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Bethany A. Burum, Daniel T. Gilbert, and Timothy D. Wilson

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# Becoming Stranger: When Future Selves Join the Out-Group

Bethany A. Burum and Daniel T. Gilbert
Harvard University

Timothy D. Wilson
University of Virginia

One of the most powerful rules of interpersonal behavior is that people are kinder to members of their in-groups than to members of their out-groups. Are people also kinder to their future selves when they expect them to remain members of their current in-groups rather than become members of their current out-groups? In 2 studies, participants in an emotionally charged debate expected either to remain on the same team or to join the opposing team when they returned the following week. Those who expected to join the opposing team were less willing to sacrifice for their future selves, leaving more of an unpleasant task for their future selves to finish and treating their future selves as unkindly as they treated a stranger. These results suggest that the rules that govern interpersonal behavior may also govern intertemporal behavior, and suggest new strategies to encourage prudent decisions.

*Keywords:* Prudence, will-power, out-group, future selves

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In the coming year, about a quarter of a million Americans will decide themselves to death (Center for Disease Control and Prevention, 2014). Many will make the decision to smoke, to text while driving, to have unprotected sex, or to buy a gun. Many more will eat like there's no tomorrow and drink like there's no tomorrow, and as a result, the odds that they will see tomorrow will be greatly reduced. Indeed, if the direst warnings of environmental scientists turn out to be right, human beings could well be the first species to decide itself into extinction. The word "prudence," which derives from the Latin word *prudentia* meaning "foresight," is generally defined as the tendency to make decisions with future consequences in mind, and psychologists and economists have spent centuries trying to understand why ordinary people seem to have so little of it (Ainslie & Haslam, 1992; Baumeister, Vohs, & Tice, 2007; Frederick, Loewenstein, & O'Donoghue, 2003; Mischel, Shoda, & Rodriguez, 1989)? Whether faced with long-term decisions about how much to save for retirement or short-term decisions about how much to eat for lunch, people typically tend to do what will bring them momentary pleasure, knowing full well that those decisions may ultimately cost them their health, their happiness, and even their lives. Why?

Recent research suggests that one answer may be that when people think of their future selves, they think of them as "someone else." For example, people tend to take a first-person visual perspective ("looking out") when thinking about their present selves but a third-person visual perspective ("looking at") when thinking about others—or about their future selves (Macrae et al., 2015; Pronin & Ross, 2006). When people are asked to describe the causes of their own and others' behaviors, they make attributions about their future selves that are much more like the attributions they make about others than they are like the attributions they make about their present selves (Nussbaum, Trope, & Liberman, 2003; Pronin, Olivola, & Kennedy, 2008). Brain regions that are typically more active when people answer questions about others than about their present selves are also more active when people answer questions about their future selves than their present selves (Ersner-Hershfield, Wimmer, & Knutson, 2009; Mitchell, Schirmer, Ames, & Gilbert, 2011). These and other findings suggest that in some very deep way, people regard their future selves as strangers—strangers whose health, wealth, and happiness are naturally not as important to them as are their own (see also Bartels & Rips, 2010; Bartels & Urminsky, 2011, 2015; Hershfield et al., 2011). By this account, imprudence is a form of "inter-temporal unkindness," and the fact that people are often unkind to their future selves is no more mysterious than the fact that they are often unkind to strangers.

If this is true, then the things that lead people to treat strangers more or less kindly should also lead them to treat their future selves more or less kindly. What are those things? One of the most powerful determinants of interpersonal kindness is group membership. In every human culture, people are kinder to members of the "in-groups" to which they belong—their tribes and teams, their races and religions—than to members of the "out-groups" to which

they do not (e.g., Brewer & Brown, 1998; Dovidio & Gaertner, 2010; Fiske, 2002). Although people's present selves are by definition members of their current in-groups, their future selves are often members of their current out-group. College hipsters become the corporate lawyers they once disparaged, urban singles become the suburban parents they once mocked, and globe-trotting sophisticates become the shuffling seniors who always seem to be in the way at the airport. At almost every age, adults feel some antipathy toward the age-groups they are destined to join (Kite, Stockdale, Whitley, & Johnson, 2005), which is why ageism is sometimes referred to as "prejudice against our feared future self" (Nelson, 2005, p. 207). One of life's great ironies is that just about everyone becomes someone whom they once regarded with disdain, pity, or at least impatience.

If people think of their future selves as other people, and if the rules that govern interpersonal relationships are the rules that govern intertemporal relationships, then people who expect their future selves to become members of an out-group should treat them as they treat strangers—which is to say, not all that well. To test this hypothesis, we performed two laboratory studies in which participants were assigned to one of two mock legal teams that were scheduled to debate an emotionally charged child custody case 1 week later. After working closely with their teammates (the in-group) to generate arguments for the debate, some participants were told that when they returned a week later they would become members of the opposing team (the out-group). Participants were then given a very unpleasant task and were told that they could do as much of it as they wished, but that whatever portion they left unfinished would have to be completed the following week— either by them (Study 1) or by a stranger (Study 2). We predicted that expecting to join the out-group would cause participants to leave a larger portion of the unpleasant task for their future selves to complete (Study 1), and that this portion would be about the same as the portion they left for a stranger to complete (Study 2).

## Study 1

In Study 1, we sought to establish that expecting to join an out-group can lead people to treat their future selves unkindly—in other words, to make imprudent decisions. Most previous research on how people treat their future selves (e.g., Bartels & Rips, 2010; Bartels & Urminsky, 2011; Hershfield et al., 2011) has consisted of surveys in which participants are asked to imagine a far-future self (e.g., "Imagine yourself in 20 years") and then to make a series of hypothetical monetary decisions ("If you could have $10 today or $200 in 10 years, which would you choose?"). In our studies, we did three things differently. First, we created a highly involving situation in our laboratory in which participants worked with a team of peers to prepare arguments in an emotionally charged child custody battle. Second, instead of measuring how participants said they would treat their future selves by asking them to make a series of hypothetical monetary decisions, we observed our participants' behavior and saw how they actually treated their future selves. Specifically, we gave participants a long, unpleasant task to perform, and told them that they could do as much of it as they wished right now, but that whatever portion they did not do would need to be finished when they returned to the laboratory in a week. This allowed us to measure surreptitiously whether participants actually *were* kind or unkind to their future selves, rather

than simply asking them whether they thought they might be. Third, instead of asking participants to make decisions about a far-future self who would likely differ from their present self in countless ways—from different attitudes and aptitudes to different hairlines and waistlines—we allowed our participants to make a decision that had palpable consequences for a future self who was a mere 7 days older than they were—a future self who would be virtually identical to their present self in all ways *except* that he or she would belong to an out-group.

## Participants

Because our experimental paradigm was novel, effect sizes could not be estimated. Therefore, we committed to recruiting participants through the end of the academic term or until we had recruited 60 participants, whichever came first. By the end of the academic term, we were able to recruit 53 participants all of whom were students at Harvard University, 62% of whom were female, 36% of whom were male, 2% of whom did not specify gender, and 50 of whom listed their age ($M = 19.96$ years, $SD = 1.68$ years). Participation took about 2.5 hrs across two sessions that were held about 1 week apart, and participants were given either $20 or course credit.

## Procedure

Upon arrival at the laboratory for Session 1, participants were escorted to a room that was equipped with a computer and remained there for the duration of the session. The experimenter explained that she was studying "how people collaborate online" and that 5 other participants were already seated in nearby rooms. She explained that participants would read about a legal dispute between two couples who were seeking custody of the same infant, that each participant would be assigned to one of two three-person teams, and that each team's members would work together for about 30 min to formulate arguments in support of one of the couples. Participants were told that all participants would return to the laboratory 1 week later, at which time the two teams would have a debate. In fact, there were no other participants in the laboratory.

**The case.** Once participants indicated that they understood the procedure, they read about an emotionally charged legal dispute between two couples: the Donavans and the Washingtons. They learned that Ms. Washington had become pregnant through in vitro fertilization, but that 5 months after giving birth to a baby whom they named Sally, she and her husband discovered that the hospital had mistakenly implanted another couple's embryo in Ms. Washington's womb. Sally, it turned out, was actually the biological child of Mr. and Ms. Donavan, whose sperm and eggs had been collected during fertility treatments and who were then mistakenly told that they were not viable candidates for in vitro fertilization. When all of these facts came to light, the Donavans went to court to seek custody of Sally, which the Washingtons did not want to grant. Participants read a summary of the facts of the case as well as emotionally charged statements from each of the mothers, both of whom pleaded to keep Sally. (See Section I in the online supplemental material for the full text of the case statement and Section II for the full text of the mothers' statements).

**The chat.** After reading the case summary and the statements, participants were randomly assigned to one of two teams: *the*

*prosecution,* whose job was to advocate for the Donavans, or for *the defense,* whose job was to advocate for the Washingtons. Although there is technically no prosecution in a civil trial, we thought our participants would find the term more familiar than *plaintiff.* Participants were told that they would discuss the case with the other two members of their team via Google Chat. Participants were told that "in order to standardize the format of the conversation" they would be having a structured discussion in which each team member would answer four questions (e.g., "What are the strongest arguments in favor of your case?" and "What are the weakest aspects of your case and how would you defend them against attack from the defense?"). The experimenter explained that one of the other team members (known as Participant 1, P1) would answer the first question, the other team member (known as Participant 2, P2) would then answer the first question, and that the participant would then answer the first question. In fact, all of the answers that were ostensibly being provided by P1 and P2 were actually being provided by the experimenter. Participants were told that this process would repeat until all four questions had been answered. The experimenter then signed the participant into Google Chat and left the room. After a few minutes, text that had ostensibly been written by P1 appeared in a chat box on the participant's computer screen.

Participants who had been assigned to the prosecution saw this text:

> P1: okay so my experimenter just left and he told me to go first. I guess we are supposed to go through the questions one at a time and discuss them. Lets see, the first question is to talk about the strongest arguments in favor of our case. I think the fact that Kerry and her husband have a right to raise their biological child is a key point for our side. She shouldn't have this right taken away. To live knowing that their child is out there somewhere being raised by other people . . . I can't imagine how horrible that would be. What do you think? (P2 goes next right? Haha.)

Participants who had been assigned to the defense saw this text:

> P1: okay so my experimenter just left and he told me to go first. I guess we are supposed to go through the questions one at a time and discuss them. Lets see, the first question is to talk about the strongest arguments in favor of our case. I think the whole idea of motherhood being about love vs genes is a big one. When people adopt they are considered the real parents because they are the ones who put time and love into raising the child, right? What do you think? (P2 goes next right? Haha.)

A few minutes later, text that had ostensibly been written by P2 appeared in a chat box on the participant's computer screen. Participants who had been assigned to the prosecution saw this text:

> P2: Yeah, I go now ☺. I agree with those points. Also, I think it is important to consider how young Sally is and how this works in our favor. Sally probably isn't making real memories yet, so having her live with our client and her husband wouldn't be detrimental to her mental health. This kinda falls in line with your point about it being the parents' right to raise their biological child . . . except it is also Sally's right to grow up in her own family. Does that make sense? Oh, and on top of that, our client can't get pregnant anymore, and therefore, this is her only chance to have a baby that is related to her, Can you think of any other ideas?

Participants who had been assigned to the defense saw this text:

> P2: Yeah I go now ☺. I agree with those points. Also it just feels so wrong for our clients to have to give up their child. I think that the bond they have with Sally is stronger than the one the Donovans claim to have. I mean Janet carried the baby for 9 months and then raised her for 5 more months; that creates a powerful bond. Think of how bonded parents are with their kids by that point? It would be so wrong for her to lose the child now. Also, our client had to give up so much for the pregnancy, that should count for something don't you think?

At this point, the participant was given time to type his or her answer to the first question, which then appeared on the computer screen. This continued until all four questions had been answered. (See Section III in the online supplemental material for the full text of the chat scripts.)

**The manipulation.** After the chat was complete, participants were told that the first part of the study was finished. Participants were then randomly assigned to one of two conditions. Participants who were assigned to the *future in-group condition* were told that when they returned for Session 2 they would remain on the same team that they had been on in Session 1 and would debate participants from the opposing team. Participants in the *future out-group condition* were told that due to scheduling considerations, when they returned for Session 2 they would be reassigned to the opposing team and would debate the participants who had been their teammates in Session 1.

**Primary dependent measures.** Participants then completed the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) so that we could test the immediate effect of our manipulation on participants' mood. Next, participants were told that "we often like to bundle studies together because it saves people the inconvenience of coming in for only a short time" and that they would therefore spend the remaining 40 min of Session 1 participating in "an unrelated study . . . from a colleague who is interested in pattern recognition." The ostensibly unrelated study featured a "pattern task" that involved finding animal names hidden in strings of 29 letters. This task was designed to be extraordinarily dull and is hereinafter referred to as *the unpleasant task.* Participants were given a few "practice strings" to complete so that they could see for themselves just how unpleasant the task was. Then participants were given an 11-page booklet that contained 132 of these letter strings and were told that they could complete as many as they wished, but that during Session 2, they would be required to complete all the letter strings that they did not complete during Session 1. Participants were told that both sessions were long enough to allow them to divide the task between the two sessions in any way they wished. Participants were asked to decide how much of the unpleasant task they wished to complete during Session 1 and how much they wished to complete during Session 2, and to put the pages that they wished to complete during Session 2 in a folder so that the experimenter could "add them to the paperwork for the next session." The number of pages that participants put into the folder for Session 2 was our primary dependent variable. The experimenter then left the room, and participants completed as much of the unpleasant task as they wished.

When participants indicated that they were done, they were asked to answer 15 written questions. Three of the questions were about the participant's *future self*: (1) How connected do you feel

to yourself a week from now?, (2) How similar do you feel to yourself a week from now?, and (3) How much do you like yourself a week from now? We included these questions because recent research has shown that people often make more prudent decisions when they feel more similar to and connected to their future selves (Bartels & Rips, 2010; Bartels & Urminsky, 2011, 2015; Ersner-Hershfield et al., 2009, Hershfield et al., 2011). Based on this research, we suspected that answers to these questions might mediate the effect of our manipulation on the amount of the unpleasant task that participants left for their future selves to finish.

**Exploratory dependent measures.**    Because this was a new experimental paradigm, we also asked participants a number of exploratory questions. Specifically, we asked four questions about their engagement with their *present team*: (4) To what degree do you believe that the side you argued for today actually has the more valid case?, (5) How much did you like your teammates today?, (6) How connected did you feel to your teammates today?, and (7) How competitive do you feel with the other team?; and four questions about their engagement with their *future team*: (8) How invested are you in winning the case?, (9) How confident do you feel that your side will win next week?, (10) How happy are you about being on the prosecution/defense when you come back next week?, and (11) How excited are you about returning next week to debate against the other team? We also asked participants two questions about their *reactions to the unpleasant task*: (12) How much did you enjoy the pattern task? and (13) How often did you want to stop while completing the pattern task?; and two questions about the *duration of the unpleasant task*: (14) How much time do you think it took you to fill out the pattern task? and (15) How much time do you think it will take to finish the task when you return next week? Participants answered questions 1–13 on a series of 7-point Likert scales whose endpoints were marked *not at all* and *extremely* (for questions 1–11) or *not at all* and *very much* (for question 12) or *not at all* and *very often* (for question 13). Participants answered questions 14 and 15 by writing a number in a space that was followed by the word *minutes*. These 15 questions were presented to participants in the following order: 8, 4, 5, 6, 10, 9, 11, 7, 1, 2, 3, 12, 13, 14, 15.

**Session 2.**    Participants returned for Session 2 between 6 and 8 days later. Although we had no tasks for them to complete, it was important for us to establish that participants in the future out-group condition had actually intended to return and complete the remainder of the unpleasant task. Upon arriving at the laboratory for Session 2, participants were debriefed and dismissed.

## Results

All participants returned for the second session, except for one who had been assigned to the prosecution and future out-group conditions. Excluding this participant's data had virtually no impact on any of the results reported, so they were included. We omitted from all analyses (a) one participant of unspecified gender in the future out-group condition who did not complete the study, (b) one male participant in the future out-group condition who suspected that his teammates were not genuine participants, and (c) one male participant in the future out-group condition who mistakenly thought that the second session was taking place the next day. This left 50 participants in the dataset, 66% of whom were

female, 34% of whom were male, and 48 of whom listed their age ($M = 19.92$ years, $SD = 1.69$ years). The complete results of all analyses of all measures in Study 1 are shown in Section IV in the online supplemental material.

The primary dependent measure was the amount of the unpleasant task that participants left for their future selves to finish. We submitted this measure to a 2 (Present team: Prosecution or defense) $\times$ 2 (Future team: In-group or out-group) analysis of variance (ANOVA), which revealed only the predicted main effect of future team: Participants who expected to join the out-group ($M = 5.16$, $SD = 2.82$) left more than twice as much of the unpleasant task for their future selves to finish as did participants who expected to remain members of the in-group ($M = 2.12$, $SD = 3.06$), $F(1, 46) = 12.87$, $p < .001$. Given the number of participants in this study, it is worth noting that the effect of future team was quite large: $d = 1.03$.

Why did participants who expected to join the out-group leave more of the unpleasant task for their future selves to finish? Our account suggests that participants who expected to join the out-group felt less similar and less connected to their future selves and that this led them to leave more of the unpleasant task for their future selves to finish. We averaged our measures of future-self connection, future-self similarity, and future-self liking (i.e., questions 1–3) to create a *perceived connectedness index* ($\alpha = .827$) and submitted this index to a 2 $\times$ 2 ANOVA (as above) which revealed only a main effect of future team, $F(1, 46) = 15.42$, $p < .001$. Participants who expected to remain members of their in-group did indeed feel more connected to their future selves ($M = 5.31$, $SD = 1.08$) than did participants who expected to join the out-group ($M = 4.05$, $SD = 1.15$). To test for mediation, we performed a bootstrapping analysis (Hayes, 2013), which revealed that the perceived connectedness index did not significantly mediate the amount of the unpleasant task that participants left for their future selves to finish, 95% CI [−0.17, 1.76]. One possible reason for this is that our account is wrong. Another possible reason is that participants completed the measures of perceived connectedness at the very end of the experiment, long after they had finished working on the unpleasant task, rather than earlier in the experiment when they were actually making the decision that we expected perceived connectedness to mediate (see Schwarz, 1999). To adjudicate between these possibilities, we had participants in Study 2 complete the perceived connectedness measures before (rather than after) they worked on the unpleasant task.

Two alternative accounts of our main finding fared less well. The first of these (which we will call *the no-show account*) suggests that participants who expected to join the out-group left the bulk of the unpleasant task for Session 2 because they did not actually intend to show up for Session 2. Ruling out this possibility was the sole reason why we held Session 2, and as we noted, all but 1 participant returned for that session the following week. Clearly, participants in the future out-group condition expected to complete the unpleasant work that they did not complete in Session 1. The second alternative account (which we will call *the unhappiness account*) suggests that participants who expected to join the out-group felt unhappy, and that for some reason this made them disinclined to do unpleasant work in the present—perhaps because they did not want to add to their current unhappiness, perhaps because they did not want to help the experimenter, and so forth. The data provide no support for this account. First, as

analyses of the PANAS items showed, participants who expected to join the out-group did *not* report feeling any more negative affect, $F(1, 44) = 1.52$, $p = .224$ ($M = 1.31$, $SD = 0.49$), or any less positive affect, $F(1, 44) = 0.08$, $p = .780$ ($M = 3.11$, $SD = 0.62$), than did participants who expected to remain members of the in-group ($M = 1.49$, $SD = 0.61$ for negative affect; $M = 3.17$, $SD = 0.70$ for positive affect). Second, the amount of the unpleasant task that participants left unfinished was not significantly correlated with either their positive affect, $r(46) = -.112$, $p = .447$, or their negative affect, $r(46) = .177$, $p = .229$. (These correlations excluded data from 2 participants who did not complete all PANAS items). In fact, when the amount of the unpleasant task that participants left unfinished was submitted to a 2 (Present team: Prosecution or defense) $\times$ 2 (Future team: In-group or out-group) analysis of covariance (ANCOVA) using negative affect and positive affect as covariates, the ANCOVA revealed the effect—and only the effect—that the ANOVA had revealed, namely, a main effect of future team, $F(1, 42) = 13.14$, $p = .001$.

In summary, the data from Study 1 confirmed our primary prediction and provided qualified support for our account of it. The data provided no support for two alternative accounts. In Study 2, we sought to (a) provide unqualified support for our account by replicating the primary finding of Study 1 and showing that connectedness mediated it, (b) definitively rule out the unhappiness account by adding a new condition for which our account and the unhappiness account made different predictions, and (c) show that when participants expect to join the out-group, they treat their future selves the same way they treat strangers.

## Study 2

Our account of the results of Study 1 suggests that participants who expected to join the out-group left more of the unpleasant task unfinished because they regarded their future selves as strangers. The unhappiness account suggests that this happened not because of the way participants regarded their future selves, but simply because participants were unhappy in the present and were therefore disinclined to do unpleasant work. Although the data from Study 1 provided no support for the unhappiness account, in Study 2 we sought to rule it out definitively by manipulating the identity of the person who would be required to finish the unpleasant task in Session 2. Specifically, in Study 2, we assigned some participants to a *self-finisher condition* and told them that the remainder of the unpleasant task would be completed by their future selves (as we did in Study 1). We assigned other participants to a *stranger-finisher condition* and told them that the remainder of the unpleasant task would be completed by a stranger. What do the unhappiness account and our account predict should happen in these two conditions?

The unhappiness account suggests that expecting to join the out-group makes participants unhappy in the present, and that their unhappiness leads them to eschew unpleasant work. As such, it should not matter to them whether the work they eschew will be completed by a stranger or by their future selves. The unhappiness account, then, predicts that our new manipulation should have no effect and that the self-finisher and other-finisher conditions should be identical. Our account makes a different prediction. Our account suggests that expecting to join the out-group makes participants feel less connected to their future selves and therefore disinclined to help those future selves by doing unpleasant work in the present. If expecting to join the out-group specifically influences participants' sense of connection to their future selves, then it should influence the amount of unpleasant work they choose to do *only* when the remainder of that work is to be completed by their future selves, but not when it is to be completed by a stranger. Our account, then, predicts that our new manipulation should have a significant effect and that the self-finisher and other-finisher conditions should be quite different.

### Participants

We used the program g*power to perform a power analysis on the data from Study 1. The analysis suggested that we would need to recruit 62 participants in order to have at least an 80% chance of detecting a main effect of future team that was equal to or greater than the main effect seen in Study 1 (Faul, Erdfelder, Lang, & Buchner, 2007). By the end of the academic term, we were able to recruit 59 participants, all of whom were students at Harvard University, 51% of whom were female, 48% of whom were male, 1% of whom did not specify gender, and 57 of whom listed their ages ($M = 19.98$ years, $SD = 1.77$ years). Participation took about 2.5 hrs across two sessions that were held about 1 week apart, and participants were given either $25 or course credit.

### Measures and Procedure

The procedure for Study 2 was identical to the procedure used in Study 1 up until the point at which the dependent measures were administered. In Study 2, participants first completed the PANAS and were then introduced to the unpleasant task used in Study 1. Half the participants were randomly assigned to the *self-finisher condition*. As in Study 1, these participants were told that when they returned for Session 2, they would be required to complete the portion of the unpleasant task that they did not complete during Session 1. The remaining participants were assigned to the *stranger-finisher condition*. These participants were told that the portion of the unpleasant task that they did not complete during Session 1 would have to be completed by another participant later that day. After completing a few practice strings, participants were asked to decide how many more pages of strings they wished to complete during Session 1 and to put the remaining pages in a folder.

Participants answered the same questions that were asked in Study 1 except (a) we dropped the question that asked participants to estimate how much time they had spent on the unpleasant task in Session 1, and (b) participants were asked to answer two new exploratory questions: (16) How competitive do you feel with yourself a week from now? and (17) How happy do you expect to be when you return next week for the debate? Participants answered these new questions on a pair of 7-point Likert scales whose endpoints were marked *not at all* and *extremely*. The questions that were asked in both Study 1 and Study 2 were presented in the same order as they had been in Study 1. The new questions were inserted between questions 3 and 12. We also changed the time at which these questions were answered: Instead of answering them after they had spent time working on the unpleasant task (as participants in Study 1 had done), participants in Study 2 answered these questions before they spent time working on the unpleasant task.

## Results

All but 7 of the participants returned for the second session. The participants who did not return were distributed relatively evenly across conditions: three were in the in-group/self-finisher condition, one was in the in-group/stranger-finisher condition, two were in the out-group/self-finisher condition, and one was in the out-group/stranger-finisher condition. Excluding these participants had virtually no impact on any of the results reported, so their data were included in all analyses. We omitted from all analyses (a) 1 male participant in the future self out-group/self-finisher condition who did not follow the instructions during the online chat; (b) 1 male participant in the future self in-group/self-finisher condition who did not think that his teammates were genuine participants; (c) 1 female participant in the future self out-group/stranger-finisher condition who did not believe that another person was actually going to complete the portion of the unpleasant task that she did not complete; (d) 1 male participant in the future self in-group/ stranger-finisher condition who did not believe that his teammates were genuine participants, did not believe that another person was actually going to complete the portion of the unpleasant task that he did not complete, and believed that the second session would take place the next day; and (e) 1 female participant in the future self out-group/stranger-finisher condition who was ineligible to participate due to previous participation in similar studies. This left 54 participants in the dataset, 52% of whom were female, 46% of whom were male, 2% of whom did not specify their gender, and 52 of whom listed their ages ($M = 19.98$ years, $SD = 1.80$ years). The complete results of all analyses of all measures in Study 2 are shown in Section IV in the online supplemental material.

The primary dependent measure was the amount of the unpleasant task that participants left unfinished. We submitted this measure to a 2 (Present team: Prosecution or defense) $\times$ 2 (Future team: In-group or out-group) $\times$ 2 (Finisher: Self or stranger) ANOVA, which revealed a main effect of future team, $F(1, 46) = 9.25$, $p = .004$, and a main effect of finisher, $F(1, 46) = 22.53$, $p = .001$, both of which were qualified by a Finisher $\times$ Future team interaction, $F(1, 46) = 8.27$, $p = .006$. As in Study 1, participants in the self-finisher condition completed less of the unpleasant task when they expected to join the out-group than when they expected to remain a member of the in-group, $t(26) = -5.58$, $p < .001$, $d = 2.17$. But as Figure 1 shows, this effect was entirely absent among participants in the stranger-finisher condition, $t(24) = -0.19$, $p = .850$. Indeed, participants in the self-finisher condition who expected to remain members of their in-group completed almost all the task, whereas participants in all other conditions completed about half the task. In other words, when participants expected to join the out-group, they treated their future selves the same way they treated strangers.

As in Study 1, the alternative accounts did not fare well. As we noted, the vast majority of participants returned for Session 2, and those who did not return were no more likely to be in the future out-group condition ($N = 3$) than the future in-group condition ($N = 4$). Clearly, participants in the future out-group condition expected to complete the portion of the unpleasant task that they did not complete in Session 1, thereby ruling out the no-show account. The unhappiness account fared just as poorly. First, the unhappiness account predicted that expecting to join the out-group would cause participants to leave more of the unpleasant task
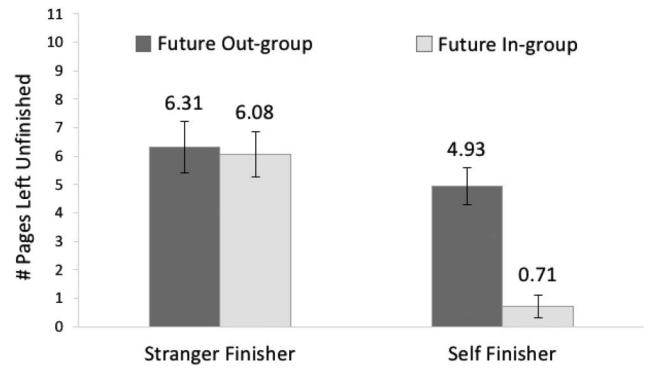


*Figure 1.* Number of pages left unfinished in Study 2. Labels show the mean of each condition, and error bars show the standard error of the mean of each condition.

unfinished, regardless of who would be finishing finish it. As Figure 1 shows, this did not happen. Participants who expected to join the out-group left more of the unpleasant task unfinished *only* when they expected their future selves to finish it and *not* when they expected a stranger to finish it.

Second, the unhappiness account predicted that participants who expected to join the out-group would feel worse than participants who expected to remain members of the in-group. This did not happen. Although participants who expected to join the out-group were naturally displeased about that fact (e.g., they were less excited about returning for Session 2, they were less happy about the team they would be on in Session 2, and they expected to be less happy during Session 2), they reported feeling no more negative affect and no less positive affect than did participants who expected to remain members of the in-group. A series of $2 \times 2 \times 2$ ANOVAs (as above) revealed no significant main effect of future team on positive affect, $F(1, 45) = 0.80$, $p = .375$, or negative affect, $F(1, 45) = 0.95$, $p = .335$, no significant main effect of Finisher on positive affect, $F(1, 45) = 0.40$, $p = .529$, or negative affect, $F(1, 45) = 0.55$, $p = .461$, and no significant Future team $\times$ Finisher interaction for positive affect, $F(1, 45) = 1.89$, $p = .176$), or negative affect, $F(1, 45) = 0.07$.

Third, the unhappiness account predicted that the amount of the unpleasant task that participants left unfinished would be negatively correlated with their positive affect and positively correlated with their negative affect. This did not happen. In fact, the amount of the unpleasant task that participants left unfinished was uncorrelated both with their positive affect, $r(51) = .013$, $p = .924$, and with their negative affect, $r(51) = .194$, $p = .164$. (These correlations excluded data from 1 participant who did not complete all PANAS items.) Indeed, when the amount of the unpleasant task that participants left unfinished was submitted to a 2 (Present team: Prosecution or defense) $\times$ 2 (Future team: In-group or out-group) $\times$ 2 (Finisher: Self or stranger) ANCOVA using negative affect and positive affect as covariates, the analysis revealed the same effects that the ANOVA had revealed: a main effect of future team, $F(1, 43), = 7.65$, $p = .008$, a main effect of finisher, $F(1, 43), = 27.68$, $p < .001$, and a Future team $\times$ Finisher interaction, $F(1, 43), = 7.12$, $p = .011$. In short, all of the unhappiness account's predictions were decisively disconfirmed.

What about our account? We averaged the measures of future-self connection, future-self similarity, and future-self liking (ques-

tions 1–3) to create a *perceived connectedness index* ($\alpha$ = .814). A 2 (Present team: Prosecution or defense) $\times$ 2 (Future team: In-group or out-group) $\times$ 2 (Finisher: Self or stranger) ANOVA revealed a main effect of future team, $F_{(1, 46)}$ = 11.30, $p$ = .002, and a main effect of finisher, $F_{(1, 46)}$ = 6.92, $p$ = .012, both of which were qualified by a Future team $\times$ Finisher interaction, $F_{(1, 46)}$ = 4.56, $p$ = .038. As Figure 2 shows, participants in the self-finisher condition felt more connected to their future selves when they expected to remain members of the in-group ($M$ = 5.24, $SD$ = 1.11) than when they expected to join the out-group ($M$ = 3.48, $SD$ = 1.14), $t_{(26)}$ = 4.14, $p$ < .001. However, participants in the stranger-finisher condition felt no more connected to their future selves when they expected to remain members of the in-group ($M$ = 5.41, $SD$ = 1.26) than when they expected to join the out-group ($M$ = 5.03, $SD$ = 1.08), $t_{(24)}$ = 0.84, $p$ < .410.

Participants who expected to join the out-group and who expected their future selves to finish the unpleasant task felt the least connected to their future selves and left the most of the unpleasant task for their future selves to finish. Did the first of these effects mediate the second, as our account suggests it should? To find out, a bootstrapping analysis (Hayes, 2013) revealed that this index did indeed mediate the amount of the unpleasant task that participants in the self-finisher condition left for their future selves, 95% CI [.017, 3.69]. Next, we used a bootstrapping approach to combine the mediation effects from Study 1 and Study 2. First, we used bootstrapping (in the statistical program R, using R Studio) to yield 1,000 estimates of the indirect effect of expecting to join the out-group on the amount of the unpleasant task left for the next session as mediated by the perceived connectedness index in Study 1, and 1,000 samples of this same indirect effect in Study 2 (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014). Then, for each of the 1,000 samples, we computed a weighted average of the indirect effects from Study 1 and Study 2. This yielded a distribution of 1,000 average indirect effects. Next, we estimated the 95% confidence interval for the combined indirect effect by removing the top 2.5% of this distribution and the bottom 2.5% of this distribution. The remaining middle 95% of this distribution of estimated indirect effects did not include 0, 95% CI [.06 to 1.77], indicating that the average combined mediation effect for the two studies was significant. In other words, across our studies, the perceived connectedness index mediated the effect of expecting to join the out-group on the amount of the unpleasant task left unfinished. This analysis suggests that how close participants felt to their future selves determined how much unpleasant work they consigned their future selves to do.

## Discussion

Many decisions have one consequence for the person who makes them and a different consequence for the person who inherits them. A decision to have a second martini instead of going to bed provides the first person with a lively evening and the second person with a regrettable morning. A decision to put off buying an automobile and instead save for retirement leaves the first person car-free and the second person care-free. Whether decision-makers are prudent or imprudent depends in part on how they think and feel about the people they will soon become. In the present studies, participants were no more willing to sacrifice for a future self who would be a member of an out-group than they were for strangers. Expecting to become a member of the out-group did not make participants feel particularly unhappy, and how unhappy participants felt did not influence the amount of unpleasant work they assigning their future selves to do. But expecting to become a member of the out-group did make participants feel less connected to their future selves, and this lack of connection led them to behave unkindly toward the people they would soon become. People think of their future selves as they think of others, and the present studies suggest that some of the things that cause them to be unkind to strangers may also cause them to be unkind to themselves.

For the most part, the study of interpersonal relationships and the study of intertemporal decisions have been carried out by different disciplines that have explained their findings in different ways. Social psychologists have studied how people make friends and enemies while behavioral economists have studied how people make choices over time, and the separate handling of these topics may have obscured their common structure. Both interpersonal and intertemporal kindness require that a person sacrifice something they currently want for the sake of someone whom they currently are not. Do the things that lead people to sacrifice in one domain lead them to sacrifice in the other? It appears they do. For instance, in both the intertemporal and interpersonal domains, people are more willing to sacrifice when the person for whom they are making that sacrifice is psychologically close. And just as intertemporal kindness decreases hyperbolically as the future self becomes more distant in time, so too does interpersonal kindness decrease hyperbolically as the other person becomes more distant in social space (Jones & Rachlin, 2006; Rachlin & Jones, 2008). In addition, these different forms of kindness are highly correlated within persons: People who are kind to their future selves tend to be kind to others (Curry, Price, & Price, 2008). It may be no coincidence that the ability to imagine one's future self and the ability to imagine the needs of other people emerge at about the same time in childhood (Gopnik & Slaughter, 1991; Moore, Barresi, & Thompson, 1998; Thompson, Barresi, & Moore, 1997). All of this suggests that psychologists who study "altruism" and economists who study "patience" may well be studying different expressions of a single tendency.
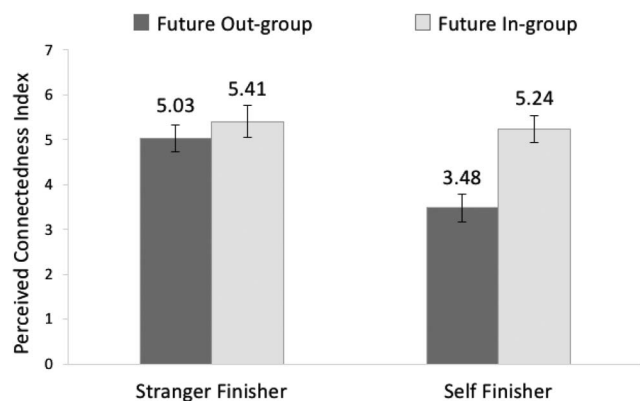


*Figure 2.* Perceived connectedness with future self in Study 2. Labels show the mean of each condition, and error bars show the standard error of the mean of each condition.

Improving prudence often proves difficult (Inzlicht, Legault, & Teper, 2014). But if interpersonal and intertemporal kindness are indeed two sides of the same coin, then perhaps palliatives in one domain are palliatives in the other. If so, then some of the most intuitive ways of encouraging intertemporal kindness may actually be counterproductive. For example, parents and policymakers often try to dissuade young people from making imprudent decisions by reminding them that someday they will leave their current in-groups ("You won't always be an art history major . . .") and join their current out-groups ("and when you become the president of our family business, you may not appreciate having a tattoo of a Banksy on your forearm"). Our studies suggest that instead of reminding young people that they will someday join their out-groups, it may be more effective to make them feel connected to their future selves by reminding them of the groups to which they will continue to belong ("As you learn more about art history you might find artists you like more than Banksy"). Just as we encourage people to be interpersonally kind by reminding them of shared group memberships ("You may be a Republican and he may be a Democrat, but you're both Americans"), it may make sense to encourage people to be intertemporally kind in the same way ("Young today and old tomorrow, you'll always be a Yalie!"). After all, as the present studies show, people are more likely to be prudent when they feel moved to do themselves a favor.

## References

Ainslie, G., & Haslam, N. (1992). Hyperbolic discounting. In G. Loewenstein & J. Elster (Eds.), *Choice over time* (pp. 57–92). New York, NY: Russell Sage Foundation.

Bartels, D. M., & Rips, L. J. (2010). Psychological connectedness and intertemporal choice. *Journal of Experimental Psychology: General, 139,* 49–69. http://dx.doi.org/10.1037/a0018062

Bartels, D. M., & Urminsky, O. (2011). On intertemporal selfishness: How the perceived instability of identity underlies impatient consumption. *Journal of Consumer Research, 38,* 182–198. http://dx.doi.org/10.1086/658339

Bartels, D. M., & Urminsky, O. (2015). To know and to care: How awareness and valuation of the future jointly shape consumer spending. *Journal of Consumer Research, 41,* 1469–1485. http://dx.doi.org/10.1086/680670

Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science, 16,* 351–355. http://dx.doi.org/10.1111/j.1467-8721.2007.00534.x

Brewer, M. B., & Brown, R. J. (1998). Intergroup relations. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 2, pp. 554–594). New York, NY: McGraw-Hill.

Center for Disease Control and Prevention. (2014). Up to 40 percent of annual deaths from each of five leading US causes are preventable. Retrieved from http://www.cdc.gov/media/releases/2014/p0501-preventable-deaths.html

Curry, O. S., Price, M. E., & Price, J. G. (2008). Patience is a virtue: Cooperative people have lower discount rates. *Personality and Individual Differences, 44,* 780–785. http://dx.doi.org/10.1016/j.paid.2007.09.023

Dovidio, J. F., & Gaertner, S. L. (2010). Intergroup bias. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed., Vol. 2, pp. 1084–1121). New York, NY: Wiley. http://dx.doi.org/10.1002/9780470561119.socpsy002029

Ersner-Hershfield, H., Wimmer, G. E., & Knutson, B. (2009). Saving for the future self: Neural measures of future self-continuity predict tempo-ral discounting. *Social Cognitive and Affective Neuroscience, 4,* 85–92. http://dx.doi.org/10.1093/scan/nsn042

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175–191. http://dx.doi.org/10.3758/BF03193146

Fiske, S. T. (2002). What we know now about bias and intergroup conflict, the problem of the century. *Current Directions in Psychological Science, 11,* 123–128. http://dx.doi.org/10.1111/1467-8721.00183

Frederick, S., Loewenstein, G., & O'Donoghue, T. (2003). Time discounting and time preference: A critical review. In G. Loewenstein, D. Read, & R. F. Baumeister (Eds.), *Time and decision* (pp. 13–86). New York, NY: Russell Sage Foundation.

Gopnik, A., & Slaughter, V. (1991). Young children's understanding of changes in their mental states. *Child Development, 62,* 98–110. http://dx.doi.org/10.2307/1130707

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* New York, NY: Guilford Press.

Hershfield, H. E., Goldstein, D. G., Sharpe, W. F., Fox, J., Yeykelis, L., Carstensen, L. L., & Bailenson, J. N. (2011). Increasing saving behavior through age-progressed renderings of the future self. *Journal of Marketing Research, 48,* S23–S37. http://dx.doi.org/10.1509/jmkr.48.SPL.S23

Inzlicht, M., Legault, L., & Teper, R. (2014). Exploring the mechanisms of self-control improvement. *Current Directions in Psychological Science, 23,* 302–307. http://dx.doi.org/10.1177/0963721414534256

Jones, B., & Rachlin, H. (2006). Social discounting. *Psychological Science, 17,* 283–286. http://dx.doi.org/10.1111/j.1467-9280.2006.01699.x

Kite, M. E., Stockdale, G. D., Whitley, B. E., & Johnson, B. T. (2005). Attitudes toward younger and older adults: An updated meta-analytic review. *Journal of Social Issues, 61,* 241–266. http://dx.doi.org/10.1111/j.1540-4560.2005.00404.x

Macrae, C. N., Mitchell, J. P., Tait, K. A., McNamara, D. L., Golubickis, M., Topalidis, P. P., & Christian, B. M. (2015). Turning I into me: Imagining your future self. *Consciousness and Cognition, 37,* 207–213.

Mischel, W., Shoda, Y., & Rodriguez, M. I. (1989). Delay of gratification in children. *Science, 244,* 933–938. http://dx.doi.org/10.1126/science.2658056

Mitchell, J. P., Schirmer, J., Ames, D. L., & Gilbert, D. T. (2011). Medial prefrontal cortex predicts intertemporal choice. *Journal of Cognitive Neuroscience, 23,* 857–866. http://dx.doi.org/10.1162/jocn.2010.21479

Moore, C., Barresi, J., & Thompson, C. (1998). The cognitive basis of future-oriented prosocial behavior. *Social Development, 7,* 198–218. http://dx.doi.org/10.1111/1467-9507.00062

Nelson, T. D. (2005). Ageism: Prejudice against our feared future self. *Journal of Social Issues, 61,* 207–221. http://dx.doi.org/10.1111/j.1540-4560.2005.00402.x

Nussbaum, S., Trope, Y., & Liberman, N. (2003). Creeping dispositionism: The temporal dynamics of behavior prediction. *Journal of Personality and Social Psychology, 84,* 485–497. http://dx.doi.org/10.1037/0022-3514.84.3.485

Pronin, E., Olivola, C. Y., & Kennedy, K. A. (2008). Doing unto future selves as you would do unto others: Psychological distance and decision making. *Personality and Social Psychology Bulletin, 34,* 224–236. http://dx.doi.org/10.1177/0146167207310023

Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription: When the self is seen as an other. *Journal of Personality and Social Psychology, 90,* 197–209. http://dx.doi.org/10.1037/0022-3514.90.2.197

Rachlin, H., & Jones, B. A. (2008). Social discounting and delay discounting. *Journal of Behavioral Decision Making, 21,* 29–43. http://dx.doi.org/10.1002/bdm.567

Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist, 54,* 93–105. http://dx.doi.org/10.1037/0003-066X.54.2.93

Thompson, C., Barresi, J., & Moore, C. (1997). The development of future-oriented prudence and altruism in preschoolers. *Cognitive Development, 12,* 199–212. http://dx.doi.org/10.1016/S0885-2014(97)90013-7

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis. *Journal of Statistical Software, 59,* 1–38. http://dx.doi.org/10.18637/jss.v059.i05

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070. http://dx.doi.org/10.1037/0022-3514.54.6.1063