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The Role of Moral Beliefs, Memories, and Preferences in Representations of Identity

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Abstract

People perceive that if their memories and moral beliefs changed, they would change. We investigated why individuals respond this way. In Study 1, participants judged that identity would change more after changes to memories and widely shared moral beliefs (e.g., about murder) versus preferences and controversial moral beliefs (e.g., about abortion). The extent to which participants judged that changes would affect their relationships predicted identity change (Study 2) and mediated the relationship between type of moral belief and perceived identity change (Study 3). We discuss the role that social relationships play in judgments of identity and highlight implications for psychology and philosophy.

Keywords: Psychology; Philosophy; Social cognition; Human experimentation

1. Introduction

In *Life of Theseus*, Plutarch described the ship on which Theseus sailed to Crete, which was preserved by replacing its planks one by one until each original plank had been replaced by a new one. Plutarch then asked his readers the following question: Once all of the planks had been replaced, was the ship of Theseus still the same ship? This question is fascinating in part because it taps intuitions concerning *numerical identity*, or what makes an entity what it is and not something else, even if some of its properties change over time.

For most psychologists, the term "identity" connotes a different meaning, having to do with individuality (e.g., Gaertner & Sedikides, 2005; Hoyle, Kernis, Leary, & Baldwin, 1999; Swann & Bosson, 2010) or group membership (e.g., Brewer, 1991; Gaertner &

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Dovidio, 2000; Tajfel & Turner, 1986). The development and maintenance of identity in these senses has received extensive attention (e.g., Erickson, 1968; Marcia, 1966; Phinney, 1990). However, numerical identity has received considerably less attention, especially in the domain of judgments about persons (for an exception, see Blok, Newman, & Rips, 2005). For brevity, all subsequent references to "identity" refer to numerical identity unless otherwise noted.

Many philosophers have emphasized the role of autobiographical memory in identity (e.g., Locke, 1690/2009; Nichols & Bruno, 2010; Parfit, 1971; Perry, 2002; Shoemaker, 1959; Williams, 1970). Autobiographical memories have been afforded this special status because they are seen as constituting one's continuous state of consciousness; if people do not remember their experiences, they may lack a sense of self. Since autobiographical memory is unique to each individual, memories also satisfy the distinctiveness dimension that psychologists have emphasized as important to identity (McGuire & Padawer-Singer, 1976; Nelson & Miller, 1995).

Recent experiments have discovered that laypeople's representations of identity emphasize morality as well as memory. In these studies, adults reported that another person's "true self"—the "authentic" aspect of the person that made them who they were—was morally good (Newman, Bloom, & Knobe, 2014). Perhaps the most direct test of morality's role in identity comes from Strohminger and Nichols (2014). In these studies, adults imagined that another person's traits had changed. Participants reported that a person would change most if his or her moral traits (e.g., criminality, empathy) changed. In fact, participants responded that people would change more if their moral traits changed than if their personality traits (e.g., shyness), memories, preferences, basic cognitive capacities, perceptual abilities, and physical features changed. In another line of work (Strohminger & Nichols, 2015), a loss of moral faculties was associated with identity change, whereas amnesia was not. These projects suggest that morality plays an especially strong role in the construction of identity.

In addition to highlighting the role of mental capacities in identity, some scholarship has emphasized psychological essentialism—the belief that entities (such as concepts, objects, or persons) have a set of underlying attributes that lend them their identity (Gelman, 2003; Medin & Ortony, 1989). In one line of work, personal characteristics that were essentialized were also more likely to be considered central to identity (Haslam, Bastian, & Bissett, 2004). In fact, within an essentialism framework, altering an essential component of a person or object changes overall identity (i.e., if gender is perceived in essentialist terms, someone who changes gender has become a different person). Previous work on essentialism has investigated a wide array of traits and social categories, including race, gender, sexual orientation, shyness, intelligence, and curiosity (Dar-Nimrod & Heine, 2011; Gelman, Heyman, & Legare, 2007; Haslam et al., 2004; Jayaratne et al., 2006; Williams & Eberhardt, 2008). However, work on essentialism has remained largely distinct from research on moral cognition. The current work investigated moral essentialism, or the perceived role of morality in identity.

We conceptualize moral essentialism on a continuous scale. At the lowest point of the scale—no moral essentialism—individuals would report that if a person's moral

beliefs changed, that person would remain exactly the same. At the highest point of the scale—complete moral essentialism—individuals would report that if a person's moral beliefs changed, that person would become a completely different person. We investigated relative levels of moral essentialism by comparing moral beliefs with other mental features—specifically, memories and preferences. Examining memories allowed us to empirically test philosophers' claim that memory is a key component of identity (e.g., Conway, 2005; Locke, 1690/2009; Williams, 1970) and to replicate prior work showing that changes to moral characteristics are associated with more perceived identity change than changes to memories (Strohminger & Nichols, 2014, 2015). In line with prior research (Strohminger & Nichols, 2014), we also predicted that participants would judge that individuals would not change much if their preferences changed; thus, preferences provided a lower bound comparison to moral beliefs.

The primary goals of the current research were two-fold. First, we sought to investigate the extent to which adults distinguish among different categories of mental states when judging the extent to which certain changes to mental states would change identity overall. In Studies 1–3, we compared widely shared moral beliefs (such as the belief about whether murdering another person is wrong) with controversial moral beliefs (moral beliefs that elicit disagreement among individuals, such the belief about whether abortion is wrong), a contrast that has not been investigated previously with regard to identity. Focusing on this distinction allowed us to understand the extent to which cultural agreement around particular moral beliefs influences the extent to which people think they would change if their beliefs changed. Beliefs were chosen from prior work comparing controversial and widely shared moral beliefs (Goodwin & Darley, 2008; Skitka, Bauman, & Sargis, 2005; Turiel, Hildebrandt, & Wainryb, 1991). In addition, some controversial moral beliefs (e.g., concerning undocumented immigration) were selected based on current political controversies.

Second, we sought to determine *why* adults drew the distinctions they did, if any emerged. One possibility is that the more important a mental characteristic is perceived to be, the more changing that characteristic will be judged to change identity. Moral values vary in their importance to individuals. For example, people may believe that murder is wrong more strongly than they believe that prohibiting prayer in public schools is wrong (Skitka, 2010). Similarly, people may judge that their memories are important to who they are because memories allow individuals to learn from previous mistakes, reexperience pleasure, and maintain connections with individuals who are not currently present (Schacter, 2001). People may judge their preferences to be less important because they know that preferences can change over time (Belanger, Atance, Varghese, Nguyen, & Vendetti, 2014) and because they judge that it is acceptable for people to disagree about them (Heiphetz, Spelke, Harris, & Banaji, 2013). In Studies 2 and 3, we tested the *importance* hypothesis by investigating the influence of importance to the participant (*importance-to-self* component) in addition to importance to the party undergoing the change (*importance-to-third-person* component).

A second possibility—the *community hypothesis*—posits that the degree to which participants judge that changing characteristics will change identity is based on the extent to

which those characteristics contribute to communal ties. For instance, holding the belief that stealing is wrong aligns individuals with most other members of their community, allowing for social relationships that may not be possible otherwise. If people decide that stealing is not wrong, they may alienate other community members. Because membership in particular communities is an important contributor to personal identity (Tajfel & Turner, 1986), individuals may perceive characteristics that bind people into communities to be more connected to identity than characteristics that are less relevant to communal functioning. Therefore, the more participants judge that particular characteristics bind them into communities, the more they may judge that changing those characteristics will change identity. The importance hypothesis and the community hypothesis are not mutually exclusive, and Studies 2 and 3 investigated the extent to which each could predict perceived identity change.

2. Study 1

In previous work (Strohminger & Nichols, 2014), participants judged that other people would change more if their moral characteristics, rather than their memories or preferences, changed. Study 1 extended this previous research in two ways. First, we asked participants how much they themselves would change as well as how much another person would change to determine whether people make similar judgments about first-person and third-person identity. Second, we included both controversial and widely shared moral beliefs to compare the role of social consensus in judgments about identity.[1]

2.1. Method

2.1.1. Participants

Participants were 103 adults between 19 and 71 years old (M_{age} = 38.55 years, SD_{age} = 14.15 years) recruited online via Amazon Mechanical Turk. Fifty-eight additional participants were excluded from analyses because they had previously completed a pilot version of this study (N = 11) or because they failed to correctly answer an attention check question (N = 47).[2] On a demographic questionnaire completed at the end of the study, 57% of participants self-identified as female and 43% self-identified as male. Participants self-identified as White or European-American (79%), Black or African-American (8%), Asian or Asian-American (8%), Multiracial (4%), and "Other" (2%); 3% of participants additionally self-identified as Hispanic or Latino/a. All participants reported that they were residents of the United States and had been speaking English for at least 15 years.

2.1.2. Procedure

Participants completed two within-subjects conditions in randomized order. In the *first-person* condition, participants were asked to imagine that it was far in the future and that they had taken a pill that changed only one aspect of themselves. Participants then completed an identity measure adapted from previous work (Riis, Simmons, & Goodwin,

2008; Strohminger & Nichols, 2014). Using a 100-point slider scale, they indicated how much they would change if each characteristic changed, leaving all other parts of the participant the same. The scale was anchored at 0% ("you're the same person as before") and 100% ("you're completely different now"). Items on the identity measure fell into one of four categories: controversial moral beliefs (e.g., "your beliefs about whether abortion is right or wrong"), widely shared moral beliefs (e.g., "your beliefs about whether murdering another person is right or wrong"), memories (e.g., "your saddest memory"), and preferences (e.g., "your favorite color"). All memory items included the following item in parentheses: "something about the memory changes so that you remember the event differently." This parenthetical was included to ensure that participants were judging the content of memories rather than historical events (i.e., the item was intended to refer to a change in the memory, not to a change in the actual event). In the *third-person* condition, participants answered how much a person they don't know, Chris, would change if each of Chris's characteristics (e.g., Chris's beliefs about whether abortion is right or wrong) changed. For a full list of items, see the Appendix. After completing this measure, all participants rated how important each mental state was to them using a scale from 1 ("not at all important") to 7 ("very important"). Participants then responded to a demographic questionnaire.

2.2. Results

To investigate potential differences across items within each mental state category, we examined means for each item. Although the means for each item within a category varied somewhat, the identity measure scores and importance-to-self ratings for each category were highly reliable (Cronbach's alphas ranging from .89 to .98 for Study 1). See Supplemental Materials for descriptive statistics for each item and alphas for each category as well as similar statistics for Studies 2–3.

2.2.1. Judgments of identity change

To achieve the main goal of Study 1—determining the extent to which identity change judgments varied as a function of target (first- vs. third-person) and mental state—we analyzed responses to the identity measure using a 2 (Target: first-person vs. third-person) × 4 (Mental State: controversial moral belief vs. widely shared moral belief vs. memory vs. preference) repeated-measures ANOVA. This analysis revealed a main effect of Mental State ($F(1.81, 180.49) = 12.02$, $p < .001$, $\eta_p^2 = .11$)[3] and a Mental State × Target interaction ($F(1.93, 192.76) = 3.94$, $p = .02$, $\eta_p^2 = .04$). The main effect of Target did not reach significance ($p = .30$).

To investigate the significant interaction, we used simple effects tests to examine differences among mental states in the first-person condition and, separately, in the third-person condition. Because we compared each mental state with each other mental state, we conducted six pairwise comparisons in each condition, for a total of 12 tests. Thus, according to a Bonferroni correction, p values needed to be .004 or lower to pass the significance threshold. Below, we report uncorrected p values.

When participants responded about themselves, they reported the highest degree of change in the category of widely shared moral beliefs (M = 41.45, SD = 32.60), which differed significantly from responses to controversial moral beliefs (M = 35.09, SD = 28.51, $p < .001$) and preferences (M = 27.86, SD = 22.94, $p < .001$). In addition, participants reported that they would change significantly more as a result of changes to their memories (M = 35.52, SD = 25.06) than preferences ($p < .001$). No other pairwise comparisons reached significance (uncorrected ps $\geq .01$).[4]

Similarly, when participants responded about another person, they reported significantly more change in the category of widely shared moral beliefs (M = 43.44, SD = 31.41) than in the categories of controversial moral beliefs (M = 35.88, SD = 27.52, $p < .001$) and preferences (M = 27.28, SD = 22.72, $p < .001$). Preferences additionally significantly differed from both controversial moral beliefs ($p = .001$) and memories (M = 35.92, SD = 24.39, $p < .001$). No other pairwise comparisons reached significance (uncorrected ps $\geq .02$).

To quantify the extent to which participants distinguished between first- and third-person scenarios, we compared judgments of first- and third-person identity within each mental characteristic. In the domain of widely shared moral beliefs only, adults reported that other people would change more than they themselves would (uncorrected $p = .04$). However, because p values needed to be .01 or lower to pass the Bonferroni-corrected threshold (correcting for four comparisons), this value did not remain significant after applying the correction. No other pairwise comparisons reached significance (ps $\geq .20$; Fig. 1).

To determine whether participants were closer to judging that they and other people would "remain the same person as before" (0%) versus become "completely different now" (100%), we used eight-one-sample t tests to compare the scale's midpoint against judgments of how much the participant and another person would change if each of four types of mental states changed. These analyses for Studies 1–3 are presented in Supplemental Materials.

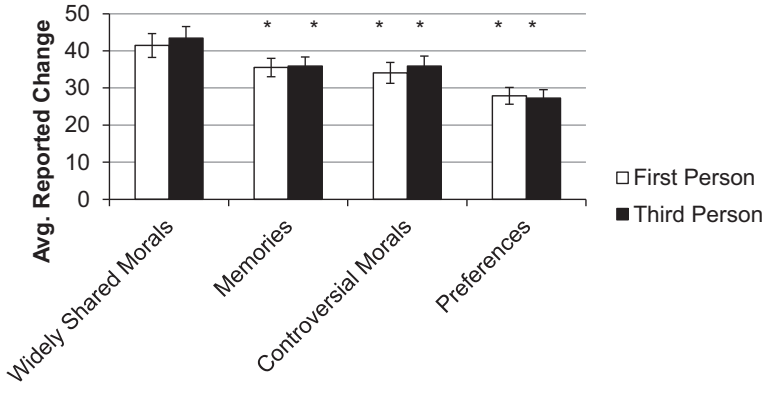

Fig. 1. Average reported change in each mental state category, Study 1. Error bars represent standard error of the mean. Asterisks indicate means that are significantly below the scale's midpoint.

2.2.2. Judgments of importance

To test whether participants judged that some types of mental states were more important than others, we analyzed responses to the importance-to-self measure using a one-factor, four-level (Mental State: controversial moral belief vs. widely shared moral belief vs. memory vs. preference) repeated-measures ANOVA. This factor exerted a main effect on importance-to-self judgments ($F(1.99, 203.06) = 45.24$, $p < .001$, $\eta_p^2 = .31$). We then compared each mental state with each other mental state, for a total of six pairwise comparisons; therefore, after applying a Bonferroni correction, p values needed to be .01 or lower to pass the significance threshold. Participants rated widely shared moral beliefs ($M = 5.18$, $SD = 1.39$) as significantly more important to them than controversial moral beliefs ($M = 4.40$, $SD = 1.43$, uncorrected $p < .001$), which were rated as significantly more important than memories ($M = 3.74$, $SD = 1.45$, uncorrected $p < .001$), which were rated equally important as preferences ($M = 3.71$, $SD = 1.45$, uncorrected $p = .71$).

2.2.3. Relationships among identity change, importance judgments, and consistency

It is possible that judgments of change were linked with judgments of the importance of each belief type. To investigate whether perceptions of importance predicted perceptions of change, we conducted separate correlations between these variables in each belief category (e.g., correlating responses to the identity measure and the importance-to-self measure for widely shared moral beliefs) for first- and third-person scenarios, for a total of eight correlations. Therefore, to pass a Bonferroni-corrected significance threshold, p values needed to be .01 or lower (note that this is the same value as used when correcting for six comparisons in the previous section due to rounding). In the category of preferences, the correlations dropped to non-significance after applying a Bonferroni correction (rs = .24 in the first-person condition and .23 in the third-person condition; uncorrected ps = .02). In the other mental state categories, correlations remained significant after applying a Bonferroni correction (rs $\geq$ .37, uncorrected ps $< .001$). Thus, the more participants rated moral beliefs and memories as important to them, the more they reported that identity would change if that type of belief changed. Studies 2 and 3 further explored factors that predicted judgments of identity change.

It is also possible that the consistency of participants' judgments of identity change predicted importance ratings. Participants who judged that changes to all 10 items within a given category would result in a large change to identity may have rated characteristics in that category as more important to them than participants whose perceptions of identity change were less consistent within a given category. To test this possibility, we conducted a series of correlational analyses. However, in these analyses, consistency did not reliably predict importance judgments. See Supplemental Materials for more details.[5]

2.3. Discussion

Participants reported that they, as well as other people, would change more if their widely shared moral beliefs changed than if their controversial moral beliefs or preferences changed, indicating that adults distinguish among different categories of moral

beliefs. These results provide evidence against the idea that adults consider moral beliefs in general, or distinctive characteristics per se, to constitute a central component of identity. In addition, although prior work (e.g., Locke, 1690/2009; Nichols & Bruno, 2010; Williams, 1970) has emphasized the importance of memories to identity, participants did not judge that individuals would change more if their memories changed as compared with their widely shared moral beliefs. Although participants did judge memories to be an important aspect of identity, memories were not uniquely associated with a high degree of perceived identity change.

3. Study 2

The purpose of Study 2 was to investigate potential mechanisms underlying the results that emerged in Study 1. We tested two explanations for why adults distinguish among different categories when determining how much changes to those categories result in changes to identity—the *importance* hypothesis and the *community* hypothesis (see Introduction).

3.1. Method

3.1.1. Participants

Participants were 266 adults between 18 and 95 years old (M_{age} = 35.12 years, SD_{age} = 11.24 years). Recruitment was identical to Study 1. Fourteen additional participants were excluded from analyses because they had previously completed Study 1 or a pilot version of Study 1 (N = 4) or failed to correctly answer an attention check question (N = 10). Three additional participants completed Study 2 twice, and we analyzed data only from the first date of participation. On a demographic questionnaire completed at the end of the study, 53% of participants self-identified as female and 46% self-identified as male; one additional participant identified their gender as "other." Participants self-identified as White or European-American (79%), Black or African-American (8%), Asian or Asian-American (5%), Native American or Pacific Islander (2%), Multiracial (4%), and "Other" (1%); 8% of participants additionally self-identified as Hispanic or Latino/a. All participants reported that they were residents of the United States and had been speaking English for at least 12 years.

3.1.2. Procedure

To test the importance-to-third-person hypothesis, participants completed one of three between-subjects conditions. The *first-person* condition (N = 90) was identical to the first-person condition from Study 1. The *third-person important* condition (N = 90) was identical to the third-person condition from Study 1, with one exception. In the paragraph introducing the third person, Chris, we added the following sentences: "The drug changed the parts of Chris that Chris found most important to his/her personality. That is, the drug only acted on the aspects of Chris that Chris cared about very deeply." The *third-person*

unimportant condition ($N = 86$) was identical to the third-person important condition, except the above sentences were changed to read as follows: "The drug changed the parts of Chris that Chris found least important to his/her personality. That is, the drug only acted on the aspects of Chris that Chris did not care about very deeply." If individuals judge that important characteristics are more central to identity than unimportant characteristics, their perceptions of identity change may be influenced by how important the person undergoing the change perceives each characteristic to be. The two third-person conditions allowed us to test this possibility. In both of these third-person conditions, participants then answered a manipulation check question by using a 7-point scale to indicate how much they agreed or disagreed with the statement that "the pill changed aspects of Chris that Chris cared about very much."

Regardless of what we told participants about Chris, participants varied in how important they themselves perceived each characteristic. Furthermore, Study 1 showed that the extent to which participants perceived characteristics to be important to *themselves* predicted the extent to which they judged that changes to those characteristics would change the identity of *other people*, providing support for the importance-to-self hypothesis. For example, if a person judges beliefs about abortion to be important to her, she may evaluate others on the basis of these beliefs, avoid those who disagree with her, and perceive that knowing someone's beliefs on this matter provides relevant information about that person. Another person who does not place as much importance on these beliefs may judge that the beliefs do not reveal crucial information about others and are less central to identity. To discover whether support for this hypothesis would replicate, all participants in Study 2 completed the importance-to-self measure from Study 1.

To test the community hypothesis, participants completed a community measure where they were asked, "If each of the following aspects of you changed—leaving every other aspect of you the same—how much would that change your relationships with others in your community?" For each characteristic, participants responded using a scale anchored at 1 ("would not change my relationships at all") and 7 ("would change my relationships a great deal"). As discussed in the preceding paragraph, individuals' *own* convictions may influence their perceptions of how much *others'* identities have changed. Therefore, the community measure asked only about participants' relationships, not their perceptions of Chris's relationships.

Finally, we included a perceived consensus measure in which we asked participants, "What proportion of the U.S. population do you think shares each aspect below with you?" If our manipulation worked as intended, participants would report that more people share their widely shared moral beliefs than their controversial moral beliefs. For each characteristic, participants responded using a scale anchored at 0% ("no one shares this with me; this is unique to me") and 100% ("everyone shares this with me; no one differs from me").

First, participants answered how much they or Chris would change. This measure was taken directly from Study 1. Next, they completed the importance-to-self measure, the measure of how much their relationships with others would change, and the perceived

consensus measure in counterbalanced order. Finally, participants completed the same demographic questionnaire used in Study 1.

3.2. Results

We conducted two manipulation checks to determine (a) the extent to which participants in the third-person important condition perceived the characteristics as more important to Chris than participants in the third-person unimportant condition and (b) the extent to which participants judged that their widely shared moral beliefs were actually shared with more people than the other characteristics we tested. Both manipulations were successful; see Supplemental Materials.

3.2.1. Importance-to-third-person hypothesis

To test the importance-to-third-person hypothesis, we analyzed responses to the identity measure using a 3 (Target: self vs. third-person important vs. third-person unimportant) × 4 (Mental State: controversial moral belief vs. widely shared moral belief vs. memory vs. preference) mixed-design ANOVA with repeated measures on the second factor. As in Study 1, we found a main effect of Mental State ($F(2.18, 565.59) = 30.71$, $p < .001$, $\eta_p^2 = .11$). We used simple effects tests to compare each mental state with each other mental state. Because this resulted in a total of six comparisons, p values needed to be .01 or lower to pass the Bonferroni-corrected significance threshold, and we report uncorrected p values below. Participants reported significantly more change to identity when widely shared moral beliefs changed ($M = 49.31$, $SD = 32.06$) than when either controversial moral beliefs ($M = 40.74$, $SD = 28.18$, $p < .001$) or memories ($M = 40.12$, $SD = 24.95$, $p < .001$) changed; memories and controversial moral beliefs did not differ from each other ($p = .61$). Participants further reported significantly less change to identity when preferences, rather than any other characteristic, changed ($M_{preferences} = 33.14$, $SD_{preferences} = 25.16$, ps $< .001$; Fig. 2).

Notably, we also found a main effect of Target ($F(2, 259) = 13.09$, $p < .001$, $\eta_p^2 = .09$), although the Mental State × Target interaction did not reach significance ($p = .13$). To investigate this main effect, we compared responses to each target collapsed across mental state. This resulted in three pairwise comparisons; therefore, p values needed to be .02 or lower to pass the Bonferroni-corrected significance threshold. Participants judged that a third person would change significantly more if the characteristics were important ($M = 49.84$, $SD = 20.70$) rather than unimportant ($M = 39.65$, $SD = 21.48$, uncorrected $p = .002$), and that another person in the important condition would change significantly more than they themselves would ($M = 33.45$, $SD = 20.97$, uncorrected $p < .001$). The difference between the third-person unimportant condition and the first-person condition did not reach significance (uncorrected $p = .05$). The difference between the two third-person conditions provides some support for the importance-to-third-person hypothesis by showing that characteristics were associated with more identity change when they were portrayed as important rather than unimportant.

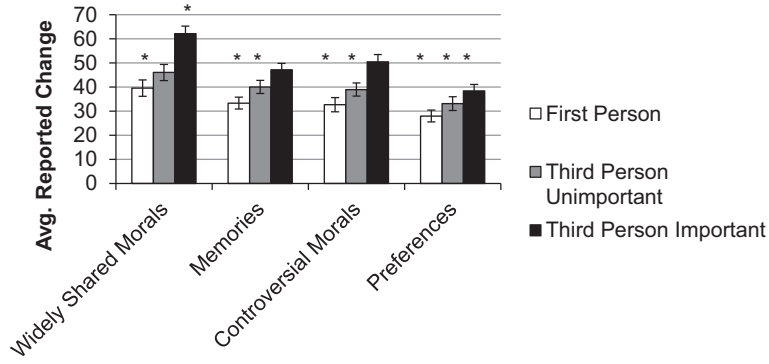

Fig. 2. Average reported change in each mental state category, Study 2. Error bars represent standard error of the mean. Asterisks indicate means that are significantly different from the scale's midpoint.

3.2.2. Importance-to-self hypothesis

We analyzed participants' ratings of the importance of each mental state to themselves using a one-factor, four-level (Mental State: controversial moral belief vs. widely shared moral belief vs. memory vs. preference) repeated-measures ANOVA. This factor exerted a main effect ($F(1.96, 520.53) = 122.65$, $p < .001$, $\eta_p^2 = .32$). We conducted six pairwise comparisons to compare each mental state with each other mental state. Therefore, p values needed to be .01 or lower to pass the Bonferroni-corrected threshold. Participants rated widely shared moral beliefs ($M = 5.14$, $SD = 1.36$) as more important to them than controversial moral beliefs ($M = 4.20$, $SD = 1.50$), which were rated as more important than memories ($M = 3.58$, $SD = 1.39$), which were rated as important as preferences ($M = 3.48$, $SD = 1.38$). All pairwise comparisons reached significance (uncorrected ps $< .001$) except for the difference between memories and preferences (uncorrected $p = .11$).

To test the importance-to-self hypothesis, we correlated responses to the identity measure with responses to the importance-to-self measure, as in Study 1, separately in each condition. This resulted in 12 correlations (four mental states across three conditions); thus, p values needed to be less than .004 to remain significant after a Bonferroni correction. In the third-person important condition, the more participants reported that each mental state was important to them, the more they reported that identity would change if that mental state changed (rs $\geq .48$, uncorrected ps $< .001$). Furthermore, the more participants in the first-person condition reported that their memories and preferences were important to them, the more they reported that they would change if those mental states changed (rs $= .41$ and $.37$, respectively, uncorrected ps $< .001$). No other comparisons reached significance (rs $\leq .18$, uncorrected ps $\geq .01$). In line with prior work (Strohminger & Nichols, unpublished data), these findings indicate that participants' identity change judgments are associated to some extent with how important particular characteristics are to participants.

3.2.3. Community hypothesis

To test the community hypothesis, we correlated responses to the identity measure with responses to the community measure. In the third-person important condition, the more participants reported that their relationships would change if their characteristics changed, the more they reported that Chris's identity would change if those characteristics changed ($rs \geq .57$, uncorrected $ps < .001$). Similar results emerged in the first-person condition, although the correlation in the category of widely shared moral beliefs did not reach significance (uncontroversial moral beliefs: $r = .26$, uncorrected $p = .02$; other mental states: $rs \geq .36$, uncorrected $ps < .001$). In the third-person unimportant condition, no correlations reached significance ($rs \leq .26$, uncorrected $ps \geq .02$). Thus, we found strong support for the community hypothesis in the third-person important condition and the self condition. In these conditions, participants typically reported that the more changes to particular characteristics would alter their relationships, the more their own identity—as well as Chris's identity, when the characteristics were portrayed as important to Chris—would change as a result of changes to those characteristics.

In addition to investigating each hypothesis separately, we also tested relationships among hypotheses. See Supplemental Materials for these analyses.

3.3. Discussion

Study 2 found some support for several hypotheses that sought to account for perceived identity change, including the *importance-to-self* hypothesis (changes to characteristics important to participants are associated with greater perceived identity change than changes to unimportant characteristics), the *importance-to-third-person* hypothesis (changes to characteristics important to the person undergoing the change are associated with greater perceived identity change), and the *community* hypothesis (changes to characteristics that bind people into communities are associated with greater perceived identity change).

Initially, we conceptualized the importance and community hypotheses as distinct—although potentially complementary—accounts. However, data from Study 2 pointed to a relationship between the hypotheses (see Supplemental Materials). Harmonious social relationships and a sense of belonging with other people are linked with well-being (Diener & Seligman, 2002; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Williams & Nida, 2011). Therefore, when considering which characteristics were most important to them, participants may have prioritized characteristics that they associated with maintaining group belonging.

4. Study 3

Study 3 used mediation models to test the extent to which participants' judgments of how important each belief category was to them (importance hypothesis) and their perceptions of how much a change to each belief category would change their relation-

ships (community hypothesis) could explain the difference between identity change in the category of controversial versus widely shared moral beliefs. Study 3 focused on the difference between controversial and widely shared moral beliefs because this difference represents a key novel contribution of the present work. Previous work has argued that moral traits are judged to be more important to identity than perceptual traits and preferences because individuals judge each other on the basis of moral traits (Strohminger & Nichols, 2014). However, prior work has not empirically documented or accounted for the difference in identity change judgments across different categories of moral beliefs.

4.1. Method

4.1.1. Participants

Participants were 115 adults between 19 and 70 years old (M_{age} = 37.56 years, SD_{age} = 12.54 years). Recruitment was identical to Study 1. Seven additional participants were excluded from analyses because they had previously completed Study 2 (N = 5) or failed to correctly answer an attention check question (N = 2). On a demographic questionnaire completed at the end of the study, 50% of participants self-identified as female and 50% self-identified as male. Participants self-identified as White or European-American (86%), Black or African-American (8%), Asian or Asian-American (4%), Native American or Pacific Islander (1%), and Multiracial (2%); 6% of participants additionally self-identified as Hispanic or Latino/a. All participants reported that they were residents of the United States and had been speaking English for at least 19 years.

4.1.2. Procedure

Participants completed the importance-to-self and community measures from Study 1 in counterbalanced order. Because Study 3 focused specifically on moral beliefs, only the 20 moral items from Study 1 were included in Study 3. Participants then completed the identity change measure for either controversial moral beliefs only (N = 57) or widely shared moral beliefs only (N = 58). After completing these three measures, participants responded to the same demographic questions used in Study 1.

4.2. Results

4.2.1. Replication of Studies 1 and 2

Although the main purpose of Study 3 was to determine *why* participants distinguish between widely shared and controversial moral beliefs, we first investigated the extent to which this new study replicated earlier results. First, an independent-samples t test revealed that, as in the two earlier studies, participants reported that they would change significantly more if their widely shared moral beliefs changed (M = 50.26, SD = 29.60) than if their controversial moral beliefs changed (M = 32.25, SD = 18.86, t (96.98) = 3.68, $p < .001$). Second, as in Studies 1 and 2, we conducted a paired-samples

t test to analyze participants' ratings of the importance of controversial versus widely shared moral beliefs to themselves. As in these prior studies, participants rated widely shared moral beliefs ($M = 5.15$, $SD = 1.13$) as significantly more important to them than controversial moral beliefs ($M = 4.35$, $SD = 1.16$, $t(114) = 9.15$, $p < .001$).

Finally, as in Study 2, we separately tested the importance-to-self hypothesis and the community hypothesis by correlating responses to the identity measure with responses to the 10 items from the importance-to-self measure and the 10 items from the community measure that also appeared on the identity measure (e.g., only the ten controversial beliefs for the participants who responded how much they would change if their controversial moral beliefs changed). As in Studies 1 and 2, importance-to-self ratings significantly predicted perceived identity change ($r = .41$, $p < .001$), indicating that the more important participants judged beliefs in a particular category to be to themselves, the more they judged that they would change if those beliefs changed. Furthermore, replicating Study 2, a significant correlation emerged between responses to the identity measure and responses to the community measure. The more participants reported that their relationships would change if their beliefs changed, the more identity change they reported when those beliefs changed ($r = .55$, $p < .001$). Together, these correlations provide some support for both the importance-to-self hypothesis and the community hypothesis.

4.2.2. Direct comparison of the importance hypothesis and the community hypothesis

The main purpose of Study 3 was to determine the extent to which each hypothesis could explain why participants judged that changes to widely shared moral beliefs would lead to more identity change than changes to controversial moral beliefs. We planned to conduct a multiple mediation analysis as outlined by Hayes (2013). Type of belief (controversial vs. widely shared) served as the independent variable, responses to the importance-to-self measure and the community measure served as the mediators (with average ratings calculated based on only the 10 items that matched the items participants saw on the identity change measure), and perceived identity change served as the dependent variable. However, this multiple mediation analysis did not reveal a significant relationship between importance-to-self ratings and identity change judgments ($b = 3.44$, $p = .08$). This non-significant coefficient violates one of the standard assumptions of mediation models (Baron & Kenny, 1986).

Therefore, we conducted two separate mediation models, entering importance-to-self ratings as the sole mediator in Model 1 and responses to the community measure as the sole mediator in Model 2 (Fig. 3). We used PROCESS (Hayes, 2013) with 5,000 bootstrapped samples to estimate effects. These analyses revealed, first, that belief type condition exerted a significant effect on identity change regardless of whether or not importance-to-self judgments were entered as a mediator. Second, ratings of how much changing beliefs would change relationships with others in one's community mediated the relationship between belief type condition and perceived identity change (95% CI: −16.45, −3.78). Critically, these findings suggest that widely shared moral beliefs may be linked with more identity change than controversial moral beliefs because partici-

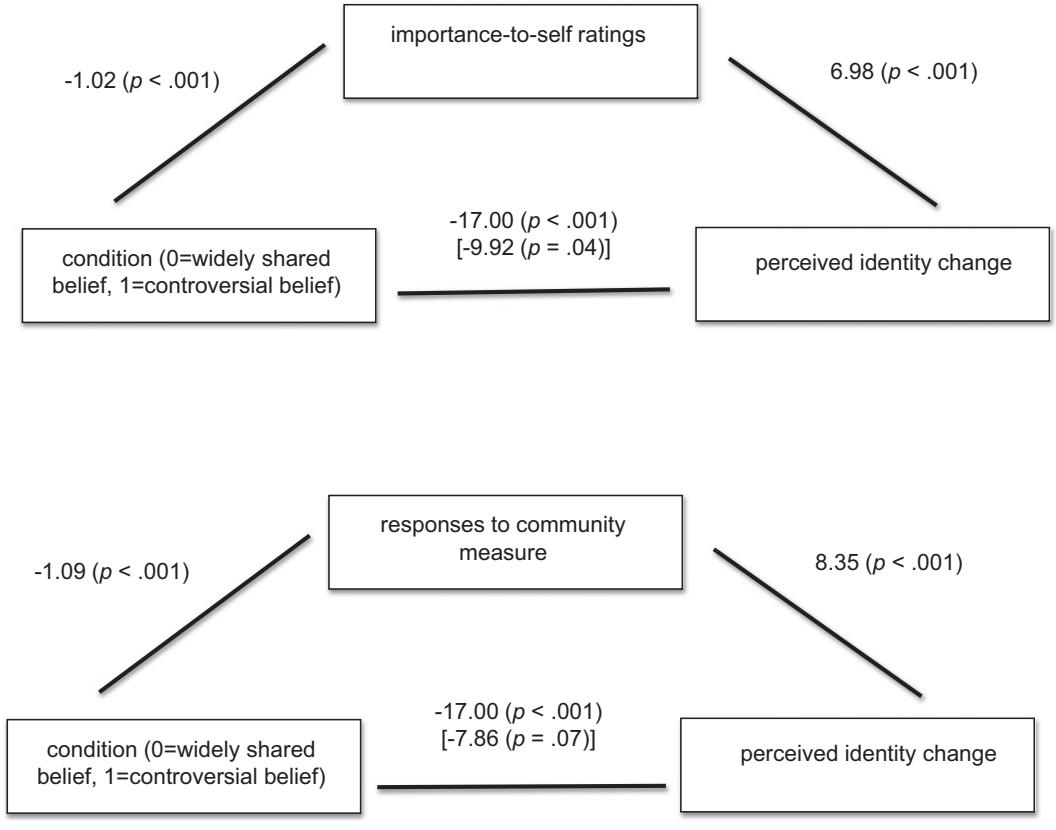

Fig. 3. Mediation results for Model 1 (top) and Model 2 (bottom), Study 3.

pants judge that their relationships with others in their communities would change more if their widely shared moral beliefs, rather than controversial moral beliefs, changed.

4.3. Discussion

Study 3 investigated the extent to which the importance-to-self hypothesis versus the community hypothesis could explain why participants judged that changes to widely shared moral beliefs would result in more identity change than changes to controversial moral beliefs. Results from the mediation analyses indicated that responses to the community measure, but not responses to the importance-to-self measure, mediated the relationship between belief type and perceived change in identity. Thus, it appears that participants judged that changes to their widely shared moral beliefs would result in more change to their identity overall than changes to their controversial moral beliefs because they perceived widely shared moral beliefs to be more strongly informative of community relationships.

5. General discussion

Three studies investigated judgments about the extent to which different mental states are associated with one's overall identity. In Study 1, adults judged that they themselves as well as other people would change more if their widely shared moral beliefs changed, rather than their controversial moral beliefs or preferences. This finding is consistent with prior work in which adults divided the moral domain into subcategories (Graham et al., 2011; Janoff-Bulman & Carnes, 2013) and treated widely shared moral beliefs as different from controversial moral beliefs and preferences (Goodwin & Darley, 2008).

Studies 2 and 3 tested two hypotheses to explain why adults distinguished between widely shared and controversial moral beliefs. Some support emerged for the *importance* hypothesis—the idea that characteristics perceived to be more important to oneself (importance-to-self component) and to the person undergoing the change (importance-to-third-person component) are linked to more perceived identity change. Stronger evidence emerged for the *community* hypothesis, suggesting that characteristics perceived to play stronger roles in maintaining relationships within a community are linked to more perceived identity change. Indeed, in Study 3, judgments of how much changes to beliefs would change relationships with others in one's community—but not importance-to-self ratings—mediated the relationship between belief type and perceived identity change.

Perceptions of how much changes to mental states would alter relationships with others in one's community may play an especially strong role in judgments of identity change because individuals' sense of their own identity is strongly associated with their sense of belonging to particular groups and communities (Tajfel & Turner, 1986). In one line of work supporting this idea, participants judged their preferences to reflect more stable aspects of their identities after describing these preferences as group memberships (e.g., "I am a baseball fan") versus actions (e.g., "I watch baseball a lot"; Walton & Banaji, 2004). Thus, the community hypothesis may have been especially powerful in the current work because individuals derive aspects of their personal identity from their communities. Evidence for the community hypothesis is especially compelling given that it was obtained in a Western sample and suggests that even stronger support for this hypothesis may emerge in more communal cultures.

Although adults in prior work reported that identity would change more as a result of changes to moral characteristics rather than memories (Strohminger & Nichols, 2014), the current work did not find that moral beliefs were consistently associated with greater identity change than were memories. Although adults in Study 2 judged that changes to widely shared moral beliefs were associated with greater identity change than were changes to memories, this difference did not emerge in Study 1. The discrepancy between the pattern in the current work (i.e., a lack of consistent difference between widely shared moral beliefs and memories) and the pattern observed in prior work (i.e., difference between moral beliefs and memories; Strohminger & Nichols, 2014) may be due to important differences in experimental design. Strohminger and Nichols (2014) tested moral *traits* (e.g., criminality, cowardice), whereas the current work tested moral *beliefs*

(e.g., beliefs about whether murder and stealing are wrong). Indeed, past work has shown that noun labels are especially informative about identity. In one line of work (Gelman & Heyman, 1999), children drew stronger identity-related inferences (e.g., that a particular characteristic, such as eating carrots, would persist from childhood into adulthood) when hearing noun labels (e.g., "Rose is a carrot-eater") rather than verb labels (e.g., "Rose eats carrots whenever she can"). In other research, noun labels also facilitated categorization (children reported that individuals who shared the same noun label, but not the same appearance in the absence of a noun label, were part of the same group; Baron, Dunham, Banaji, & Carey, 2014) and pro-social behaviors (adults were less likely to cheat when they were told, "Please don't be a cheater" rather than "Please don't cheat"; Bryan, Adams, & Monin, 2013). Thus, it may be easier for individuals to associate trait labels (which can be easily transformed into noun labels, e.g., criminal, coward), rather than beliefs, with identity.

Investigating the relationship between moral beliefs and memories presents a challenge in that moral beliefs are declarative while the memories tested in the current work as well as some prior work (Strohminger & Nichols, 2014) are episodic, autobiographical memories. Thus, it is not possible to determine with certainty whether any differences that emerge between these categories are due to differences between moral beliefs and memories or differences between declarative and episodic phenomena more broadly. Two pieces of evidence suggest that the former difference may be more relevant to the current results. First, one line of work (Strohminger & Nichols, 2015) investigated perceived identity change among individuals with neurodegenerative illnesses. Participants who knew individuals with such illnesses reported greater identity change in the sick individuals when moral faculties were impaired than when memories were impaired. Although this project probed numerous forms of memory loss (forgetting autobiographical memories, facts about the world, personally meaningful information, semantic information, etc.), amnesia was not associated with identity change.

Second, the current work found differences between widely shared and controversial moral beliefs, although both categories consisted of declarative statements and did not find consistent differences between widely shared moral beliefs and memories—differences that may have emerged if the difference between episodic and declarative phenomena were at play. However, the effect of episodic versus declarative phenomena could have been suppressed by a different effect of content (moral belief vs. memory). Thus, conclusively establishing the extent to which the difference between episodic and declarative phenomena accounts for differences between moral beliefs and memories, where such differences occur, remains a topic for future research.

The current findings are among the first to focus on essentialism with regard to numerical personal identity and moral beliefs (for related work, see Newman et al., 2014; Strohminger & Nichols, 2014, 2015) and, importantly, to explain why this essentialism occurs. Previous work has shown that individuals essentialize social categories such as race and gender as well as characteristics such as intelligence and shyness (Dar-Nimrod & Heine, 2011; Gelman et al., 2007; Williams & Eberhardt, 2008). These categories and characteristics can be perceived as internal and important aspects of identity; if a person's

race or gender changed, he or she may be viewed as an entirely different person. In the current studies, participants also judged that changing one's widely shared moral beliefs changes one's identity more than changes to other beliefs, expanding conceptualizations of essentialism to include these moral beliefs. Indeed, the current work may provide insight into why individuals essentialize social categories. Groups like race and gender can serve as important sources of community; thus, switching from one group to another (e.g., by transitioning from one gender to another) can deeply alter relationships with others.

This study focused on a limited number of categories associated with the mind (i.e., moral beliefs, memories, preferences). Comparing moral beliefs with a greater number of other categories offers an important direction for future research. In line with prior work on children's moral cognition (Nucci, 2001; Smetana, 1981; Turiel, 1983), future work could compare moral essentialism with essentialism of social conventional beliefs, such as the belief that it is wrong to wear pajamas to school. Similarly, studies could directly compare psychological traits with essentialized group memberships. Such studies would allow researchers to observe the relative importance of psychological traits, such as moral beliefs and memories, and social categories, such as race and gender, in the construction of personal identity. Although participants in this work perceived widely shared moral beliefs to be linked with identity change more than controversial moral beliefs and preferences, it may be the case that changing other beliefs, traits, or social categories would be perceived to lead to even more identity change.

A potential limitation of this work is its reliance on participants' interpretations of experimental questions. While some participants may have attributed positive change to Chris, such as changing from a person who supports stealing to a person who condemns it (i.e., immoral to moral), others may have conceptualized Chris as a person who changed in the opposite direction (moral to immoral). Because we were interested in participants' intuitions regarding change broadly conceived, and because we sought to compare our results with those obtained in prior studies that also did not define "change" for participants (Strohminger & Nichols, 2014), we permitted participants to rely on their own understanding of exactly how people changed. However, participants may respond differently when judging someone who, in their eyes, is becoming a better person versus a worse person (Newman et al., 2014), and it is possible that participants systematically interpreted "change" differently when judging different mental states.

Similarly, following prior work that asked participants about what was important to them without defining "important" (Cook, Purdie-Vaughns, Garcia, & Cohen, 2011; Pronin, Fleming, & Steffel, 2008)—including numerous scales measuring identity (e.g., Doane & Elliott, 2015; Fuller-Rowell, Burrow, & Ong, 2011; Simon & Ruhs, 2008)—we allowed participants to use their own definition of importance when indicating how important each characteristic was to them.[6] Pitting importance against relationships with others in one's community allowed us to determine that participants were not conflating these two constructs. Future research can examine the influence of different definitions (e.g., relevance to identity vs. personal value) on responses more directly.

The current work suggests that laypeople judge widely shared moral beliefs (e.g., about whether murder is wrong) to be more central to identity than controversial moral beliefs (e.g., about whether abortion is wrong) because widely shared moral beliefs are more strongly linked with community relationships. When pondering a question that draws attention to the self—who am *I*?—even adults in an individualistic culture appear to focus on their connections with other people. Uniting psychology and philosophy, the current work highlights the joint role of morality and community in judgments of identity.

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Notes

1. To explore the influence of choice, approximately one-half of the participants in Study 1 were asked to imagine that it was far in the future and they or another person had chosen to take a pill that changed only one aspect of themselves. The remaining participants were asked to imagine that they or another person had been forced to take a pill. These conditions did not change responses to the identity measure and were collapsed in subsequent analyses.
2. The attention check question reminded participants that they had been asked to imagine that several aspects of themselves had changed. Participants were then asked to indicate one aspect that had been included in the study. Participants were not able to click back through the survey to re-read items. Answers were coded as correct if they referenced any of the mental states included in the study. For Study 1 and all subsequent studies, we found similar patterns of results as those reported in the main text after re-running analyses including all participants.
3. In all F tests with non-integer degrees of freedom, we applied a Greenhouse-Geisser correction due to a violation of the assumption of sphericity.
4. Prior to conducting Study 1, we collected data from a different group of 137 adults in the first-person condition only. These results showed the same pattern of results as those observed in Study 1. Participants reported that they would change most if their widely shared moral beliefs changed (M = 39.34, SD = 32.83). Changes to widely shared moral beliefs were judged to result in more change to the person than changes to memories (M = 32.50, SD = 22.55, uncorrected p = .01), controversial moral beliefs (M = 28.27, SD = 24.57, uncorrected $p < .001$), and preferences (M = 26.32, SD = 20.37, uncorrected $p < .001$). Changes to memories were perceived to influ-

ence identity more than changes to preferences (uncorrected $p = .001$). No other pairwise comparisons reached significance (uncorrected $ps \geq .16$).

5. Approximately half ($N = 53$) of participants also completed two measures of moral realism, or the extent to which they perceived morals to be akin to objective facts rather than subjective preferences. These measures were presented after the identity items and before the demographic questionnaire; the order of the items measuring the importance of each mental state to the participant and the two moral realism measures was counterbalanced across participants. The first measure asked participants to imagine that two people disagreed about each controversial and widely shared moral belief and then asked participants to indicate whether both people or could be right or whether only one person could be right. The second measure was taken from Forsyth (1980). A series of Bonferroni-corrected bivariate correlations did not reveal consistent relationships between either measure and the identity measure for each mental state. The measures of moral realism were exploratory and are not discussed further.
6. Although we did not ask participants how they defined the word "important," examining the variance of responses can provide a hint regarding consistency of definitions. If participants varied in their definitions, we might expect to see high standard deviations for the importance items. Indeed, the importance hypothesis might have held less explanatory power than the community hypothesis if participants varied in how they understood the question about importance but not in how they understood the question about community. However, in each study, the standard deviations for the two measures were comparable; when they differed, it was the community item that produced the higher standard deviation (see Supplemental Materials).

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Data S1. Supplemental Materials.

Appendix

Controversial moral beliefs:
Each moral beliefs was in the form, "Your beliefs about whether X is right or wrong"
abortion
the death penalty
deporting undocumented immigrants
providing financial aid for undocumented immigrants to attend college
driving a gas guzzler
limiting industrialization in developing countries
requiring schoolchildren to say the pledge of allegiance
prohibiting prayer in public schools
limiting sex education to abstinence-only
requiring richer people to pay a higher proportion of their income in taxes
Widely shared moral beliefs:
murdering another person
stealing from another person
committing adultery
lying under oath
cheating on a test
hitting someone who is smaller than you
donating to charity
breaking into someone's house
spitting at someone
kidnapping a child

Memories:
your saddest memory
your happiest memory
your memory of your first day of school
your memory of your most recent birthday
your memory of the time you were most sick
your memory of the most delicious meal you have eaten
your memory of the most fun thing you have done with your friends
your memory of the most hurtful thing someone else has done to you
your memory of the most hurtful thing you have done to someone else
your memory of the most recent time you went shopping
Preferences:
your favorite color
your favorite food
your favorite TV show
your favorite restaurant
your favorite book
your favorite magazine
your favorite leisure time activity
who your best friend is
who your favorite relative is
your favorite musical artist