children's regret and relief. *Cognition & emotion, 26*(5), 820-835. https://doi.org/10.1080/02699931.2011.621933