Egocentric Categorization:
Self as a Reference Category in Product Judgment & Consumer Choice

Liad Weiss

Submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy
under the Executive Committee
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY
2013
ABSTRACT

Egocentric Categorization:
Self as a Reference Category in Product Judgment & Consumer Choice

Liad Weiss

Be it a shiny sports car or a luxury watch, consumers are predisposed to approach appealing objects. However, rules of modern society restrict consumers from touching or taking objects based on a mere desire to do so. Instead, consumers must have a legal connection to an object---ownership---in order to have mastery over it. What are the cognitive implications of the transparent boundaries that society draws between consumers and objects that they do not own? Can these boundaries affect the way consumers mentally represent owned and unowned objects? How do such potential differences between mental representation of owned and unowned objects affect object evaluation and consumer choice? Addressing these questions, my dissertation suggests that the social and legal criteria that divide objects into ‘mine’ and ‘not-mine’ may lead consumers to classify objects as ‘me’ or ‘not-me,’ as internal or external to the category “self,” namely to "egocentrically categorize" objects. Egocentric Categorization is suggested to be a cognitive “tool” that segments, classifies, and orders inanimate objects in consumers’ environment, and thus guides consumers’ appraisals of objects as well as consumers’ judgment of the “self.” Although ample research asserts that a consumer’s possessions are associated with his or her "self," the possibility that people use the "self" as a reference category for products has not been examined. Addressing this gap in the literature, my dissertation introduces Egocentric Categorization as a new theoretical account and begins investigating implications of Egocentric Categorization for consumer judgment, behavior and choice.
# Table of Contents

INTRODUCTION ................................................................................................................................. 1  

THE PSYCHOLOGICAL CONSEQUENCES OF OWNERSHIP ................................................................... 3  

ESSAY 1 - EGOCENTRIC CATEGORIZATION AND PRODUCT JUDGMENT: SEEING YOUR TRAITS IN WHAT YOU OWN (AND THEIR OPPOSITE IN WHAT YOU DON’T) ................................................................. 9  

THE PERSONAL-SELF AS A CATEGORY FOR OBJECTS ........................................................................ 13  

EXPERIMENT 1A: PERSONAL (VS. SOCIAL) SELF ACTIVATION AND SELF-CONSCIOUSNESS FACILITATE USAGE OF THE SELF AS A CATEGORY FOR OBJECTS ........................................................................ 21  

EXPERIMENT 1B: THE SALIENCE OF THE CONCEPT “OWNERSHIP” ACTIVATES THE PERSONAL-SELF ... 27  

EXPERIMENT 2: CLASSIFYING PRODUCTS RELATIVE TO THE “SELF” MEDIATES THE PREDICTED ASSIMILATION AND CONTRAST PATTERNS ................................................................................... 32  

EXPERIMENT 3: SELF-ATTENTION FACILITATES THE PREDICTED ASSIMILATION AND CONTRAST PATTERNS ................................................................................................................................. 39  

EXPERIMENT 4: INDIVIDUAL TESTOSTERONE LEVELS PREDICT PERCEPTIONS OF PRODUCT MASCULINITY ................................................................................................................................................... 45  

GENERAL DISCUSSION ........................................................................................................................ 49  

ESSAY 2 - PRODUCTS AS SELF-EVALUATION STANDARDS ...................................................................... 54  

PRODUCT-SELF CONGRUITY ..................................................................................................................... 58  

CATEGORIZATION AND JUDGMENT .......................................................................................................... 59  

THE PRESENT RESEARCH: PRODUCTS AS SELF-STANDARDS ................................................................ 60  

EXPERIMENT 1A: THE EFFECT OF PRODUCT OWNERSHIP ON THE RELATION BETWEEN PRODUCT JUDGMENT AND SELF-EVALUATION .................................................................................................. 64  

EXPERIMENT 1B: RANDOMLY ASSIGNED PRODUCT OWNERSHIP ................................................................ 68  

EXPERIMENT 2: THE EFFECT OF ‘OWNERSHIP’ SALIENCE ON WHETHER PRODUCT ADS AFFECT VIEWERS’ SELF-EVALUATION ..................................................................................................................... 70  

EXPERIMENT 3A: THE EFFECT OF PRODUCT TRAIT ON TRAIT-RELATED BEHAVIOR AMONG PRODUCT OWNERS AND (NON-OWNING) USERS ......................................................................................... 74  

EXPERIMENT 3B: THE FACILITATING EFFECT OF SELF-CONSCIOUSNESS .................................................. 81  

GENERAL DISCUSSION ............................................................................................................................. 83  

ESSAY 3 - WHICH PRODUCT TO RETAIN? THE EFFECT OF PRODUCT-RELATED VERSUS PERSON-RELATED PRODUCT FEATURES .............................................................................................................. 88  

OWNERSHIP AND PREFERENCE ..................................................................................................................... 92  

PERSON-RELATED VERSUS PRODUCT-RELATED FEATURES ...................................................................... 93
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Chapter</th>
<th>#</th>
<th>Table Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay 1</td>
<td>1</td>
<td>Mediated moderation, experiment 2</td>
<td>37</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Chapter</th>
<th>#</th>
<th>Figure Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro</td>
<td></td>
<td>The egocentric categorization model &amp; implications for judgment and choice</td>
<td>7</td>
</tr>
<tr>
<td>Essay 1</td>
<td>1</td>
<td>Flowchart of the theoretical model</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Personal-self as a category for objects, experiment 1a</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Ownership salience and “self” activation, experiment 1b</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Pen creativity ratings under (a) high and (b) low “mine-me” sensitivity, experiment 2</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Pen recommendation likelihood under (a) high and (b) low self-consciousness, experiment 3</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>MP3 player masculinity, experiment 4</td>
<td>48</td>
</tr>
<tr>
<td>Essay 2</td>
<td>1</td>
<td>Personal femininity evaluations, experiment 1a-1b</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Honest behavior, experiment 3a</td>
<td>80</td>
</tr>
<tr>
<td>Essay 3</td>
<td>1</td>
<td>Accessibility of product-self commonalities (exp. 1a)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Randomly assigned ownership (exp. 1b)</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Decision weight of person-related features (exp. 3)</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Preference &amp; choice of person-related features (exp. 4)</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>“Mine-Me” sensitivity moderation (exp. 5)</td>
<td>118</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

It would not have been possible to write this doctoral thesis without the help and support of the kind people around me, to only some of whom it is possible to give particular mention here.

First, I would like to express my deep appreciation and utmost gratitude to the members of my dissertation committee, who have each been significant and meaningful in his or her own way in my evolution as a researcher, and in the development of my dissertation.

- First, I would like to thank my principle advisor, co-author, and friend, Gita V. Johar, for being exactly what I needed her to be whenever I needed it. Gita believed in me, pushed me, challenged me, supported me and advised me, all in the right proportion based on what I needed at any given moment, and in the best possible way. In doing so, Gita has inspired many aspects of the scholar I wish to be.

- I would like to thank my collaborator and friend, Ran Kivetz, for providing mentorship and inspiration ever since my first day at Columbia. Ran’s early advice to avoid walking in other’s path and create my own path, his honest feedback on my ideas, experimental designs, writing and presentation skills as well as his advice on all facets of academic life have been central to shaping my view of what consumer scholarship is all about.

- I would like to thank my collaborator and friend, Dan Bartels, for making himself available for me whenever I needed him, providing helpful advice, guidance and support. I will always cherish our long debates that slowly but surely have been making me, and will continue to make me, a better scholar.
• I would like to thank Tory Higgins and Yaacov Trope, for being role models and sources of inspiration, for sharing their perspective and endless wisdom, and for teaching me directly or by example how theories are built.

In addition, I would like to express my deep appreciation to the people at the marketing department at Columbia, who have made my time at Columbia so enjoyable, and contributed so much to my training as a marketing scholar, and specifically to a special few.

• I thank Oded Netzer for being a friend, for sharing his endless wisdom, and for providing close guidance in every aspect of my academic life every step of the way.
• I thank my colleague, Yang Li, for his continuing friendship and support.
• I thank my seniors, Rom Schrift, Jeff Parker & Martin Schleicher for their part in creating a challenging yet supportive research environment that fostered my growth as a scholar.
• I thank Oded Koenigsberg and Jonathan Levav for the friendship, honest and valuable feedback, and on-going advice and support.

Moreover, I would like to thank people who have created and supported my initial interest in becoming a consumer behavior researcher. Specifically, I thank Ido Erev for exposing me to the magical world of human decision making research, Nira Munichor for introducing me to the thrilling domain of consumer behavior research and Anat Rafaeli for supporting my journey from engineering to behavioral science.

I wish to add one special thanks to the person who introduced me to New York as I know it, park on early weekend mornings, filet with a fully loaded potato at Hillstone, Texas hold 'em and barbeque in the back yard, nights in Atlantic City, my dear friend, Daniel ("denial") Taharlev.
Las, but by no means least, I wish to thank my family, who have had a tremendous and invaluable impact on who I am and on my work as a researcher.

- I would like to thank my parents, who have motivated me to become a researcher and inspired my research in more ways than they probably realize. My mother has inspired my aspiration for a doctoral degree through her personal pursuit of higher education, emotional intelligence, and mental flexibility. My father contributed to my desire to do research through his critical thinking and analytical analysis of variety of life aspects, and motivated me to pursue a degree at Columbia by inspiring me to be the best I can be in whatever I do. Furthermore, I have recently realized that my parents unintentionally inspired, not only my career as a researcher, but also the specific area of research I am passionate about, namely personal ownership. In particular, the first thing my parents ever gave me, my name, means in Hebrew “mine forever,” rendering personal ownership a defining and fundamental aspect of my identity and interest as a researcher.

- I would like to thank my grandparents, Dr. Itsu and Lili Hirsch, for their continuing and on-going belief and support in me and their endless and wholehearted giving. Itsu, the first doctor in my life, have planted in me at infancy the ambition to succeed academically by his view of me as “Einstein,” the renowned scientist. Itsu and Lili have also inspired my ability to surmount the many obstacles I had to overcome in my way from a teenager in small town in Israel to a PhD graduate at Columbia NY by their incredible life story; World War II holocaust survivors who lived through Auschwitz only to later be rescued from Entebbe after their Air-France flight was kidnapped by terrorists.

- I would like to thank my sister and close friend, Nataly, and my parents in law, Orna and Rami, for their ongoing love, care and support.
• Finally, I would like to thank Liron Weiss, my closest friend, life partner, best wife ever and kickass mom to our beloved beautiful and smart baby boy, Jonathan, for making the amazing experience that I have had the privilege to call my life possible. Everything that I have achieved since I met you have been made possible, but more importantly, meaningful and worthwhile, because of you. No victory is sweet, no advancement matters and no triumph makes any difference without you to share it with.
DEDICATION

To Dr. Itsu and Lili Hirsch:

For everything that you are; for all that you have always been and forever will be for me.
INTRODUCTION

My dissertation examines how owning a product affects people’s response to that product. In everyday life people make judgments and choices about products they own or about products they do not own. One may choose which bottle of wine to serve for dinner either from a set of bottles she owns or from a set of bottles she does not own that is featured in a local winery. The question is whether decisions and judgments about products one owns and about products one does not own systematically differ. For example, if people have the same information about a product, do they care more about certain product features or perceive the product as faring differently on some features when they own rather than do not own that product?

To address this question, I propose that owning a product influences consumers’ response to that product by systematically changing the way these consumers mentally represent that product. I specifically propose that individuals mentally classify a product as belonging to the category “self” when they own the product, but classify the product as extrinsic to that category when they do not own that product. Categorization principles suggest that the way people perceive items they classify in a category differs from the way they perceive items they classify as external to that category. Thus, owning rather than not owning a product may lead people to make different judgments and decisions about objects they own than about products they do not own.

In three essays, my dissertation examines how owning versus not owning a product affects the way the product is mentally represented, judged and chosen, while implicating the classification of products in versus out of the category “self” as the underlying process. The first essay shows that, consistent with an ownership-to-categorization process, consumers judge the
creativity, masculinity or other attributes of products they own in assimilation to the way these consumers judge themselves, but attributes of products they do not own in contrast to themselves. For example, less creative consumers who enter a drawing for an iPhone may judge it as less creative (assimilation) if they win the product, but as more creative (contrast) if they do not win it. The second essay documents the flipside of this effect. It shows that consumers judge themselves and behave consistently with traits of objects they own (assimilation), but oppositely from such traits of objects they interact with but do not own (contrast). For example, assigning people to own headphones that authentically reproduce, rather than artificially improve, sound increased people’s honest and authentic behavior, but assigning people to use but not to own the same headphones decreased subsequent honesty. The third essay shows that, also in line with an ownership-to-categorization process, in choices among products that consumers own rather than do not own, consumers care more about product features that are usually used to describe people (e.g., creativity) and less about features that distinctly apply to products (e.g., processing speed). For example, when deciding which of two tablet computers to buy that pose a tradeoff between creativity and processing speed, consumers may care more about the person-related feature, creativity, in retention rather than in acquisition, and thus choose to retain the creative tablet but to acquire the speedy tablet. Next, I briefly review previous research on the psychological consequences of ownership and highlight how Egocentric Categorization adds to that research and then present the three dissertation essays.
THE PSYCHOLOGICAL CONSEQUENCES OF OWNERSHIP

The question of how product ownership affects consumer cognition and behavior has spurred abundant research. Such research has been conducted across a wide range of scientific disciplines, including economics (Kahneman, Knetsch, and Thaler 1991; Thaler 1980), marketing (Brenner et al. 2007; Peck and Shu 2009), decision theory (Morewedge et al. 2009; Reb and Connolly 2007), sociology (Rochberg-Halton 1984) and at least three branches of psychology: social (Huang, Wang, and Shi 2009), cognitive (Turk et al. 2011), and developmental (Noles and Keil 2011).

Research on consequences of ownership can be divided into two broad themes. One theme, on the endowment effect, typically compares between consumer tendencies to enter a trade for a product, when they own versus do not own the product (Kahneman, Knetsch, and Thaler 1990; Thaler 1980). This research finds that “people often demand much more to give up an object than they would be willing to pay to acquire it” (Kahneman et al. 1991, p. 194). This finding has been viewed as a manifestation of loss-aversion (Kahneman and Tversky 1984); it has been explained in a number of ways, including the notions that buyers and sellers vary in what they focus on in a trade (Carmon and Ariely 2000), in the order in which they consider whether or not to enter a trade (Johnson, Haubl, and Keinan 2007), in their reference prices for the trade (Weaver and Frederick 2012), or in the extent buyers and sellers construe the product (Irmak, Wakslak, and Trope Forthcoming).

The second theme, on “possession attachment”, typically compares consumer preferences for an exclusive subset of possessions termed “special possessions” relative to other, more ‘ordinary,’ possessions (Belk 1988; James 1890). This research finds that some possessions
become connected to their owner’s “self” over-time, by acquiring personal meanings (Csikszentmihalyi and Rochberg-Halton 1981; Rochberg-Halton 1984; Tuan 1980) and emotional attachment (Ahuvia 2005; Kleine, Kleine, and Allen 1995). Consequently, consumers prefer “special” over “ordinary” possessions (Park, MacInnis, and Priester 2008), and experience grief when “special” rather than “ordinary” possessions are lost (Ferraro, Escalas, and Bettman 2011).

The assumption that there is a conceptual unity between possessions and “self,” a unity that is in line with the idea that possessions are part of the owner’s “self,” is also consistent with developmental theories on how a sense of possession and a sense of self evolve. In particular, Lita Furby (Furby 1980), who pioneered research on the developmental origins of possession, describes a process through which infants learn to understand the meaning of ownership:

“This is a period when the child's mobility increases rapidly, first by crawling and then by walking. The child typically gets into everything within reach, and seems to be ceaselessly exploring the environment. There is particular delight in "making things happen." However, this kind of activity on the part of infants presents a threat to objects in the surrounding environment. With increased mobility, children suddenly have access to most of the objects in their environments, and … they are likely to manipulate and explore objects in a fashion which often results in damage or destruction of the object. Adults and older siblings, therefore, try to prevent the child from interacting with many objects. They intervene and become concerned with clarifying what the child can (safely) explore, and what is to be off limits. Much effort goes into making this distinction clear to the child, and its importance is communicated in various ways, including, of course, the appropriate linguistic labels of "mine" and "yours." The child learns to identify those objects which she or he can explore and with which … actions are possible. It is this class of objects, those which occasion feelings of … personal control, which constitute what the child begins to understand as his or hers. Those objects which are under someone else's control, and which occasion interference and restriction … when the child tries to explore them, are not his or hers. (pp. 34).

The same actions an infant takes to explore the environment have been suggested to also help the infant to learn how to distinguish self from the environment, a fundamental stage in the development of self-concept (Seligman 1975). From that perspective, kinesthetic feedback
produced by the infant's own actions leads to the emergence of a sense of self as the infant experiences contingency between his or her actions and outcomes in the environment. Seligman concludes that "those 'objects' become self that exhibit near-perfect correlation between motor command and the visual and kinesthetic feedback; while those 'objects' that do not, become the world" (1975; pp. 141-142). Thus, consistent with the observation that infants are allowed to control only items they can consider their own (Furby 1980), it is possible that, as adults, people perceive as “self” things they own, but perceive as not “self” things they do not own.

The assumption that ownership breeds some notion of unity between people and products is also consistent with assertions made by other theoretical accounts that do not distinctly focus on ownership as a main construct. Balance Theory (Heider 1946; Heider and Simmel 1944), for example, suggests that ownership relation between people and products may foster “unit formation,” namely, lead to a perceptual Gestalt-like unity of a person with her products. Further, amoebic self theory (Burris and Branscombe 2005; Burris and Rempel 2004) suggests that possessions can become part of the self and mark a psychological territory (see also Edney 1974).

The aforementioned research streams have generated a large body of valuable research showing that changes in how people perceive and respond to products following ownership are a complex set of phenomena that are not easily captured by standard economic models (for review see Horowitz and McConnell 2002). That research has also uncovered psychologically meaningful factors that influence changes in product perception and preference following ownership. My dissertation seeks to add to the research on the psychological consequences of ownership by examining a process that has received little attention, namely, changes in the mental representation of owned products. I propose that ownership systematically changes how
people mentally represent owned products and that these changes determine, at least in part, how people judge and choose objects. I argue that people construct different representation of the same product information depending on whether the information pertains to products these people own or do not own. Egocentric Categorization (EC) theory specifically proposes that individuals mentally represent products they own as part of the category “self,” but products they do not own as external to that category. Consequently, because categories serve to disambiguate and assess items (Bless and Schwarz 2010; Lingle, Altom, and Medin 1984; Rosch 1978), people may differently interpret information about, and have distinct perceptions of, products they own and products they do not own.

Thus, a key contribution of EC is in assuming that the conceptual unity between a person and his or her possessions is a category, and specifically a category of “self.” Although ample research asserts that a consumer’s possessions are associated with, or part of, his or her "self," the possibility that people use the "self" as a category for products has not been examined. The usefulness of this assertion is in providing a theoretical step that allows examining ownership implications from a categorization perspective. Put differently, EC uniquely provides a theoretical infrastructure that allows utilizing categorization principles for understanding how consumers make judgments and choices about products they own, about products they do not own, and about themselves.

In addition to addressing implications of ownership for judgment and choice, EC also elaborates when such implications should be expected, namely describe the theoretically driven boundary conditions for people’s tendency to use the self as a category for possessions. Such conditions are derived from general categorization principles, such as category activation (Srull and Wyer 1979), as well as from self and ownership specific principles, such as the extent that
people perceive ‘mine’ as ‘me’ or tend to be self-focused (Fenigstein, Scheier, and Buss 1975). The figure below summarizes the Egocentric Categorization model, including its theoretically driven boundary conditions and some of its predicted implications. Further discussion on the suggested boundary conditions and their inter-relations is provided through the essays.

**FIGURE 0.1: THE EGOCENTRIC CATEGORIZATION MODEL & IMPLICATIONS FOR JUDGMENT AND CHOICE**

Next, each of the three essays utilizes a different categorization principle to make predictions about product judgment and consumer choice. Essay 1 utilizes categorization-based assimilation and contrast principles to predict how the way people judge themselves affects the way they judge owned and unowned products. Essay 2 utilizes categorization-based assimilation and contrast principles to predict how the way people judge a product they own or do not own affects the way they judge themselves. Finally, Essay 3 utilizes categorization-based ease of retrieval principles to predict how important are traits that are typically used to describe people
(e.g., creativity) in a choice among products people own versus in a choice among products people do not own.
ESSAY 1 - EGOCENTRIC CATEGORIZATION AND PRODUCT JUDGMENT:
SEEING YOUR TRAITS IN WHAT YOU OWN (AND THEIR OPPOSITE IN WHAT
YOU DON’T)
ABSTRACT

Previous research uses categorization principles to analyze the interplay between individuals and groups. The present research uniquely employs categorization principles to analyze the interplay between individuals and products. It proposes that consumers classify owned (but not unowned) products as integral to their personal-self (experiment 1). Consequently, consumers judge product traits (e.g., masculinity) as consistent with their own traits (assimilation) if they own the product, but as inconsistent with their own traits (contrast) if they interact with the product but do not own it, even when owning the product is non-diagnostic of its properties (e.g., following random ownership assignment; experiments 2-4). For example, less creative consumers who enter a drawing for an iPhone may judge it as less creative (assimilation) if they win the product, but as more creative (contrast) if they do not win the product. Moderators of these effects are identified, and their theoretical and substantive implications are discussed.
Categorization is a fundamental cognitive capacity that pervades all levels of human mental functioning (Lingle et al. 1984). People classify targets, namely products or people in their environment, relative to reference categories and then judge these targets in terms of these categories (Sujan and Dekleva 1987). Accordingly, target judgment depends on the reference category people use and on how these people classify the target relative to that category (Foroni and Rothbart 2011; Goldstone, Lippa, and Shiffrin 2001; Herr, Sherman, and Fazio 1983). Consider, for example, a consumer who is evaluating the computing speed of an iPad using the markedly fast reference category “supercomputers.” The iPad will appear faster if the consumer classifies it as a supercomputer (assimilation), however, it will appear slower if the consumer does not classify it as a supercomputer but instead compares the iPad’s speed to a supercomputer’s speed (contrast). This pattern will be the reverse if the consumer uses a notably slow reference category (e.g., “netbooks”).

Research finds that consumers often use the “self” as a reference category for segmenting, organizing and understanding their surroundings (Rogers, Kuiper, and Kirker 1977), especially when they judge other people (Otten and Wentura 2001). Consumers classify in-groups as ‘us’ and judge them in assimilation with the way these consumers judge themselves but classify out-groups as ‘them’ and judge them in contrast to themselves (Cadinu and Rothbart 1996). While it is well established that consumers use the self to classify human targets, people or groups, the present research examines whether consumers also use the self as a reference category for non-human targets such as goods and products. Furthermore, although ample research asserts that a consumer’s possessions are associated with his or her self (Belk 1988; Cunningham et al. 2008), the possibility that people use the self as a reference category for products has not been examined. The present research begins to address this gap in the literature.
In particular, the present research (1) introduces a theoretical framework proposing that consumers may classify objects with respect to the personal-self, “egocentrically categorizing” owned products as ‘me’ but unowned products as ‘not-me,’ and (2) investigates a unique prediction of this framework for product judgment on traits that can apply to both people and products such as creativity or masculinity. Specifically, we examine the possibility that, under some conditions, consumers judge traits of owned objects in assimilation to, but traits of unowned objects in contrast from, the way these consumers judge themselves on these traits. We expect that consumers will be more likely to use the self as a reference category, namely engage in Egocentric Categorization (EC) and subsequent assimilation and contrast, when ownership is contextually salient. This is because ownership (i.e., what is 'mine') is associated to, and thus can activate, the personal-self (i.e., who is 'me'; Cunningham et al. 2008), and people are more likely to use a category as a reference class when that category is active (Srull and Wyer 1979). Importantly, ownership is likely to be salient, and thus foster EC, whenever consumers face the possibility of getting or ceasing to own a product, as is the case in many consumption contexts such as shopping or gift giving. For instance, if EC ensues during shopping, consumers who feel less reliable may judge products they own as less reliable (assimilation), but judge store products as more reliable (contrast).

In what follows, we first establish the premises of our EC framework with respect to previous research and then develop our predictions. Next, we empirically confirm the premises of EC (experiments 1A-1B) and show that following EC, people assimilate/contrast product judgment to their self-evaluation, mainly if they use “what is ‘mine’” to determine “what is ‘me’” (experiment 2). Then, we demonstrate that both assimilation and contrast to the self attenuate when the self is not the center of one’s attention (experiment 3) or when ownership is
not salient (experiment 4). Finally, we discuss implications for marketers and consumer researchers.

**THE PERSONAL-SELF AS A CATEGORY FOR OBJECTS**

The present research theorizes that people use the personal-self as a reference category to segment, organize and understand objects in their surroundings. According to this process, which we name Egocentric Categorization (EC), people perceive and classify objects in terms of the personal-self, as “me” or “not-me.” In the category ‘me,’ people include objects they feel they can explore, operate and master as freely as they can manipulate their own bodies. This premise is in line with developmental postulates that sense-of-self emerges when a child experiences contingencies between his or her actions and environmental outcomes (Seligman 1975) and that an object becomes part of self if its state depends on the child’s actions (Furby 1978).

The premise that people classify objects relative to the self is also consistent with findings that people use the self as a predominant organizing category for classifying and understanding different types of targets (Rogers et al. 1977). Social categorization research shows that individuals use the self as a reference category for classifying and judging human targets, people and groups (Gawronski, Bodenhausen, and Banse 2005). For example, when participants in a study judged how manually skilled another person was, the participants were subsequently faster to report how skilled they were. Presumably, this occurred because they had already assessed themselves as an input for judging the other person, and thus had to merely retrieve (vs. compute) this information (Mussweiler and Bodenhausen 2002, study 1). In line with this research, we theorize that consumers sometimes utilize the personal-self as an
organizing category for products, using EC as a cognitive tool that segments, classifies and orders their material environment. Consequently, EC may guide consumers’ appraisals of objects, leading consumers to judge products in assimilation or contrast to the way these consumers judge themselves.

When should assimilation or contrast to the personal-self ensue in product judgment? Ample research shows that, in order to predict assimilation or contrast of a target to a category, one must understand whether people classify a target in or out of that category once it is selected as the reference category and when people use that category to classify that target (Foroni and Rothbart 2011; Goldstone et al. 2001; Herr et al. 1983). In the next section, we elaborate on these two factors with respect to the classification of products relative to the personal-self, and we then use these factors to predict cases in which product judgment will result in assimilation or contrast to the personal-self. We provide a high-level flowchart of the theoretical model in Figure 1.

**FIGURE 1: FLOWCHART OF THE THEORETICAL MODEL**

[Diagram showing the flowchart]

What Determines whether Consumers Classify Products in or out of the Personal-Self?

The present research theorizes that the outcome of EC, namely whether a consumer classifies an object in or out of that consumer’s personal-self, is determined (at least to some
extent) by ownership (legal or psychological). Psychologically or legally owned objects are classified as ‘me’ but unowned objects are classified as ‘not-me.’ This view is consistent with the observation that people learn, as infants, to associate “mine” with “me” because they are allowed to control (and thus include in the “self”) only objects they can consider their own (Furby 1980), and with the notion that possessions constitute a “territory of the self” (Edney 1974; Goffman 1972).

This premise is also consistent with research on the association of a person’s self to his or her possessions (James 1890). Research in consumer behavior focuses on an exclusive subset of owned objects, termed “special possessions” (Belk 1988) that, over time, become associated with their owner’s self by acquiring personal meanings (Ferraro et al. 2011) and emotional attachment (Kleine et al. 1995). Recent research has also examined the effect of ownership on product-self associations for new products that are randomly assigned to be owned, actually or psychologically (Turk et al. 2011). This research shows that people more readily recall objects they were randomly assigned to own, presumably because ownership associates the product to the self, and encoding an item with respect to the self makes the item more memorable (Rogers et al. 1977). Nonetheless, research has not gone beyond the product-self association hypothesis. That is, research has not examined the possibility that, just as consumers use the self as a category for understanding and judging people, consumers also may use the self as a reference category for organizing and evaluating inanimate objects such as products, and that ownership determines whether these products are classified as “me” or “not me.”

**Boundary condition: “Mine-Me” Sensitivity.** Although we expect the ownership-to-self-categorization premise to apply for most consumers, it may not hold for consumers who have
weak associations between “mine” and “me,” possessions and self. These consumers may not classify objects with respect to the self by whether they own these objects; rather they may perceive all objects as part or not part of the self to the same extent, assigning owned and unowned objects the same levels of ‘me-ness’. We suggest that the strength of associations between ‘mine’ and ‘me’ varies across people, and we refer to this construct as “Mine-Me” sensitivity. Consumers who do not use ownership (i.e., “what is mine”) to determine whether objects are part of the “self” category (i.e., “what is me”) are considered low on “Mine-Me” sensitivity. Thus, individuals for whom---neither owned nor unowned---objects are “me,” as well as individuals for whom---both owned and unowned---objects are “me,” do not use ownership to determine where “me” ends and “not-me” begins and thus are considered low on “Mine-Me” sensitivity.

When do Consumers Use the Personal-Self as a Reference Category for Products?

The present research asserts that spontaneous classification of objects using the self as a reference category occurs only when the personal-self is active. This view is consistent with previous categorization findings that classification of a target (e.g., a product) as belonging or not belonging to a category (e.g., the personal-self) follows from the activation of that category (Higgins, Rholes, and Jones 1977; Srull and Wyer 1979). We provide evidence in support of this assertion in experiment 1A.

Salience of the concept “ownership” activates the personal-self. Previous research shows that different factors may activate the personal-self, such as describing what makes one different
from (vs. similar to) his or her in-group, which requires highlighting self-aspects that differentiate the individual from other group members (Mussweiler and Bodenhausen 2002). We expect (and show in experiment 1B) that one such factor is salience of the concept “ownership.” When ownership status of objects (“mine/ not-mine”) becomes salient, this activates the personal-self, leading people to use the personal-self as a reference category for objects, namely classify objects as “me/ not-me” and judge objects with respect to the personal-self. This is expected because “mine” and “me” (or ownership and the personal-self) are associated with one another (Belk 1988; Gawronski, Bodenhausen, and Becker 2007) and even randomly assigning a person to own a product associates the product with that person’s self (Cunningham et al. 2008; Turk et al. 2011). Further, because low “Mine-Me” sensitivity reflects weaker associations between ‘mine’ and ‘me,’ “ownership” salience should activate the personal-self mainly if “Mine-Me” sensitivity is high.

We focus on the possibility that salience of the concept ‘ownership’ activates the personal-self because it highlights the analogy between the two dichotomies of our theory, “mine/ not mine” and “me/ not-me” (see also James 1890). Further, ownership dilemmas that explicitly bring ownership to mind (e.g., “should I acquire/discard this product?”) are integral to many consumption contexts. This renders ownership salience contexts, such as in-store or online shopping, gift giving or receiving and product disposal, central to consumer research. Below, we develop the implications of our premises for judgments on product traits such as creativity or masculinity (Aaker 1997; Johar, Sengupta, and Aaker 2005).

**Boundary condition: Self-Consciousness/-Awareness.** Activation of the personal-self relates to higher accessibility of distinctions between self and others (Singelis 1994). However,
activation of the personal-self may not be sufficient for guaranteeing that a person will use the personal-self as a reference class. Consider, for example, two people who think of differences between the self and others. While one may ponder how he or she differs from others (e.g., “I am more complex,” i.e., inward focused), the other may think of how others are different from him or her (e.g., “others are simpler,” i.e., outward focused). Although both people may seem equivalent in terms of thought content and activation level of the personal-self, the self is the center of attention for the inward (vs. outward) focused person. Therefore, because people are more likely to use a category when it is in the center of their attention (Bruner 1957; Higgins 1996), the inward focused person should be more likely to use the personal-self (rather than other activated categories, e.g., others) as a reference class. Previous research finds that people’s attention to the self varies as a function of their self-consciousness/-awareness; when self-consciousness/-awareness is low, people’s attention is not directed inward, towards the self, rather it is directed outwards, away from the self (Duval and Wicklund 1972; Fenigstein et al. 1975; Gibbons 1990). Accordingly, people who are low on self-consciousness (the trait) or self-awareness (the state), who do not focus on the self, should be less likely to use personal-self as a reference class even when it is active.

Assimilation or Contrast of Product Judgment to Self Evaluation

People judge a target in assimilation to a mentally active reference-category that includes that target. This is because the way people mentally represent the target includes category information that directly affects judgments of the target (Bless and Schwarz 2010; Herr et al. 1983; Hovland, Harvey, and Sherif 1957; Martin 1986; Tajfel and Wilkes 1963). Our framework
uniquely predicts that, if a consumer uses the personal-self as a reference category for judging a product, and classifies the product as part of that category, he or she is likely to judge traits of that product in assimilation to how he or she evaluates the “self” on these traits. In particular, in order to obtain a reference level for judging how creative (or other traits applicable to both people and products) a product is, consumers may assess how they measure on this trait, similarly to the way they obtain a reference level for judging traits of other people (Dunning and Hayes 1996; Gawronski et al. 2005). Thus, if as we suggest above, consumers classify owned products as members of the category “self,” they may intuitively include their self-evaluation in the mental representation of these products and judge the product in assimilation to their self-evaluation.

People also judge a target in contrast to the way they judge a mentally active reference-category that does not include that target. This is because people use category information to mentally represent the standard for evaluating the target, which inversely affects how these people judge the target (Bless and Schwarz 2010; Herr et al. 1983; Hovland et al. 1957; Martin 1986; Tajfel and Wilkes 1963). Our framework uniquely predicts that if a consumer uses the personal-self as a reference category for judging a product, and classifies a product as external to that category, he or she is likely to judge traits of that product in contrast to how he or she evaluates the “self” on these traits. In particular, in order to obtain a reference level for judging how creative (or other traits applicable to both people and products) a product is, consumers may assess how they measure on this trait, similarly to the way they obtain a reference level for judging traits of other people (Dunning and Hayes 1996; Gawronski et al. 2005). Thus, if as we suggest above, consumers classify unowned products as external to the category “self,” they may
intuitively include their self-evaluation in the mental representation of the standard for product evaluation and judge the product in contrast to their self-evaluation. Thus, we hypothesize that:

**H1:** People judge traits of owned products in assimilation with, but traits of unowned products in contrast to, how they judge themselves on these traits.

Our conceptual framework suggests that the outcome of EC, classification of owned objects in the personal-self and of unowned objects out of the personal self, drives the predicted assimilation and contrast. However, consumers low on “Mine-Me” sensitivity do not classify objects relative to the self based on whether they own them; hence owning or not owning a product should not predict assimilation or contrast for these individuals. If ownership does not determine where ‘me’ ends and ‘not-me’ begins, it cannot predict whether people will include the way they judge themselves in how they mentally represent the product, or in how they mentally represent the standard for judging the product. Further, for people with low “Mine-Me” sensitivity, salience of the concept “ownership” is less likely to activate the personal-self and thus to trigger EC. We develop a method for assessing “Mine-Me” sensitivity to examine our prediction that:

**H2** Low “Mine-Me” sensitivity attenuates the predicted assimilation/contrast effects.

In addition, people who have outward (vs. inward) focus (i.e., those low on self-consciousness/-awareness) are less likely to use the personal-self as a reference class for products, namely to engage in EC. Thus, consistent with our view that EC drives the predicted assimilation and contrast, we predict that:

**H3:** Low self-awareness/-consciousness attenuates the predicted assimilation/contrast effects.
In the four experiments described below, we test these hypotheses across two human-like traits, creativity and masculinity. Experiments 1A and 1B examine our assertions that (a) activating the personal-self facilitates its usage as a category for objects, mainly when self-focus is high, and that (b) salience of the concept “ownership” activates the personal-self, mainly under high “Mine-Me” sensitivity (which we assess via an original measure described below). Experiment 2 then confirms that owning (vs. not owning) a product induces consumers to classify it as in (vs. out of) the personal self, mainly under high “Mine-Me” sensitivity, and along with experiments 3 and 4, tests the assimilation-contrast hypotheses.

EXPERIMENT 1A: PERSONAL (VS. SOCIAL) SELF ACTIVATION AND SELF-CONSCIOUSNESS FACILITATE USAGE OF THE SELF AS A CATEGORY FOR OBJECTS

The current study aims to confirm the first part of our model, namely that people use the personal-self as a category for objects when it is activated, especially when they are self-focused. Previous research shows that the order in which people think of category members following category activation reflects how strongly these members are associated with that category: items retrieved earlier are more strongly associated to the category (Fazio, Williams, and Powell 2000; Higgins, King, and Mavin 1982). Based on this finding, if activation of the personal-self does lead people to use the self as a category for objects, such activation should lead people to retrieve objects that are more closely related to the personal-self before other objects. Additionally, if usage of the self as a category for objects is more likely when inward-focus is high, such primacy of self-related objects in retrieval should be observed mainly under high self-consciousness.

To test our prediction that consumers use the personal- (but not the social-) self as a category for objects, the ‘personal’ or ‘social’ self of participants in this study was activated and
then participants listed the first seven products that came to their mind. In addition, we wanted to tap into the extent that the order of the listed objects captured association strength between the product and the self. For that purpose, participants subsequently completed a filler task and then (1) ranked the products they listed (presented in a randomized order) on the extent to which they were part of their personal-self, and (2) classified the objects into two discrete classes, “part of self” and “not part of self.” Finally, participants’ self-consciousness was measured using a validated scale. Support for the notion of EC—that people spontaneously use the personal-self as a category for objects—would come from finding that products listed earlier (1) rank as being more (vs. less) “part of self” and (2) are more likely to be classified as “part of self” (vs. “not part of self”). This pattern of results should hold when the personal-self is activated, especially among self-conscious people.

Procedure. One hundred and eighteen participants in the online panel on Amazon Mechanical Turk joined a short online experiment in return for a nominal fee. Following Mussweiler and Bodenhausen (2002), participants in the personal (social) self-activation condition listed five things that make them different (similar) to other people of their gender. Next, following Fazio et al. (2000), participants listed the first seven objects that came to their mind. In particular, they were asked to “enter the first seven durable goods, big or small, that come to your mind. Mention any product or object that is currently popping up. Please refer to a specific example of each object, rather than to a general object type. That is, picture in your mind a specific example of the item you refer to.”

Subsequently, as a manipulation check for the personal (vs. social) self activation, participants played a word-find puzzle game on a 11 X 11 matrix containing 121 letters (for the
actual stimulus employed, see appendix 1A). Participants had 50 seconds to find and write down as many six-letter or longer words as they could find in the matrix. The instructions required that the words be meaningful and constructed out of letters linked in a straight line (horizontal or vertical) in the letter matrix. The 50-second time limit constrained the number of words the participants could find, leaving them only enough time to identify the words that jumped out at them. This enabled us to determine to what extent the concept of interest, the personal-self or ‘me,’ was accessible in participants’ minds (Parker and Schrift 2011). Note that, unlike traditional word-find puzzle games, we did not give participants the list of words to be found. The word-find puzzle contained four personal-self related words (individual, myself, personal, identity) and four control words matched in length and frequency of usage (industrial, mostly, physical, infinity). Participants received a full explanation of the task before beginning the task.

Next, participants were presented with the list of seven objects that they had listed earlier (presented in a random order), and were instructed to drag them into a box in the order that reflected their ranking of the objects as being part of the personal-self. In particular, participants read that “if you think of all the objects in the world, you may notice that some are more part of your personal-self than others. Listed below are the 7 objects you mentioned earlier. Please drag and drop each of these objects to the box, putting objects that you see as more part of your personal-self further at the top, and objects that you see as less part of your personal-self further at the bottom.” The rank-order (Spearman) correlation between the order in which participants initially listed the products and the order in which they arranged them in the box served as one dependent variable. Subsequently, participants were presented again with a randomly ordered list of the products they named, and classified them into two groups, “part of self” and “not part of self.” Specifically, they were asked to “divide the same objects into two groups, the group of
objects that you classify as being part of your personal-self ('me') and the rest of the objects which you see as not part of your personal-self ('not me').” The extent to which participants initially tended to list objects they classified as “me,” before objects they classified as “not-me” served as a second dependent variable. Finally, participants responded to the self-consciousness scale (Fenigstein et al. 1975), which includes items such as “I reflect about myself a lot.”

Results. First, as a manipulation check, the number of personal-self related words that participants found in the word puzzle was submitted to a regression with condition (personal-self = 1, social-self = -1), mean centered self-consciousness and their interaction as predictors. The analysis revealed the expected positive effect of the manipulation on activation of the personal-self (β = .21, p = .01; M_{personal-self} = 1.86, M_{social-self} = 1.45), and no other effect (p > .73). Further, controlling for the number of non-personal-self related words (M = 1.28; SD = .91) did not affect the pattern of results. Next, a within-subject rank order (Spearman) correlation between the order in which participants initially listed the products and their ranking of the product as “part of self” was calculated for each participant, converted into Z’ using Fisher’s transformation, and submitted to the same analysis. We predicted that, when the personal-self was active, it would serve as an organizing category for objects; this would be reflected by a higher correlation between the order in which participants listed the products and their ranking of the products as “part of self,” but mainly among self-conscious individuals. Consistent with that prediction, the analysis revealed a positive effect of activation of the personal-self (β = .10, p = .03), a statistically insignificant effect of self-consciousness (β = .13, p = .13), and most importantly, a significant interaction of the two (β = .22, p = .01; see Figure 2A, for the untransformed correlations). The predicted nature of the interaction was confirmed by a spotlight analysis.
The analysis (conducted using the Fisher transformed values, reported using the untransformed correlations) revealed a higher correlation in the personal-self (vs. social-self) activation condition one standard deviation above the mean of self-consciousness ($M_{\text{personal-self}} = .44$ vs. $M_{\text{social-self}} = .09, p = .0008$), but no effect one standard deviation below the self-consciousness mean ($M_{\text{personal-self}} = .14$ vs. $M_{\text{social-self}} = .16, p = .72$).

**FIGURE 2: PERSONAL-SELF AS A CATEGORY FOR OBJECTS, EXPERIMENT 1A**

A:

- A graph showing correlation (Naming Order, "Part of Self" Order) against self-consciousness.
- Low and High self-consciousness levels.
- Points for Personal Self is Active ($0.16, 0.14$) and Social Self is Active ($0.44, 0.09$).

B:

- A graph showing SMRD against self-consciousness.
- Low and High self-consciousness levels.
- Points for Personal Self is Active ($0.14, -0.02$) and Social Self is Active ($0.5, -0.09$).
Notes: Low is one SD below and high is one SD above the mean of Self-Consciousness; In panel A, the dependent variable is a within-subject correlation between the order in which products were listed and the order in which they were ranked as part of the person’s self (i.e., the first is the most part of the self). In panel B, the dependent variable is the standardized median rank difference (SMRD), which reflects people’s tendency to list “part of self” objects before “not part of self” ones.

Next, for each participant, we calculated a score that reflects the tendency to name objects he or she classified as “part of self” earlier (vs. later) in his or her initial list of products. This score, the standardized median rank difference (SMRD) of object classification, is defined as \(2(MR_n - MR_s)/n\). In this formula, \(MR_n\) = median rank (i.e., median location) of objects that are “not part of self” in a participant’s object list, \(MR_s\) = median rank of objects that are “part of self” in a participant’s object list, and \(n\) = total number of objects in the list, which, based on the task, was set to seven (Johnson et al. 2007). The SMRD score can take on values from 1 (all “part of self” objects were listed before any “not part of self” objects) to \(-1\) (all “not part of self” objects were listed before any “part of self” objects). We predicted that when participants use the self as a category for objects, they would list “part of self” items before “not part of self” ones. To examine this prediction, the SMRD was submitted to the same analysis as the correlation above. Consistent with our prediction, the analysis revealed a marginally significant positive effect of activation of the personal-self (\(\beta = .1, p = .08\)), a statistically insignificant effect of self-consciousness (\(\beta = .12, p = .25\)), and most importantly, a significant interaction of the two (\(\beta = .33, p = .003\); see Figure 2B). In line with the predicted nature of the interaction, a spotlight analysis revealed higher SMRD in the personal-self (vs. social-self) activation condition one standard deviation above the mean of self-consciousness (\(M_{\text{personal-self}} = .50\ vs. M_{\text{social-self}} = -.09, p = .0009\)), but no effect one standard deviation below the mean of self-consciousness (\(M_{\text{personal-self}} = -.02\ vs. M_{\text{social-self}} = .14, p = .35\)). Additionally, a repeated measure incorporating the two measures for primacy of self-related over self-unrelated products in the product list (i.e.,
individual spearman correlations and SMRD scores) indicated that both the main effect of personal-self activation ($p = .03$), and its interaction with self-consciousness ($p = .002$) were statistically significant. Overall, the results are consistent with the idea that people use the personal-self as a category to classify objects when the personal-self is active, especially when self-consciousness is high. Notably, because the main effect of personal-self activation is significant in addition to its interaction with self-consciousness, it suggests that although self-consciousness facilitates the usage of the personal-self as a category for objects, it is not a necessary condition for EC to ensue. However, a limitation of this study is that the results may reflect how participants retrospectively rated objects relative to the self, rather than the order in which “part of self” objects were retrieved. Experiments 3 and 4 alleviate this limitation by demonstrating downstream effects of self-consciousness and self-activation that are consistent with a self as a category (vs. a retrospective rating) account.

EXPERIMENT 1B: THE SALIENCE OF THE CONCEPT “OWNERSHIP” ACTIVATES THE PERSONAL-SELF

The current experiment aims to confirm our assumption that the salience of the concept “ownership” activates the personal-self. To test this premise, we made ownership salient for half of the participants, and then asked all participants to find words in the word-puzzle used in experiment 1A. Subsequently, to test the boundary condition that low “Mine-Me” sensitivity diminishes the effect of ownership salience on self-activation, participants rated the extent to which they saw several objects as “part of self,” and then indicated whether they owned each object. These ratings were used to compute “Mine-Me” sensitivity scores for each participant.
Our assumptions would be supported by finding that the number of personal-self related words that participants find in the puzzle is greater in the ownership (vs. no-ownership) salience condition, but this effect attenuates under low “Mine-Me” sensitivity.

Procedure. One hundred and thirty six members of the online panel Amazon Mechanical Turk joined a short online experiment in return for a nominal fee. There were two conditions in the experiment, ownership salience and control. In the first part of the experiment, participants listed two sets of three durable goods, under instructions to “state specific products (e.g., a Fossil wrist watch), rather than merely a product category (e.g., watch) or brand (e.g., Fossil).” In the ownership salience condition, participants listed three goods they came to own recently and three goods they disposed of recently. In the control condition, participants listed three goods they had seen ads for recently and three goods they had not seen ads for recently. Then, in the second (ostensibly unrelated) part of the experiment, participants completed a word-puzzle (containing personal-self related and control words) with the same content, instructions and time constraints as used in experiment 1A.

Subsequently, the third seemingly unrelated part of the experiment assessed participants’ “Mine-Me” sensitivity. Participants rated the extent to which they saw each of 13 objects (e.g., laptop, running shoes, car, ladder, etc.) as part of their selves (1-not at all part of my self to 7-very much part of my self). In particular, participants read that “people vary on the extent to which they see different objects as part of their personal self identity. For this study, please indicate the extent to which each of the objects below is part of your personal self-identity. For each object, think of a specific example of the object. For example, when you respond to the item car, think of a specific car (i.e., not of cars in general). Have a specific and concrete image of that
car in your mind and refer to it in your response.” Afterwards, participants indicated whether they owned each of the objects they rated. Specifically, they were informed that “we are not interested in whether you own the product in general, rather in whether you own the product you rated in the previous question set. Thus, for example, your response to the item ‘Car’ should be ‘yes’ if you personally own the specific car you thought of in your response to the item in the previous question set. It should be ‘no’ if you do not personally own that specific car (even if you personally own a different car).” To verify attention, the list of objects included five objects that participants did not rate on whether they are “part of the self.” Participants were informed that there are additional objects in the list and were asked to indicate “N/A” when an object in the latter list was not in the list of objects they initially rated on the extent to which they are “part of self.” The specific set of 13 objects was selected from an initial set of 20 objects based on a pretest among 150 participants; the final list excluded items that were owned by less than 20% or by more than 80% of the pretest participants (see appendix 1B).

To assess individual differences on “Mine-Me” sensitivity (i.e., the extent that ‘mine is ‘me’), we took the following steps. First, we wanted to verify that the low “Mine-Me” sensitivity is not driven by product specific effects (i.e., some participants may own only products that are generally rated as less “part of self,” e.g., own a ladder and a toolbox but not a laptop and a car). Accordingly, we subtracted from each product’s “part of self” rating the mean of the “part of self” ratings of participants with the same ownership status over the product (e.g., rating of a car by a car owner was centered by the mean ratings of car owners only). Then we subtracted the mean centered average rating of unowned objects from the mean centered average rating of owned objects (M = .09, SD = 1.19; using centered “part of self” rating is a conservative measure that accounts for product specific effects). For individuals with higher (vs. lower)
“Mine-Me” sensitivity, ownership (but not lack of ownership) over a product leads to a greater increase in the perception of that product as “part of self.” We predict an interaction effect between ownership salience and “Mine-Me” sensitivity such that, participants in the ownership salience conditions should find more personal self-related words than participants in the control condition, but only when “Mine-Me” sensitivity is high (vs. low).

Results. ANOVA with ownership salience (yes vs. control) as a predictor verified that, consistent with our view of “Mine-Me” sensitivity as an individual difference measure, it was not affected by condition ($p > .26$). Further, confirming that “Mine-Me” sensitivity was not driven by low attention, it did not correlate with the frequency of participant’s incorrect usage of the “N/A” option (i.e., chose “N/A” for products they initially rated or did not choose “N/A” for products they did not initially rate; CORR = -.04, $p = .67$). Next, the number of self-related words participants found in the word puzzle was submitted to a regression with condition (ownership salience = 1, control = -1), mean centered “Mine-Me” sensitivity and their interaction as predictors. Consistent with our assumption that ownership salience can activate the personal-self, the analysis revealed a positive effect of ownership salience on self-activation ($\beta = .15, p = .03$). Further, consistent with our theorizing that ownership salience activates the self mainly when ‘mine’ equals ‘me,’ the effect of ownership salience on self-activation was qualified by a significant interaction with “Mine-Me” sensitivity ($\beta = .13, p = .05$, see Figure 3). The predicted nature of the interaction was further confirmed by a spotlight analysis (Fitzsimons 2008). The analysis revealed higher self-activation in the “ownership salience” condition one standard deviation above the mean of “Mine-Me” sensitivity ($M_{control} = 1.35$ vs. $M_{own}=1.96, p = .004$), but no effect one standard deviation below the mean of “Mine-Me” sensitivity ($M_{control} = 1.49$ vs.
$M_{own} = 1.50, p > .96$). Controlling for the total number of words each participant found or for the number of objects each participant owned did not affect the pattern of results.

The results of the two first experiments confirmed the assertions that activating the personal-self increases its usage as a category for objects, that ownership salience can serve to activate the personal-self, and that low self-consciousness and low “Mine-Me” sensitivity are boundary conditions for these effects. Experiment 1C, reported in Appendix 1C, provides response time evidence in support of the idea that people use the self as a reference class for judging products, but mainly when the concept ownership is active and “Mine-Me” sensitivity is high. Specifically, Experiment 1C shows that people are faster to judge their own personal traits after judging a product on the same traits. This pattern is consistent with the idea that participants have already judged themselves on the focal traits in order to judge the product on these traits; consequently, participants were faster to provide how they judge themselves on these traits.
because they simply needed to retrieve, rather than to compute, these judgments. Experiment 2 moves on to confirm that owning (vs. not owning) a product induces consumers to classify it as in (vs. out of) the personal-self mainly under high “Mine-Me” sensitivity, and to directly test these implications of EC for product judgment as specified in the hypotheses.

EXPERIMENT 2: CLASSIFYING PRODUCTS RELATIVE TO THE “SELF” MEDIATES THE PREDICTED ASSIMILATION AND CONTRAST PATTERNS

This experiment examined the prediction that people judge traits of an owned product in assimilation with, but traits of an unowned product in contrast to, their self-evaluation (hypothesis 1). This experiment also examined whether this effect is moderated by “Mine-Me” sensitivity (hypothesis 2) and mediated by the extent participants classified the product as “part of self.” As a product attribute we used creativity. As a product category to be judged on creativity we chose pens, positioning them as moderately creative by presenting them as ‘space’ pens that can write in zero gravity (see appendix 1C). The experiment manipulated ownership of the pen (yes vs. no) and measured creativity self-evaluation and “Mine-Me” sensitivity as factors. Activation of the personal-self via ownership salience (see experiment 1B) was kept high across conditions to ensure categorization with respect to the self.

Procedure. One hundred and twelve Columbia University students arrived at the lab to take part in a series of apparently unrelated experiments for a $7 participation fee. They first responded to a survey about how descriptive the traits creativity, innovativeness and originality were of them (anchored by 1-not at all to 5- very much so). Then, after completing a 15-minute
filler task, participants were informed (as a cover story) that the business school needed their input in choosing a pen that it would hand out to invited visitors. As additional compensation for their input, participants in the ownership (no-ownership) condition were notified that they would get to own the pen they evaluated (a luxurious mechanical pencil not featured in the experiment). This information served to increase ownership salience as a means to activate the personal-self in all conditions and to establish a randomly assigned ownership (yes or no) of the pen. Next, each participant read a booklet that portrayed the evaluated pen as moderately creative, and completed a series of tasks using the evaluated pen, including copying a drawing and answering unrelated questions.

Subsequently, participants rated the pen on four semantic differential items that pertained to the pen’s creativity (creative – not creative, original – not original, unique – not unique, fresh – not fresh), anchored at -3 and 3. Then, to capture the presumed mediator---how participants egocentrically categorized the pen---participants rated the pen on the extent to which it was part of the self. Next, to assess participants’ “Mine-Me” sensitivity, using a variation of Exp. 1B’s measure, participants provided “part of self” ratings for a specific object they owned (the shirt they were wearing) and for a specific object they did not own (their lab seat). This measure was followed by two control questions about involvement (four items: interested, attentive, active and alert anchored between 1-not at all and 7-very much so) and positive affect (Watson, Clark, and Tellegen 1988).

Support for hypothesis 1 would come from finding that, when people are assigned to own the pen, they judge its creativity in assimilation with, but when people are assigned not to own the pen, they judge its creativity in contrast from, the way these people judge their own creativity. Support for hypothesis 2 would come from finding that this effect attenuates when
participants are low on “Mine-Me” sensitivity. Finally, we theorize that assimilation and contrast to the self are linked to the classification of the product relative to the self. If our theorizing holds true, than (i) the extent to which pen creativity judgments and self-creativity judgments are close to or far from one another (i.e., assimilation or contrast) should be predicted by ownership, and (ii) this relationship should be mediated by “part of self” ratings.

**Results and Discussion.** We first analyzed how pen creativity judgment was affected by people’s own creativity evaluation, whether they owned the pen and their “Mine-Me” sensitivity. Then, to examine the link to EC, we combined self and product judgments into a product-self similarity measure and examined whether the effect of ownership on it was mediated by “part of self” ratings, as predicted by our model.

The three personal creativity items were averaged into a single measure (α = .78). A regression analysis verified that, consistent with our view of “Mine-Me” sensitivity (M = 2.72, SD = 2.00) as an individual difference measure, it was not affected by ownership, self-described creativity (continuous and mean-centered) and their interaction (ρ > .27). A second regression analysis revealed no effects of ownership, self-described creativity, “Mine-Me” sensitivity and their two- and three-way interactions on involvement (α=.69) and positive affect (α=.85), except a positive relationship between self-described creativity and positive affect.

Pen creativity (α = .90) was submitted to a regression analysis with ownership (contrast coded), mean-centered personal creativity, mean-centered “Mine-Me” sensitivity, and their two-way and three way interactions as predictors. Consistent with the prediction that ownership leads to assimilation of product judgment with self-evaluation (hypothesis 1), but lack of ownership leads to contrast, the analysis revealed a significant two-way interaction between self-described
creativity and ownership ($\beta = .68$, $p = .05$) and no main effects. Further, consistent with the prediction that this pattern is mainly expected among people for whom ‘mine’ equals ‘me’ (hypothesis 2), this effect was also qualified by “Mine-Me” sensitivity, resulting in a three-way interaction ($\beta = .44$, $p = .009$; see Figure 4).

FIGURE 4: PEN CREATIVITY RATINGS UNDER (A) HIGH AND (B) LOW “MINE-ME” SENSITIVITY, EXPERIMENT 2

Notes: Panel A represents one SD above and panel B one SD below the mean of “Mine-Me” sensitivity; Low represents one SD below and high one SD above the mean of personal creativity.
A spotlight analysis at one standard deviation above the mean of “Mine-Me” sensitivity showed that the interaction between ownership and self-evaluation was significant ($\beta = 1.57, p = 0.001$). Consistent with the ownership-to-assimilation prediction, the personal creativity slope of owners was significant and positive ($\beta = .81, p = .02$). Further, consistent with the no-ownership-to-contrast prediction, the personal creativity slope of non-owners was significant and negative ($\beta = -.76, p = .02$). Finally, consistent with the prediction that assimilation and contrast are mainly expected when ‘mine’ equals ‘me’ (hypothesis 2), a spotlight analysis at one standard deviation below the mean of “Mine-Me” sensitivity revealed that the interaction between ownership and personal creativity and the other planned contrasts was not significant ($p > .23$).

Next, in order to examine the prediction that the similarity between product and self creativity judgments was a result of classification of the product relative to the self, we ran an additional analysis with product-self similarity as a dependent variable. As a similarity score between self and pen judgment, we used the distance (i.e., absolute difference) between the normalized creativity ratings of pen and of self; a higher distance is consistent with higher dissimilarity and contrast, and a smaller distance is consistent with higher similarity and assimilation. We predicted that assigning participants to own the pen would make them view the pen as more part of the self, which in turn, would make them rate the pen’s creativity closer to the way they rated their own creativity. Consistent with this prediction, following the analysis methods recommended by Zhao, Lynch, and Chen (2010), we found the mean indirect effect from a bootstrap analysis (Preacher and Hayes 2004) was negative and significant ($a \times b = -.0434$), with a 95% confidence interval excluding zero (-.1067 to -.005). In the indirect path, ownership (vs. no-ownership) increased “part of self” ratings by $a = .37$ units. Further, holding ownership constant, a unit increase in “part of self” rating reduced product-self distance by .12
units (i.e., b = -1.2). The direct effect (-.006) was not significant (p = .95), indicating full mediation.

### TABLE 1
**MEDIATED MODERATION, EXPERIMENT 2**

<table>
<thead>
<tr>
<th>Y: Distance Between Normalized Creativity Ratings of Pen and of Self</th>
<th>Equation 1 (Predicts Y)</th>
<th>Equation 2 (Predicts Me)</th>
<th>Equation 3 (Predicts Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X: ownership</td>
<td>-.099 (β₁₁)</td>
<td>.313* (β₂₁)</td>
<td>-.042 (β₃₁)</td>
</tr>
<tr>
<td>Mo: “Mine-Me” sensitivity</td>
<td>.034 (β₁₂)</td>
<td>.028 (β₂₂)</td>
<td>.033 (β₃₂)</td>
</tr>
<tr>
<td>X x Mo</td>
<td>-.091* (β₁₃)</td>
<td>.161* (β₂₃)</td>
<td>- .067 (β₃₃)</td>
</tr>
<tr>
<td>Me: pen is “part of self”</td>
<td></td>
<td>- .126 * (β₃₄)</td>
<td></td>
</tr>
<tr>
<td>Me x M</td>
<td></td>
<td>- .029 (β₃₅)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: The equations are equivalent to the ones laid out by Muller, Judd, and Yzerbyt (2005). A “full” mediated moderation, which supports that the moderator affects the relation between the treatment and the mediator, ensues when β₁₃, β₂₃, β₃₄ are significant and β₃₃ is smaller than β₁₃ and is not significant. β₁₃ is the change in overall effect of ownership on self-pen distance as “Mine-Me” sensitivity increases. β₂₃ is the change in the effect of ownership on the pen’s “part of self” ratings as “Mine-Me” sensitivity increases. β₃₄ is the average effect of “part of self” of the pen on pen-self distance. β₂₁ is the effect of ownership on the “part of self” of the pen at the average level of “Mine-Me” sensitivity.

* p < .05

To shed light on the interrelation between the mediating role of the pen’s “part of self” rating and the moderating role of “Mine-Me” sensitivity, we used a mediated moderation analysis using the pen-self distance as a dependent variable. Based on the criteria laid-out by Muller, Judd, and Yzerbyt (2005), table 1 shows that the classification of the pen as part of the self fully mediated the “Mine-Me” sensitivity moderation effect. This was revealed by the existence of three conditions (Muller et al. 2005). First, the interaction effect between the treatment (ownership) and the moderator (“Mine-Me” sensitivity) on the dependent variable (distance score), was significant (β₁₃ = -.091; p = .04). Second, the interaction of the treatment
and the moderator on the mediator (“part of self” ratings) was significant ($\beta_{23} = .161; p = .03$).

Third, when the mediator and its interaction with the moderator were added to the regression, the mediator was significant ($\beta_{34} = -.126; p = .03$) and the effect of the moderator on the dependent variable dropped to insignificance ($\beta_{33} = -.067, \text{NS}$). Thus, consistent with the theorized nature of the moderation, as “Mine-Me” sensitivity grew, assigned ownership (vs. no-ownership) more strongly increased the pen’s “part of self” ratings, which in-turn decreased the pen-self distance on creativity.

The results of this experiment support Hypotheses 1 and 2 and provide support for the underlying process of egocentric categorization. It is possible that the absence of assimilation and contrast for participants with low “Mine-Me” sensitivity may have benefited from a weaker effect of ownership salience on self-activation (as observed in experiment 1B), and was not solely driven by determining whether people classified products relative to the self based on whether they owned them. However, Equation 2 in table 1 is consistent with our premise that “Mine-Me” sensitivity did diminish the effect of product ownership on classification of a product as “part of self” (i.e., $\beta_{23}$ in Table 1 is statistically significant), and the mediated moderation analysis provides positive evidence that this effect drove a substantial part of the observed attenuation. Notably, because the two-way interaction between ownership and self-evaluation is significant in addition to its three-way interaction with “Mine-Me” sensitivity, although “Mine-Me” sensitivity facilitates the assimilation and contrast effects, it is not a necessary condition for them to ensue. Next, experiment 3 extends the empirical support for the framework to include situations of psychological (vs. legal) ownership, defined as a sense of possession prior to purchase (Pierce, Kostova, and Dirks 2003). We expect our predictions to hold under psychological ownership because previous research finds that implications of legal ownership
extend to cases of psychological ownership (Peck and Shu 2009). While legal ownership is
determined by rules and customs, psychological ownership is less tangible, and thus can vary by
situation. Consumers may feel psychological ownership as a result of marketing practices such as
mass customization (Franke, Schreier, and Kaiser 2010), tryouts, test-drives or other efforts (e.g.,
advertising messages, forms of product display) which cause consumers to touch a product or
imagine its usage (Peck and Shu 2009).

EXPERIMENT 3: SELF-ATTENTION FACILITATES THE PREDICTED
ASSIMILATION AND CONTRAST PATTERNS

Experiment 3 examined the prediction that assimilation and contrast can also follow from
psychological (vs. legal) ownership. The experiment also tested the prediction that the
assimilation and contrast are likely to be attenuated when self-consciousness is low (hypothesis
3), verified that product trait evaluations are formed spontaneously (vs. upon experimental
elicitation) and manipulated (rather than measured) participants’ creativity. The experiment used
a 2 (psych-ownership: no, yes) x 2 (perceived personal creativity: low, high) between-subjects
design and measured self-consciousness as an additional variable. The dependent variable was
self-rated likelihood of recommending the pen to creative people, a more indirect measure of
product creativity judgment. We predicted that assimilation and contrast would manifest through
recommendation likelihood to creative individuals but only for self-conscious participants.
Development of Manipulations and Measures

*Perceived Personal Creativity.* Building on meta-cognitive ease-of-retrieval principles (Schwarz et al. 1991), we developed a manipulation of the extent to which people feel creative (for details, see appendix 1D). The manipulation consists of two levels of perceived personal creativity, high and low. In both conditions, participants are asked to (i) provide two creative usages for a brick, each from a different usage category, (ii) indicate the category of each usage (e.g., construction, art, etc.), and (iii) avoid naming usages from six specific prohibited categories. In the easy- (vs. difficult-) to-retrieve condition, the prohibited categories excluded roughly 15% (vs. 80%) of the usages that participants in the examined population tend to identify (based on a pretest with a different set of 110 participants). Participants who find it easy to think of usages are expected to perceive themselves as high on creativity. Compared to participants in the easy-to-retrieve condition, we expected those in the difficult-to-retrieve condition to find the task to be relatively hard, which would make them perceive themselves as less creative. A pretest of the manipulation among 41 students supported this expectation--participants in the high task difficulty condition reported greater task difficulty ($M = 6.03$) and lower perceived personal creativity ($M = 5.15$) than those in the low task difficulty condition ($M = 4.97$; $F(1, 39) = 4.49, p = .04$; $M = 6.52$; $F(1, 39) = 4.90, p = .03$, respectively).

*Psychological Ownership.* We developed a psych-ownership treatment that manipulates whether participants have a chance to own a product. This is similar to consumption circumstances, where products are in a consideration set, a wish list or registry, and consumers may or may not end up owning them. To verify that a chance (vs. no chance) to own a product
increases psych-ownership, 35 Columbia University students evaluated a pen and were entered into a drawing for ownership of the pen. Participants rated their psych-ownership of the pen on a three-item scale (e.g., “I feel like the pen I evaluated is mine,” adapted from Peck and Shu 2009, anchored between 1-not at all and 7-very much so) either before or after the draw. As predicted, participants who did so before (vs. after) learning they would not own the pen had stronger psych ownership of it (4.80 vs. 2.88; \( p \leq .01 \)).

**Recommendation Likelihood and Product Evaluation.** We also composed an indirect measure of product creativity, the likelihood of recommending the product to creative people. We expected recommendation likelihood to creative individuals (but not to uncreative ones) to reflect pen creativity judgments. In a pretest, 28 students evaluated the pen used in the experiment on creativity (innovative and creative, \( r = .79 \)), overall valuation (valuable and desirable, \( r = .56 \)) and likelihood of recommending it to creative (journalist, sketch-artist and a copywriter, \( \alpha = .87 \)) and non-creative (a teacher and a clerk, \( r = .86 \)) individuals. Results show that, as predicted, pen creativity evaluations were positively correlated with recommendation likelihood, but only when they were to creative people (\( r_{\text{creative}} = .43, p = .02\); \( r_{\text{uncreative}} = .08, \text{NS} \)). A one-sided Fisher’s Z test confirmed that the correlations significantly differed (\( p < .05 \)). Importantly, correlations of pen valuation with recommendation likelihood to creative and to non-creative individuals did not differ (\( r = .56, p = .001 \) and \( r = .57, p = .001 \)). That is, higher valuations correlated with higher recommendation likelihood regardless of the recommendation target. This reduces concerns that people recommend the pen to creative (vs. non-creative) individuals because they think that creative individuals deserve a more valuable pen, rather than as we suggest, because the pen is perceived as more creative.
Method

One hundred and twenty one Columbia University students arrived at the lab to participate in a series of supposedly unrelated studies in return for $7. The first part of the experiment manipulated participants’ perceived personal creativity, using the procedure described above. Next, participants received the same cover story as in experiment 2 (i.e., helping the business school in choosing a pen to hand out as a gift for special guests). Then participants were informed that later in the experiment the computer would randomly assign them to own either the pen they would evaluate or a mechanical pencil that was featured on an adjacent shelf. This information served to induce psych-ownership over the pen and to activate the personal-self by increasing ownership salience. Subsequently, participants decided which pen to evaluate out of three pens on their table and, as in experiment 2, participants copied a geometric sketch using that pen. Next, participants in the psych-ownership condition rated the likelihood of recommending the pen to creative and non-creative individuals (see pretest) without knowing whether they would own the pen. By contrast, participants in the no-ownership condition rated the likelihood of recommending the pen only after learning that they would own a mechanical pencil rather than the evaluated pen. Finally, participants completed the private self-consciousness scale (Fenigstein et al. 1975) as in experiment 1A.
Pen recommendation likelihood to creative individuals ($\alpha = .67$) was submitted to a regression analysis with contrast-coded ownership and personal creativity as well as mean centered self-consciousness and their two-way and three-way interactions as predictors. Consistent with the assimilation and contrast predictions (hypothesis 1), the analysis revealed a predicted psych-ownership by creativity interaction ($\beta = 1.01, p = .02$) and no significant main effects. Further, consistent with the prediction that assimilation and contrast are attenuated when self-consciousness is low (hypothesis 3), the interaction was qualified by self-consciousness, resulting in a significant three-way interaction ($\beta = 1.63, p = .006$; see Figure 5, left column).

A spotlight analysis at one standard deviation above the mean of self-consciousness revealed that the interaction between ownership and perceived personal creativity was significant ($\beta = -2.22, p = .0005$). Consistent with the ownership-to-assimilation prediction (hypothesis 1), psych-owners who were induced to feel more creative were more likely to recommend the pen to creative individuals ($M = 4.92$) than those assigned to feel less creative ($M = 4.19; F(1, 113) = 4.04, p = .05$). By contrast, consistent with our no-ownership-to-contrast prediction (hypothesis 1), non-owners who were induced to feel more creative were less likely to recommend the pen to creative individuals ($M = 4.07$) than those assigned to feel less creative ($M = 5.55; F(1, 113) = 8.98, p = .003$).

A spotlight analysis at one standard deviation below the mean of self-consciousness revealed that the ownership and self-evaluation interaction and the other planned comparisons were not significant ($p > .68$). Further, the same analyses on recommendations to non-creative people ($r = .62$) yielded no significant main, two-way, or three-way interaction effects ($p > .47$;
see Figure 5, right column). Using recommendations to more (vs. less) creative professions as a repeated measures factor confirmed these results.

FIGURE 5: PEN RECOMMENDATION LIKELIHOOD UNDER (A) HIGH AND (B) LOW SELF-CONSCIOUSNESS, EXPERIMENT 3

Pen Recommendation Likelihood to Individuals with…

…Creative Professions (e.g., Artist) …Uncreative Professions (e.g., Clerk)

Notes: Panel A represents one SD above and panel B one SD below the mean of Self-Consciousness; Low and high follow from a manipulation of perceived personal creativity.
To sum, the current experiment further supported the predicted assimilation/contrast effects (hypothesis 1) and showed that psychological (as opposed to legal) ownership is sufficient for yielding assimilation. The study showed that assimilation and contrast to self-evaluation also manifest through indirect measures such as recommendation likelihood to creative people. This implies that product judgment on human-applicable traits can be initiated spontaneously (rather than only due to explicit elicitation). Further, the finding that personal perceived creativity affects recommendations to creative, but not to non-creative, others rules out alternative explanations that are not trait-specific (e.g., overall affect or mood). Moreover, replicating the predicted pattern of results following product choice (i.e., although participants were randomly assigned whether to own the pen, they chose which pen to evaluate, and thus to potentially own), further verifies that our framework is not limited to random allocation of products. Finally, finding the assimilation/contrast effects only among self-conscious people (hypothesis 3) confirms our assertion that individual differences that foster the usage of the self as a reference category, such as attention to the self, facilitate the observed effects. The next experiment examined the possibility that self-evaluation can serve as a relatively stable source of bias in product judgment, and verified that these effects are mainly expected when ownership is salient and thus the personal-self is active.

EXPERIMENT 4: INDIVIDUAL TESTOSTERONE LEVELS PREDICT PERCEPTIONS OF PRODUCT MASCULINITY

This experiment examined our assimilation and contrast predictions for a different trait, using an unobtrusive measure for self-judgment, which allowed us to estimate participants’
perceptions of their own masculinity without artificially inducing participants to form such self-judgments. Specifically, we examined whether the extent that a consumer judges a product as masculine (e.g., adventurous, daring; Grohmann 2009) can be predicted by that consumer’s testosterone levels (a physiological proxy for personal masculinity). Further, to test the possibility that consumers’ self-judgment may consistently bias product judgment across time and contexts, testosterone levels were measured in classroom settings, while product judgments were measured using on-line survey settings, 10 months later. The study also verified that self-evaluation on masculinity (as reflected in testosterone) predicts product judgments mainly when ownership is salient (and the personal-self is therefore activated). Testosterone is a stable hormone (Sellers, Mehl, and Josephs 2007) that correlates with masculinity traits among men (Penton-Voak and Chen 2004). We confirmed that self reports of personal masculinity (ambitious, analytical, dominating, competitive, forceful; α = .85) of 18 male respondents from the same population positively correlated with testosterone levels collected 10 months earlier ($r = .63, p = .005$).

**Method.** Seventy-six male Columbia University MBA students participated in an on-line survey in exchange for the chance to win a $500 lottery. The design included two levels of ownership (no, yes). In the no-ownership condition, ownership salience was either heightened or not. A second independent variable was the salivary testosterone-level collected 10 months earlier (see description of saliva collection and processing in appendix 1E). Participants in the no-ownership condition (including the ownership salient and not salient conditions) evaluated a portable music player they did not own (a 120GB Microsoft-Zune player presented in a picture; see appendix 1F). In the heightened ownership salience condition, they did so after completing a
task that activated the personal-self by implicitly increasing ownership salience whereas in the condition where ownership salience was not heightened, they performed a control task. The ownership-salience (control) task was to unscramble five sentences that included (did not include) ownership status words (e.g., “Danny owns (lives in) a small apartment in Brookline”). In the ownership condition, ownership salience was embedded in participants’ task to evaluate the music player they personally owned, and thus they evaluated the player’s masculinity following the control task. Self-awareness of participants in all conditions was heightened by asking participants to “take a minute and imagine yourself looking at a small mirror, what are the three first things that you notice?” (adapted from Pham et al. 2010). The dependent measure was music player masculinity (brave, daring, adventurous) measured on a 1-not-at-all to 9-very-much-so scale.

Results. Screening questions (Schultheiss and Stanton 2009) indicated that testosterone measures of eight participants were invalid (four for gum bleeding or oral infection/lacerations and four for consuming caffeine within an hour before saliva collection), and they were excluded from analysis. The qualitative pattern of results does not change if we do not drop responses. The music-player’s masculinity measure (α = .93) was submitted to a regression with ownership (ownership, no-ownership-high-ownership-salience, and no-ownership-low-ownership-salience) and mean-centered testosterone level and their interaction as predictors. To represent the three ownership levels, we created two contrast-coded variables for the ownership and no-ownership-high-ownership-salience conditions contrasting with the no-ownership-low-ownership-salience condition. Consistent with the prediction that ownership leads to assimilation, but lack of ownership to contrast (hypothesis 1), the “omnibus” interaction ($F (2, 62) = 5.37, p = .007$) and
the interaction contrast excluding the low-ownership-salience condition \((F(1, 62) = 10.58, p = .002)\) were significant (see Figure 6). Further, when participants rated their own personal player, their testosterone level *directly predicted* their player masculinity judgment, as reflected in a positive significant testosterone slope \((\beta = .023, p = .02)\). When participants rated an unowned player following ownership salience, their testosterone level *inversely predicted* their player masculinity judgments, as reflected in a negative significant testosterone slope \((\beta = -.017, p = .03)\). Finally, when participants rated an unowned player in the absence of ownership salience, their testosterone level *did not predict* their player masculinity judgment, as reflected in a statistically insignificant testosterone slope \((\beta = -.006, p = .52)\). That is, participants’ product judgments were not linked to their testosterone levels in the low-ownership-salience condition.

**FIGURE 6: MP3 PLAYER MASCULINITY, EXPERIMENT 4**

<table>
<thead>
<tr>
<th>Testosterone Level</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership</td>
<td>3.57</td>
<td>3.53</td>
</tr>
<tr>
<td>Control</td>
<td>3.02</td>
<td>3.53</td>
</tr>
<tr>
<td>No ownership</td>
<td>2.16</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Notes: Low represents one SD below high one SD above the mean of testosterone level; Participants in the ownership condition owned the MP3 player, while those in the no-ownership and control conditions did not own the player; The concept ownership was salient in the ownership and no-ownership conditions, but not salient in the control condition.
GENERAL DISCUSSION

Categorization is a rudimentary mental capacity. People classify targets, such as people and objects in their environment, relative to reference categories, and consequently perceive targets in assimilation or contrast to these categories (Sujan and Dekleva 1987). Ample research finds that the “self” is a predominant category people use for organizing and interpreting their environment (Rogers et al. 1977), especially for segmenting and judging human targets, people and groups (Gawronski et al. 2005). Other research has suggested that people’s selves are associated with their possessions (Belk 1988; Gawronski et al. 2007). However, research has not gone beyond the self-possession association hypotheses to suggest that people use the self as a framework for classifying and judging not only human targets, but also inanimate ones, such as products and goods, and that people “egocentrically categorize” objects by whether they own these objects. Building on this gap in the research, the present research theorizes that people do use the personal-self as a reference class for products, especially when the personal-self is active, and that people “egocentrically categorize” objects by whether they own them. The authors then explore the implications of these assertions for product judgment on traits such as creativity or masculinity. In particular, the authors explore the possibility that, following egocentric categorization, people judge owned objects in assimilation with, but unowned ones in contrast to, the way these people judge themselves.

Key Results. Three experiments supported the premises of EC. Experiment 1A confirmed that activation of the personal (vs. social) self leads consumers to use the personal-self as a category for objects, and that this effect is attenuated by low self-consciousness. Experiment 1B
verified that ownership is associated with, and thus can activate, the personal-self, and that “Mine-Me” sensitivity captures the strength of this association. Experiment 2 established that assigned ownership affects how consumers classify a product relative to the self and that this effect is moderated by “Mine-Me” sensitivity.

Experiments 2-4 also demonstrated that using the self as a reference category for products induces consumers to judge owned objects in assimilation with, but unowned objects in contrast to, the way these consumers’ judge themselves. These results were obtained based on ownership that was induced experimentally (legal ownership in Exp. 2 and psychological ownership in Exp. 3) or naturally (Exp. 4). The results were replicated based on self-evaluation that was either manipulated (Exp. 3) or measured (Exp. 2, 4). Self-evaluation was measured either explicitly, just before product judgment (Exp. 2), or implicitly, based on salivary hormonal levels measured 10 months prior to product judgment (Exp. 4). Results were replicated across two sets of product categories and attributes including pens with creativity (Exp. 2, 3) and a music-player with masculinity (Exp. 4). Judgments were elicited using explicit product ratings (Exp. 2, 4) or implicit ones, via recommendation likelihood to people high (but not low) on the trait (Exp. 3). Further, consistent with EC as the underlying process, these effects were mediated by the outcome of EC (product’s “part of self” ratings, Exp. 2), and facilitated by “Mine-Me” sensitivity (Exp. 2), by self-focus (as measured in Exp. 3 and manipulated to be at a high level in Exp. 4), and by activation of the personal-self via ownership salience (Exp. 4).

Taken together, our experiments help rule out several alternative explanations for the observed pattern of results. In particular, the observed results could have been amplified, or even alternatively explained by consumer inference (see Kardes, Posavac, and Cronley 2004 for a review). According to an inference account, consumers may think that a product is low or high
on a trait because they chose it and they think of themselves as respectively low or high on that trait. However, an inference account cannot hold in cases of random assignment of ownership (Exp. 2, 3), because in such cases, owning a product is not informative. In addition, an inference driven result should not be moderated by “Mine-Me” sensitivity or mediated by EC (Exp. 2).

**Contributions.** The current work extends research in social-categorization, which asserts that the social (relational or collective) self is an organizing concept for social categories. This research finds that people use the social-self to classify others with respect to the self and maintain a subjective notion of ‘we’ (Aron et al. 1991; Tajfel et al. 1971). From that perspective, the personal-self is a ‘stand-alone’ concept that underlies no category (Brewer 1991). The present research extends this view by theorizing that the personal-self is an organizing concept for a category of objects. Accordingly, people may use the personal-self to classify objects with respect to the self and to maintain a subjective notion of ‘me’.

The findings also extend previous “mine-is-better” research, namely that owning a product always leads consumers to judge it as more attractive (Huang et al. 2009) and valuable (Kahneman et al. 1991), as a means to enhance the self (Beggan 1992). Our Egocentric Categorization framework suggests that under some conditions, ownership moderates how consumers’ judgment of their own traits affects the way they judge products in their environment, rather than directly and positively affecting how consumers judge a product. Consequently, ownership can also hurt (rather than always improve) product judgment when people judge themselves low on important product traits. Thus, beyond the theoretical significance of understanding the consequences of inducing consumers to feel ownership over a product, this topic has important practical implications for marketing practices that induce
consumers to feel ownership of products before purchase, such as product touch (Peck and Shu 2009) or mass customization (Franke et al. 2010). Marketers should verify that prospective customers have positive self-evaluations on relevant personality traits before they induce them to feel product ownership. By doing so, marketers can improve product evaluations and reduce the likelihood that inducing product ownership will backfire.

The predicted evaluative implications of EC for owned and unowned objects rely on previous assimilation and contrast research (Bless and Schwarz 2010). That research suggests that when a target was initially part of a category and subsequently excluded from it, category valence is removed from target valence, yielding contrast via subtraction. Further, contrast can also ensue via comparison when the target was never part of the category, and category valence serves as a standard for judging the target’s valence. In the present research, objects that people are assigned not to own were never part of the self. Consequently, no-ownership should not induce contrast via exclusion and subtraction, rather via lack of inclusion and comparison. Future research may benefit from looking at cases where consumers initially own an object. In such cases, assignment of no-ownership may yield exclusion of the product from the self and subsequent contrast via subtraction.

The identified assimilation and contrast moderators, self-focus and “Mine-Me” sensitivity, may operate via multiple processes and not only via the ones implicated in the present research. For example, it is possible that self-focus not only renders people more likely to use the activated self as a reference category, but also makes people more attuned to how they judge themselves, making this information more likely to be used as an input for product judgment. Further research is needed to identify other ways through which the identified moderators operate, as well as other theoretically driven moderators.
Future research can also leverage the suggested analogy between group membership and product ownership and can draw on the rich psychological research in the domain of person perception. For example, just as different social identities determine whether an individual is an in-group member, different personal identities may determine whether an object is an ‘in-good’ or an ‘out-good’, namely is part of or external to the self. This may lead to potential contrast effects in the evaluations of possessions that are external to one’s active identity. As another example, research can examine effects of previously identified additional sources for evaluative self-information beyond the actual-self, such as the ideal, ought or future self (Higgins 1987). Under some conditions, these self-evaluations may also affect product evaluation through assimilation or contrast. Future research should examine this and related predictions.

To summarize, the present research theorizes that consumers use the self as a reference category to judge objects, mainly when the personal-self is active, and classify objects relative to the self based on ownership. Consequently, consumers judge owned objects in assimilation with, but unowned ones in contrast to the way these consumers judge themselves.
ESSAY 2 - PRODUCTS AS SELF-EVALUATION STANDARDS
ABSTRACT

Social-comparison research finds that consumers judge their traits relative to human references (e.g., the beauty of a model). The present research proposes that (i) consumers may also judge their traits relative to product references (e.g., the creativity of an Apple computer), and that (ii) a product trait would affect consumers’ self-evaluation in a way that depends on whether consumers own the product. Three experiments confirmed that consumers judge themselves and behave consistently with traits of owned products (assimilation), but inconsistently with traits of unowned products (contrast). For example, assigning people to own headphones that authentically reproduce (vs. artificially improve) sound increased subsequent honest and authentic behavior, whereas assigning people to use (but not to own) the same headphones decreased subsequent honest behavior. The findings are consistent with the possibility that consumers categorize owned (but not unowned) products in their self-concept, leading to assimilation/contrast of self-evaluation and behavior to product traits.
The self is a malleable concept (Markus and Kunda 1986) and consumers frequently reevaluate the self on different traits relative to standards set by other individuals or groups (Wood 1989). By affecting consumers’ self-evaluation, self-standards can shape consumer preferences (Aaker 1999); thus, understanding self-standards in consumption settings is a key interest for marketers.

Extending research on self-evaluation standards (e.g., Albert 1977), the present research examined whether, in evaluating their traits, consumers use not only human standards, such as people or groups, but also inanimate ones, such as products and goods associated with human-applicable traits (e.g., an Apple computer’s creativity). Although ample research finds that consumers see products and brands as entities with distinct personality traits (Aaker 1997) that can take social roles (Fournier 1998), the possibility that consumers judge their own traits relative to traits of products has not been examined.

What effect may products as self-standards have on consumers? We suggest that product standards can affect consumers’ self-evaluation and behavior in a direction that is modulated by product ownership. A consumer is predicted to judge his or her own traits and behave consistently with traits of products he or she owns, but inconsistently with traits of products he or she interacts with but does not own, even when owning (or not owning) the product was not the consumer’s choice. For example, in a decision on whether to join a sophisticated wine club or a rugged beer club, interacting with a sophisticated product a consumer does not own (e.g., seeing an on-line ad for a Montblanc pen) is predicted to make a consumer feel less sophisticated and join the beer club. However, acquiring such a product (e.g., receiving a Montblanc pen as a gift) is predicted to make the consumer feel more sophisticated and join the wine club.
Why should products as self-standards affect how people evaluate themselves and why should ownership modulate the direction of the effect? Previous research shows that, under some conditions (e.g., when the concept ownership is salient and attention to the self is high), consumers classify owned (but not unowned) objects in their personal-self (Weiss and Johar 2013). Categorization research suggests that people judge a category (e.g., the “self”) in assimilation to how they judge items that the category includes but in contrast from how they judge items the category excludes (Bless and Schwarz 2010). Thus, in some cases, consumers may judge themselves in assimilation to owned products (that are in the category personal-self) but in contrast from unowned products (that are not in the personal-self). Because self-evaluation often guides behavior (Wheeler, DeMarree, and Petty 2007), changes in self-evaluation may lead to product-consistent behavior by owners, but to product inconsistent behavior by non-owning product users, possibly even when using or owning the product was not the consumer’s choice.

Importantly, consumers continuously interact with products that marketers or other consumers have selected for them to own or to use. Consumers own signup gifts and rewards accepted from marketers as well as "hand me downs" obtained from other consumers. Consumers use (but do not own) gym towels and music sampling headphones selected by marketers and are frequently exposed to ads of products they do not own. Thus, the possibility that product traits can systematically affect consumers’ self-evaluation and behavior is consequential for marketers and consumers alike.

In what follows, we first review research on product-self congruity, and then develop our predictions. Next, we demonstrate that consumers judge the self (Exp. 1-2) and behave (Exp. 3) consistently with human-applicable traits of products they acquire, but inconsistently with
human-applicable traits of products they use (but not own). Finally, we discuss implications for consumer researchers and marketing managers.

PRODUCT-SELF CONGRUITY

The notion that a human-applicable trait (e.g., creativity, masculinity) of products that consumers own and/or use corresponds with a respective trait of these consumers is well accepted. The product-self congruity hypothesis (Birdwell 1968; Malar et al. 2011; Sirgy 1982) suggests that people own objects that are consistent with their self-concepts. Self-perception (Bem 1972) and self-signaling (Bodner and Prelec 2003) theories suggest that by choosing a product with a certain personality, a consumer may infer that he or she has the corresponding personality. Other theories suggest that personalities of products and brands transfer to owners over time via usage (e.g., Belk 1988; McCracken 1986). Consistent with this theorizing, empirical evidence confirms that consumers associate traits of products they own with the self, namely choose, use or highlight ownership over products that are linked to their momentary view the self (Aaker 1999; Gao, Wheeler, and Shiv 2009; Reed II 2004; Sivanathan and Pettit 2010).

Thus, ample research is consistent with correspondence between personality traits of a product and the consumer using it. Recent research even supports a causal (vs. merely correlational) effect of product traits on perception of the self and behavior when the product filtered perceptions (i.e., when counterfeit sunglasses filtered their sight, participants saw themselves as "fake" and cheated more; Gino, Norton, and Ariely 2010) and/or served as a self-signal (Park and John 2010). However, the possibility that product traits can affect self-evaluation and behavior not via “filtered perception” and/or self-signaling, but by serving as a
standard for evaluating the self, has not been examined. Studying such a possibility is important for two reasons. First, evaluation-standards can affect judgment in two diametrically opposing directions, namely via assimilation or contrast (Mussweiler 2003), rather than merely in an assimilation direction as predicted and found by other accounts (e.g., Gino et al. 2010; Park and John 2010). Recent research has identified factors that attenuate product self-congruence assimilation effects (e.g., Malar et al. 2011; Park and John 2010). However, this research does not predict or find a reversal in the direction of the effect, that is, a contrast effect.

Second, if products can serve as self-standards, product traits may affect how consumers evaluate themselves on respective traits even in cases where a self-signaling account cannot hold. This is the case, for example, when a product that consumers interact with (i) was not selected by the consumer or (ii) has traits that are not informative of respective traits of its user (e.g., product weight is less informative of its user’s body weight). In such cases self-perception/-signaling accounts (Bem 1967), used for explaining previous product-to-self-evaluation findings (e.g., Park and John 2010), should not apply (cf. Gino et al. 2010). This is because, in such cases, product interaction and/or ownership are not diagnostic signals (Bodner and Prelec 2003) for inferences about the self. Next, we lay out the theoretical justification for, and the explicit predictions of, the proposed account.

CATEGORIZATION AND JUDGMENT

Much research shows that people judge a category in assimilation to an accessible standard that it includes, but in contrast from an accessible standard it does not include (Bless and Schwarz 1998; Rothbart and Lewis 1988). Consider a case where consumers assess the
ruggedness (Aaker 1997) of the category "American Cars" after seeing the 2011 super bowl halftime ad for Chrysler 200 that portrayed the car as highly rugged. Consumers may see “American Cars” as more rugged (assimilation) if they classify Chrysler 200 as American (i.e., from Detroit), but as less rugged (contrast) if they classify the car as foreign (owned by the Italian brand “Fiat”) and assess the ruggedness of American cars relative to the high ruggedness of the Chrysler.

Research on the category “self,” which consumers often use for organizing and encoding information (Rogers et al. 1977), shows evidence consistent with the view that classifying a standard in or out of a category yields assimilation or contrast. People are found to judge themselves (Ledgerwood and Chaiken 2007) consistently with others they classify in the social-self (i.e., in-group members or ‘us’), but oppositely from others they classify as external to the social-self (i.e., out-group members or ‘them’; Smith and Henry 1996; Tajfel and Turner 1986; Wyer et al. 2011), even following the mere availability of information about others (Mussweiler, Ruter, and Epstude 2004).

THE PRESENT RESEARCH: PRODUCTS AS SELF-STANDARDS

Just as people classify others with respect to the social-self, it is possible that people may also classify products with respect to the personal-self, and that ownership (vs. group membership as in the case of other people) determines whether a product is classified in or out of the personal-self. This view is consistent with the vast research on products as relationship partners (Fournier 1998) and with documented associations of possessions to self (Belk 1988; Gawronski et al. 2007).
People may be more likely to classify products relative to the self in situations that increase the salience of ownership, such as during shopping or while giving or receiving a gift (Weiss and Johar 2013). This is because “mine” and “me” or ownership and the personal-self are associated (e.g., Belk 1988; Gawronski et al. 2007) and even randomly assigning a person to own a product associates the product to that person’s self (Cunningham et al. 2008). Through this association, ownership salience may activate the personal-self and people are more likely use a class (e.g., the self) as a reference category when it is activated (Higgins et al. 1977; Srull and Wyer 1979). High levels of self-consciousness/awareness (Fenigstein et al. 1975) may also increase consumers’ tendency to classify objects relative to the self (Weiss and Johar 2013). This is because people are more likely to use a mentally-activated category (e.g., the personal-self) when it is in the center of their attention (Higgins 1996), and self-consciousness/awareness increases attention to the self (Gibbons 1990). Thus, high levels of this trait/state may induce people to use the self as an organizing class for understanding their surroundings (Abrams and Brown 1989; Blanton 2001).

Accordingly, the present research suggests that consumers may judge their traits and abilities not only relative to traits of other people, but also relative to traits of products and goods they interact with. Product traits are suggested to affect consumers’ self-evaluation via processes of categorization and subsequent assimilation or contrast, as determined by whether the consumers own the product. In particular, people judge a category in assimilation to a mentally active reference it includes. This is because the way people mentally represent the category includes reference level information that directly affects how these people judge the category (e.g., Bless and Schwarz 2010). In order to obtain a reference level for judging how one fares on a certain trait (e.g., creativity), a consumer may assess how an owned product that he or she
interacts with measures on this trait, similar to the way consumers use other people as standards for judging the self (e.g., Festinger 1954; Wood 1989). Consumers may do so even when owning the product cannot serve a diagnostic signal to learn about the self (Bodner and Prelec 2003), such as when a product was obtained from a marketer as a reward or a sign up gift. If consumers classify owned products as members of the category “self,” these consumers may intuitively include their evaluation of a product’s trait in the mental representation of the “self.” Consequently, these consumers may judge the self in assimilation to the way they judge the product’s trait, and, because self-view often guides behavior (Wheeler et al. 2007), behave consistently with the product’s personality.

People also judge a category in contrast from a mentally active reference that the category does not include. This is because the way people mentally represent the standard for evaluating the category includes reference level information that inversely affects how these people judge the category (e.g., Bless and Schwarz 2010). In order to obtain a standard for judging how one fares on a certain trait (e.g., creativity), a consumer may assess how an unowned product that he or she interacts with measures on this trait, similar to the way consumers judge others to obtain a standard for judging the self (e.g., Festinger 1954). Consumers may do so even when not owning the product cannot serve a diagnostic signal to learn about the self (Bodner and Prelec 2003), such as when the product (e.g., gym towels, music sampling headphones) was left by a marketer for consumers to use (but not to own) without allowing consumers to have input in the process. Therefore, if consumers classify unowned products as external to the category “self,” these consumers may intuitively include their evaluation of the product’s trait in the mental representation of the standard for evaluating the self. Consequently, these consumers may judge the self in contrast from the way they judge the
product’s trait, and, because self-view often guides behavior (Wheeler et al. 2007), behave *inconsistently* with the product’s personality.

The predicted assimilation and contrast process are suggested to ensue because people use the personal-self as a category for objects. Consequently, in cases where such categorization should not ensue, namely when ownership is not salient or when attention to the self is low as explained above, the predicted assimilation and contrast are not expected to occur. Accordingly, we predicted that:

**H1:** Consumers will evaluate themselves and behave consistently, with traits of owned products, but oppositely from traits of unowned products they interact with.

**H2:** The predicted effects will not ensue under low ownership salience.

**H3:** The predicted effects will not ensue under low self-consciousness/awareness.

We tested the predictions derived above in the experiments described next, across self-evaluations on a variety of traits, ranging from femininity and authenticity to physical appearance, and following interaction with different products, including pens, MP3 players, headphones and laptops. To establish a directional effect of ownership (vs. the lack thereof) on self-evaluation and behavior, and to confirm that the observed patterns cannot be accounted for by self-signaling/-perception (Bem 1967; Bodner and Prelec 2003), all experiments but 1A focused on newly formed, randomly assigned product ownership. Self-awareness was kept at a high level across conditions in Experiments 1A, 1B, 2 and 3A, and measured in Experiment 3B. Ownership salience was kept high across conditions in Experiments 1B and 3B, and was manipulated in Experiments 1A, 2, and 3A.
EXPERIMENT 1A: THE EFFECT OF PRODUCT OWNERSHIP ON THE RELATION BETWEEN PRODUCT JUDGMENT AND SELF-EVALUATION

Experiments 1 examined the possibility that consumers use a human-applicable trait, the femininity of a product (Grohmann 2009), as a standard for evaluating their personal femininity. Specifically, the experiment tested whether consumers will evaluate their personal femininity in assimilation to how they judge the femininity of a product they own, but in contrast to how they judge the femininity of a product that they do not own (H1). Additionally, the present study examined whether the effect would attenuate when ownership is not salient (H2). As a product category to be judged on femininity we chose MP3 players. Level of ownership (no, yes) was manipulated. Ownership salience was heightened for all participants in the ownership condition and for half of the participants in the no-ownership condition. For participants in the other half of the no-ownership condition, ownership salience was not heightened; this served as the control condition. This resulted in an experiment with two independent variables—ownership (3 levels: no, yes, control) and MP3 femininity judgment (a continuous measure). Participants’ self-evaluation on femininity served as a dependent variable.

H1 would be supported if participants who judged the player as more feminine would evaluate themselves as more feminine (assimilation) in the ownership condition, but as less feminine (contrast) in the no-ownership condition. H2 would be supported if in the control condition, where ownership was not salient and the personal-self was therefore not activated, player femininity judgments would not predict self-evaluations on femininity.
**Method.** One hundred and thirty MBA students (76 males) participated in an on-line survey for the chance to enter into a $500 lottery. Participants in the no-ownership and control conditions evaluated a portable-music-player they did not own (a 120GB Microsoft-Zune player presented in a picture; see Appendix 2A, upper bar). Participants in the no-ownership condition did so after completing a task that activated the “self,” as a personal category (by implicitly highlighting ownership status information), whereas participants in the control condition did so after completing a control task. The self-activation via ownership-status (control) task was to unscramble five sentences that included (did not include) ownership status words (e.g., “Danny owns (lives in) a small apartment in Brookline”). Self-activation via ownership-status in the ownership condition was embedded in participants’ task to evaluate the portable music player they personally owned, and thus they did so following the control task. Self-awareness of participants in all conditions was heightened by asking participants to “take a minute and imagine yourself looking at a small mirror, what are the three first things that you notice?” (adapted from Pham et al. 2010). Subsequently, participants rated the MP3’s femininity (fragile, sensitive, tender and feminine) on a 1-not-at-all to 9-very-much-so scale. The dependent variable was participants’ self-evaluation of their own femininity (civilized, gentle, and yielding) on the same scale at the end of the survey, as part of a larger battery of personality measures.

**Results.** Participants’ self-evaluation on femininity (α = .66) was submitted to a regression with ownership (ownership, no-ownership and control), mean-centered product femininity judgment ($r = .72$) and their interaction as predictors. To represent the three ownership levels, we created two contrast-coded variables for the “ownership” and “no-ownership (high ownership-salience)” conditions, contrasting them with the “control (no-
ownership low-ownership-salience)” condition. Consistent with the prediction that ownership leads to assimilation, but lack of ownership to contrast, of self-evaluation to product judgment (H1), the “omnibus” interaction ($F(2, 124) = 5.82, p = .004$) and the interaction contrast excluding the control (i.e., low-ownership-salience) condition ($F(1, 124) = 11.26, p = .001$) were significant (see Figure 1, upper bar). Further analysis revealed that, consistent with the ownership-to-assimilation prediction, when participants rated their own personal MP3 player, their player femininity judgment was positively related to their self-evaluation on femininity, as reflected in a positive significant player femininity slope ($\beta = .35, p = .008$). Further, consistent with the no-ownership-to-contrast prediction, when participants rated the unowned player following ownership salience, their player femininity judgment was negatively related to their self-evaluation on femininity, as reflected in a negative significant player femininity slope ($\beta = - .33, p = .03$). Finally, consistently with the expected attenuation under low ownership salience (H2), when participants rated an unowned player in absence of ownership salience, their player femininity judgment did not predict their self-evaluation on femininity, as reflected in a statistically insignificant player femininity slope ($\beta = -.07, p = .73$).

**Discussion.** Overall, the results are consistent with the idea that participants used the femininity of a product as a standard for assessing their own personal femininity (H1), but only under conditions that fostered classification of products relative to the personal-self, such as high ownership salience (H2). In such conditions, ownership or the lack thereof was followed respectively by assimilation or contrast of self-evaluation to product judgment. However, a limitation of this experiment is that, because participants in the ownership condition evaluated their own MP3 player, ownership was confounded with other factors, such as familiarity or
product choice. This allows the observed pattern to benefit from self-perception (Bem 1967) and self-signaling (Bodner and Prelec 2003) effects (e.g., “I must be feminine because I have a feminine MP3 player”). Further, the evaluated products differed across conditions, which may limit the interpretability of the results. To resolve these concerns, the next experiment manipulated (randomly assigned) product ownership. This rendered ownership a non-diagnostic cue for self-perception/self-signaling and allowed using the same product in both conditions (i.e., ownership and no-ownership).

FIGURE 1: PERSONAL FEMININITY EVALUATIONS, EXPERIMENT 1A-1B
EXPERIMENT 1B: RANDOMLY ASSIGNED PRODUCT OWNERSHIP

This experiment aimed to confirm the generalizability and robustness of Experiment 1A’s results by replicating them using another product category, pens, while addressing Experiment 1A’s shortcomings. Participants judged the femininity of a pen that they were assigned to either own or not own. Subsequently, participants responded to the same dependent variable, self-evaluation on femininity, yielding a study with 2 ownership conditions (yes, no) and pen femininity judgment as a continuous measure.

Method. Fifty-six MBA students (17 females) of the same university participated in a paper-and-pencil product evaluation study, taking place in the Business-School’s lobby, in return for entering a lottery for an iPad. All participants responded to the study using a pen they evaluated. Pen ownership was manipulated by what a research assistant (a male about 50% of the time) told participants before handing them out a pen (this information was altered every half an hour). In the ownership (no-ownership) condition, participants were told “here, you can take (borrow) this pen, it is yours for keeps (but please return it when you are done).” This information also served to activate the “self,” as a personal category, by explicitly bringing to mind ownership status information in an ecologically valid manner. Then, as in Experiment 1A, participants’ self-awareness was heightened by asking them to describe their mirror image. Subsequently, participants evaluated the pen (see Appendix 2A, lower bar) on its femininity (graceful, sensitive, fragile, feminine, and sweet) on a 1-not-at-all to 9-very-much-so scale. The dependent variable was participants’ self-evaluation on femininity (compassionate, gentle
sympathetic, and affectionate) on the same scale at the end of the survey, as part of a larger battery of personality measures.

**Results.** Participants’ self-evaluation on femininity (α=.80) was submitted to a regression analysis with ownership (own = 1, no-own = -1), mean-centered product femininity judgment (α = .87) and their interaction as predictors. Consistent with the prediction that ownership leads to assimilation, but lack of ownership to contrast, of self-evaluation to product judgment (H1), the interaction was significant ($F(1, 52) = 13.00, p = .0007$; see Figure 1, lower bar). Further analysis revealed that, consistent with the ownership-to-assimilation prediction, when participants were randomly assigned to own the pen they rated, the pen’s femininity judgment directly predicted their self-evaluation on femininity, as reflected in a positive significant pen femininity slope ($β = .54, p = .004$). Further, consistent with a no-ownership-to-contrast prediction, when participants were not assigned to own the pen they rated, their pen femininity judgment inversely predicted their self-evaluation on femininity, as reflected in a negative significant pen femininity slope ($β = -.33, p = .04$).

**Discussion.** Using a different product category and a more ecologically valid ownership activation method, the results of this study replicated the results pattern of Experiment 1A. The results are, again, consistent with the possibility that participants used the femininity of a product as a standard for assessing their own femininity. Consequently, ownership or the lack thereof was followed respectively by assimilation or contrast of self-evaluation to product judgment.

However, a shortcoming of Experiments 1A-1B is that evaluation of the self was preceded by evaluation of the product on the same dimension, leading to two limitations. First,
this may have artificially focused participants’ attention to the product’s femininity as a standard for judging the self, making it unclear whether people may use product attributes as self-standards *spontaneously*, without elicitation. Second, it is possible that the self-assessment effect also benefitted from a simple scale anchoring (rather than solely reflecting a change in the mental representation of the self; Lynch, Chakravarti, and Mitra 1991). Experiment 2 was designed to account for these shortcomings by (i) manipulating (vs. measuring) the level of the product’s attribute and (ii) using free-response (i.e., scale free) measures to judge the self.

**EXPERIMENT 2: THE EFFECT OF ‘OWNERSHIP’ SALIENCE ON WHETHER PRODUCT ADS AFFECT VIEWERS’ SELF-EVALUATION**

This experiment aimed to extend the results of Experiment 1 to another product category, laptops, while addressing Experiment 1A’s shortcomings. It also aimed to further confirm that product traits can affect consumers’ self-evaluation on respective traits even when product traits are not diagnostic of respective consumer traits. In particular, some product traits (e.g., femininity, creativity) can be diagnostic of respective consumer traits (e.g., “If I use this feminine product I must be feminine;” Bem 1972). However, other traits, such as product weight and speed, might be less diagnostic of consumers’ respective characteristics (i.e., consumers’ weight and speed). Previous research finds that consumers compare themselves with idealized human images they see in ads; such high comparison standards lower consumers’ perceptions of and satisfaction with their physical appearance (Richins 1991). Accordingly, the present study looked at whether the physical appearance of a product (e.g., the “thinness” of a MacBook-Air)
can similarly affect consumers’ perception of their own physical appearance despite the non-diagnosticity of this product trait to the respective consumer trait.

Participants evaluated real laptop ads, some of which highlighted the thin figure of the advertised laptop. All participants were in a ‘no-ownership’ condition (i.e., viewed ads for laptops they did not own). The concept ‘ownership’ was made salient for half of the participants. Subsequently, participants responded to free response and close ended measures that pertained to their appearance self-evaluation. Support for H1 and H2 would come from finding that participants in the ownership salience condition, who are predicted to use the ads’ thin laptops they do not own as self-standards, contrast their appearance from the thin figure of the laptops as manifested in lower appearance self-evaluation.

Method. One hundred and ninety nine members of an on-line panel (81 males) participated in an on-line survey in return for a nominal fee. The experiment included two conditions, ownership salience and control. In the first part of the experiment, participants listed two sets of three durable goods, under instructions to “state specific products (e.g., a Fossil wrist watch), rather than merely a product category (e.g., watch) or brand (e.g., Fossil).” In the ownership salience condition, participants listed three durable goods they got to own recently and three durable goods they disposed of recently. In the control condition, participants listed three durable goods they had seen ads for recently and three durable goods they had not seen ads for recently.

In the second part of the experiment, participants were shown a series of 4 laptop ads, three of which highlighted the thin figure of the advertised laptop, and one its durability (to reduce possibility of demand effects; see Appendix 2B). For each ad, participants indicated on
five point scales whether the ad was effective, informative and original. Then, participants responded to the Twenty Statement Task (TST; Kuhn and McPartland 1954), where participants complete 20 self-descriptive statements (“I am ___”). This free-response task can validly assess individuals’ momentary self-conceptions, such as appearance (Gardner, Gabriel, and Lee 1999). Next, participants completed the Appearance Self-Esteem Scale on a five-point scale (Heatherton and Polivy 1991). Subsequently, participants coded their responses to the Twenty Statement Task in two ways. First, they indicate whether each of the answers they provided “refers to your own physical appearance (e.g., "I am pretty," "I am heavy," "I am unsatisfied with my appearance") or not.” Then, they specified whether they “feel that the answer reflects a relatively positive, neutral or relatively negative aspect of the way you see yourself.” Finally, participants indicated whether they personally owned any of the laptops featured in the ad.

Results. One of the participants reported owning one of the laptops featured in the ads and was removed from further analysis. Subsequently, based on participants’ coding of their own “I am…” statements, we created a physical appearance score from the difference between the number of positive and negative appearance-self-descriptions (M = .67, SD = 1.48), where a higher score reflects more positive evaluations. Another control score was created in the same manner from self-descriptions that did not pertain to appearance (M = 9.16, SD = 6.71). Next, to clean the dataset, based on a box-and-whisker plot, we removed responses that were more than 1.5 IQR away from the IQR of each of the difference scores (4% of the data). The qualitative pattern of results does not change if we do not drop responses. Next, to render the two scores comparable, they as well as the Appearance Self-Esteem (close-ended) scale were each normalized. Then, the three normalized scales were entered into a mixed analysis with score type
(appearance free-response, control free-response and appearance close-ended) as a repeated measure, priming as a between-subject condition (ownership = 1, control = -1), and their interaction as predictors. We predicted that following ownership prime (vs. control) participants exposed to ads with thin laptops would feel worse about their appearance (H1 & H2). The analysis revealed that, consistent with this prediction, the effect of condition was significant and in the predicted direction ($M_{control-prime} = .14, M_{ownership-prime} = -.16, F(1, 195) = 8.14, p = .005$; the reported means are normalized). That is, participants who viewed ads for thin laptops and were exposed to an ownership (vs. control) prime judged their physical appearance more negatively. The contrast that excludes the control scale was also significant ($M_{control-prime} = .18, M_{ownership-prime} = -.19, F(1, 368) = 10.57, p = .001$). In addition, consistent with a trait-specific (rather than overall self-evaluation) effect, the contrast between the ownership and the control primes on the control scale was not significant ($F < 1$). Additionally, the interaction between the two free-response scales (i.e., appearance vs. control) and the two primes (ownership vs. control) was marginally significant ($F(1, 368) = 3.11, p = .07$).

**Discussion.** Results across free-response and close-ended measures were consistent with the possibility that participants judged their physical appearance relative to the physical appearance of laptops featured in ads, but mainly when “ownership” was contextually salient. This pattern is in-line with previous findings that consumers judge their physical appearance in comparison to thin figures of human models that appear in ads (Richins 1991). The similarity of the effects that human models and product models have on consumers’ self-evaluation is consistent with our view that not only human references, but also product references can set standards by which consumers judge their own traits and abilities. Importantly, laptop
“thinness” is non-diagnostic of the physical appearance of product owners and users, and thus laptop “thinness” cannot support processes that involve inference making (Kardes et al. 2004), such as self-signaling (Bodner and Prelec 2003) and self perception (Bem 1972). However, Experiment 2 only looked at the effect of one level of product trait (i.e., high “thinness”), and only for cases where consumers did not own the product. Further, although Experiments 1-2 have highlighted the self-evaluative effects of products as self-standards, they have not looked at the possibility that such effects may manifest in subsequent behavior. Experiment 3 was designed to examine the possibility that the effect of product traits on how people perceive their own traits can have downstream implications for trait-related behavior, looking at multiple levels of product traits (moderate, high) for owners and non-owners.

EXPERIMENT 3A: THE EFFECT OF PRODUCT TRAIT ON TRAIT-RELATED BEHAVIOR AMONG PRODUCT OWNERS AND (NON-OWNING) USERS

The current experiment aimed to test the generalizability of Experiment 2’s results by replicating them using another product category, another trait, using behavior as a dependent variable and by manipulating two levels (vs. one) of product judgment along the focal trait. The experiment also verified that, consistent with Experiment 1A and 2, a product trait will affect behavior only under high ownership salience, which activates the personal-self and thus fosters classification of products relative to the personal-self. As a product trait we used sincerity (Aaker 1997). As a product category to be portrayed as high (moderate) on sincerity we chose headphones, positioning them as authentically reproducing (artificially improving) sound (see Appendix 2C). The design also included three ownership conditions as in Experiment 1A. This
resulted in a 3 (ownership: no, yes, control) x 2 (product “sincerity”: moderate, high) factorial design. As the dependent variable, subjects participated in a trivia game that gave them an incentive and an opportunity to cheat. Further, in order to align the motivations of participants in all conditions, especially given their exposure to different levels of product sincerity across conditions, which may inadvertently prime different goals (Fitzsimons, Chartrand, and Fitzsimons 2008), all participants were given a goal and supporting incentive to do well in the game.

H1 would be supported if, when participants interacted with the “high-sincerity” (vs. “moderate-sincerity”) headphones, they would behave more honestly (assimilation) in the ownership condition, but behave less honestly (contrast) in the no-ownership condition. Additionally, if our theorizing that assimilation and contrast to product personality are driven by classification of the product relative to the personal-self is correct, then in the control condition, where ownership was not salient and could not activate the personal-self, product description would not affect behavior.

Method and Procedure

Product “sincerity” pretest. Loosely inspired by an industry headphones ad (see Appendix 2C), we identified two countervailing benefits that consumer may get from headphones. The first benefit allows users to hear sound exactly the way the artist intended it (e.g., useful for music critics), whereas the second benefit allows users to hear the sound as well as it could be (e.g., useful for music producers). Thus, the first benefit comes from headphones that authentically reproduce sound (“authentic-sound”), and the latter benefit comes from
headphones that artificially improve sound (“better-sound”). We expected that people would view “better-sound” headphones as desirable and valuable as, but less truthful and sincere (Aaker 1997) than “authentic-sound” ones. To confirm this expectation, 40 individuals of the main experiment’s population read about one of two sets of headphones (see Appendix 2D) and then rated their sound reproduction on sincerity related attributes (authentic, true, unembellished, not-adorned) and the headphones on attractiveness (appealing, desirable, good) and quality (worthwhile, of high quality, useful). The results confirmed that the “authentic-sound” headphones were comparable to the “better-sound” ones on attractiveness (5.48 vs. 5.90, \( p > .33 \)) and quality (5.78 vs. 5.97, \( p > .59 \)), but higher on sincerity (6.11 vs. 4.02, \( p < .0001 \)).

**Independent variables.** One hundred and thirty two students joined a lab experiment for an $8 participation fee. They were told they would evaluate one of three sets of headphones that were laid down on their table. To ensure that the predicted effect is not driven by product choice (Park and John 2010) random assignment of ownership was emphasized by informing two-thirds of the participants that as additional compensation they would get to own either the set they evaluated or one of the others to be determined later based on a draw. This information also served to activate the construct ‘ownership.’ Another third of the participants (control condition) were informed that they would receive an additional $2 for their input and, to avoid activating the concept ‘ownership,’ did not receive any ownership related information. Then, the computer selected the set each participant had to evaluate and presented information that described the set as either authentically reproducing or artificially improving sound (see Appendix 2D). Next, participants plugged the headphones into their computers and listened to 30 seconds of a piece by Johann Sebastian Bach (Partita No. 3 in E major BWV 1006 for solo violin). Participants
were then informed whether they would keep the evaluated headphones (ownership condition) or receive another set of headphones instead (no-ownership condition) and afterwards, to maintain the cover story, evaluated the headphones in an open ended question. Next, to reinforce the ownership manipulation, we asked participants in the ownership (no-ownership) condition to write on a provided large envelope, “Received from (Evaluated for) the Department of Music.” Then, to verify that the effect of ownership is not restricted to the time the product is being used (Gino et al. 2010), all participants placed the headphones into the envelope, sealed it, and put it aside.

Next, participants’ self-awareness was heightened by asking them to imagine their mirror image (as in Experiments 1A and 1B) and then to “imagine yourself listening to your own voice. Describe your voice in terms of loudness (quit or loud) and pitch (low or high) and any other aspects that can capture what you hear.” (adapted from Pham et al. 2010).

**Dependent variable.** Later, in an ostensibly separate study, participants’ honest behavior was surreptitiously documented in a trivia knowledge quiz that incentivized good performance and provided an opportunity to artificially improve one’s score. Participants were told that if they scored in the top 50%, they would be entered into a lottery for an additional prize of $50. Then they were asked to answer two sets of eight general-knowledge multiple-answer trivia questions, such as to identify the writer of the play “Cat on a Hot Tin Roof.” To measure honesty, participants received an opportunity to inflate their quiz scores. In particular, we informed participants of recent problems in our data collection system such that it sometimes inverted the digits in a score (e.g., from 54 to 45), and asked them to verify that the score reported by the computer was accurate. Then, to reduce suspicion in the DV, after the first set of trivia questions,
when participants were asked to indicate whether the score they earned and the score the system reported it will save were consistent, the two scores were indeed consistent. Next, after answering the second set of trivia questions, when participants had to indicate (for the second time) whether the received and the to-be-saved scores were consistent, the two differed. In particular, the computer informed participants that they had answered 5 questions correctly and had received 45 points but that the system would save the score 54 (i.e., an inverted 45; see Appendix 2E). If participants reported the scores were inconsistent, they were asked to enter the correct score. Participants were classified as behaving honestly if they reported that the scores were inconsistent and changed it to the correct score. Finally, to rule out alternative accounts, this was followed by two sets of control questions about involvement (three items: interested, careful and involved anchored between 1-not at all and 7-very much so) and negative affect (Watson et al. 1988).

Results

First, an analysis of variance confirmed no effects of ownership, product “sincerity” or their interaction on negative affect (α = .75), explicit involvement (α = .74) or implicit involvement (number of letters used for replying to the open ended question about the headphones; all p’s > .29). Next, participants’ honest behavior was submitted to a 3 (ownership: no, yes, control) x 2 (product “sincerity”: moderate, high) logistic regression model (see means in Figure 2). The (dummy) dependent variable received a value of 1 if participants acted honestly. Consistent with the prediction that ownership leads to assimilation, but lack of ownership to contrast (H1), the analysis revealed no main effects and a significant omnibus
interaction of ownership and headphones “sincerity” on honest behavior $\chi^2 (2, N = 132) = 9.55, p = .008$). The interaction without the control condition was also significant, $\chi^2 (1, N = 132) = 9.43, p = .002$. Planned comparisons revealed that, consistent with the ownership-to-assimilation prediction, among participants in the “ownership” condition, those informed that the set “sincerity” was high (authentically reproduce sound) acted more honestly ($M_{honest} = 59\%, or 13 out of 22$) than those informed that the set “sincerity” was moderate (artificially improve sound; $M_{honest} = 29\%, or 6 out of 21$), $\chi^2 (1, N = 132) = 3.91, p = .05$. That is, people adjusted their behavior to align with the perceived characteristics of a product they were randomly assigned to own, acting with greater honesty when the perceived product sincerity was higher (vs. lower).

Further, consistent with the no-ownership-to-contrast prediction (H1), among participants in the “no-ownership” condition (assigned to own a different set than the one they evaluated), those informed that the set “sincerity” was high acted less honestly ($M_{honest} = 14\%, or 3 out of 22$) than those informed that the set “sincerity” was moderate ($M_{honest} = 48\%, or 11 out of 23$), $\chi^2 (1, N = 132) = 5.52, p = .02$. That is, people contrasted their behavior from the perceived characteristics of a product they were randomly assigned not to own, acting with greater honesty when the perceived product sincerity was lower (vs. higher). Importantly, consistent with classification of products relative to the personal-self as the underlying process, within the control condition, where ownership was not mentioned, honesty likelihood among those informed that the set “sincerity” was high ($M_{honest} = 39\%, or 9 out of 23$) and those informed that the set “sincerity” was moderate ($M_{honest} = 33\%, or 7 out of 21$) did not differ, $\chi^2 < 1$, NS. That is, when the ownership construct was not activated, reducing the likelihood that the personal-self is used as a category, description of headphone sincerity did not affect honest behavior.
Discussion

This study demonstrated that product ownership yielded product consistent behavior, whereas unowned usage yielded product inconsistent behavior. Further, the absence of an effect in the control condition is consistent with our theorizing that the observed assimilation and contrast effects are driven by the categorization of the product relative to the self, which is mainly expected when ownership is contextually salient. This is because, when the concept ‘ownership’ and thus the personal-self are not active, consumers should not classify the product relative to the self, and thus should not use product judgments to mentally represent the self (yielding assimilation) or the standard to evaluate the self (yielding contrast). The control condition also confirmed that different goals that could have been primed by product information (Fitzsimons et al. 2008) had no apparent effect on behavior.
The experiments thus far found support for assimilation and contrast under high self-awareness, which is consistent with H2. However, these studies did not directly examine the prediction that such effects are only expected when attention to the self is high. The next study was designed to directly test this prediction.

EXPERIMENT 3B: THE FACILITATING EFFECT OF SELF-CONSCIOUSNESS

The current experiment verified that a product trait would affect behavior only under high attention to self (H3), such as among self-conscious (i.e., chronically self-aware; Fenigstein et al. 1975) individuals. We manipulated whether participants acquired the high “sincerity” headphones (vs. did not acquire them but received a different set instead). We also measured participants’ private self-consciousness using a validated scale (see Fenigstein et al. 1975), rather than externally increasing self-awareness as done in the previous studies. We expected that owners of the high “sincerity” set would behave more honestly than non-owners, but, consistent with the usage of the personal-self as a category, only if they were self-conscious.

Method. Ninety eight students joined a lab experiment for a $7 participation fee. The procedure of Experiment 2A was repeated with three changes. First, rather than asking participants to write ownership information on an envelope, the current experiment emphasized ownership (vs. its absence) by allowing participants in the ownership condition to select (vs. to be randomly assigned) which of three sets of headphones, laid down on their table, to evaluate. Further, headphones were described as highly sincere across conditions. Finally, participants’
private self-consciousness was assessed using a validated scale that includes items such as “I'm always trying to figure myself out,” anchored between 1-not-at-all and 7-very-much-so.

**Results and discussion.** Participants’ honest behavior, measured by whether they corrected their score to the right one, was submitted to a logistic regression model with ownership (coded 1 for ownership and -1 for no-ownership), mean-centered self-consciousness ($\alpha = .82$) and their interaction as predictors. The (dummy) dependent variable received a value of 1 if participants acted honestly. Consistent with our prediction that product ownership (vs. the lack thereof) would affect behavior only when attention to the self was high (H3), the interaction between ownership and self-consciousness was the only statistically significant predictor and in the hypothesized direction, $\beta = .60$, $\chi^2 (1, N = 98) = 5.47$, $p = .02$. That is, owning (vs. not owning) high-fidelity headphones increased honest behavior more strongly for those with higher self-consciousness. Further, a spotlight analysis revealed a significant positive ownership effect one standard deviation above the mean of self-consciousness ($\beta = .75$, $\chi^2 (1, N = 98) = 5.43$, $p = .02$) but not one standard deviation below the mean ($\beta = -.35$, $\chi^2 (1, N = 98) = 1.24$, $p = .27$). In addition, as a robustness check, we classified participants into two groups, high and low self-consciousness, on the basis of a median split of their self-consciousness score (the mean [standard deviation] of self-consciousness ratings in the low vs. high self-consciousness groups were 4.15 [.53] versus 5.67 [.53], respectively). Consistent with our predictions, the positive effect of owning high-fidelity headphones was significantly stronger for more self-conscious participants. Specifically, owning (vs. not owning) a high-fidelity set increased honest behavior from 26% to 52% in the high self-consciousness group $\chi^2 (1, N = 54) = 3.82$, $p = .05$, compared
with an insignificant decrease from 46% to 35% in the low self-consciousness group $\chi^2 (1, N = 44) = .53, p = .47$).

To sum, using the same trait-related behavior as a dependent measure, the results of this study replicated the results pattern of Experiment 3A, while confirming that this pattern is only expected when self-focus is high (H3), such as among high self-conscious individuals (Fenigstein et al. 1975).

**GENERAL DISCUSSION**

Consumers evaluate themselves in comparison to pertinent standards (e.g., celebrity figures; Shorter et al. 2008). Such comparative judgments shape consumers’ self-evaluations (Hafner 2004) and choice (Van de Ven, Zeelenberg, and Pieters 2011), which render understanding self-standards in consumption contexts central for marketing research. Voluminous research finds that consumers use human references, individuals and groups, as standards for judging their own traits and abilities (Wood 1989). Other research suggests that consumers assign products a variety of human-applicable traits (Aaker 1997) and that such traits can influence self-evaluations of product users by conveying to the users information about themselves, namely self-signals (Gino et al. 2010; Park and John 2010). However, research has not gone beyond a self-signaling hypothesis to suggest that consumers may use product traits (rather than merely traits of other people) as standards for evaluating the self, and that consumers do so in a way that depends on whether these consumers own the products. Addressing this gap, the present research is the first to suggest that consumers use products that are associated with human-applicable traits (e.g., an Apple computer and creativity) as standards to assess how they
personally fare on respective traits. Consumers are predicted to judge their own traits and behave consistently with traits of objects they own (assimilation), but oppositely from such traits of objects they interact with (e.g., use, see in an ad) and do not own (contrast). This pattern is expected even when owning (or not owning) the product cannot serve a diagnostic signal (Bodner and Prelec 2003) to learn about the self (e.g., when ownership is randomly assigned).

**Key results.** Results across three experiments were consistent with the prediction that consumers judge the self consistently with products they own, but oppositely from products they interact with but do not own. The results were robust across multiple dependent variables, including self-evaluation (on close ended measures in Exp. 1 and 2 and on a free response measure in Exp. 2) and behavior (Exp. 3). The results were obtained based on ownership that was induced experimentally (Exp. 1B, 2, and 3) or naturally (Exp. 1A). The results were replicated based on product-evaluation that was either manipulated (Exp. 2, 3) or measured (Exp. 1). The results generalized across different combinations of product categories and traits including pens and MP3 players with femininity (Exp. 1), laptops and “thinness” (Exp. 2), and headphones and sincerity (Exp. 3). Further, consistent with the presumed categorization mechanism, these effects were attenuated in the absence of activation of the personal-self via ownership salience (Exp. 1A, 2, 3A), or under low self-focus (Exp. 3B).

Taken together, the studies help rule-out several alternative explanations for the observed pattern of results. In particular, inference related accounts (e.g., “I own a feminine object so I must be feminine;” Kardes et al. 2004), such as self-perception (Bem 1967) and self-signaling (Bodner and Prelec 2003), cannot hold for cases where product ownership is non-diagnostic of the self, such as following random assignment of ownership (Exp. 1B, 2 and 3), or for product
traits that are not informative of respective user traits (e.g., weight; Exp. 2). In addition, the observed pattern, whereby traits of products affect self-evaluation and behavior by owners and non-owners in diametrically opposing manners (i.e., assimilation or contrast), helps to rule out competing accounts that make a unidirectional prediction, such as mere concept activation (Shapiro, MacInnis, and Heckler 1997) or product contagion (Morales and Fitzsimons 2007). This is because such accounts can be used for explaining the observed assimilation in the ownership condition, but not the contrast in the no-ownership condition. Finally, both goal-activation (Fitzsimons et al. 2008) and embodied-cognition (Niedenthal 2007) perspectives cannot explain the finding that people behave less honestly after interacting with a more (vs. less) “sincere” product that they do not own (Exp. 3A-3B). These perspectives also cannot account for the null effect when the concept ownership was not activated (Exp. 1A, 3A).

Contributions. The present view is consistent with, but distinct from, previous research on the role of brands as relationship partners (Aggarwal and McGill Forthcoming; Fournier 1991, 1998). Consistent with brand-relationship research, the present research highlights that objects may fulfill some human life aspects that have been traditionally thought of as solely occupied by people. Specifically, it is shown that not only human references, but also product references, can set standards by which people judge their own traits and abilities. However, differently from brand-relationship research, which looks at how person-person relations (e.g., friendship) can apply to product-person relations, the present research looks at how product-person relations (e.g., ownership) affects human cognition in ways that resemble what we know from person-person relations (e.g., group membership).
The present research sheds new light on theories of self that postulate that ‘we are what we have’ (e.g., Belk 1988; James 1890; Tuan 1980). Such accounts assume that products can affect the self-concept only if consumers (i) want to update the way they see themselves, (ii) choose to do so through buying and using products, and (iii) use product with traits that are informative of their user’s traits (Cryder et al. 2008; Leary and Kowalski 1990). By contrast, the present research finds that a product can affect people’s self-evaluation on different traits in a broader set of conditions. In particular, people’s self-evaluation or behavior were found to be affected by products even when (i) product interaction was involuntary (e.g., a gift, product ad), (ii) people had no apparent desire to “update” their identity, and (iii) product traits were not informative of their respective user’s traits (e.g., the “thinness” of a laptop).

The finding that a product can affect people’s self-evaluation and behavior has worrisome implications to people in modern western society, who often acquire objects without any intention to do so, such as when they inherit, win or receive them as gifts. This is because, these findings suggest that when people acquire an object, not only do these people gain control over it, but ironically they also surrender control to it, allowing its traits to systematically influence the way they see themselves and behave. Additionally, the growing popularity of product usage by non-owners (e.g., via leasing or renting) in many industries (e.g., car, fashion) as well as the massive exposure of people to product advertising increases the importance of the effects we document for non-owners. Future research would benefit from looking at whether the observed effects are long lasting or more short lived. Although the results of the ownership condition of Experiment 1A are consistent with the possibility that people use products as self-standards not only at the time of acquisition, but also after varying time of ownership, additional research would be useful for confirming this possibility. Further, whereas experimental research is useful
for highlighting the existence of such effects in controlled lab-settings, additional research should examine whether such effects also hold outside the lab when they overlap with others signals, as is often the case in the real world.

To summarize, this research finds that consumers may judge their own traits and abilities relative to pertinent traits of products they interact with, in a way that is determined by whether these consumers own the products. This results are consistent with the possibility that consumers categorize owned (but not unowned) products in the self-concept, which leads to subsequent assimilation or contrast of self evaluation to product judgment.
ESSAY 3 - WHICH PRODUCT TO RETAIN? THE EFFECT OF PRODUCT-RELATED VERSUS PERSON-RELATED PRODUCT FEATURES
ABSTRACT

How do preferences differ for choices about product retention (where consumers own two products and choose which one to retain) versus acquisition (where consumers choose which of two products they do not own to acquire)? We propose that in product retention (vs. acquisition), consumers give more weight to person-related features—attributes consumers usually use to describe people (e.g., “smartness”)—and less weight to product-related features—attributes consumers usually use to describe products (e.g., “portability”). So, for example, consumers who trade off smartness and portability in choosing a tablet computer are more likely to retain the smart tablet but to acquire the portable tablet. Findings across five studies support a categorization account, whereby consumers classify owned products in the category “self;” this serves to increase the ease of processing of, and thus the decision weight afforded to, person-related features in product retention (vs. acquisition). Theoretical and pragmatic implications are discussed.
Owing a product and choosing a product often go hand in hand in consumer life. In some cases, ownership precedes choice; consumers first acquire redundant products, such as multiple music players or variety of credit cards, and then choose which of these products to retain. In other cases the sequence is the reverse; consumers first choose which music player or cell-phone to acquire and only then obtain the product. Can the timing of choice, before or after ownership, affect decision making? The vast research on the ownership-choice interplay has taken an “endowment” perspective, studying how owning versus not owning a product increases preference for *that product* (Kahneman et al. 1990, 1991; Thaler 1980). However, relatively little is known on how owning rather than not owning multiple products affects preference *among these products*, namely how choice among owned products, or retention, differs from choice among unowned products, or acquisition.

The present research suggests that, compared to consumers who face acquisition, those who face retention care more about certain product features. In particular, consumers facing retention may give more weight to *person-related* features—attributes as creativity and smartness that mainly apply to describe people—and less to *product-related* features—attributes as processing speed and portability that primarily apply to describe products. Take for example a consumer choice between two tablet computers that requires a tradeoff between iPad’s creativity and Motorola’s Xoom’s processing speed. Consumers making this tradeoff may care more about the *person-related* feature, creativity, in retention rather than in acquisition, and thus choose to retain the creative tablet but to acquire the speedy tablet.

Why would consumers who face retention rather than acquisition give more weight to *person-related* features? Research on cognitive implications of ownership shows that when the concept “ownership” is highlighted consumers classify owned objects in the category “self”
(Weiss and Johar 2013). Therefore, the present research suggests that consumers who own a product, and thus include it in the category “self,” may experience greater ease of processing information about the product’s person-related features. This is because categories guide how people disambiguate items, for example, by increasing people’s ease of processing information on features that are more strongly associated to the category (Barsalou 1982; Rosch and Mervis 1975). Accordingly, when people choose among products they classify in the category “self,” they should process more easily person-related features, which are highly associated with the category “self.” Therefore, because easy-to-process features carry more weight in choice (Herr, Kardes, and Kim 1991), when consumers choose among products they own (and thus classify in the category “self”), namely in retention rather than in acquisition, they may give person-related features more weight.

Consistent with the aforementioned conceptualization and hypothesis, five studies demonstrate that compared to consumers who face acquisition, those who face retention afford greater weight to person-related features. We begin with a brief review of previous research on how owning a product can affect product choice. Studies 1a and 1b then support the assertion that consumers classify products as part of the category “self;” consistent with prior research, the studies show that compared with consumers who classify a product outside of the category “self,” those who classify the product in the “self” (e.g., following product ownership) list faster features the product shares with the “self.” Study 2 supports the underlying cognitive process, namely that consumers process person-related features more easily for products they own rather than not own. Studies 3-5 provide evidence that person-related features carry more weight in product retention than in product acquisition. Finally, we discuss the implications for marketing practice and consumer theory, and we address alternative explanations.
OWNERSHIP AND PREFERENCE

Ownership and choice are two fundamental aspects of consumption and so their interplay has received much scholarly attention (Carmon and Ariely 2000; Ferraro et al. 2011; Johnson et al. 2007; Weaver and Frederick 2012). How does ownership affect preference and choice? A large body of research on the “endowment effect” has addressed one aspect of this question, examining consumers’ preference for the same product when consumers own versus do not own the product (Kahneman et al. 1990, 1991; Thaler 1980). That research finds that “people often demand much more to give up an object than they would be willing to pay to acquire it” (Kahneman et al. 1991, p. 194). Although endowment research has introduced the pivotal effect of ownership on preference, the focus of that research is on comparing preference for the same product across ownership states, namely ownership versus the lack thereof. Accordingly, endowment research is silent with regard to cases where consumers choose among different products within the same ownership state, namely with respect to choice among unowned products, or acquisition, and to choice among owned products, or retention. Extending previous research on the effect of ownership on choice, the present research uses categorization principles to study differences between retention and acquisition using the distinction between person-related and product-related features.
PERSON-RELATED VERSUS PRODUCT-RELATED FEATURES

When positioning a product or a brand, marketers often highlight some of its attributes, emphasizing hedonic or pragmatic features (Dhar and Wertenbroch 2000; Holbrook and Hirschman 1982) or imbuing it with a brand personality (Aaker 1997; Grohmann 2009). Notably, one broad range of features that marketer use is primarily applicable to describe products (and less so to describe people). We refer to this range of attributes, which includes hedonic and pragmatic features (e.g., aesthetic, portable) as well as variety of brand personalities (e.g., fragile), as product-related. In contrast, a second wide range of product features is primarily applicable to describe people (and less so to describe products), namely person-related. This range of attributes includes other hedonic and pragmatic features (e.g., beautiful, resilient) as well as a distinct set of brand personalities (e.g., outdoorsy). Nonetheless, many features do not fit into either range as they similarly apply to people and products; such hedonic and pragmatic features (e.g., stylish, stable) as well as brand personalities (e.g., reliable) are in that sense neutral.

Importantly, in positioning a product, marketers can often describe equivalent product attributes (e.g., the strong body and good looks of a new car model) using either product-related (e.g., “durable” and “aesthetic”) or person-related (e.g., “resilient” and “beautiful”) features. Thus, if consumers care more about an attribute that is described using a person-related feature for products they own (vs. do not own), it may inform a marketer’s decision about how to position a product when the firm focuses on retaining existing customers (who already own the product) rather than on acquiring new customers. Further, in many situations consumers choose among either products they do not own (e.g., which mobile phone to acquire) or products they
already own (which of two redundant gifts to retain). Thus, identifying factors that differentially affect choice among owned versus among unowned products is of interest to marketers and consumer researchers alike. Next, we outline the theoretical foundation, and then present a novel account, for the way owning (vs. not owning) two products affects how people choose between them.

OWNERSHIP AND CLASSIFYING PRODUCTS AS PART OF THE CATEGORY “SELF”

Research on cognitive implications of ownership suggests that owning a product leads consumers to associate it with their self-concept (Gawronski et al. 2007; Turk et al. 2011), and even classify it in the category “self” (Weiss and Johar 2013). Such processes were observed not only for chosen possessions that have gained personal meanings over time (Belk 1988; Kleine et al. 1995), but also for objects that were just obtained through random assignment of ownership. That research finds that people spontaneously segment objects relative to the category “self” mainly when their personal-self is active, namely when self aspects that portray people as separate and distinct individuals (Brewer, Weber, and Carini 1995; Singelis 1994) gain accessibility. Importantly, the same research also finds that some consumers use ownership for classifying objects as “me” or “not me” less than others; such consumers, defined as being low on “Mine-Me” sensitivity, do not to classify objects they own as part of, and objects they do not own as external to, the category “self.”
OWNERSHIP AFFECTS THE EASE OF PROCESSING OF, AND THUS THE DECISION WEIGHT AFFORDED TO, PERSON-RELATED FEATURES

How can classifying a product in the category “self” affect the way consumers think of that product? Previous research finds that when consumers classify an item in a category, the more a feature of the item is associated with the category, the easier it is for people to process information about that feature (Barsalou 1982; Ross and Murphy 1999). This is because the category of an item prioritize which knowledge about the item is retrieved to help interpret and disambiguate the object (Murphy and Medin 1985). Knowledge of features that are more strongly associated with the category is retrieved first (Medin 1989).

Features that are more applicable to a category are more likely to be used to describe category members, and thus tend to be more strongly associated with the category (Higgins 1996; Rosch and Mervis 1975). Accordingly, when people classify an item in a category, they are more likely to attend, and should more easily retrieve knowledge about, item features that are more (vs. less) applicable to the category (Bruner 1957; Higgins and Chaires 1980; Higgins et al. 1982). Therefore, consumers’ ability to process information on neutral features (that similarly apply to, and thus equally associated with, people and products) should be similarly facilitated by classifying an item as “self” or as a product. By contrast, consumers ability to process information on person-related features (that are more applicable to, and thus more associated with, the “self” than applicable to and associated with the category “products”) should be better facilitated by classifying an item as belonging to the category “self.” Thus, we predicted that:

**H1:** Classifying (vs. not classifying) a product in the “self” (e.g., following product ownership) will increase the ease to process person-related features of the product.
Information that is processed sooner tends to receive more weight in preference and choice (Herr et al. 1991; Mandel and Johnson 2002; Pham et al. 2001; Zajonc 1980). Accordingly, for consumers who classify (vs. do not classify) a product in the category “self” (e.g., because they own the product), person-related features (which are predicted to be more easily processed) should be more important in product choice. This may lead to a preference reversal between cases of acquisition, where consumers choose among products they do not own (and thus do not classify the products in the category “self”) and cases of retention, where consumers choose among products they own (and thus classify the products in the category “self”). In particular, consumers may prefer products that dominate on a desirable product-related feature in acquisition, but products that dominate on a desirable person-related feature in retention. Thus, we predicted that:

**H2:** Person-related features will carry more weight in product retention (vs. acquisition).

Our conceptual framework suggests that the predicted greater weight of person-related features in retention (vs. acquisition; H2) is driven by classification of owned objects in the category “self.” Thus, among consumers with low “Mine-Me” sensitivity, who do not classify objects relative to the category “self” based on whether they own them, owning or not owning a product should not predict preference for products with desirable person-related features. If ownership does not determine where ‘me’ ends and ‘not-me’ begins, it cannot predict whether or not people classify a product in the category “self,” and thus whether consumers will assign greater weight to person-related features in retention (vs. acquisition). We build on previous methods for assessing “Mine-Me” sensitivity to examine whether:

**H3** The predicted higher weight of person-related features in retention (vs. acquisition) will attenuate for people with low “Mine-Me” sensitivity.
In the five experiments described below, we test these hypotheses across a variety of *person-related* features (e.g., intuitiveness, dependability) using different product categories (e.g., tablet computers, watches). To test for a causal link from ownership to the ease of processing of, and the decisions weight afforded to, *person-related* features in product choice, all studies but 1A and 2 focused on randomly assigned (actual or imagined) product ownership. Further, consistent with research on the self as a category for products, participant’s self-concept was activated in the beginning of all studies (see activation method for each study in Appendix 3A). Before directly examining this research’s hypotheses, studies 1a and 1b test the assumption that people use the “self” as a category for products, and the asserted role of product ownership in the process.

**EXPERIMENT 1A: CONSUMERS RETRIEVE MORE EASILY PRODUCT-SELF COMMONALITIES FOR PRODUCTS THEY CLASSIFY IN THE CATEGORY “SELF”**

The current study aimed to test the idea that people use the “self” as a category for products (Weiss and Johar 2013). Previous research finds that, when people classify (vs. do not classify) an item in a category, features common to the item and the category become more readily available (Barsalou 1982; Ross and Murphy 1999). Accordingly, to the extent the idea that people classify products relative to the category “self” is valid, people who classify an item in (vs. out of) the “self” should more easily list features common to the item and themselves (i.e., product-self commonalities); however, this pattern should not hold for features that apply only to the item (i.e., product distinct) or only to people’s selves (i.e., self distinct\(^1\)). To test this

---

\(^1\) Note that the distinction between product-self commonalities, product distinct features and self distinct features is orthogonal to the distinction between person-related, object-related and neutral features. This is evident from the
possibility, the experimental design included a 2 (part of self: yes, no) x 3 (feature type: product-self commonalities, product distinct features, self distinct features) factorial design. Participants were asked to list 3 products and then 3 attributes for each product according to the experimental condition they were randomly assigned to. The time it took participants to list the required features was used as the dependent variable.

Method. One hundred and forty three members of an online panel participated in a short study for a nominal compensation. Participants read that “if you think of all the objects in the world, you can think of them as being classified into two groups: the objects that you classify as being part of yourself and the rest of the objects, which are not part of yourself. For different people, each category (part of myself vs. not part of myself) is comprised of different objects.” Then, participants in the “part of self” (“not part of self”) condition were asked to list three electronic products that they classify as part of the self (not part of the self). Subsequently, for each object, participants in the “product-self commonalities” condition listed “three characteristics that are true of both you and the following object, namely characteristics that you have in common with the object.” Participants in the “product distinct features” condition listed “three characteristics that are true of the following object, but not true of you, namely characteristics that the object has that you do not have.” Finally, participants in the “self distinct features” condition listed “three characteristics that are true of you, but not true of the following object, namely characteristics that you have but the object does not have.” The time it took participants enter the three attributes for each of object served as the dependent variable.

observation that each class of the first distinction can be expressed along features form each class of the latter distinction. For example, a person can express a commonality with/distinction from a product along dimensions of beauty (person-related), aesthetics (object-related) or looks (neutral).
Results and discussion. We cleaned our dataset by removing seven subjects who failed to follow instructions by listing non-electronics (e.g., body parts, apparel) as objects. Further, based on a box-and-whisker plot (Tukey 1977), we removed responses outside of the interval (Q1-1.5*IQR, Q3+1.5*IQR)\(^2\) of response time (3% of the data) across all of our studies. The qualitative pattern of results does not change if we do not drop responses. Participants’ log response times were entered into a repeated measure ANCOVA with 2 (part of self: yes, no) and 3 (feature type: product-self commonalities, product distinct features, self distinct features) and their interaction as factors; the analysis controlled for the mean centered attribute character count by entering it as a covariate (because entering longer product attributes takes longer). Consistent with the prediction that, for products consumer classify in (vs. not in) the “self,” product-self commonalities (but not product distinct features or self distinct features) will be retrieved faster, the omnibus interaction was significant \(F(2, 128) = 3.23, p = .04\), see Figure 1) and so was the respective interaction contrast \(F(1, 128) = 6.26, p = .01\). To explore the nature of the interaction, planned contrast revealed that, consistent with predictions, participants in the “product-self commonalities” condition listed the three features faster in the “part of self” (vs. “not part of self”) condition \(M_{\text{part of self}} = 40.01\ sec\ vs.\ M_{\text{not part of self}} = 52.14\ sec; F(1, 128) = 5.96, p = .02\)\(^3\). Also consistent with the study’s predictions, condition (part of self: yes vs. no) did not affect the time it took participants to enter product distinct, and self distinct, features \(M_{\text{part of self}} = 64.02\ sec\ vs.\ M_{\text{not part of self}} = 57.18\ sec; M_{\text{part of self}} = 58.48\ sec\ vs.\ M_{\text{not part of self}} = 52.14\ sec; F < 1\).

\(^2\) IQR = Inter quartile range

\(^3\) Statistical measures are based on log response time, and means are based on actual time
Notes: The reported means control for the number of letters used.

The results of Study 1a are consistent with the idea that people classify products relative to the category “self;” participants were faster to list product-self commonalities for products they classified in (vs. out of) the category “self.” Importantly, participants were not faster to list product distinct or self distinct features; this helps to rule out a mere familiarity account, whereby participants are faster with products they classify in (vs. out of) the category “self” simply because they are more familiar with them.

However, it is possible that, rather than reflecting the categorization effect that we study, participants listed commonalities faster in the “part of self” condition because the products they initially came up with had more self-commonalities to begin with. To address this concern and test the assumption that owning an item leads people to classify it as part of the category “self,” Study 1b examined how assigning product ownership affects (i) classification of the product relative to the “self” and (ii) the ease to list product-self commonalities.
EXPERIMENT 1B: CONSUMERS ASSIGNED TO OWN A PRODUCT CLASSIFY IT IN THE “SELF” AND THUS RETRIEVE PRODUCT-SELF COMMONALITIES FASTER

In order to address the limitation of Study 1a and test the assumption that owning a product leads people to classify it as more part of the self, the present study measured participants’ ease of listing commonalties with a product after manipulating whether they own it. Additionally, to further examine the idea that people classify products vis-à-vis the self, the study also measured how participants classified the product relative to the self. In order to verify that Study 1a’s results were not driven by unobserved heterogeneity (Hutchinson, Kamakura, and Lynch 2000), Study 1b employed a within-subject design; all participants listed product-self commonalties, followed by product distinct features and self distinct features for a set of headphones that they were assigned either to own or not to own. This yielded a mixed design with product ownership (owned vs. unowned) as a between-subject factor, and feature type (product-self commonalties, product distinct features, self distinct features) as a within-subject factor. As in Study 1a, the time it took participants list the required features served as the dependent variable. Finding that assigning people to own (vs. not to own) headphones led them to classify the headphones further in the self, and in turn, be list product-self commonalities (but not product distinct or self distinct features) would be consistent with the tested assumptions.

Method. Seventy eight students were paid $7 to participate in this study that consisted of a series of unrelated experiments. As a cover story, participants read that the university's Department of Music was evaluating gift-headphones that it wanted to hand out to invited visitors and was looking for student input in this process. Next, we provided each participant
with three sets of actual headphones, and after they looked at them, the computer randomly assigned participants a set to evaluate. Then, we informed participants to expect that, later in the experiment, the computer would randomly assign them to own either the headphones they evaluated or one of the other sets. Next, participants read information about the headphones and then plugged the headphones they were assigned to evaluate into the computer and listened to 30 seconds of a classical piece by Franz Schubert (German Dances (16) and Ecossaises (2) for piano, D. 783 (Op. 33)). Subsequently, all participants were informed whether they got to own the set of headphones they evaluated (the “owned” condition) or a different set (i.e., not to own the evaluated set; the “unowned” condition). Then, using Study 1a’s wording, all participants were asked to list four attributes common to them and the headphones (i.e., product-self commonalities), then to list four attributes that are characteristic of the headphones but not of them (i.e., product distinct features), and finally to list four attributes that are characteristics of them but not of the headphones (i.e., self distinct features). At last, participants rated the extent to which they classified the headphones in the personal-self on a 1-not-at-all to 7-very-much-so scale, using wording adapted from Study 1a.

Results and discussion. We cleaned our dataset by removing one product-self commonalities response that stated ‘none’ for all 4 attributes. Further, based on a box-and-whisker plot (Tukey 1977), we removed responses outside of the interval (Q1-1.5*IQR, Q3+1.5*IQR) of the response times (4% of the data). The qualititative pattern of results does not change if we do not drop responses. We first separately report results on the predictions that (i) owning (vs. not owning) the headphones set will lead participants to classify it more in the “self” and that (ii) the extent participants classified the headphones in the “self” will predict their time
to list product-self commonalities (as Study 1a finds). Then we perform a mediation analysis with ownership and time to list product-self commonalities as independent and dependent variables, and the extent participants classified the headphones’ in the “self” as the mediator.

The extent participants classified the headphones as part of the “self” was compared across the two ownership conditions (owned vs. unowned). Consistent with predictions, people in the owned (vs. unowned) condition classified the headphones as more part of the “self” ($M_{\text{own}} = 2.81$ vs. $M_{\text{no-own}} = 1.97$, $t = 2.28$, $p = .025$). Next, participants’ log response times were entered into a mixed analysis with feature type (product-self commonalities, product distinct features, self distinct features) as a within subject factor, mean-centered ratings of the extent consumers classified the headphones as part of the “self,” and their interaction; the analysis controlled for the mean centered attribute character count by entering it as a covariate (because entering longer product attributes takes longer). The analysis revealed an omnibus effect of attribute type on response time ($M_{\text{Commonalities}} = 62.08$, $M_{\text{ProductDistinctions}} = 59.79$, $M_{\text{PersonDistinctions}} = 50.59$, $F(2,142 = 9.89, p = .0001^4$). More importantly, consistent with the idea that for participants who classified the headphones as more part of the “self,” product-self commonalities (but not product distinct or self distinct features) would be retrieved faster, the omnibus interaction ($F(2, 142) = 7.64, p = .0007$, see Figure 2) and the respective interaction contrast ($\beta = -.12, p = .0003$) were significant. Further, to explore the nature of the interaction, spotlight analysis (Aiken and West 1991; Fitzsimons 2008) revealed that, consistent with the study predictions, the more participants classified the headphones as part of the “self,” the faster these participants were (i.e., the less time it took them) to provide product-self commonalities ($\beta = -.08, p = .03$). In contrast, also consistent with the study’s predictions, this pattern was not observed for the two other feature

---

4 Statistical measures represent log response time, and means represent actual time.
types; participants who classified the headphones as more part of the “self” were not faster to provide product distinct features ($\beta = .02, p = .55$) and even slower (i.e., required more time) to provide self distinct features ($\beta = .07, p = .04$).

FIGURE 2: RANDOMLY ASSIGNED OWNERSHIP (EXP. 1B)

We predicted that participants who are assigned to own (vs. not to own) the headphones would classify the product as more part of the category “self,” and in turn, be faster to provide product-self commonalities. Consistent with this prediction, following the analysis methods recommended by Zhao, Lynch, and Chen (2010), we found the mean indirect effect from a bootstrap analysis (Preacher and Hayes 2004) was negative and significant ($a \times b = -.05$), with a 95% confidence interval excluding zero (-.1431 to -.0048). In the indirect path, ownership (vs. no-ownership) increased the extent participants viewed the headphones as part of the “self” by a $= .76$ units. Further, holding ownership constant while controlling for attribute length, a unit increase in classifying the headphones as part of the “self” reduced the log response time to report person-related features by .07 units (i.e., $b = -.07$). The direct effect ($-.134$) was not significant ($p = .21$), indicating full mediation.
Consistent with the predictions, the results of the present study showed that randomly assigning people to own a product leads them to classify it as more part of the category “self.” Additionally, consistent with the idea that the “self” can serve as a category for products, classifying a product as more part of the category “self” led participants to be faster to list product-self commonalities. Next, Study 2 moved on to examine whether it is easier for consumers to process person-related features for products they own (and thus classify in the “self”) versus for products they do not own (and thus do not classify in the “self;” H1).

EXPERIMENT 2: CONSUMERS PROCESS PERSON-RELATED FEATURES MORE EASILY FOR PRODUCTS THEY OWN (VS. DO NOT OWN)

The current study aimed to test the hypothesis that consumers more easily process person-related features for products they own (and thus classify in the category “self”) versus for products they do not own (and thus do not classify in the “self;” H1). Participants were asked to find words in a word-puzzle within a limited amount of time. The puzzle was comprised of person-related features (e.g., smart) and product-related features (e.g., compact), as verified by a pretest (see below). To test the prediction that consumers more easily process person-related features for products they classify (vs. do not classify) in the category “self,” the cue that guided the word search was products participants owned (vs. did not own), which people tend to classify in (vs. out of) the category “self” (as confirmed in Study 1b). The proportion of person-related features participants found served as the dependent variable.
Procedure

Pretest. Two samples, one of 28 subjects and another of 44 subjects, responded to two questions with respect to each attribute in one of two lists that together included a total of 49 distinct attributes, comprised of features participants listed in their open responses to Study 1. For each feature, participants were asked to “rate how appropriate it is for describing a person. If you think it could describe a person, then it's a meaningful, ‘appropriate’ attribute. If you think it cannot apply to a person, then it's not an ‘appropriate’ attribute.” The same task was then repeated with “an inanimate object (e.g., camera, phone or computer)” instead of “person.” Both scales were anchored between 1-not-at-all-appropriate and 5-very-appropriate. We used product features rated as more (less) appropriate and applicable for describing people than for describing inanimate objects as person-related (product-related) features in this and all subsequent studies. The full list of attributes and their ratings is presented in Appendix 3B.

Method. One hundred and thirty members of an online panel participated in a short online study for a nominal compensation. Participants played a word puzzle game on a 15 X 15 matrix containing 225 letters (for the actual stimulus employed see Appendix 3C). The word puzzle contained five person-related (smart, intelligent, intuitive, creative, and adaptable) and five product-related (smooth, convenient, compact, sturdy, and pragmatic) features. Unlike traditional word puzzle games, we did not give participants the list of words to be found. The words had to be five letters or longer, comprised of letters linked in a straight line (horizontal or vertical) in the letter matrix, and had to be related to the theme we provided to participants; the
theme served as a retrieval cue. Participants had 60 seconds to find and enter as many words as they could. The 60-second time limit constrained the number of words participants could find, leaving them only enough time to identify the words that jumped out at them (Parker and Schrift 2011). This enabled us to assess participants’ ease of processing person-related (vs. product-related) features. Further, to examine the extent that person-related features are easier to process for products that people classify in (vs. out of) the category “self,” we manipulated the puzzle theme that guided participants search of words (i.e., the retrieval cue). Participants in the [owned] / (unowned) products them were informed that the puzzle theme was “words that can describe a product [you personally own, such as words that can describe a mobile phone or a laptop that you purchased at some point in the past] (, such as words that can describe a mobile phone or a laptop that you may consider purchasing at some point in the future).” The ratio of the number of person-related features ($M = 1.44, SD = .97$) to the total number of features participants found ($M = 3.24, SD = 1.50$) served as a dependent variable. Participants received a full explanation of the task before beginning the task.

Results and Discussion

Twenty two of the subjects (16 in the “owned products” condition) found no words, rendering their ratio undefined. The ratio of person-related features for the rest of the subjects was compared across the two puzzle themes (owned products vs. unowned products). Consistent with the prediction that participants will more easily process person-related features for products they classify in (vs. out of) the category “self,” when the retrieval cue was owned (vs. unowned) products, participants found a higher proportion of person-related features ($M = 47\%$ vs. $M =$
A robustness check for all participants, using the difference between the number of person-related and product-related features, revealed consistent (marginally significant) results ($M = -.15$ vs. $M = -.46$, $p = .09$)\(^5\).

In sum, the results of the Study 2 were consistent with the prediction that consumers more easily process person-related features for products they classify (vs. do not classify) in the category “self,” such as owned (vs. unowned) products (H1). Next, Study 3 examined the predicted implication of consumers’ ease of processing of person-related features for owned (vs. unowned) products for the weight consumers afford to person-related features in product retention (vs. acquisition).

**EXPERIMENT 3: CONSUMERS AFFORD GREATER DECISION WEIGHT TO PERSON-RELATED FEATURES IN RETENTION (VS. ACQUISITION)**

Study 3 tested the prediction that person-related features will carry more decision weight in product retention (vs. acquisition; H2). Further, consistent with the rationale for H1, the study examined whether the predicted decision weight effect is mainly pronounced among individuals who perceive the product features used in the study as more applicable to people than to products (i.e., person-related), rather than similarly applicable to both people and products (i.e., neutral). Participants in the retention (acquisition) condition saw a sequence of five product categories (e.g., tablet computers) and for each category allocated 30 points across 4 product attributes to represent how important is the attribute for them in acquiring (retaining) a product in the category. The attributes were comprised of two person-related features (e.g., intuitiveness) and 2

---

\(^5\) More positive scores reflect a greater number of person-related features.
product-related features (e.g., portability) as identified in Study 2’s pretest. Finally, participants reported the extent to which each product attribute applies to describe people and products (as in Study 2’s pretest). H2 would be supported if person-related features receive greater weight in retention (vs. acquisition). However, consistent with the reasoning for H1, this pattern should be more pronounced among participants who perceive the product features as more applicable to people than to products.

Method. One hundred and seventy seven members of an on-line panel participated in a short on-line study for a nominal compensation. Participants were shown a series of five scenarios and performed a similar task in each of them. Participants in the retention (acquisition) condition were asked to imagine that they “received (considered) two different products of a certain category (e.g., mobile phones) and can keep (acquire) only one of them.” For each scenario, participants were asked to allocate 30 points among four attributes. Two attributes were product-related features (programmability, precision), and two person-related features (beauty, resilience; see Appendix 3D, upper panel, for all products and their attributes that were used in the scenarios). Thus, for example, in the scenario where watch was the focal product category, participants in the retention (acquisition) condition read “imagine that you receive (consider) two watches but can only keep (acquire) one of them… Please allocate 30 points among the following attributes according to their importance to you in choosing which of the products to keep (acquire).” The number of points participants allocated to the person-related features was used as the dependent variable. Finally, participants reported the extent to which each product attribute applies to people and to products (using the wording of Study 2’s pretest). We assessed individual variation on the extent that each of the study’s person-related features are more
applicable to people than to products by subtracting the two applicability scores so that higher applicability difference score reflects greater applicability to people.

Results and discussion. To clean our dataset, based on a box-and-whisker plot (Tukey 1977), we removed responses outside of the interval (Q1-1.5*IQR, Q3+1.5*IQR) of the number of points participants allocated to the person-related features (2% of the data). The qualitative pattern of results does not change if we do not drop responses. Next, to render the applicability difference score of each attribute comparable, each difference score was normalized by attribute; an ANOVA with choice type (retention vs. acquisition) verified that the average applicability difference score was not affected by condition \((F < 1)\). Subsequently, the number of points participants allocated to person-related features were entered into a mixed ANCOVA with choice type (retention vs. acquisition) as a between subject factor, the normalized applicability difference score for each of the person-related features, and their interaction. The analysis controlled for the specific rated attribute and accounted for the specific product the attribute referred to in the covariance structure. Consistent with the prediction that that people will assign greater weight to person-related features in retention (vs. acquisition) decisions \((H2)\), the analysis revealed a main effect of choice type on the weight afforded to person-related features \((M_{Acquisition} = 6.50 \text{ vs. } M_{Retention} = 6.95, F (1, 175) = 7.05, p = .009)\). Further, consistent with the predicted attenuation of the effect when participants perceive attributes as similarly applicable to products and people, namely as neutral, the effect was qualified by a significant interaction \((F (1, 1567) = 6.13, p = .01, \text{ see Figure 3})\). The nature of the interaction was further confirmed by a spotlight analyses. The analysis revealed that, when participants considered a product feature as more applicable to people than to products (one standard deviation above the mean of the
applicability difference score), they assigned that feature greater weight in retention ($M = 7.05$) than in acquisition ($M = 6.11, p = .0003$). However, such effect was not observed when participants did not consider a product feature as more applicable to people than to products (one standard deviation below the mean of the applicability difference score; $M_{\text{acquisition}} = 6.88$ vs. $M_{\text{retention}} = 6.85, p = .92$).

![FIGURE 3: DECISION WEIGHT OF PERSON-RELATED FEATURES (EXP. 3)](image)

Notes: Low is one SD below and high is one SD above the mean of the applicability difference score.

Across multiple product categories and person-related features, the results of Study 3 supported the prediction that person-related features receive more weight in retention (vs. acquisition; H2). Further, consistent with the greater applicability of product-related features to describe people (vs. products) as the driver for the effect, the effect was attenuated for individuals who perceived the feature as comparably applicable to people and products (i.e., neutral). The next study was aimed to test whether the differences in decision weight expressed in study 3 are revealed in product preference and choice.
EXPERIMENT 4: CONSUMERS PREFER PRODUCTS THAT DOMINATE ON PERSON-RELATED FEATURES IN RETENTION (VS. ACQUISITION)

Method. One hundred and fifty nine members of an on-line panel participated in a short on-line study for a nominal compensation. Participants were shown a series of three scenarios and performed a similar task in each of them. The instructions for the “retention” and “acquisition” conditions were similar to the ones used in Study 3. However, rather than allocating points (as in Study 3), in each scenario participants chose between two products in a category (e.g., watches) and then indicated their preference strength between the products on a nine point scale, where one reflects absolute preference for one product and nine reflects absolute preference for the other. Each choice and preference indication required participants to make a tradeoff between a product that is high on a person-related feature (e.g., beauty) but moderate on a product-related feature (e.g., preciseness) or vice versa (see Appendix 3D, lower panel, for the products and attributes used).

Results and discussion. Participants’ preference strengths for the product that dominated on the person-related (vs. product-related) feature were entered into a repeated mixed analysis with choice type (retention vs. acquisition) as a between-subject factor, controlling for product specific variation by using it as a covariate. Consistent with the prediction that person-related features will carry more weight in retention (vs. acquisition; H2), the analysis revealed that retention (vs. acquisition) increased participants’ preference for the product that dominated on a person-related feature ($M_{\text{Acquisition}} = 3.89$ vs. $M_{\text{Retention}} = 4.37$, $F(1, 158) = 4.44$, $p = .03$; see preferences by product in Figure 4, upper panel).
Next, participants’ product choices were entered into an equivalent repeated choice analysis. Consistent with the preference results, the analysis revealed that making a retention (vs. acquisition) choice increased choice of the product that dominated on a *person-related* feature ($\chi^2 = 4.6, p = .03$; see choice percentages by product in Figure 4, lower panel).

**FIGURE 4: PREFERENCE & CHOICE OF PERSON-RELATED FEATURES (EXP. 4)**

Across multiple product categories and *person-related* features, the results of the current study confirmed that the greater decision weight of *person-related* features in retention (vs.
acquisition; H2; as Study 3 finds) can manifest in product preference and choice. However, a limitation of the current study is that its results may have benefited from the possibility that participants perceived some person-related features employed in the study (e.g., beauty) as more hedonic (vs. pragmatic). In particular, previous research shows that consumers care more about hedonic attributes in forfeiture (vs. acquisition; Dhar and Wertenbroch 2000) and forfeiture decisions have common characteristics with retention decisions (i.e., in both choosers possess multiple objects before choice). Indeed, the focus in retention (vs. forfeiture) is on which option to choose (vs. on which option to reject), a difference that can systematically affect choice (Meloy and Russo 2004; Shafir 1993). Nonetheless, we designed Study 5 to better test this alternative account.

**EXPERIMENT 5: CLASSIFYING PRODUCTS IN THE “SELF” DRIVES PREFERENCE FOR PERSON-RELATED FEATURES IN RETENTION (VS. ACQUISITION)**

Study 5 aimed to test our theorizing that the observed pattern of results is obtained because consumers afford greater weight to person-related features, rather than to hedonic attributes, in retention (vs. acquisition). This study also aimed to highlight a boundary condition for the predicted effect that is consistent with classification of products relative to the category “self” as the underlying driver for the results. The study employed the same experimental design as Study 4 with two key differences. The first difference was that the study focused on a single product class, watches, and on a tradeoff between two types of attributes, looks related (relatively hedonic) and quality related (relatively pragmatic). In order to fully cross whether the attribute is hedonic with whether it is person-related, for participants in the person’s-
looks/product’s-quality (product’s-looks/person’s-quality) condition, looks information was described along a dimension of beauty (aesthetics) and quality information along dimension of preciseness (dependability). Notably, both aesthetics and beauty are hedonic traits and both preciseness and dependability are pragmatic traits. Further, both beauty and dependability are person-related and both aesthetics and preciseness are product-related. Thus, support for the hedonic account (Dhar and Wertenbroch 2000) would come from finding stronger preference for the hedonic attributes, beauty and aesthetics, in retention (vs. acquisition). By contrast, support for the proposed categorization account would come from finding stronger preference for the person-related features, beauty and dependability, in retention (vs. acquisition). Further, in order to test the boundary condition that low “Mine-Me” sensitivity attenuates the positive effect of retention (vs. acquisition) on preference for person-related features, the second key difference of the current study was that, after completing their previous task, participants completed a “Mine-Me” sensitivity measure using a scale from Weiss and Johar (2013). Thus, the experiment manipulated decision type (acquisition vs. retention), watch description (person’s-looks/product’s-quality vs. product’s-looks/person’s-quality) and measured “Mine-Me” sensitivity as factors.

Method. Two hundred and seven members of an on-line panel participated in a short on-line study for a nominal compensation. In the first part of the study, participants were shown the scenario of the category “watches” from Study 4, using identical instructions for the “retention” and “acquisition” conditions: participants first chose between two watches and then indicated preference strength between the two watches on a nine point scale. The choice required making a tradeoff between a product high on looks but moderate on quality versus high on quality and
moderate on looks. For participants in the person’s-looks/product’s-quality condition, the tradeoff was between beauty (person-related) and preciseness (product-related). For participants in the product’s-looks/person’s-quality condition, the tradeoff was between aesthetics (product-related) and dependability (person-related). Next, as manipulation check to the extent that people perceive “beauty” and “aesthetics” as hedonic, but “dependability” and “preciseness” as pragmatic, participants responded to the hedonic/utilitarian bipolar scale (Voss, Spangenberg, and Grohmann 2003), anchored between 1 and 7 for all items.

The second part of the experiment assessed participants’ “Mine-Me” sensitivity. Participants rated the extent to which they saw each of 13 objects (e.g., laptop, running shoes, car, ladder) as part of their selves (1-not at all part of my self to 7-very much part of my self). Then, they indicated whether they owned each of the objects they rated in a list that included the objects they rated earlier. Individual differences on “Mine-Me” sensitivity (the extent that ‘mine’ equals ‘me’) were assessed using the steps outlined by Weiss and Johar (2013). First, to verify that the low “Mine-Me” sensitivity is not driven by product specific effects, we subtracted from each product’s “part of self” rating the mean of the “part of self” ratings of participants with the same ownership status over the product (e.g., rating of a car by a car owner was centered by the mean ratings of car owners only). Then we subtracted the mean centered average rating of unowned objects from the mean centered average rating of owned objects (M = -.03, SD = 1.17; using centered “part of self” rating is a conservative measure that accounts for product specific effects). For individuals with higher (vs. lower) “Mine-Me” sensitivity, ownership (but not lack of ownership) over a product leads to a greater increase in the perception of that product as “part of self.” Mine-Me sensitivity was not defined for seven subjects, five who indicated owning all objects and two owning none of the objects; they were excluded from further analysis.
Results. To test the contrasting accounts, we separately examined how choice type affected preference for the product high on (i) a person-related feature (collapsing across beauty and dependability) and on (ii) a hedonic feature\(^6\) (collapsing across beauty and aesthetics) as a function of “Mine-Me” sensitivity. A more comprehensive analysis of preference for the better looking watch as a function of choice type and the attribute used to describe looks (i.e., beauty vs. aesthetics) under high and low “Mine-Me” sensitivity is provided in Appendix 3E.

ANOVA with choice type (acquisition vs. retention) as a predictor verified that, consistent with the view of “Mine-Me” sensitivity as an individual difference measure, it was not affected by condition \((p = .28)\). Next, participants’ preference strengths for the product high on a person-related feature were entered into a regression analysis with choice type (acquisition = -1, retention = 1), mean centered “Mine-Me” sensitivity and their interaction as predictors. Consistent with the prediction that person-related features will carry more weight in retention (vs. acquisition; H2), the analysis revealed that a retention (vs. acquisition) choice increased preference for the product high on person-related feature \((M_{\text{Acquisition}} = 4.65 \text{ vs. } M_{\text{Retention}} = 5.50, \beta = .85, p = .02)\). Further, consistent with our theorizing that choice type would affect preference for the person-related feature mainly when ‘mine’ equals ‘me,’ the effect of choice-type on preference was qualified by a significant interaction with “Mine-Me” sensitivity \((\beta = .95, p = .01, \text{ see Figure 5})\). The predicted nature of the interaction was further confirmed by a spotlight analyses. The analysis revealed higher preference for the product high on a person-related feature in the retention choice condition one standard deviation above the mean of “Mine-Me”

\(^6\) The manipulation-check results confirmed that participants perceived “beauty” and “aesthetics” to be comparably hedonic \((M = 5.22 \text{ vs. } M = 5.24, F < 1)\) and perceived “preciseness” and “dependability” to be comparably pragmatic \((M = 6.43 \text{ vs. } M = 6.31, F < 1)\).
sensitivity \( M_{acquisition} = 4.15 \) vs. \( M_{retention} = 5.94, p = .0006 \), but no effect one standard deviation below the mean of “Mine-Me” sensitivity \( M_{acquisition} = 5.16 \) vs. \( M_{retention} = 5.05, p = .84 \). Importantly, repeating the same analysis for participants’ preference strengths for the product high on a hedonic feature, revealed no main effect or interaction \( F \leq 1 \).

**FIGURE 5: “MINE-ME” SENSITIVITY MODERATION (EXP. 5)**

![Graph showing preference for watch dominating on a person befitting feature](image)

Notes: *Person-related* features used: “beauty” and “dependability.” *Product-related* features used: “aesthetics” and “preciseness.” Low is one SD below and high is one SD above the mean of “Mine-Me” sensitivity.

The two analyses used for the preference results were repeated for choice. Participants’ choice of watch (high on *person-related* feature = 1, high on *product-related* feature = 0) was entered into a logistic regression with choice type (acquisition = -1, retention = 1), mean centered “Mine-Me” sensitivity and their interaction as predictors. Consistent with the preference results, the analysis revealed that retention (vs. acquisition) increased choice of the product high on a *person-related* feature \( (\beta = .31, \chi^2 = 4.41, p = .036) \). This effect was qualified by a marginally significant interaction with “Mine-Me” sensitivity \( (\beta = .23, \chi^2 = 3.31, p = .07) \). Consistent with the preference pattern, a spotlight analyses revealed higher preference for the product that
dominated on a *person-related* feature in the retention choice condition one standard deviation above the mean of “Mine-Me” sensitivity ($\beta = .58, \chi^2 = 7.48, p = .006$), but no effect one standard deviation below the mean of “Mine-Me” sensitivity ($\beta = .03, \chi^2 = .03, p = .87$).

Importantly, the same analysis, repeated for participants’ choice of watch (high on *hedonic* feature = 1, high on *pragmatic* feature = 0), revealed no main effect or interaction ($p > .16$).

Thus, consistent with Study 4, in retention (vs. acquisition) participants were more likely to prefer products that dominated on a *product-related*, rather than on a hedonic, feature. Furthermore, also in line with classification of products relative to the category “self” as the underlying process, this pattern was pronounced among people high on “Mine-Me” sensitivity, namely participants who tend to use ownership to determine what objects to classify as part of the category “self.”

**GENERAL DISCUSSION**

Much research has studied how owning (vs. not owning) a product affects consumers’ perception of and preference for the product (Kahneman et al. 1990, 1991). Much of that research has focused on how ownership (vs. the lack thereof) affects preference for the same product (Knetsch 1989; Thaler 1980). However, in many real world situations, consumers choose either which of several products they do not own (e.g., two mobile phones) to acquire or which of several products they already own (e.g., two redundant wedding gifts) to retain. Little is known on how these two choice contexts, retention versus acquisition, affect choice process and outcome (Dhar and Wertenbroch 2000).
Building on research on the role of ownership in classifying a product in the category “self” (Weiss and Johar 2013), the role of categorization in feature accessibility (Barsalou 1982), and the role of accessibility in decision weight (Herr et al. 1991), we have suggested that retention (vs. acquisition) choice leads consumers to care more about certain product features. In particular, retention (vs. acquisition) choices may increase the accessibility of, and thus the decision weight afforded to, *person-related* features (that mainly apply to people) relative to the accessibility of, and the decision weight afforded to *product-related* features (that primarily apply to products).

**Main findings.** Two experiments supported the premise that consumers classify products in the “self” by ownership. Consistent with the idea that people classify products relative to the self, Study 1a showed that people list faster product-self commonalities for products they classify as part (vs. not part) of the category “self.” Further, consistent with the asserted effect of ownership in the process, Study 1b showed that assigning people to own a product led them to classify it as more part of the category “self,” and in turn, list product-self commonalities faster.

Four more studies provided support for the research hypotheses. Study 2 established the prediction that, when people think of products they own (and thus classify in “self”), rather than of products they do not own (and thus do not classify in “self”), it better facilitates processing information on *person-related* (but not on *product-related*) features (H1). Study 3-5 supported a predicted consequence of this accessibility effect, namely that *person-related* features would carry more weight when consumers choose among products they own (and thus classify in the category “self”), namely in product retention (vs. acquisition; H2). Results were robust across multiple measures of decision weight, including direct (Study 3) and indirect (as reflected
The results generalized across different combinations of product categories (e.g., watches, MP3 players, tablet computers) with variety of person-related features (e.g., beauty, intuitiveness, dependability) and product-related features (e.g., speed, esthetics, portability; studies 3-5). Further, consistent with the presumed categorization in “self” mechanism, the effects were attenuated when the category “self” should not facilitate processing person-related features; this was the case for people who saw the categories “self” and “products” as equally applicable to the product features used in the study (Study 3) and for people who did not see owned (vs. unowned) products as more part of the “self” (Study 5).

Taken together, our studies assess several alternative explanations for the observed pattern of results. In particular, the observed results could have been amplified, or even alternatively explained, by a hedonic/pragmatic account (Dhar and Wertenbroch 2000). According to this account, consumers may perceive person befitted features as more hedonic, and thus tend to elaborate more and care more about them in forfeiture choices (that have common features with retention choices). However, a hedonic/pragmatic account cannot predict easier processing of person-related features for owned (vs. for unowned) products, especially outside the context of forfeiture and loss (Study 2). Further, such account cannot hold for traits that are not hedonic in nature (e.g., resilience, adaptability, dependability; studies 2-5). Finally, when the extent that a feature is hedonic was fully crossed with the extent that it is product-related, the latter factor (but not the first) predicted product preference and choice (Study 5).

Implications. The present research extends available support for, and the known implications of, the idea that people classify products relative to the category “self” (Weiss and Johar 2013); it does so by providing unique evidence for the validity of the theory and for the
effect of ownership on the importance of *person-related* (vs. *product-related*) features in product choice. Indeed, previous research on the idea that people classify products relative to the category “self” shows that owning a product and subsequently classifying it as part (vs. not part) of the category “self” leads people to judge traits of the product as more consistent (vs. inconsistent) with their own. However, the present research is the first to suggest and find that owning a product (and thus classifying it as part of the “self”) affects (i) the importance people afford to certain product traits (i.e., *person-related* features), and ultimately (ii) the product they choose. In doing so, the present research also extends previous ownership research, which has focused on preference between owned and unowned products (Kahneman et al. 1991; Knetsch 1989). Going beyond that research, the present research highlights that people often choose either among products they do not own or among products they already own, and shows how these two choice contexts, acquisition and retention, can affect preference and choice.

The proposed dichotomy between *product-* and *person-related* features broadens the available taxonomies that marketers and consumer researchers can use to organize and understand how consumers respond to products and brands (e.g., hedonic/utilitarian, brand personality, material/experiential; Aaker 1997; Dhar and Wertenbroch 2000; Van Boven and Gilovich 2003). For example, the results suggest that marketers’ decision whether to encourage feelings of ownership of their products prior to purchase needs to be considered alongside with the decision whether or not to highlight *person-related* features in positioning the product. In particular, when practices that encourage feelings of ownership, such as mass customization, test-drives or advertising that encourage consumers to imagine product use (Peck and Shu 2009), are at play, marketers may benefit from positioning a product along *person-related* features; the same may apply when marketers focus on retaining existing consumers (who already owns the
product). By contrast, when marketers do not employ conventional marketing plans that are aimed at evoking a feeling of ownership, and when markets focus on acquiring new consumers, marketers are likely to benefit from positioning their product along product-related features.

Finally, perceptions of how applicable a feature is to describe a product versus a person are likely to be dynamic, and to vary across individuals and cultures. Accordingly, in order to use or further study the distinction between product- and person-related features, marketers and decision researchers should test how features are perceived among their target population.
Ownership constitutes a fundamental relation between people and inanimate objects (Belk 1988; Furby 1980; James 1890) and may help people identify, understand and mark the boundaries of their self-concept, where ‘me’ ends and ‘not-me’ begins (Burris and Rempel 2004; Edney 1974; Heider 1958). The present research theorizes that people use their personal-self, namely the aspects of self that are not formulated in connection to membership in a social group or a relationship (Oyserman 2009), as a category that includes objects they own, but excludes objects they do not own. This assertion uniquely provides a theoretical foundation to study the effect of ownership on product judgment and consumer choice using categorization principles.

In three essays, the present dissertation demonstrates the usefulness of the key assertion of Egocentric Categorization Theory, namely that people classify objects relative to the category “self” by whether they own these objects. Essay 1 introduces Egocentric Categorization Theory. The essay demonstrates that people perceive traits of products as more similar to their own traits, when they own these products, but as more dissimilar to their own traits, when they do not own these products. This demonstration is consistent with ample previous research on the effect of classifying an item relative to a category on assimilation and contrast of the item vis-à-vis the category (Herr et al. 1983; Hovland et al. 1957; Martin 1986; Schwarz and Bless 1992; Tajfel 1969). In direct support of Egocentric Categorization Theory, the identified assimilation/contrast effect of product ownership is found to be mediated by the extent that people classify the product as part of the category “self.” Essay 1 also identifies several theoretically driven boundary conditions for egocentric categorization to ensue. In particular, it shows that, consistent with other categorization research (Higgins 1996; Srull and Wyer 1979), the self is more likely to
serve as a reference category for products when it is activated and when it is in the focus of attention. In further support for the underlying theory, Essay 1 also shows that ownership can predict assimilation and lack of ownership contrast only among people who perceive ‘mine’ as ’me,’ namely individuals with high “Mine-Me” sensitivity.

Essays 2 and 3 build on Egocentric Categorization Theory to explore other theoretically driven predictions. Essay 2 shows that people perceive their own traits and behave consistently with traits of products they own (assimilation), but inconsistently with traits of products they do not own (contrast). This finding is consistent with ample previous research on the effect of classifying an item relative to a category on assimilation and contrast of the category vis-à-vis the item (Bless and Schwarz 2010; Bless et al. 2001; Herr et al. 1983). Further, consistent with the EC model described in Essay 1, Essay 2 demonstrates that activation of the personal-self and high self-focus facilitate the identified assimilation and contrast effects.

Essay 3 builds on previous research on how a category allows people to more easily process information about features associated with that category (Murphy and Medin 1985). The essay demonstrates that when people make choices about products they own (and thus classify in the category “self”), it is easier for these people to process information about product features that are highly associated with the category “self,” namely person-related features (e.g., creativity). Consequently, because easier to process features carry more important in choice (Herr et al. 1991), people assign greater decision weight to person-related features in choices among products they own. Further, consistent with the EC model described in Essay 1, Essay 3 demonstrates that high “Mine-Me” sensitivity facilitates the identified effect.
CONTRIBUTIONS

Essay 1 and Essay 2, each documents one effect of categorization on assimilation or on contrast between the category “self” and an exemplar product. Whereas Essay 1 documents variation in how a product is perceived due to assimilation or contrast to the category “self,” Essay 2 identifies variation in how the “self” is perceived due to assimilation and contrast to a product. The evidence for both effects, category-to-instance in Essay 1 and instance-to-category in Essay 2, is consistent with previous categorization research (Bless and Schwarz 2010). For example, Bless et al. (2001) simultaneously identified both effects in a study on social categorization and stereotyping. In that study, Bless et al. presented participants with a description of an exemplar that is moderately typical of a certain social category and manipulated whether participants included the exemplar in or excluded it from that social category. In support of the study predictions, when participants were led to include the exemplar in the group, both expected assimilation effects ensued. In particular, participants assimilated the category to the exemplar and had a less stereotypical perception of the category; participants also assimilated the exemplar to the category and had a more stereotypical perception of the exemplar. Further, when participants were led to exclude the exemplar from the group, both expected contrast effects ensued. Specifically, participants contrasted the group from the exemplar and had a more stereotypical perception of the group; participants also contrasted the exemplar from the group and had a less stereotypical perception of the exemplar. Thus, evidence for both effects, category-to-instance in Essay 1 and instance-to-category in Essay 2, provides further support for categorization, and specifically for Egocentric Categorization, as the underlying process. Future
research would benefit from documenting both effects within the same study, and from identifying theoretically driven factors that may render each of the effects stronger or weaker.

One key contribution of the present dissertation is in providing a framework that allows bridging two separate literatures in research on judgment and decision making. Specifically, people generally engage in decisions and judgments about people (i.e., themselves or others) as well as about products and goods. Thus far, research on decisions and judgments about people and about products has been conducted separately, yielding separate and distinct bodies of research. Research on how people judge themselves concludes that people often do so relatively to how they perceive other people, namely through social comparison (Festinger 1954; Tesser 1986; Tesser and Campbell 1980). Moreover, research on how people judge products concludes that people often do so relative to how they perceive other products (Hsee 1996; Hsee and Leclerc 1998; Morales and Fitzsimons 2007; Yeung and Wyer 2005). Importantly, Egocentric Categorization Theory provides a framework to bridge the two literatures. In particular, Essay 1 shows that people may judge products not only relative to other products, but also relative to how they judge themselves. Further, Essay 2 shows that people may judge themselves not only relative to other people, but also relative to products in their environment. Future research would benefit from further investigating this unexplored interplay between how consumers judge products and judge themselves.

A second key contribution of the present dissertation is in demonstrating that judgments and decisions about products consumers do not own may differ from judgments and decisions about products these consumers already own and in providing a theoretical reasoning for this difference. Prior decision research has focused on judgments and decisions about products consumers do not yet own. For example, research investigated which product in a category
(Simonson and Tversky 1992), which hedonic versus utilitarian good (Kivetz and Simonson 2002b; Shiv and Fedorikhin 1999) or which reward for a task (Kivetz and Simonson 2002a) people choose to obtain. Research also looked at when people choose to defer choice altogether (Dhar 1997; Dhar and Simonson 2003; Shafir and Tversky 1992). Adding to previous research, the present dissertation suggests that, in such choices among unowned products, people classify the products as external to the category “self.” Consequently, as Essay 1 shows, people may use their perceptions of how they fair on different traits as a standard for judging how products fair on these traits. Further, as Essay 3 shows, people may experience lower ease of processing of person-related features of these products. Choices about products consumers do not own may have been the focus of decision research because such choices are prevalent in real world decision-making and the actual marketplace. For example, before acquiring a laptop, a phone or a car, consumers often first choose one from a respective set of products they do not own that is available in the marketplace. Further, such research is most useful for marketers, who commonly try to sell consumers products they do not yet own.

However, consumers often make judgments and decisions about products not only before, but also after, they own these products. For example, consumers regularly engage in choices such as which of their credit cards to use for making a purchase, which of the bottles of wine stored in their wine cellar to serve for dinner, or which of the redundant gifts they received to retain. Such choices and decisions have important marketing implications. The present dissertation suggests that, in choices among owned products, people classify the products in the category “self.” Consequently, as Essay 1 shows, people may use their perceptions of how they fair on different traits as information for judging how the products fair on these traits. Further, as Essay 3 shows, people may experience higher ease of processing of person-related features of
these products. Importantly, a decision about products consumers own could have the same possible outcomes as an equivalent decision about products consumers do not own. In both cases, consumers end up with one of the options and have to forgo the other options. However, as essays 1 and 3 demonstrate, consumers may have different perceptions of products they own and products they do not own, which can affect judgment and choice. Future research would benefit from further exploring the unexplored domain of decisions and judgments about owned products and the way they are similar to and different from decisions and choices about products consumers do not own.

Importantly, a product can belong to multiple owners, as a house belongs to multiple family members or a company belongs to multiple shareholders. In such cases, the product may help people construct and maintain social aspects of the “self,” namely be related to a social role or social group that the person is a member of (Brewer and Gardner 1996). By contrast, in many cases a product (e.g., a laptop, car or a phone) has a single owner. In such cases, the product is likely to help people construct and maintain a personal and individuated sense of self, namely be related to the aspects of the self that are not formulated as connected to membership in a social group or relationship (Oyserman 2009). Although both forms of ownership are important and ubiquitous, the scope of the present work is limited to ownership by a single owner and thus to the personal-self as a reference category. This is because although objects can help people to support and maintain the social aspects of the self, or a notion of “us,” other people rather than objects are more central and essential for that purpose. Put differently, a person can maintain a notion of “us” without objects, but cannot do so without other people (Brewer 1991; Tajfel 1969; Tajfel et al. 1971). By contrast, by definition of the personal-self, it is disassociated from the relationships and the social-groups the person shares with other people. Therefore, the objects
people own are likely be central and essential for constructing and maintaining a notion of “me.” Nonetheless, future research would benefit from extending the Egocentric Categorization framework, which focuses on cases of single ownership, to cases of multiple owners.
REFERENCES


Aggarwal, Pankaj and Ann L. McGill (Forthcoming), "When Brands Seem Human, Do Humans Act Like Brands? Automatic Behavioral Priming Effects of Brand Anthropomorphism," Journal of Consumer Research, 0 (0), 000.


Fazio, Russell H., Carol J. Williams, and Martha C. Powell (2000), "Measuring Associative Strength: Category-Item Associations and Their Activation from Memory," *Political Psychology*, 21 (1), 7-25.


Irmak, Caglar, Cheryl J. Wakslak, and Yaacov Trope (Forthcoming), "Selling the Forest, Buying the Trees: The Effect of Construal Level on Seller-Buyer Price Discrepancy," *Journal of Consumer Research*, 0 (0), 000.


Park, Ji Kyung and Deborah Roedder John (2010), "Got to Get You into My Life: Do Brand Personalities Rub Off on Consumers?," *Journal of Consumer Research*, 0 (0), 000-00.


ESSAY 1 - APPENDICES

APPENDIX 1A

WORD-FIND PUZZLE, EXPERIMENT 1

s i l f e e p s d i m
m l i p e n e i s n o
y i y h a v r s t d s
s d t y a i s s p u t
e u s r g o l d s l
l o i i d e n t i t y
f m h c i t a l n r o
u d s a y l l i d i o
c i r l i n n i r a i
i n d i v i d u a l i
m o i n f i n i t y t
APPENDIX 1B

“PART OF SELF” RATINGS BY OWNERS/NO-OWNERS, EXPERIMENT 1B

Notes:

a. In parentheses are percentages of participants who reported owning the product (pretest/study)

b. Bars represent 95% confidence Intervals

c. Items owned by more than 80% or by less than 20% of pretest participants were excluded from the main study (lacrosse stick 3%, golf clubs, 13%, headphones 81%, sofa 81%, camera 83%, bed 91%, TV 94%)
APPENDIX 1C

EXPERIMENT 1C: SELF AS A REFERENCE CLASS IN PRODUCT JUDGMENT

Experiment 1C confirmed our assertions that consumers (I) use the way they judge themselves as an input for judging products when the personal-self is active (e.g., as a result of ownership salience), and (II) classify objects they acquire as more part of the “self.” The study also verified our theorizing that these premises do not hold when “Mine-Me” sensitivity is low. To test the effect of ownership on classifying products relative to the “self,” participants were randomly assigned to one of three conditions—they judged a headphone-set they were assigned to own, a set they were assigned not to own or an unassigned control set they did not own. The ownership information given to participants also served to increase ownership salience in the ownership and no-ownership conditions, thereby activating the personal-self in the two experimental conditions but not in the control one. Subsequently, participants evaluated the set’s sound on fidelity related traits and then judged themselves on the same traits. The time it took participants to judge themselves after judging the headphones on the same traits was used to test the idea that people use the self as a reference level to judge products. We describe the expected effects at the end of the method section.

Method

Procedure. One hundred and fifty students of a large East Coast University came to the behavioral lab and evaluated a set of headphones in return for $7 participation fee. The cover story was that participants were helping the department of music choose a gift for invited
visitors. As additional compensation for their input, participants were informed that they would get to own either the set they evaluated (ownership condition), another comparable set that was laid down on a nearby shelf (no-ownership condition), or $2 (control condition). This information served to establish a randomly assigned level of ownership (yes or no) over the evaluated headphones, and to increase ownership salience in the ownership and no-ownership conditions (but not in the control condition). Next, participants received product information, which portrayed the headphones’ sound as being moderate on fidelity (See Appendix D). Subsequently, participants plugged the headphones into their computers and listened to 30 seconds of a piece by Johann Sebastian Bach (Partita No. 3 in E major BWV 1006 for solo violin). Then, participants responded to an open-ended question on the extent to which they viewed the headphones’ sound reproduction as honest, sincere, genuine and authentic.

Subsequently, in order to examine whether participants used the self as a reference for judging the headphones, participants rated themselves on the same four traits on 7-point scales anchored at 1-not at all and 7-very much so, and the computer recorded the total response latency for all four questions.

Next, to assess participants’ “Mine-Me” sensitivity, participants provided part-of-self ratings for a specific object they owned (the shirt they were wearing) and for a specific object they did not own (their lab seat). We calculated “Mine-Me” sensitivity by subtracting participants’ part-of-self rating of the object they owned (shirt) from their part-of-self rating of the object they did not own (chair). To capture the effect of ownership on how participants categorized the headphones relative to the self, participants also provided a part-of-self rating of the headphones. Then, as a manipulation check for the ownership assignment, participants rated the extent they felt ownership over the headphones on a three-item scale (e.g., “I feel like the
headphones I evaluated are mine,” adapted from Peck & Shu 2009, anchored between 1-not at all and 7-very much so). Next, to rule out alternative accounts, this was followed by two sets of control questions about involvement (four items: interested, attentive, active and alert anchored between 1-not at all and 7-very much so) and positive affect (Watson et al. 1988). Finally, to better understand how “Mine-Me” sensitivity correlates with related scales, participants’ responded to scales on materialism (Richins and Dawson 1992), private self-consciousness (Fenigstein et al. 1975) BESC (Sprott, Czellar, and Spangenberg 2009), and social desirability (Crowne and Marlowe 1960).

**Expected Results.** If people do spontaneously use the self as a reference for objects when the self is activated (e.g., following ownership salience as in Experiment 1B), participants under ownership salience (vs. its absence) should be faster to rate themselves on fidelity related traits (on which they earlier judged the headphones). This is because, if they used (vs. did not use) the self as a reference category to judge the headphones on the same traits, they simply have to retrieve a previously formed self-judgment rather than construct one (see Dunning and Hayes 1996; Mussweiler and Bodenhausen 2002). Further, given that under low “Mine-Me” sensitivity ownership salience should not activate the self (as confirmed in Experiment 1B), when “Mine-Me” sensitivity is low, response times in the two ownership salience conditions should not be faster than that in the control condition.

Additionally, if acquiring an object lead people to classify it as more part of the “self,” participants should judge the headphone set as more part of the “self” when participants are assigned to own the set, compared to when they are not (i.e., in the no-ownership and control
conditions). In addition, by definition of “Mine-Me” sensitivity, the categorization of owned and unowned objects relative to the “self” should not differ when “Mine-Me” sensitivity is low.

Results

Confounding Checks. ANOVA with condition as a predictor verified that, consistent with our view of “Mine-Me” sensitivity ($M = 2.81, SD = 1.84$) as an individual difference measure, it was not affected by condition ($F < 1$; see correlation table of “Mine-Me” sensitivity with the measured scales in Appendix 2D). The same outcome was obtained for the effect of condition on personal-sincerity judgments ($M = 5.51, SD = 1.15; \alpha = .91; F < 1$). A regression analysis also confirmed no effects of ownership, “Mine-Me” sensitivity or their interaction on involvement ($\alpha = .79$) or on positive affect ($\alpha = .89$; all $p$’s > .36). Further, the same analysis verified that the ownership manipulation had the expected effect on felt ownership ($M_{\text{no-own}} = 2.17, M_{\text{control}} = 1.91, M_{\text{own}} = 3.37; F = 13.95, p < .0001$), and no other effects.

We first analyzed the effect of ownership-salience on participants’ response time to personal sincerity judgments and then the effect of ownership on classifying the headphones in the self.

Response Latency. Reaction time of four participants deviated from the ownership condition mean by more than three standard deviations and were excluded from the analysis (Bargh and Chartrand 2000). Participants’ response time to the personal sincerity judgments was submitted to a regression with ownership (ownership, no-ownership and control), mean centered “Mine-Me” sensitivity, and their interaction as predictors. Two contrast-coded variables for the
“ownership” and “no-ownership” conditions represented the three ownership levels (each condition contrasted with control). Consistent with the prediction that participants will be faster to judge themselves following ownership activation (vs. no-activation), the omnibus effect of ownership \( F(2, 140) = 4.32, p = .02; M_{no-own} = 11.90 \) and \( M_{own} = 11.95 \) vs. \( M_{control} = 14.28 \) and the respective contrast \( F(1, 140) = 8.65, p = .004 \) were significant. Moreover, consistent with the prediction that low “Mine-Me” sensitivity will attenuate the effect, this contrast was qualified by “Mine-Me” sensitivity, yielding a statistically significant interaction \( (\beta = .88, p = .05) \). A spotlight analysis one standard deviation above the mean of “Mine-Me” sensitivity revealed a significant effect of ownership salience on response time \( (M_{no-own \& own} = 13.30 \) vs. \( M_{control} = 17.23, \beta = 3.96, p = .0008 \)). Repeating this analysis one standard deviation below the mean of “Mine-Me” sensitivity revealed no significant effect \( (M_{no-own \& own} = 10.60 \) vs. \( M_{control} = 11.32, \beta = .75, p = .52 \)). We report all means in the figure, upper bar. Analyses of response times to other scales (e.g., self-consciousness) were consistent with our view that faster responses were specific to ratings of personal sincerity traits (i.e., because they were retrieved instead of constructed), rather than general to ratings of all self-related traits (i.e., due to overall activation of the self). Response times to ratings of other scales were not affected by the experimental condition or its interaction with “Mine-Me” sensitivity \( (p’s > .28) \). Finally, controlling for participants’ response times to other scales did not affect the pattern of results on the sincerity scales.
Notes: Low is one standard deviation below, and high is one standard deviation above, the mean “Mine-Me” sensitivity. Participants in the ownership condition owned the headphones, while participants in the no-ownership and control condition did not own the headphones. Ownership salience was high under the conditions “ownership” and “no ownership,” but low under the control condition.

**Part-Of-Self Judgment.** Next, to test the effect of ownership on part-of-self judgment, and the predicted moderation by ‘Mine-Me’ sensitivity, the extent participants classified the headphones as part of the “self” was submitted to the same analysis as the response time.
Consistent with the prediction that acquiring a product leads people to classify it as more part of the “self,” the omnibus analysis revealed a main effect of ownership on the pen’s part-of-self ratings ($F(2, 144) = 5.67, p = .004; M_{no-own} = 2.09, M_{control} = 2.07, M_{own} = 2.99$). Further, in-line with our theorizing that ownership affects how people classify a product relative to the self regardless of ownership salience, planned contrasts revealed higher part-of-self ratings for participants in the ownership condition (vs. no-ownership and control conditions jointly; $F(1, 144) = 11.35, p = .001$). In addition, consistent with our prediction that low “Mine-Me” sensitivity is linked to a smaller difference between self-inclusion of owned versus unowned objects, the “omnibus” interaction between “Mine-Me” sensitivity and ownership ($F(2, 144) = 3.29, p = .04$) was significant. The same interaction without control as one of the conditions of the factor “ownership” ($F(1, 144) = 5.56, p = .02$) was also significant (see figure, lower bar). A spotlight analysis confirmed that the positive effect of ownership on including an object in the self is attenuated under low “Mine-Me” sensitivity. In particular, a positive effect of ownership (vs. no-ownership and control jointly) on part-of-self rating was revealed one standard deviation above the mean of “Mine-Me” sensitivity ($M_{own} = 3.21$ vs. $M_{no-own} = 1.58$ and $M_{control} = 1.57$, $\beta = 1.63$, $p = .0003$) but not below it ($M_{own} = 2.77$ vs. $M_{no-own} = 2.60$ and $M_{control} = 2.57$, $\beta = .19$, $p = .64$).
APPENDIX 1D
HEADPHONES DESCRIPTION, EXP. 2 AND 4

**Five facts about the Fidelity™ Headphones**

1. The *Fidelity Headphones™* use a technology that refines the sound by reducing ambient noise.

2. The Fidelity Headphones™ technology reproduces sound close to how it was recorded, providing merely mild improvements.

3. The *Fidelity Headphones™* reveal concealed aspects of the sound by closely approximating a live sound experience.

4. The *Fidelity Headphones™* was a nominee for the Musicians' Headphones Set Award 2009, for its "rich sound reproduction."

5. The *Fidelity Headphones™* have been widely adopted by individuals who need to get the most of sound recordings of any kind.

*All participants ended up evaluating the headphone set on the right. Participants in the high-ownership condition were to receive the exact set. Participants in the low-ownership condition were to receive the set on the left.

* Headphone models from left to right: Koss’s ED1TC HB, Labtec’s Elite 810 and 820B
APPENDIX 1E
PEN DESCRIPTION, EXPERIMENTS 2-3

Five Facts about the Atmosphere Pen™

1. The Atmosphere Pen™ can write in zero gravity.
2. The Atmosphere Pen™ uses an ink-feeding mechanism that forces the ink out using compressed nitrogen at a pressure of nearly 35 pounds per square inch.
3. The Atmosphere Pen’s™ ink-feeding mechanism allows people to use the pen lying on their back or writing upside down.
4. The Atmosphere Pen™ was a nominee for the 'Most Creative Industrial Design of the Year' award of 2008.
5. The Atmosphere Pen™ was considered by the American and Russian space agencies to substitute the currently in use Space-Pen.
One of the above pens was presented to participants as the one to which the information refers.

APPENDIX 1F
CREATIVITY MANIPULATION DEVELOPMENT, EXPERIMENT 3

To develop the manipulation, 110 participants provided as many creative usages for a brick as they could in three minutes. Then, two research assistants categorized the usages into 13 categories. Next, the two research assistants separately classified each usage into one of the categories. Following that, based on the frequency of each category in participants’ answers, averaged across the two RAs, we calculated relative frequency for each category by taking its proportion of appearance.

Six of the categories, namely body care tool (e.g., weight for working out), art (e.g., abstract art exhibit), counter weight (e.g., paperweight), support (e.g., sitting on it), violence (e.g., breaking windows), and construction (e.g., build a wall) covered roughly 80% of the usages. An additional six categories, namely commodity (e.g., trading it), writing tools (e.g., use it as a chalk), shop/hardware tools (e.g., pound something into place), kitchen (e.g., knife sharpener), measuring (e.g., length/weight standard), aesthetic (e.g., Home décor) covered roughly 15% of the usages.

In the pretest and later studies, we prohibited participants in the difficult condition from using the first (more common) set of categories, leaving them only with relatively rare and difficult categories to generate usages, and prohibited participants in the easy condition from
using the later (more rare) ones. The category “games,” which covered 5% of the usages, was not excluded in either condition.

APPENDIX 1G
TESTOSTERONE COLLECTION AND PROCESSING, EXPERIMENT 4

Saliva samples were obtained during afternoon hours to minimize variations in neuroendocrine responses due to circadian changes (Sellers et al. 2007). After a 20-minute rest period, participants provided a saliva sample that was later assayed for testosterone levels. Saliva was obtained in sterile tubes using the passive drool method, which required participants to expectorate into a cryovial tube via a plastic straw.

To measure neuroendocrine responses, saliva samples were obtained using IBL SaliCap sampling devices. Upon completion of the study, saliva samples were stored immediately at -80°C until they were shipped overnight on dry ice to a laboratory in College Park, PA. Saliva samples were assayed for testosterone using a highly sensitive enzyme immunoassay (Salimetrics, PA). The testosterone test used 25 ul of saliva per determination, has a lower limit of sensitivity of 1 pg/mL, and average intra-assay coefficient of variation is 3.8%.
APPENDIX 1H

MUSIC PLAYER DESCRIPTION, EXPERIMENT 4

Zune: Product Information

- **120GB hard drive**
- **Built-in FM tuner**
- **Wireless sync**

**Size:** 61.1 mm x 108.2 mm x 12.9 mm (w x h x d)

**Weight:** 4.5 ounces (128 grams)

Music, up to 30 hours (wireless off); video, up to 4 hours

Charge time: 3 hours; 2 hours to 90%
ESSAY 2 - APPENDICES

APPENDIX 2A

EXPERIMENT 1A-1B STIMULI

Zune: MP3 Player Information

120GB hard drive
Built-in FM tuner
Wireless sync

Size: 61.1 mm x 108.2 mm x 12.9 mm (w x h x d)
Weight: 4.5 ounces (128 grams)

Music, up to 30 hours (wireless off); video, up to 4 hours
Charge time: 3 hours; 2 hours to 90 percent

F-301: Pen Information

1. The F-301’s metal rim increases its endurance to common adverse conditions of a pocket pen.
2. The F-301’s sensitive ballpoint increases its responsiveness to the motion of your hand as you write.
3. The F-301’s dares defy conventional pen design in its compact and graceful appearance.
APPENDIX 2B
EXPERIMENT 2 STIMULI

Less mass
More appeal
Introducing the XPS 15z, the thinnest 15" PC on the planet.

NOTHING DEFEATS TOUGHBOOK

The art of thin
Introducing ThinkPad X300
The no-compromise, ultra-portable, 13.3" widescreen notebook with an optional integrated DVD drive and 3 USB ports, starting at just 2.9 lb. Everything else is just hot air.
APPENDIX 2C

MOTIVATING HEADPHONE AD, EXPERIMENT 3

1. Authentic-sound: “sound just the way the artist intended it”

2. Better-sound: “tune out noise for better music”
APPENDIX 2D
HEADPHONES SINCERITY, EXPERIMENT 3

High Product Sincerity
1. The AuthenticSound Headphones™ use a domestically developed high fidelity technology, which authentically reproduces sound.
2. The AuthenticSound Headphones™ technology does not improve the sound of music; rather it reproduces the sound exactly as it was recorded.
3. The AuthenticSound Headphones™ allow people to listen to the music precisely as it is and reveal its true and genuine quality and sound.
4. The AuthenticSound Headphones™ won the Musicians' Best Headphones Set award of 2009, for "producing the most wholesome and, yet, accurate sound reproduction".
5. The AuthenticSound Headphones™ have been widely adopted by music critics who need to truly and honestly connect with the sound of the music they listen to, as it was genuinely meant to be heard.

Moderate Product Sincerity
1. The BetterSound Headphones™ use an imported sound improvement technology, which takes the original sound and improves it to make the sound better.
2. The BetterSound Headphones™ technology improves the sound of music, rather than reproducing the sound exactly as it was recorded.
3. The BetterSound Headphones™ allow people to listen to the music at its best and uncover what it can be, rather than merely sticking to its original quality and sound.
4. The BetterSound Headphones™ won the Musicians' Best Headphones Set award of 2009, for "producing the most wholesome and, yet, improved sound reproduction".
5. The BetterSound Headphones™ have been widely adopted by music producers who need to uncover how good the music can become, and not be limited by the music's current sound.
APPENDIX 2E

CHEATING OPPORTUNITY, EXPERIMENT 3

You answered correctly on 5 of the 8 questions, each worth 9 points, which sums up to a total of 45 of 72 possible points.

The following number of points will be added to your record towards the draw:

54

If you see any inconsistency between the figures choose the "inconsistent" check box and move on to update the figures. Otherwise, choose the "consistent" check box and move on to the next part of the quiz.

Thos who chose inconsistent were moved to the following screen:

Enter below the correct number of points you have earned (your correction will count towards the draw).

Number of points earned:
### ESSAY 3 - APPENDICES

#### APPENDIX 3A
METHODS OF ACTIVATING PARTICIPANTS’ PERSONAL SELF

<table>
<thead>
<tr>
<th>Study</th>
<th>Method for activating the personal self</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b</td>
<td>Ownership status information was brought to participants’ mind by informing them to expect that later in the experiment the computer would randomly assign them to own either the headphones they evaluated or one of the other sets</td>
<td>(Weiss and Johar 2013)</td>
</tr>
<tr>
<td>2</td>
<td>Participant were asked to “list five things that differentiate and distinct you from other people of your gender, and highlight your uniqueness as an individual”</td>
<td>(Mussweiler and Bodenhausen 2002)</td>
</tr>
<tr>
<td>3</td>
<td>Each participant wrote three things that he or she recently acquired and three things that he she recently disposed of</td>
<td>(Weiss and Johar 2013)</td>
</tr>
<tr>
<td>4</td>
<td>Same manipulation as in Study 3</td>
<td>(Weiss and Johar 2013)</td>
</tr>
<tr>
<td>5</td>
<td>Same manipulation as in Study 2</td>
<td>(Mussweiler and Bodenhausen 2002)</td>
</tr>
</tbody>
</table>
APPENDIX 3B
FEATURE APPLICABILITY FOR DESCRIBING A PERSON VERSUS A PRODUCT

*Person-typical and product-typical difference is significant at the .05 level.
APPENDIX 3C
WORD FIND PUZZLE (STUDY 2)

ftcufocmncucuat
eieaacsmsvoths
vatiiidtcunecael
icvsmartcdtoea
friplpnprtoimiirt
aeersturdfpmnv
mataacuaeaatst
ttvccbtbeccectv
icientilltiil
ivtisecerocorce
revecftcufovtat
tagaconvenientt
renlecfovccmncv
nnintuitionetndg
ftcufovtartoiin
## APPENDIX 3D

### STUDY 3 STIMULI

<table>
<thead>
<tr>
<th>Product</th>
<th><strong>person-related</strong> features</th>
<th><strong>product-related</strong> features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch</td>
<td>Beauty</td>
<td>Resilience</td>
</tr>
<tr>
<td>MP3 Player</td>
<td>Adaptability</td>
<td>Beauty</td>
</tr>
<tr>
<td>Camera</td>
<td>Intuitiveness</td>
<td>Resilience</td>
</tr>
<tr>
<td>Tablet</td>
<td>Intuitiveness</td>
<td>Adaptability</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laptop</td>
<td>Intuitiveness</td>
<td>Resilience</td>
</tr>
</tbody>
</table>

## STUDY 4 STIMULI

<table>
<thead>
<tr>
<th>Product</th>
<th>Attribute Used</th>
<th>Product 1 Reviews</th>
<th>Product 2 Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>person-related</strong> features</td>
<td><strong>product-related</strong> features</td>
<td><strong>person-related</strong> features</td>
</tr>
<tr>
<td>Watch</td>
<td>Beauty</td>
<td>Preciseness</td>
<td>*****</td>
</tr>
<tr>
<td>MP3 Player</td>
<td>Beauty</td>
<td>Speed</td>
<td>*****</td>
</tr>
<tr>
<td>Tablet</td>
<td>Intuitiveness</td>
<td>Portability</td>
<td>*****</td>
</tr>
<tr>
<td>Laptop</td>
<td></td>
<td></td>
<td>***</td>
</tr>
</tbody>
</table>


APPENDIX 3E
ADDITIONAL ANALYSES, STUDY 5

Preference for looks. To explore the full pattern of the preference results, participants’ preference strength for the watch high on looks (vs. quality) was entered into a regression analysis with choice type (acquisition = -1, retention = 1) and watch description (product’s-looks/person’s-quality = -1, person’s-looks/product’s-quality = 1), mean centered “Mine-Me” sensitivity and their two and three way interactions as predictors. Consistent with the prediction that retention will increase preference for person-related features, but mainly when “Mine-Me” sensitivity is high, the analysis revealed an expected three-way interaction ($\beta = 1.80, p = .003$) and no other effect. A spotlight analysis at one standard deviation above the mean of “Mine-Me” sensitivity revealed that the interaction between choice type and watch description was significant ($\beta = 2.99, p = .002$). In particular, when the watch’s looks was described in terms of beauty (person-related), preference for the better looking watch was stronger in the retention ($M = 4.77$) versus acquisition ($M = 2.76, B = 2.02, p = .006$) condition. By contrast, when the watch’s looks was described in terms of aesthetics (product-related), preference for the better looking watch was weaker in the retention ($M = 3.32$) versus acquisition ($M = 4.29$) condition, although the effect was statistically insignificant ($B = - .97, p = .11$). Additionally, consistent with the prediction that low “Mine-Me” sensitivity will attenuate the predicted effect (H3), a spotlight analysis at one standard deviation below the mean of “Mine-Me” sensitivity revealed that the interaction of choice type and watch description was not significant ($p = .20$).
Choice of looks. Next, to explore the full pattern of the choice results, participants’ choice (looks = 1, quality = 0) was entered into a logistic regression with choice type (acquisition = -1, retention = 1), watch description (product’s-looks/person’s-quality = -1, person’s-looks/product’s-quality = 1), mean centered “Mine-Me” sensitivity and their two and three way interactions as predictors. The analysis revealed an expected three-way interaction (β = .41, $\chi^2 = 6.15$, p = .01) and no other effect. A spotlight analysis at one standard deviation above the mean of “Mine-Me” sensitivity revealed a significant interaction between choice type and watch description ($\chi^2 = 6.5$, p = .01). To directionally explore the nature of this interaction, we classified participants into two groups, high and low “Mine-Me” sensitivity, on the basis of a median split (the mean [standard deviation] of “Mine-Me” sensitivity scores in the low vs. high “Mine-Me” sensitivity groups were -.93 [.80] versus .87 [.69], respectively). Among the high “Mine-Me” sensitivity group, when the watch’s looks was described in terms of beauty (person-related feature), participants were more likely to choose the better looking watch in the retention ($M = 43\%$) versus acquisition ($M = 16\%$) condition. By contrast, when the watch’s looks was described in terms of aesthetics (product-related feature), participants were as likely to choose the better looking watch in the in the retention ($M = 29\%$) and acquisition ($M = 27\%$) conditions. Consistent with H3, among the low “Mine-Me” sensitivity group, the interaction between choice type and watch description was not significant ($\chi^2 =1 .41$, p = .24).