Representations of the Self-Concept and Identity-Based Choice

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Abstract

We propose a novel approach to identity-based choice that focuses on peoples' representations of the cause-effect relationships that exist among features of their self-concepts. More specifically, we propose that people who believe that a specific aspect of identity, such as a social category, is *causally central* (linked to many other features of the self-concept) are more likely to engage in behaviors consistent with that aspect than those who believe that the same aspect is *causally peripheral* (linked to fewer other features). Across three studies, we provide evidence for our approach to identity-based choice. We demonstrate that among people who belong to the same social category, those who believe that the associated identity is more causally central are more likely to engage in behaviors consistent with the social category.

Keywords: causal reasoning, concepts and categories, decision making, identity-based choice, self-concept

Introduction

Personal identity, the features or aspects of the self-concept that people see as defining who they are as individuals, is an important driver of choice. Theories in psychology and economics hold that people are more likely to behave in identity-consistent ways. That is, people tend to behave in ways that are consistent with features of their self-concepts, in particular the social categories that they belong to (e.g., Markus & Wurf, 1987; Akerlof & Kranton, 2010). For example, according to these accounts, a person who considers herself a Democrat is more likely to vote for a Democratic candidate than a person who has not incorporated this social category into her identity (but has similar preferences and ideologies).

Among people who consider themselves members of a given social category, there is, of course, variance in how likely they are to engage in identity-consistent behaviors. In this paper, we test whether the predictions of a recent theoretical account of how the self-concept is represented (Chen, Urminsky, & Bartels, 2016) describe differences in people's likelihood of engaging in identity-consistent behaviors. This approach predicts that people who perceive a feature as more *causally central* (linked to many other features of the self-concept) will be more likely to act in identity-consistent ways than those who perceive the same feature as more *causally peripheral*. That is, a person who believes that being a Democrat was caused by other features

of her identity (e.g., her values, personality traits, and relationships with family members) will be more likely to vote for a Democratic candidate than a Democrat who believes that being a Democrat is relatively unrelated to the other features of her self-concept.

Identity-based Choice

A large literature has investigated the effects of identity on choice. Much of this literature conceptualizes the self-concept as made up of multiple identities (social categories) with potentially conflicting norms (LaBeouf, Shafir, & Bayuk 2010; Markus and Wurf 1987; Oyserman 2009). As a result, increasing the salience of an identity through priming, identity threat, or social distinctiveness (i.e., making members of that social category the numerical minority in the decision context) prioritizes the norms associated with that group.

Based on this research, much of the understanding of why people who hold the same identity differ in how likely they are to act identity-consistent ways lies in situational factors. When an identity is made salient in an environment, members of the social category are more likely to perform behaviors consistent with the group's norms than when the social category is not salient (e.g., LaBeouf, et al., 2010).

While situational factors powerfully influence people's tendency to display identity-consistent behaviors, they cannot explain all variance: Two people who are members of the same social category may be confronted with the same situational constraints and demonstrate widely different behaviors. We propose that our understanding of how people represent their self-concepts can clarify why, in the same situation, people who share an identity may nevertheless vary in how likely they are to display identity-consistent behaviors. So, unlike previous approaches to understanding identity-based choice, we focus on internal representations of the self rather than situational factors.

The Causal Structure of the Self-Concept

Recent research has found that beliefs about causal relationships are a critical part of people's representations of the self. Inspired by a large literature in cognitive psychology that has found that features of a concept that are more causally central (i.e., causally linked to many other features of the concept) are perceived as most defining of a

concept (Ahn et al., 2000; Rehder & Hastie, 2001; Sloman et al., 1998), Chen et al. (2016) examined whether such causal beliefs also played a prominent role in the self-concept. They had participants report the cause-effect relationships that they believed existed between aspects of their self-concepts and calculated the causal centrality of a feature by summing the number of other features a given feature was causally linked to as either a cause or an effect[1] (Rehder & Hastie, 2001). The results suggested that people perceive a feature to be important to the self-concept to the extent that it was causally central. Participants believed that changes to causally central features were more disruptive to the self-concept (made them into more of a different individual) than changes to causally peripheral features. Further, participants believed that a feature was more important to another person's self-concept when that feature was manipulated to be causally central than when the exact same feature was manipulated to be causally peripheral.

In this paper, we explore the implications of this approach to self-concept representation for identity-based choice. As causally central aspects of the self-concept are perceived as more defining or important to identity, this account predicts that a given feature will exert more influence on behaviors among people for whom that aspect is more causally central, compared to people who believe the aspect is more causally peripheral. This is consistent with theoretical accounts that suggest that aspects of the self-concept that are more important or central will influence behavior more (Markus & Wurf, 1987), and with research that finds that identity importance moderates the effects of identity salience primes (LaBeouf et al., 2010; Reed, 2004). These explorations of importance, however, provide little theoretical insight into why or how an identity becomes important. Our approach provides a psychological explanation, based on a large literature on conceptual representation, for what it means for an aspect of the self-concept to be important.

Further, unlike previous research on identity-based choice that focuses on a single aspect of identity at a time, usually a social category, we explore how an identity fits into the broader self-concept. That is, we examine how people believe the social categories they belong to are causally related to the their individual-level traits such as memories, personality traits, and moral qualities. While a broad literature on the self-concept suggests that these individual-level characteristics are an important part of how people think about the self and have significant impacts on their behavior (Bartels & Urminsky, 2011, 2015; Chen et al., 2016; Ersner-Hershfield et al., 2009; Strohminger & Nichols, 2014), there has been little overlap between research on self-concept representation and research on identity-based choice.

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[1] This operationalization of causal centrality is used in the current studies as Chen et al. (2016) found that it described participants' judgments of identity better than an alternative form of causal centrality based on Sloman, Love, and Ahn (1998).

Study 1

We conducted a two-stage study during the 2016 presidential election that explored whether voters for whom political party was more causally central were more likely to perform an identity-consistent behavior: vote for their party's Presidential candidate. All participants belonged to the social category of Democrat or Republican and the study took place at a time when these identities were quite salient, so differences in voting cannot be explained simply by differences in the salience of social norms associated with and conveyed by membership in social categories.

Method

Participants Four hundred eleven U.S. Amazon Mechanical Turk participants completed the first wave of a larger study the day before the 2016 U.S. Presidential election. Of the participants who completed the first wave, 355 participants responded to the second wave which was launched the day after the election. Of those 355 participants, 166 reported being affiliated with the Democratic party and 77 reported being affiliated with the Republican party. Participants who reported being affiliated with one of these two parties had a relevant political identity and were therefore included in the analyses (n = 243).

Procedure In the first wave, participants first answered questions about their demographics (gender, ethnicity, political ideology, political party, religion, income category, and education level). Then half the participants (the experimenter-defined condition) answered questions about the features of their political identity in which they reported their positions on eight major political issues (e.g., abortion, gun control, immigration, taxes, gay marriage, military spending, social programs, and marijuana legalization). To ensure that any results were not driven by our selection of features, the other half of the participants (the self-generated condition) listed eight different aspects of their political identity in an open-ended question. Participants were randomly assigned to one of these two groups (self-generated vs. experimenter-defined).

Participants performed the listing causal relationships task (Chen et al., 2016) with 20 items: their political party and the six other demographic features they reported, eight features of their political identity, and five additional features (found to be important in previous explorations of personal identity; Chen et al., 2016): childhood memories, personal life goals, friendships, personal values and principles, and personality.

In this task, participants reported the causal relationships between a set of features of the self-concept. Participants completed one trial for each feature in which that feature was the target (e.g., in Figure 1, "being a Democrat" is the target feature). In each trial, participants were asked to select the other features of the self-concept that they thought were caused by the target feature. Participants saw the target feature at the top of the screen (along with the question text)

and all of the other features, with check boxes, listed under it. They also had the option, at the bottom of the list, to select "None of these are caused by my: [target feature]" (see Figure 1). Participants could check as many options as they wanted (unless they checked the None option).

Think about you: **being a Democrat**
Which of the other features of your personal identity listed below, if any, are <u>caused by</u> you: being a Democrat?

You may select as many or as few features as you see fit. In the below list, please select all the feature that you believe are caused by the above feature.

☐ Being female
☐ Being pro gun control
☐ Being pro-choice
☐ Being a college graduate
⋮

☐ None of these are caused by me: being a Democrat

Figure 1: Example trial of listing causal relationships task.

From this series of questions, we calculated the causal centrality—the number of causal relationships that a feature is involved in as either a cause or an effect—of each feature. More specifically, on the trial in which the feature was a target feature, the number of selected features on that trial is equal to the number of causal relationship in which the target feature is the cause. The number of causal links that the feature participated in as an effect is calculated based on the number of times it was selected from the list of features in all the trials in which the feature is *not* the target. The sum of the number of links that feature was a cause and the number of links the feature was an effect provides us with the total number of causal links a feature participated in, our measure of causal centrality.

After completing the listing causal relationships task, participants reported which candidate they supported and their economic and social ideology (1 = very liberal, 7 = very conservative). We computed an ideology index by averaging separate ratings of economic and social ideology.

The day after the election, participants reported whether they voted in the election, which candidate they voted for, how satisfied they were that their party nominated Clinton or Trump, how they felt about the outcome of the election (happy, unhappy, and afraid, hopeful), and how involved they think they will be in future politics. The main dependent measure of interest was whether or not participants voted with their party. We predicted that participants for whom being a Republican or Democrat was causally central would be more likely to vote for their party's candidate than those for whom these parties were more causally peripheral.

Results and Discussion
Preliminary Analysis Participants reported significantly more links to political party when they self-generated the features of their political identity ($M = 9.92$) than among the group who evaluated experimenter-defined features ($M = 7.53$), $t(241) = 2.71$, $p < .001$, 95% CI = [0.65, 4.12]. Similar differences were observed in the total number of links between those evaluating self-generated features ($M = 156.04$) vs. experimenter-defined features ($M = 111.97$), $t(241) = 3.67$, $p < .001$, 95% CI = [20.44, 67.70]. Because of these differences, we controlled for the survey version in the regression analyses reported below that use causal centrality to predict voting behavior. No effects of survey version were found.

Voting Behavior Our sample consisted of 77 Republicans and 166 Democrats. The majority of these participants, who all had a party affiliation, reported that they voted in the election (Democrats: 92%; Republicans: 95%) and that they voted for the candidate that their party nominated (Democrats: 89%; Republicans: 71%). A logistic regression predicting whether participants voted with their party based on causal centrality of political party (the number of causal links political party had to other features) revealed that, as predicted, people who believed that their political party was more causally central were more likely to vote with their party than those who saw political party as more causally peripheral ($B = .099$, Wald $\chi^2(1) = 8.67$, $p < .01$).

We also fit a logistic regression predicting whether participants voted with their party based on causal centrality of political party (the number of causal links political party had to other features), controlling for total number of links reported (among all features), survey version (experimenter defined vs. self-generated features), and party (Democrat vs. Republican). As predicted, participants who perceived their political party as more causally central prior to the election were then more likely to vote for their party's candidate (based on the post-election survey; $B = .15$, Wald $\chi^2(1) = 8.95$, $p < .01$) than those who had perceived their party to be more causally peripheral. We also found a main effect of party ($B = -1.03$, Wald $\chi^2(1) = 7.94$, $p < .01$) such that Democrats were significantly more likely to vote with their party. There was no significant relationship between voting and either survey version or total number of links reported.

According to our account, people who believe being a Democrat or a Republican is more causally central are more likely to vote with their party because they perceive acting in identity-consistent ways as more congruent with who they are than those for whom political affiliation is causally peripheral. However, it also possible that the causal centrality measure is merely capturing differences in the strength of people's preferences for the candidates or their ideology. To examine this, we tested whether the effect of causal centrality was explained by differences in the participants' satisfaction with the candidate nominated by their party and their political ideology. We added ideology index and satisfaction as additional predictors in the regression reported above. We found that, not surprisingly, participants who reported greater satisfaction (indicated by smaller numbers) with their party's candidate were more

likely to vote with their party, (B = -.88, Wald $\chi^2(1)$ = 24.88, p < .01). More importantly, participants for whom being a Democrat or Republican was more causally central were more likely to vote with their party (B = .15, Wald $\chi^2(1)$ = 6.99, p < .01), even controlling for satisfaction with the party's candidate and ideology. This result suggests that even among people who disapproved of their party's candidate, people for whom political party was more causally central were more likely to vote with their party than those for whom party was more causally peripheral. Total number of links reported was also a significant predictor of voting (B = -.01, Wald $\chi^2(1)$ = 3.96, p < .05). There was no significant relationship between voting and either survey version or ideology.

In Study 1, we found that people who believed that their political identity was causally connected to more aspects of their self-concept were more likely to vote with their party. We have argued that fully understanding which members of a social category will behave in identity-consistent ways requires understanding how the social category fits into the broader self-concept. These results are consistent with our approach to identity-based choice, in which the driver of identity-consistent behaviors is not only membership in a social category (or possessing an aspect of identity) but also how causally connected that aspect is to other important features of personal identity.

Studies 2A and 2B

The results of Study 1 support our hypothesis that those who believe that an aspect of the self-concept is causally central will be more likely to act in identity-consistent ways. In Studies 2A and 2B, we extend this finding to a new social category, being a fan of a football team, and a new dependent measure, willingness to pay for an identity-consistent experience. As in Study 1, we examine this identity during a time when it is likely to be salient, the week of the Super Bowl.

Method
Participants Three hundred sixty-six residents of the two states that were the home of the two teams in the 2016 Super Bowl (North Carolina and Colorado) were recruited from an online paid panel, and completed the study one to three days after the Super Bowl. Twenty-six participants were excluded for not providing valid answers to the focal questions in the survey and thirty participants were excluded for failing an attention check, yielding 310 valid cases.[2]

Procedure After completing an unrelated task from a different study (on hedonic adaptation), participants listed the ten things that most define who they are as a person (i.e., features of the self-concept). They then reported whether

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[2] Participants were excluded for not answering the open-ended identity feature questions (23), providing the same answer for all identity questions (2), or for providing a willingness to pay of $1,000,000,000,000,000 (1).

they were a Denver Broncos fan, a Carolina Panthers fan, a fan of another team (which they specified), or not interested in football. Participants who reported not being football fans (n = 57) were excluded from the analyses, leaving 253 participants who reported having the football fan identity.

Participants completed a shorter version of the listing causal relationships task than in Study 1, comprised of the ten features they self-generated as being important to their identity and six additional aspects: being a fan of the team they specified, childhood memories, personal life goals, friendships, values and principles, and personality.

The task focused on two aspects, being a fan of their favorite football team and the fifth feature that the participant had listed. We elicited the causal centrality of the fifth feature as a control, to account for potential differences in the general tendency to report features of the self-concept as causally linked. Participants completed two trials for each of the target features: one that measured the number of other features causing target feature (i.e., the feature's causes) and another that measured the number of other features caused by the target feature (i.e., the feature's effects). For example, a participant who reported being a Carolina Panthers fan would first be asked which other aspects of her identity *caused her* to be a fan of the Carolina Panthers. She would then be asked which other aspects of her identity were *caused by* her being a fan of the Carolina Panthers. The causal centrality of being a Carolina Panthers was calculated by summing the number of features selected across the two trials.

Participants reported how much they would be willing to pay for a ticket to see their team play in the Super Bowl if their team made it the following year, the dependent measure. Participants then reported their interest in football on a 4-point scale (1 = very interested, 4 = very uninterested).

Results
On average, participants reported that three other features were causally linked to being a fan of their favorite team. The average willingness to pay to see their team in the Super Bowl was $475.77. The average interest in football was 1.6 on a 4-point scale (1 = very interested, 4 = very uninterested).

We regressed willingness to pay on the causal centrality of being a football fan, controlling for the casual centrality of the control feature. As predicted, those who perceived being a fan of their favorite team as more causally central in their self-concept were willing to pay significantly more than those who perceived being a fan as causally peripheral (B = 57.742, p < .01). On average, each additional causal link between football fandom and another feature of the self-concept was associated with being willing to pay an additional $58.

As in Study 1, we examined whether the causal centrality measure was merely capturing differences in the strength of people's preferences. We tested whether the effect of causal centrality was explained by differences in the participants'

level of interest in football. We added interest in football as an additional predictor in the regression reported above. We also added income to examine whether our results could be explained by differences in income between those who believed being a football fan was causally central vs. those who believed that it was causally peripheral. As expected, participants who reported greater interest in football (indicated by lower numbers) were willing to pay more to see their team play in the Super Bowl ($B = -280.58, p < .001$). More importantly, participants for whom being a fan was more causally central were willing to pay more to see their team in the Super Bowl ($B = 39.26, p < .05$), even controlling for self-reported interest in football and income (Table 1).

Table 1: Multiple regression predicting willingness to pay, Study 2A.

Factor	Beta	SE	t	p
Constant	914.10	242.80	3.77	<.001
Fan Causal Centrality	39.17	19.74	1.99	.048
Control Causal Centrality	-8.47	12.02	-.71	.481
Interest	-283.41	78.99	-3.59	<.001
Income	-.001	.004	-.25	.803

Note: Fan causal centrality and control causal centrality are the number of causal relationships that being a football fan and the control feature participated in. Interest was on a 1 to 4 scale where 1 indicated the greatest degree of interest.

The results of Study 2A suggest that football fans who believe that being a fan is causally central are more willing to spend in identity-relevant ways. We further demonstrated that causal centrality predicts identity-consistent behavior beyond simple measures of preference. This is consistent with the proposal that people for whom being a football fan is causally central act in identity-consistent ways because they believe it is more congruent with who they are in a broad sense, compared to those for whom fandom is causally peripheral.

Study 2B

Study 2B provides a direct replication of Study 2A, and allows us to further explore the relationship between causal centrality and identity importance. As previously described, the importance of an identity has been shown to moderate the effect of that identity's salience on identity-relevant choice (LaBeouf et al., 2010) and has been theorized to predict which identities will exert more influence on behavior (Markus & Wurf, 1987). As causally central aspects of the self-concept are perceived to be more defining of the self-concept, one of the consequences may be that causally central aspects of identity seem more important. Thus, we predict that importance will mediate the impact of an identity's causal centrality on identity-relevant behavior.

Method
Participants We recruited three hundred nine-eight Amazon Mechanical Turk participants from throughout the U.S. approximately 4.5 to 2.5 hours prior to the 2017 Super Bowl. Five participants were excluded for failing an attention check and one participant was excluded for providing the same answer for all the features of identity, yielding three hundred ninety-two cases.

Procedure As in Study 2A, participants were asked to list the ten things that most define who they are as a person and whether they would describe themselves as a fan of NFL football. Only participants who answered yes to this question moved on to the rest of the survey (n = 242). Participants reported which team they considered themselves a fan of.

Participants then reported how important (Reed, 2004) being a fan of their favorite NFL team was to their identity. The importance scale is composed of three items which ask how much participants felt being a fan of a team describes who they are, how much they identify with that group, and how much they admire the group. Participants answer each question on a 1 to 7 scale (7 indicates greater importance).

Participants performed the same abbreviated version of the listing causal relationships task from Study 2A, in which they reported the causes of and effects of being a fan of their team (from a list of the ten self-generated features and six additional features: being a fan of the team they specified, childhood memories, personal life goals, friendships, values and principles, and personality). In this study, we added an additional feature as a control feature, "Level of Hunger," which was found in previous studies (Chen et al., 2016, Experiments 1 and 2) to consistently participate in very few causal relationships, making it a good indicator of whether participants were inclined to report relationships merely because that is what the task involved.

Participants then reported how much they were willing to pay to watch their team play in the Super Bowl, how likely they were to watch the 2017 Super Bowl, and how interested they were in football. Participants then completed a set of questions from an unrelated study.

Results
On average, participants reported four links to being a fan of their favorite team and a willingness to pay to see their team in the Super Bowl of $538.18. The average interest in football was 1.5 on a 4-point scale (1 = very interested, 4 = very uninterested).

We regressed willingness to pay on the causal centrality of being a fan, controlling for the casual centrality of the control feature. As predicted, those who perceived that being a fan of their favorite team was more causally central in their self-concept were willing to pay significantly more than those who perceived that being a fan was causally peripheral ($B = 33.74, p = .027$). On average, each additional causal link between football fandom and another

feature of the self-concept was associated with being willing to pay an additional $34.

We added interest in football and income as additional predictors in the regression reported above. As expected, participants who reported greater interest in football were willing to pay more to see their team play in the Super Bowl ($B = -208.87$, $p < .001$). When controlling for income and interest in football, participants for whom being a fan was more causally central were marginally more willing to pay more to see their team in the Super Bowl ($B = 28.16$, $p = .065$). While we find a slight reduction in the effect of causal centrality in this study when controlling for interest in football, interest did not significantly mediate the effect of causal centrality.

Next, we tested how the effects of causal centrality relate to prior findings suggesting that identity-consistent behaviors are influenced by identity importance (Reed 2004). We regressed willingness to pay on importance. Importance was calculated by averaging the answers to the questions in each scale (larger numbers indicate greater importance). There was a significant relationship between importance and willingness to pay ($B = 95.49$, $p = .015$).

We conducted a mediation analysis to test whether some of the relationship between causal centrality and valuation operates via importance of being a football-team fan. We found a significant indirect effect of causal centrality on willingness to pay via fan identity importance ($B = 11.34$, 95% Bootstrapped CI = [4.76, 20.87]). The relationship between causal centrality and willingness to pay was mediated by importance and no longer significant when controlling for importance ($B = 17.80$, $p = .198$).

The results of Study 2B replicate the findings from Study 2A. Further, we found that importance of being a football fan mediates the effect of causal centrality on willingness to pay. These results suggest that one way causal centrality can influence identity-consistent behavior is by making an aspect of identity seem more important.

General Discussion

An important determinant of people's behaviors and choices is how an aspect of identity fits within the broader self-concept. More specifically, we argue that beliefs about the causal relationships between features of the self-concept relate to how likely people are to display identity-consistent behavior. We have provided evidence that, consistent with our hypotheses, among people who belong to the same social category, those for whom the social category is perceived as more causally central are more likely to act in identity consistent ways than those for whom the same social category is more causally peripheral. Further, we have provided a more nuanced understanding for what it means for an aspect of the self-concept to be important to one's identity.

Our findings may also have important implications for behavioral interventions that use identity-based appeals (e.g., Bryan et al., 2011). While research on identity-based

choice has mostly used situational factors to influence identity-consistent behavior, our results suggest that interventions that target the causal structure of people's self-concepts could provide additional ways to motivate such behaviors.

References

Ahn, W., Kim, N. S., Lassaline, M. E., & Dennis, M. H. (2000). Causal Status as a Determinant of Feature Centrality. *Cognitive Psychology, 41*, 361-416.

Akerlof, G., & Kranton, R. (2010). Identity Economics: How Our Identities Shape Our Work. Wages, and Well-being. Princeton, NJ: Princeton University Press.

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.

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.

Bryan, C. J., Walton, G. M., Rogers, T., & Dweck, C. S. (2011). Motivating voter turnout by invoking the self. *Proceedings of the National Academy of Sciences, 108,* 12653– 12656.

Chen, S.Y., Urminsky, O. & Batels, D. M. (2016). Beliefs about the causal structure of the self-concept determine which changes disrupt personal identity. *Psychological Science, 27,* 1398-1406.

Ersner-Hershfield, H. M., Garton, T., Ballard, K., Samanez-Larkin, G. R., & Knutson, B. (2009). Don't Stop Thinking About Tomorrow: Individual Differences in Future Self-Continuity Account for Saving. *Judgment and Decision Making*, 4, 280-286.

LeBoeuf, R. A., Shafir, E, & Bayuk, J. B. (2010). The conflicting choices of alternating selves. *Organizational Behavior and Human Decision Processes, 111,* 48-61.

Markus, H., & Wurf, E. (1987). The Dynamic Self-Concept: A Social Psychological Perspective. *Annual Review of Psychology, 38,* 299–337.

Reed II, A. (2004). Activating the Self-Importance of Consumer Selves: Exploring Identity Salience Effects on Judgments. *Journal of Consumer Research*, 31, 286-295.

Rehder, B., & Hastie, R. (2001). Causal knowledge and categories: The effects of causal beliefs on categorization, induction, and similarity. *Journal of Experimental Psychology: General, 130,* 323–360.

Sloman, S., Love, B., & Ahn, W. (1998). Feature centrality and conceptual coherence. *Cognitive Science, 22,* 189–228.

Strohminger, N., & Nichols, S. (2014). The Essential Moral Self. *Cognition, 131*, 159-171.