

## **UC Merced**

### **Proceedings of the Annual Meeting of the Cognitive Science Society**

#### **Title**

Personal Change and the Continuity of Identity

#### **Permalink**

<https://escholarship.org/uc/item/5j19n8kg>

#### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 37(0)

#### **Authors**

Molouki, Sarah

Bartels, Daniel M

#### **Publication Date**

2015

Peer reviewed

# Personal Change and the Continuity of Identity

**Sarah Molouki (smolouki@uchicago.edu)**

University of Chicago  
5807 S. Woodlawn Ave., Chicago, IL 60637

**Daniel M. Bartels (bartels@uchicago.edu)**

University of Chicago  
5807 S. Woodlawn Ave., Chicago, IL 60637

## Abstract

The current research examines what types of change are perceived as allowable versus disallowable in the self while still maintaining a sense of personal continuity. We find that overall, improvements are seen as more allowable than worsening or unspecified change, although this difference varies in magnitude based on the centrality of the trait being considered. Additionally, valence interacts with expectations of change, such that the differential impact of positive versus negative change on self-continuity is largest when positive change is expected, but is attenuated when negative change is expected.

**Keywords:** psychological essentialism; change; identity; self; self-concept; feature centrality

## Introduction

Studies suggest that people distinguish between central, more immutable features of a concept and features that are allowed to change without fundamentally altering the concept (Slovan & Ahn, 1999; Slovan, Love, & Ahn, 1998). The current research investigates the topic of allowable and disallowable change in the self by asking which kinds of features may change, and in what ways they may change, while still preserving the perceived continuity of the self-concept.

Essentialist ideas, such as the belief that an object is defined by a fundamental underlying character, have mainly been invoked as a way to describe how people think about category membership (Gelman & Hirschfeld, 1999; Medin & Ortony, 1989). But what defines the essence of an individual person? There is evidence that people do not hold a pure physicalist view of personal identity, but rather ascribe special importance to mental content (Blok, Newman, Behr, & Rips, 2001; Nichols & Bruno, 2010). Research examining people's intuitions about the implications of stability or change in mental and experiential content has found that greater change undermines the perceived continuity of a person (Bartels & Rips, 2010). Furthermore, the type of mental content matters: for example, describing changes in a person's moral qualities leads to attributions of greater identity change than changes in other mental features, like cognitive abilities, preferences, or memories (Strohlinger & Nichols, 2014).

Recent work has also uncovered asymmetries in how people perceive the effects of positive versus negative

change on the identity of third parties. Rather than thinking of others' moral values and mental characteristics as categorically immutable, people consider positive changes in these qualities to be more allowable than negative changes (Newman, Bloom, & Knobe, 2014; Tobia, 2015). This pattern of judgments could arise from beliefs that the human essence is fundamentally positive, such that positive change allows for a clearer expression of this essence whereas negative change detracts from it (Newman et al., 2014; Tobia, 2015).

Taken together, the literature suggests that, when thinking about the identity of other persons, people consider central characteristics such as morality to be relatively immutable, but nevertheless view positive change as more allowable than negative change. However, it's possible that people might think about themselves differently from how they think about third parties. In the current studies, we build upon previous findings by examining people's perceptions about what specific types of change will disrupt or preserve their own personal identity.

## Stability, Change, and the Self-Concept

Whereas some research on the self-concept suggests that changes in central characteristics cause a greater feeling of disconnect from the future self than stability (Bartels & Urminsky, 2011), other research finds that people expect positive change throughout their life span (Busseri, Choma, & Sadava, 2009; Haslam, Bastian, Fox, & Whelan, 2007; Newby-Clark & Ross, 2003; Wilson & Ross, 2001). This suggests that, rather than viewing all important features of oneself as fundamentally immutable, people may incorporate the expectation of some changes (notably positive changes) into the self-concept, and might even prefer these changes over stability. In the current research, we systematically explore how the impact of personal change on perceptions of one's own identity varies based on the domain of the characteristic that is changing, the direction of change, and one's existing expectations about change or stability in that particular attribute.

## The Present Studies

Across two studies, we investigate the effects of positive and negative changes in a variety of personal characteristics on perceptions of one's own self-concept. In doing so, our aims are threefold. First, we test whether the relationships

between personal change and perceptions of one's own identity are similar to those previously discussed involving judgments of third parties (Blok et al. 2001, Newman et al., 2014; Strohminger & Nichols, 2014; Tobia, 2015). This is important because people often express large and systematic differences in how they think about themselves versus how they think about others (Molouki & Pronin, 2014). Second, we explore whether positive changes are generally seen as more allowable than negative changes, or whether the effect of positive and negative changes on identity varies depending on the perceived centrality of the changed feature. Finally, we explore whether there is a relationship between the perceived effect of a given change and people's prior expectations regarding the likelihood of this change, since changes in any direction that are inconsistent with expectations may be threatening to identity.

### Study 1

Study 1 explores whether people view some types of personal change (i.e., positive change) as relatively identity-preserving, and whether this tendency is affected by the centrality of the characteristics considered. The centrality of a feature or characteristic is often defined as the degree to which change in this quality would disrupt the identity of the object possessing it (Sloman et al., 1998; Strohminger & Nichols, 2014). Following from this view, it is possible that whereas people may allow changes (especially improvements) in peripheral traits, they may nevertheless think that their core characteristics must remain stable to maintain their sense of self. Alternatively, people might view their personal characteristics as unidirectionally mutable – that is, positive (but not negative) changes are allowable for any and all characteristics without disrupting the continuity of personal identity.

### Participants

Three hundred participants from Amazon Mechanical Turk (MTurk) completed an online survey in return for monetary compensation. Eight participants were excluded for failing an attention check question, leaving a final  $N$  of 292.

### Stimuli

Participants were presented with a list of 40 characteristics and were asked to imagine these changing within themselves over time. The characteristics used in this study were selected based on a pre-test in which we elicited descriptors that defined personal identity from a separate sample of 35 MTurk participants. The most frequently mentioned concepts were selected and adapted for this study. We also included characteristics that were found to be important for judging the continuity of others' identity in previous research (Strohminger & Nichols, 2014).

To allow us to compare the results of our current study with previous work that examined trait centrality in judgments of third parties, we then presented the full list of characteristics to a new sample of 70 MTurk participants, who classified them based on the following categories:

“preferences”, “personality”, “morality”, “experiences”, and “memories” (see Strohminger & Nichols, 2014). Characteristics for which fewer than half of the sample agreed on category membership were not included for use in the current studies. Examples of selected stimuli and corresponding categories can be viewed in Appendix A.

### Method

Participants were randomly assigned to one of three experimental conditions, in which they were told to imagine that the listed characteristics would either (i) change (valence unspecified), (ii) improve, or (iii) worsen over time. They then reported the perceived impact of the imagined change on their personal identity, by answering the following question on a scale of 0 - 100 for each characteristic (presented in random order):

If my (characteristic) [changes/improves/worsens], I will ...  
*Really be myself* [0] – *Not at all be myself* [100]

Thus, a rating of 0 meant that the stated change in a given characteristic would be very consistent with a person's self-concept, whereas a rating of 100 meant that the change would be very inconsistent with his or her self-concept.

### Results

**Central versus Peripheral Categories in the Continuity of Personal Identity** We tested whether change was perceived as less acceptable overall for certain categories of traits. Specifically, we investigated whether general (valence unspecified) change in some categories was more threatening to identity (i.e., caused participants to report that they would be less themselves) than change in other categories. Within the general change condition, we found an overall difference across the five categories in the effect of change on perceptions of one's own identity continuity ( $F(4, 368) = 103.22, p < .001, \eta_p^2 = .53$ ).

Tukey post hoc comparisons revealed significant differences in the effect of change on identity between all pairs of categories in our experiment (all  $z < 3.06, p < .02$ ). Specifically, changes in items classified in the category of morality were judged to be the most inconsistent with personal identity ( $M = 63.12, SD = 33.60$ ), followed by items classified under personality ( $M = 48.43, SD = 32.85$ ), preferences ( $M = 37.08, SD = 1.00$ ), experiences ( $M = 31.13, SD = 30.42$ ), and memories ( $M = 26.19, SD = 31.14$ ). Thus, our results for centrality of categories in self-judgments are generally in agreement with findings for third-party judgments in previous studies, where morality, followed by personality, were respectively identified as the two most central categories based on the effect of changes on perceived identity (Strohminger & Nichols, 2014).<sup>1</sup>

---

<sup>1</sup> Note that the stimuli for this study were specifically generated within the context of being applicable to personal identity. This feature of the design restricts the range of centrality, presenting few extremely peripheral attributes. So, Study 1 represents a conservative test of the influence of trait centrality on identity judgments, as differences between central and peripheral traits

**Valence of Change** There was a main effect of valence, such that across all categories, positive changes ( $M = 27.04$ ,  $SD = 30.14$ ) were seen as less identity-threatening than either negative changes ( $M = 50.37$ ,  $SD = 33.78$ ) or unspecified changes ( $M = 43.93$ ,  $SD = 34.43$ ;  $F(2, 289) = 65.37$ ,  $p < .001$ ,  $\eta_p^2 = .31$ ). The difference between the perceived identity consequences of positive and negative change held for all categories of characteristics, regardless of degree of centrality (as defined by the magnitude of the effect of general change on the self-concept). For example, the difference in consequences for judged continuity of the self between positive ( $M = 29.08$ ,  $SD = 31.26$ ) and negative change ( $M = 65.85$ ,  $SD = 31.96$ ) among morality-related characteristics (a central category) was significant ( $z = 14.70$ ,  $p < .001$ ). The effect of valence was also apparent for a relatively more peripheral category (memories), with positive changes in memory ( $M = 21.81$ ,  $SD = 30.00$ ) also eliciting judgments of greater continuity than negative changes ( $M = 27.73$ ,  $SD = 30.93$ ;  $z = 2.30$ ,  $p = .04$ ).

However, the two-way interaction between category and valence was also significant, such that the differential impact of positive and negative change on identity was larger for more central categories compared to more peripheral categories,  $F(8, 1156) = 28.39$ ,  $p < .001$ ,  $\eta_p^2 = .16$ . This effect appears to be driven by the greater identity-disrupting effects of negative, but not positive, changes in more central categories, like morality and personality (see Figure 1).

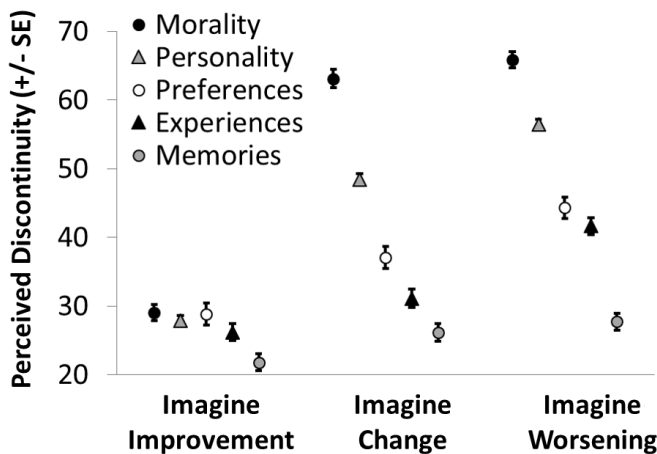


Figure 1. Study 1 Identity Discontinuity Ratings by Valence and Category.

## Discussion

The results of Study 1 suggest that people view certain categories of mental life (such as morality and personality characteristics), as more central to their own self-concept than others (such as memories, experiences, and preferences). Paralleling results of other research

must be large enough to manifest across this restrictive range of mostly central attributes.

investigating the perceived identity of other people (Strohming & Nichols, 2014), people tend to think that they would be less themselves if these central characteristics changed than if their more peripheral characteristics were to change.

However, we also see that this relationship does not hold equally across all types of change. Positive change across both peripheral and central categories of traits has a relatively small effect on perceived identity, whereas negative change seems progressively more threatening to identity continuity as characteristics become more central. This pattern is consistent with a developmental trajectory view of the self: people may incorporate expectations of improvement into their self-concept, thus considering positive changes to be allowable even for their most core characteristics. In contrast, negative changes are particularly threatening and cause the greatest feelings of discontinuity when they occur in the most central parts of ourselves.

Of additional note, the pattern of results for unspecified changes mostly mirrors that observed for negative changes, which is consistent with previous research that shows disruptions in identity associated with general descriptions of change (e.g., Bartels & Urminsky, 2011). It remains unclear why people would react to unspecified change much as they would to negative change when people's predominant expectations are towards positive change (Haslam et al., 2007). One possibility is that because people have already incorporated expectations of positive change into their self-concept, they interpret specific mentions of change as implying unexpected, and thus predominantly negative, changes.

## Study 2

In Study 2, we explore relationships between item centrality (as operationalized by the categories used in Study 1) and expectations of change. That is, whereas Study 1 examined the perceived effects of change in central or non-central traits, Study 2 examines whether central characteristics are viewed as *less likely* to change than peripheral ones. Also, we examine whether the differential effect of valence of change on judgments of identity continuity observed in Study 1 is moderated by prior expectations of change. For example, is positive change always more identity-preserving than negative change, or is this tendency reversed if negative change is expected for a specific characteristic?

In order to explore these questions, we employed a 3 (expectation: improvement, worsening, or staying the same) x 3 (imagined change: improvement, worsening, or staying the same) repeated measures design in which participants reported their expectations of change for a subset of characteristics and then reported the perceived impact on identity that would result from different types of change in these traits.

## Participants and Stimuli

Three hundred participants from Amazon Mechanical Turk (MTurk) completed an online survey in return for monetary

compensation. Participants were presented with the same 40 characteristics used in Study 1.

### Method

Participants were presented with the list of personal characteristics (described in Study 1) and were asked to select fifteen in total that met the following criteria: “five items that you most strongly expect will improve over time,” “five items that you most strongly expect will stay the same over time,” and “five items that you most strongly expect will worsen over time.” After placing five characteristics into each category, participants were asked to rank them by placing the item they felt most strongly represented the category at the top of each list, and items they felt less strongly represented the category at the bottom of each list.

Following item selection and ranking, participants were presented with three blocks of questions in which they were asked to imagine that their top-ranked characteristic from each expectation category would either improve, worsen, or stay the same (blocks and characteristics were presented in randomized order). Participants made identity continuity judgments using the self/not self slider question from Study 1; however, in this study the unspecified change condition was replaced with the “stay the same” condition. So, participants made nine such judgments, which were the result of crossing (i) type of change (asked to imagine it improves vs. imagine it stays the same vs. imagine it worsens) with (ii) participants’ reported expected change (expected to improve vs. expected to stay the same vs. expected to worsen).

### Results

**Centrality and Expectations of Change** A chi-square test revealed that participants systematically differed in their expectations about different categories of traits,  $\chi^2(8) = 927.99, p < .001$  (see Table 1). Participants were more likely to select characteristics from relatively central categories when asked to provide examples of traits they would expect to remain stable (morality, personality, preferences), and were more likely to select characteristics from peripheral categories as those for which they expected improvement (experiences) or worsening (memories).

Table 1. Percentage of characteristics in each mental domain that participants chose as examples of improvement, stability, or worsening

	Morality	Personality	Preferences	Experiences	Memories
Improve	26%	35%	9%	<b>49%</b>	10%
Same	<b>59%</b>	<b>38%</b>	<b>60%</b>	18%	14%
Worsen	15%	27%	32%	33%	<b>76%</b>
$\chi^2$	197.3***	37.3***	55.3***	158.3***	479.8***

\*\*\* =  $p < .001$ ; **Bold** values are significantly greater than 33%.

**Expectations of Change and Judgments of Identity** A repeated measures ANOVA revealed a main effect of the valence of change participants were instructed to imagine,  $F(2, 598) = 296.50, p < .001, \eta_p^2 = .50$ , as well as a significant interaction between expectations and valence,  $F(4, 1196) = 117.53, p < .001, \eta_p^2 = .28$  (see Figure 2).

Post-hoc comparisons revealed that overall, imagining a hypothetical worsening of characteristics predicted much larger perceptions of identity discontinuity ( $M = 60.37, SD = 33.59$ ) than imagining improvement in these characteristics ( $M = 29.02, SD = 29.86$ ) or imagining the characteristics staying the same ( $M = 28.64, SD = 29.30$ ),  $z = 26.05, p < .001$ . However, if people already expected a trait to get worse, the identity-threatening effect of this worsening was greatly mitigated, from an average discontinuity perception of 70.76 ( $SD = 29.74$ ) in the expected improvement and stability conditions to 39.59 ( $SD = 31.15$ ) in the expected worsening condition,  $z = 17.22, p < .001$ . Indeed, when negative change was expected for a certain characteristic, people could equally imagine it either improving or worsening with no differential impact on identity judgments,  $z = 1.25, p = .94$ . In contrast, when positive change was expected, imagining an improvement was much more identity-preserving than imagining those traits worsening ( $z = 22.01, p < .001$ ) or staying the same ( $z = 6.78, p < .001$ ). Taken as a whole, situations where imagined development matched expectation were less threatening to continuity than situations where development was contrary to expectation,  $z = 19.70, p < .001$ . See Table 2 for a comparison of the effects of imagining improvement, staying the same, and worsening on perceived identity for characteristics classified within each type of expected change. Table 2 also shows the effect of each type of expected change on perceived identity when imagining improvement, staying the same, and worsening.

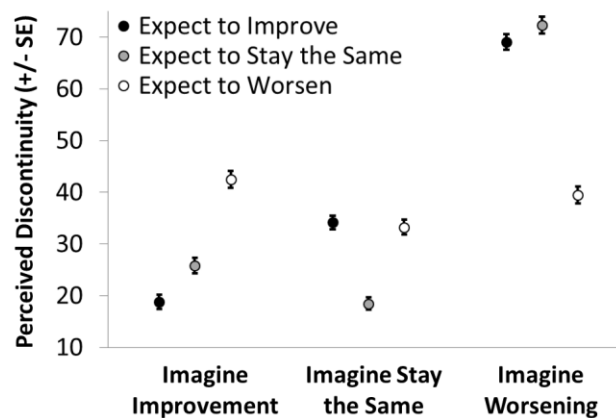


Figure 2. Study 2 Identity Discontinuity Ratings by Type of Change and Expectation

Table 2. Study 2 Identity Discontinuity Ratings.

		Expectation:			
		Improve	Stay the same	Worsen	F-value
Imagined:	Improve	18.81 <sub>a</sub> (24.1)	25.87 <sub>b</sub> (27.7)	42.52 <sub>c</sub> (32.3)	67.30***
	Stay the same	34.16 <sub>d</sub> (29.8)	18.48 <sub>a</sub> (25.0)	33.27 <sub>d</sub> (30.2)	40.49***
	Worsen	69.12 <sub>e</sub> (29.6)	72.34 <sub>e</sub> (29.8)	39.45 <sub>c, d</sub> (31.2)	133.01***
F-value		270.31***	324.69***	7.55***	

\*\*\* =  $p < .001$ ; Values with different subscripts differ at  $p < .05$  in post hoc tests adjusted for multiple comparisons

## Discussion

Study 2 used a selection and classification procedure to examine people's expectations about the developmental trajectory of various types of characteristics. These expectations were examined within the context of broad categories that differ on the basis of their centrality to the self-concept. Although we observed the classification of characteristics from all domains into all three trajectories (improvement, worsening, and staying the same), the distribution of classifications reveals that people believe that their more central characteristics (such as moral qualities) are less likely to change than their more peripheral characteristics (such as memories or experiences). Violations of these expectations may thus contribute to the greater relative identity discontinuity reported when people imagine that characteristics from central categories will change (as seen in Study 1).

We also examined how violations of expectations contribute to differential perceptions of identity continuity associated with positive and negative changes. In Study 1, positive change was perceived as more identity-preserving than negative change, but we also know that positive change over time tends to be more consistent with overall expectations (Haslam, et al., 2007; Wilson & Ross, 2001). We aimed to disentangle these effects in Study 2 by crossing all levels of the type of change (improve, worsen, stay the same) with all corresponding levels of expectations of change. We found that although valence has a main effect on identity judgments, greater self-continuity is also reported when the type of change considered is consistent with expected change. Thus, we conclude that valence and expectation exert an interactive effect on perceived continuity of the self-concept: positive changes (or stability) are generally more consistent with a sense of self-continuity than negative changes, but this is especially so when these positive changes (stability) are consistent with expectations.

## Conclusion

Every person has a unique self-concept. Although there is considerable heterogeneity in which specific characteristics each of us treat as most important, most or least likely to change, etc., the current studies show general similarities across participants in (i) which types of characteristics people consider to be important in defining themselves and

(ii) their reactions to imagined changes in these characteristics.

The results of Study 1 suggest that people consider characteristics falling into the categories of morality and personality traits to be most central to their personal identity, whereas experiences and memory are relatively less central. Additionally, results from both Study 1 and Study 2 suggest that on average, people consider positive change to be more identity-preserving than negative change. In addition to extending these two main effects from the domain of third party judgments to self-judgments, our findings are the first to find that trait centrality and valence of change interact to influence judgments of personal continuity. That is, the centrality of a trait matters much more to us when we are contemplating a negative change than when we are thinking about a positive one, and likewise, the valence of change matters much more to us when we are thinking about a central trait rather than a peripheral one.

These results also address the apparent contradiction between existing lines of research on change and the self-concept, which suggest that people expect and desire positive change (e.g., Busseri et al., 2009; Wilson, Buehler, Lawford, Schmidt, & Yong, 2012), but also view change in general as disruptive to personal continuity (e.g., Bartels & Urminsky, 2011). Specifically, we find that people seem to view positive change (especially expected positive change) as a distinct category that is more allowable in their own self-development than negative change or unspecified change. This mental segmentation of different types of personal change allows people to hold positive expectations for their future development while still maintaining a stable sense of self over time. The findings of Study 2 suggest that people may also at times adjust their expectations to incorporate negative change, reducing the resultant disruption of identity if these changes in fact occur.

Finally, in addition to being of theoretical interest, identifying factors that affect the stability of the self-concept is important because perceptions of self-continuity have wide ranging and varied effects on people's thoughts and behaviors. For example, feelings of decreased continuity between the current and future self can lead to negative outcomes such as unethical behavior (Hershfield, Cohen, & Thompson, 2012) and short-sighted decision-making (Bartels & Urminsky, 2011), but can also lead to potentially positive outcomes such as increased giving to others

(Bartels, Kvaran, & Nichols, 2013). Overall, studying the factors that influence how people think of themselves over time can help us deepen our understanding of basic questions about identity as well as help us predict and explain personally-relevant behaviors across different contexts.

## References

Bartels, D. M., Kvaran, T., & Nichols, S. (2013). Selfless giving. *Cognition*, 129(2), 392-403.

Bartels, D. M., & Rips, L. J. (2010). Psychological connectedness and intertemporal choice. *Journal of Experimental Psychology: General*, 139(1), 49.

Bartels, D. M., & Urminsky, O. (2011). On intertemporal selfishness: How the perceived instability of identity underlies impatient consumption. *Journal of Consumer Research*, 38(1), 182-198.

Blok, S., Newman, G., Behr, J., & Rips, L. J. (2001). Inferences about personal identity. In *Proceedings of the Twenty-third Annual Conference of the Cognitive Science Society* (pp. 80-85).

Busseri, M. A., Choma, B. L., & Sadava, S. W. (2008). Functional or Fantasy? Examining the Implications of Subjective Temporal Perspective “Trajectories” for Life Satisfaction. *Personality and Social Psychology Bulletin*, 35(3), 295-308.

Gelman, S. A., & Hirschfeld, L. A. (1999). How biological is essentialism. *Folkbiology*, 403-446.

Haslam, N., Bastian, B., Fox, C., & Whelan, J. (2007). Beliefs about personality change and continuity. *Personality and Individual Differences*, 42(8), 1621-1631.

Hershfield, H. E., Cohen, T. R., & Thompson, L. (2012). Short horizons and tempting situations: Lack of continuity to our future selves leads to unethical decision making and behavior. *Organizational Behavior and Human Decision Processes*, 117(2), 298-310.

Medin, D. L., & Ortony, A. (1989). Psychological essentialism. *Similarity and analogical reasoning*, 179-195.

Molouki, S., & Pronin, E. (2014). Self and Other. In M. Mikulincer, P. Shaver, E. Borgida, J. Bargh, et al., (Eds.), *APA Handbook of Personality and Social Psychology*. Washington, DC: APA Books.

Newby-Clark, I. R., & Ross, M. (2003). Conceiving the Past and Future. *Personality and Social Psychology Bulletin*, 29(7), 807-818.

Newman, G. E., Bloom, P., & Knobe, J. (2014). Value judgments and the true self. *Personality and Social Psychology Bulletin*, 40(2), 203-216.

Nichols, S., & Bruno, M. (2010). Intuition about personal identity: An empirical study. *Philosophical Psychology*, 23(3), 293-312.

Sloman, S. A., & Ahn, W. K. (1999). Feature centrality: Naming versus imagining. *Memory & Cognition*, 27(3), 526-537.

Sloman, S. A., Love, B. C., & Ahn, W. K. (1998). Feature centrality and conceptual coherence. *Cognitive Science*, 22(2), 189-228.

Strohmingner, N., & Nichols, S. (2014). The essential moral self. *Cognition*, 131(1), 159-171.

Tobia, K. P. (2015). Moral Judgment and the Teleological Self. Unpublished manuscript.

Wilson, A. E., Buehler, R., Lawford, H., Schmidt, C., & Yong, A. G. (2012). Basking in projected glory: The role of subjective temporal distance in future self-appraisal. *European Journal of Social Psychology*, 42(3), 342-353.

Wilson, A. E., & Ross, M. (2001). From chump to champ: People’s appraisals of their earlier and present selves. *Journal of Personality and Social Psychology*, 80(4), 572-584.

## Appendix A: Examples of Stimuli Used in Studies 1 and 2

Characteristic	Category
Degree of honesty	Morality
Values	Morality
Impulsiveness	Personality
Sense of humor	Personality
Major likes and dislikes	Preferences
Professional goals	Preferences
Life Experiences	Experiences
Friendships	Experiences
Cherished memories of time spent with loved ones	Memories
Knowledge of how to ride a bike	Memories