



# Are Artworks More Like People Than Artifacts? Individual Concepts and Their Extensions

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## Abstract

This paper examines people’s reasoning about identity continuity (i.e., how people decide that a particular object is the *same* object over time) and its relation to previous research on how people value one-of-a-kind artifacts, such as artwork. We propose that judgments about the continuity of artworks are related to judgments about the continuity of individual persons because art objects are seen as physical extensions of their creators. We report a reanalysis of previous data and the results of two new empirical studies that test this hypothesis. The first study demonstrates that the mere categorization of an object as “art” versus “a tool” changes people’s intuitions about the persistence of those objects over time. In a second study, we examine some conditions that may lead artworks to be thought of as different from other artifacts. These observations inform both current understanding of what makes some objects one-of-a-kind as well as broader questions regarding how people intuitively think about the persistence of human agents.

*Keywords:* Identity; Persistence; Continuity; Agents; Artwork; Concepts; Lay theories

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## 1. Introduction

The literature on concepts has typically focused on general concepts—concepts like, PERSON, CAT, or PAINTING. However, our concepts of individuals, such as my brother *Robert*, my cat *Jack*, or Van Gogh’s *Starry Night*, play a key role in how we interpret the world around us. Individuals are often important to us and our concepts about them inform our beliefs about their uniqueness, our attachments to them, and in certain cases, our assessments of their value. One central question concerns how people determine the

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continuity of individual objects over time (Rips, Blok, & Newman, 2006)—that is, how people decide that a particular object at  $t_0$  is the *same* individual at  $t_1$ .

The majority of the research on this question has examined how people track the persistence of humans. For example, how people decide whether Jim is still *Jim* across time or various transformations. Both the philosophical literature (e.g., Locke, 1710/1975; Parfit, 1984; Wiggins, 1980; Williams, 1970; see Nichols & Bruno, 2010 for further discussion) and several empirical studies (Blok, Newman, Behr, & Rips, 2001; Blok, Newman, & Rips, 2005; Nichols & Bruno, 2010; suggest that people's beliefs about the continuity of persons tend to be dualistic. That is, people believe that preserving an individual's mental states (their thoughts, memories, and personality traits) is necessary for identity continuity. However, people also seem to place considerable importance on the continuity of the person's physical *stuff*. For example, contrary to the science fiction example of a Star Trek Transporter, people do not often judge a molecule-for-molecule copy of person to be the same individual (e.g., Blok et al., 2001). Moreover, continuity judgments about persons seem to be somewhat unique in this respect. For example, people are more likely to say that a molecule-for-molecule copy of a hammer *is* the same individual hammer (provided that the original is destroyed when it is duplicated).

In this paper, we extend research on continuity judgments for persons to examine a second domain in which people seem to place considerable importance on the continuity of the same physical stuff—namely, one-of-a-kind artifacts. For example, like persons (and unlike hammers) people do not tend to believe that an identical duplicate of a painting is the *same* painting, and they view duplicates as considerably less valuable than the original (Newman & Bloom, 2012). To explain this pattern, we draw on the notions of the “extended self” (Belk, 1988; James, 1890; Olson, 2011), which proposes that the self-concept goes beyond a person's physical body to include certain artifacts that are seen as extensions of the person. Therefore, we suggest that observers may place special emphasis on original artwork, because the original is thought to physically contain some part of the person who created it (which cannot be duplicated).

To explore this hypothesis, we first describe how intuitions about the continuity of persons differ from other types of concepts by reanalyzing data from an earlier paper (Blok et al., 2005). We then report the results from two new empirical studies. The first study examines how determining the continuity of artwork is different from determining the continuity of other types of artifacts, such as tools. In a second study, we explore some of the features that may lead continuity judgments about artwork to differ from judgments about other artifacts. Together, these results offer new insights into the nature of identity judgments for persons and how those beliefs may carry over to objects that are seen as extensions of those individuals.

### 1.1. Intuitive dualism and the continuity of persons

How do people decide that a particular individual person is the same person over time? While there have been several theories proposed in metaphysics about what *should* constitute identity (in a normative sense), here our focus is descriptive—in other words,

what are the ways in which people tend to make judgments of persistence, and what are the underlying lay theories supporting those judgments?

To explore this question, Blok et al. (2005) asked participants to consider the following scenario:

Jim is an accountant living in Chicago. One day, he is severely injured in a tragic car accident. His only chance for survival is participation in an advanced medical experiment called a “Type 2 transplant” procedure. Jim agrees. It is the year 2020 and scientists are able to grow all parts of the human body, except for the brain. A stock of bodies is kept cryogenically frozen to be used as spare parts in the event of an emergency. In a “Type 2 transplant procedure,” a team of doctors removes Jim’s brain and carefully places it in a stock body. Jim’s original body is destroyed in the operation. After the operation, all the right neural connections between the brain and the body have been made.

The doctors test all physiological responses and determine that the transplant recipient is alive and functioning. The doctors scan the brain of the transplant recipient and note that the memories in it are the same as those that were in the brain before the operation.

Participants were then asked to indicate (on a 0–9 scale) the extent to which they thought the transplant recipient was *Jim*. A second group of participants were presented with a nearly identical scenario. However, the last sentence was altered to say that when the doctors scanned the brain they discovered that it had no memories, and that “something must have happened during the transplant.”

The results indicated that the participants viewed the persistence of Jim’s memories as necessary for identity continuity. When Jim’s memories remained intact, participants gave a mean agreement rating of 6.6 to the statement that the transplant recipient was “Jim,” but a rating of only 2.0 when Jim’s memories were not preserved.

However, in a different series of studies, Blok et al. (2001) varied not only the presence or absence of memories but also whether those mental states were housed in Jim’s brain versus a state-of-the-art computer. The results indicated an effect of memories (preserved vs. not), replicating the study mentioned above. In addition, Blok et al. (2001) observed a significant effect of whether those mental states were housed in Jim’s brain versus a computer. For example, in the case in which all of Jim’s memories were preserved, participants gave a mean agreement rating of 5.3 (on the 0–9 scale) to the statement that the recipient was “Jim” when it was Jim’s brain, but a rating of only 1.9 when Jim’s memories were contained on the computer. In other words, participants seemed to also view the continuity of Jim’s physical stuff (and in particular, his brain) as necessary for identity continuity. Moreover, when Blok et al. (2001) asked about Jim’s occupation following the transplant—that is, “still an accountant,”—participants thought that the recipient with a brain versus the computer brain were equally likely to be accountants ( $M_s = 4.2$  vs. 5.8, respectively), indicating that participants did see the mental states

housed in the computer as having an important causal role, just not one that was itself sufficient for identity continuity.

In a related line of research, Nichols and Bruno (2010) presented participants with similar scenarios. They replicated the effect of memories/mental states on identity judgments. However, (mirroring the results of the brain vs. computer) they also found that in a case in which the individual (Jerry) lost all of his thoughts, memories, and personality traits, the majority of participants (72%) still agreed that after the operation, “Jerry will feel the pain” (associated with a series of postoperation shots). Thus, the apparent dualism inherent in identity judgments about persons (and most surprisingly, the emphasis on continuity of the brain/physical stuff) is revealed not only in negative cases (it is no longer Jim), but in positive ones as well (Jim still feels pain).

This work suggests that as a general rule, people use the sameness of *stuff* (i.e., physical matter) to make judgments of identity continuity—a view which we refer to as intuitive *materialism*. In other words, all else being equal, people are materialists when reasoning about identity, but persons may be seen as a special case because they have mental states. If this view is correct, one would naturally expect then that for other types of objects, like hammers, which lack mental states, judgments of identity continuity should be entirely dependent on sameness of substance. Interestingly, however, this does not appear to be the case. In fact, people appear to be *less* committed to intuitive materialism for artifacts (and even animals and plants) than for persons.

This observation comes from a reanalysis of data reported in Blok et al. (2005), Study 2. In this study, participants read about one of two “sci-fi” devices: either a “transporter” that was described as transporting an object particle-by-particle to a new place and reassembling it, or a “copier” that made a new copy of the object (while the original object was destroyed by a “disrupter ray”). Participants were then told about a series of objects (accompanied by pictures) that were placed into one of the devices. The objects included a person (Jim), animals (a cat, a mouse, a robin, and a turtle), plants (an apple, a houseplant, a leaf, a pineapple, and a tree), and artifacts (a car, a chair, a comb, a cup, a fire hydrant, a fridge, a hammer, a house, a sewing machine, and a toaster). In each case, participants then saw a picture that was identical to the item that was initially placed inside the device and were asked to judge whether the object that came out of the device was the same individual as the one that went in (responses were made on a 1–9 scale).<sup>1</sup>

As seen in Fig. 1, when the same physical stuff was preserved (transporter condition), participants were likely to say that all of the objects were continuers of the original object. However, when the object was composed of different physical stuff (copier condition), participants reported that the animals, plants, and artifacts were all continuers of the original object, while the person was not. These results indicate that, curiously, individuals tend to have a *more* materialist notion of identity when reasoning about the continuity of persons than the continuity of other types of objects.

Why is this the case? One answer may be that people believe that the self *is* an individual’s brain. However, given that people associate identity with the brain’s function (Blok et al., 2005; Nichols & Bruno, 2010), it is unclear why people would prioritize continuity of the brain’s physical matter (i.e., those particular neurons). Indeed, recent

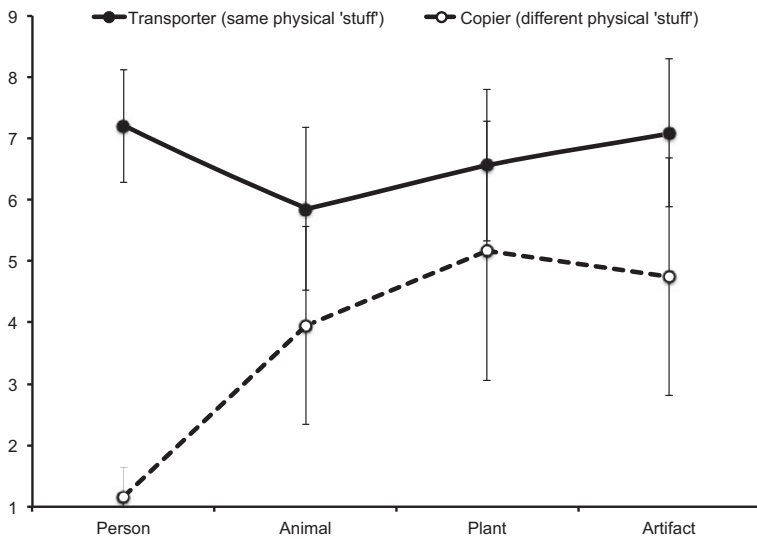


Fig. 1. Mean ratings that it is the same object from Blok et al. (2005), Study 2.

developmental research by Starmans and Bloom (2012) suggests that the belief that the self is located behind the eyes develops prior to the belief that the brain produces mental states.

Alternatively, it may be that people think of the brain (and perhaps other parts of the body) as *imbued* with a person's soul or "essence." In other words, people may have a conception of identity that is closer to a contamination model, where the person's identity is thought of as an immaterial quality that has permeated (but is potentially distinct from) certain parts of the body, such as the brain. This interpretation is consistent with a literature on magical contagion, which has demonstrated a cross-cultural tendency to believe that a person's essence can "rub off" on and contaminate objects that have come into physical contact with a person (Belk, 1988; Bloom, 2010; Nemeroff & Rozin, 1994; Newman & Bloom, 2012; Newman, Diesendruck, & Bloom, 2011; Rozin, Nemeroff, Wane, & Sherrod, 1989). These contagion effects can be viewed as an example of a more general phenomenon known as the "extended self" hypothesis, which argues that people's self-concept goes beyond their body and mind to include objects that they regard as "their own" (Belk, 1988; James, 1890; Weiss & Johar, 2013).

### 1.2. Extensions to objects

To sum up, we have suggested that in the case of persons (as compared to other objects), people's judgments may be more materialist, relying on the continuity of the same physical stuff. We speculate that this may stem from an intuitive notion of a soul or essence that resides in the person but can spread to other objects that they come into contact with. In turn, this suggests that some objects may be seen as extensions of the self because they are imbued with the person's essence. This predicts that for these

“imbued objects,” only an object that is comprised of the same physical stuff will be seen as the continuer of the original because only *that particular physical stuff* is believed to contain the person’s essence. Note that for the purposes of this paper, we are interested in how notions of an extended self may change judgments about identity continuity for those artifacts. This, however, is different from also interesting questions regarding how/whether those objects may be used to make continuity judgments about the person (e.g., Is it still Jim if he no longer possesses his favorite sweater?).

One natural domain to investigate this idea is the domain of artwork (see Goodman, 1976 for similar proposals in the philosophical literature). Theorists from a range of disciplines have long noted that the “original object” plays a critical role people’s lay concept of art (e.g., Bloom, 2004, 2010; Bullot & Reber, 2013; Dutton, 2003; Newman & Bloom, 2012). For example, an original artwork can be worth thousands or even millions of dollars, while a perceptually identical duplicate is almost always viewed as virtually worthless (or may only have value as a curiosity). Of course, artworks are not the only valuable one-of-a-kind objects, but such intuitions seem to be particularly salient for the domain of art.

More important, recent research by Newman and Bloom (2012) suggests that the importance of the original seems to derive from people’s lay theories about the concept ART, rather than their associations with particular individuals or particular cases of forgery. For example, valuing a piece of celebrity memorabilia, such as George Clooney’s sweater, requires that the person knows who the actor, George Clooney, is. By contrast, the value that is placed on original artwork appears to be independent of the artist that created it. For example, Newman and Bloom (2012) found that even when the artist was unknown (or even unnamed) and the artwork was of little value, people still place considerable value on the original object over perfect duplicates.

Therefore, the current studies examine art as a “case study” of how individuals may apply more materialist notions of identity continuity to artifacts. Our goal is to increase understanding of what makes some objects “one-of-a-kind” as well as to address broader questions regarding the nature of people’s intuitive theories for tracking objects that are connected to human agents.

In the first experiment, we examine whether judgments about the continuity of artwork differ from judgments about the continuity of other artifacts, such as tools. This investigation sheds light on how continuity judgments may vary across different object domains. In a second, more exploratory study, we examine some of the factors that may lead artworks to be seen as different from other artifacts.

## **2. Experiment 1: Are people materialists when reasoning about the continuity of art?**

The goal of the first study was to examine whether people’s continuity judgments are more materialist for artworks than comparable artifacts. Participants read hypothetical scenarios in which an artwork or a tool was duplicated and the original was destroyed. In

all cases, participants were told that the original artwork [tool] was made by a college student (to control for potential differences in value) and were given specific information about how it was made (e.g., using a mold and poured plastic), which was the same in both cases. We hypothesized that duplicate artworks should be *less likely* to be seen as continuers of the original compared to duplicate tools.

### 2.1. Method

Thirty-seven undergraduates completed a pencil-and-paper survey packet. Participants were recruited and tested on campus and were compensated with a bottled soft drink.

Participants were randomly assigned to one of two between-subjects conditions. Half of the participants read about artworks that were duplicated, while the other half read about tools that were duplicated. The only aspect of the scenarios that differed across conditions was whether the term “sculpture” or “tool” was used. For example, a sample item was as follows:

Stein, a college student, makes an object called “Tamble,” a sculpture [tool]. To make it, he makes a wax model, makes a rubber mold of the wax model, pours liquid plastic into the rubber mold, and then removes the rubber mold. The sculpture [tool] is valued at \$100. It is stored in warehouse A.

Stein agrees to make an exact duplicate. The duplicate is identical in every way. The duplicate is stored in warehouse B. There is a fire in warehouse A and all of the items are destroyed.

After reading the scenario, participants indicated the extent to which they agreed that, for example, “*One of the items in warehouse B is Tamble*” (where 0 = strongly disagree and 8 = strongly agree).

This study also included two within-subjects factors. To test the notion of the extended self we also varied whether the duplicate object was made by the original creator or by another person. Specifically, participants read scenarios in which the original creator “*agrees to make an exact duplicate*” and scenarios in which he “*agrees to have someone else make an exact duplicate.*”

We propose that artworks are more likely to be seen as extensions of the self that can be imbued with the artist’s essence. Therefore, we predicted a greater effect of the same (vs. different) creator for artworks than for tools, where objects made by the same person would be more likely to be judged as continuers of the original. Additionally, we included a factor that either specified the reason for the duplication or not. Participants read that “*the original is contaminated with a chemical agent that degrades plastic, and in order to prevent its spread the original must be destroyed,*” or they were given no reason for the duplication. This manipulation provided an orthogonal dimension to the

same/different creator manipulation, since whether or not there is a reason for the duplication should have little effect on beliefs about whether the self has been transferred to the artwork. Therefore, we expected that this factor would not influence subsequent judgments about identity continuity.

This study employed a 2 (object: artwork vs. tool)  $\times$  2 (creator: same vs. different)  $\times$  2 (reason for duplication: yes vs. no) mixed-model design, with object type as a between-subjects factory and “creator” and “reason for duplication” as within-subjects factors.

## 2.2. Results

A  $2 \times 2 \times 2$  mixed-model ANOVA indicated a significant main effect of object type,  $F(1, 33) = 7.53$ ,  $p = .01$ , a significant main effect of creator,  $F(1, 33) = 4.22$ ,  $p = .048$ , and a marginal interaction between the object type and the creator,  $F(1, 33) = 3.50$ ,  $p = .07$ . As predicted, we observed that duplicate artworks were *less likely* to be seen as continuers of the original ( $M = 4.68$ ,  $SE = .50$ ) compared to duplicate tools ( $M = 6.64$ ,  $SE = .51$ ; see Fig. 2). Additionally, there was a main effect of creator such that objects made by the same individual were *more likely* to be seen as continuers of the original ( $M = 5.99$ ,  $SE = .39$ ) compared to objects made by someone else ( $M = 5.34$ ,  $SE = .39$ ). However, this effect marginally interacted with object type, such that there was an effect of the creator for artworks ( $M = 5.31$  vs. 4.06;  $F(1, 17) = 4.44$ ,  $p = .05$ ), but not for the tools ( $M = 6.68$  vs. 6.62;  $p = .76$ ). In contrast, we did not observe any effect of whether there was a reason for the duplication ( $F < 1$ ), and this factor did not interact with any of the other variables.

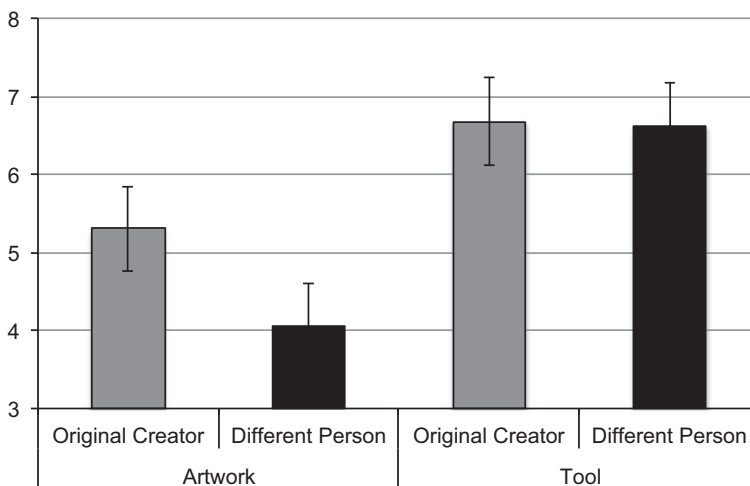


Fig. 2. Study 1 results. Mean ratings (SE) that it is the same object.



### 2.3. Discussion

Results from this initial study suggest that people's judgments of identity continuity are more materialist for artworks than for comparable artifacts. We observed that duplicate artworks were less likely to be seen as continuers of the original compared to duplicate tools. Additionally, we found preliminary support for the notion that such effects may be related to beliefs about the extended self. Artworks that were made by the original creator were more likely to be seen as continuers of the original object compared to artworks made by someone else (though the test for this effect was weak given the marginal interaction). Importantly, however, this effect was only evident for art; the manufacturer (original vs. different) did not affect continuity judgments regarding tools.

## 3. Experiment 2: Why are artworks treated differently?

The goal of Study 2 was to explore some of the reasons why people may be more materialist when reasoning about the continuity of art versus other types of artifacts. One mechanism (discussed earlier in the paper) is that original artwork may be seen as special because of beliefs in contagion. A second factor might have to do with notions of creativity—indeed, there is support for the idea that people tend to evaluate artwork as the end-point of a “creative performance” (Dutton, 2003, 2009). Finally, the difference between artwork and other artifacts may also be related to the degree of personal attachment to the object.

The approach of the Study 2 was to independently manipulate each of these factors (contagion, creativity, and personal attachment) to explore which factor(s) lead participants to put greater emphasis on sameness of the physical *stuff* when reasoning about the persistence of the object over time.

### 3.1. Method

A total of 303 adults ( $M_{\text{age}}=38.6$ ; 67% female) completed an online study. Adults were recruited from Amazon's Mechanical Turk and were compensated with \$0.25.

In this study, participants were asked to read a scenario about a painting (titled “Dawn”; see Fig. 3). We manipulated information about the painting between-subjects, varying the dimensions of contagion, creativity, and personal attachment. To manipulate contagion, participants either read that the artist “spent several weeks physically painting it with his own hands” or that “he gave instructions to one of his assistants who then painted it.” To manipulate creativity, participants either read that the artist “put a lot of thought into designing this painting” or that “the original design for this painting was actually created by a different artist.” And finally, to manipulate personal attachment, participants read either that the artist “considered it to be one of his finest achievements” or that “he was hired by a hotel to create it as decoration for the lobby and he considered it to be a ‘sell out’ piece.” These dimensions were fully crossed between participants. Thus, participants were randomly assigned to one of eight conditions in a 2 (high



Fig. 3. Painting presented in Study 2 (actual painting by George Kitta).

vs. low contagion)  $\times$  2 (high vs. low creativity)  $\times$  2 (high vs. low personal attachment) between-subjects design.

Participants in all conditions then read the following paragraph:

The painting was stored in a gallery in New York. However, the gallerists realized that it was damaged by mold. So they hired a different artist, who lives in Chicago, to create an identical copy. When it was completed, the duplicate painting was identical in every way. Sure enough, the mold spread and the painting in New York was destroyed. Only the painting in Chicago remained.

Participants then indicated whether “*The painting in Chicago is...*” (0 = Dawn, 100 = Not Dawn) using a slider bar. Additionally, participants were provided with a free-response text box to explain their judgment.

### 3.2. Results

A 2 (contagion)  $\times$  2 (creativity)  $\times$  2 (personal attachment) ANOVA indicated only a significant main effect of contagion  $F(1, 295) = 7.54$   $p = .006$ . Overall, participants were more likely to agree that the duplicate was *not* the same painting when the artist painted it himself ( $M = 68.88$ ,  $SE = 2.62$ ) versus when it was painted by his assistant ( $M = 58.66$ ,  $SE = 2.64$ ; see Fig. 4). The other factors, however, did not produce significant main effects ( $ps > .19$ ) or interactions.

We also coded the percentage of participants in each condition that said the duplicate painting *was* the same (providing a response  $< 50$  on the scale) and examined the justifications associated with those responses. Most of the justifications tended to simply restate the judgment—for example, that the painting was not Dawn because it was a copy. However, when participants provided more elaborate justifications, they made reference to

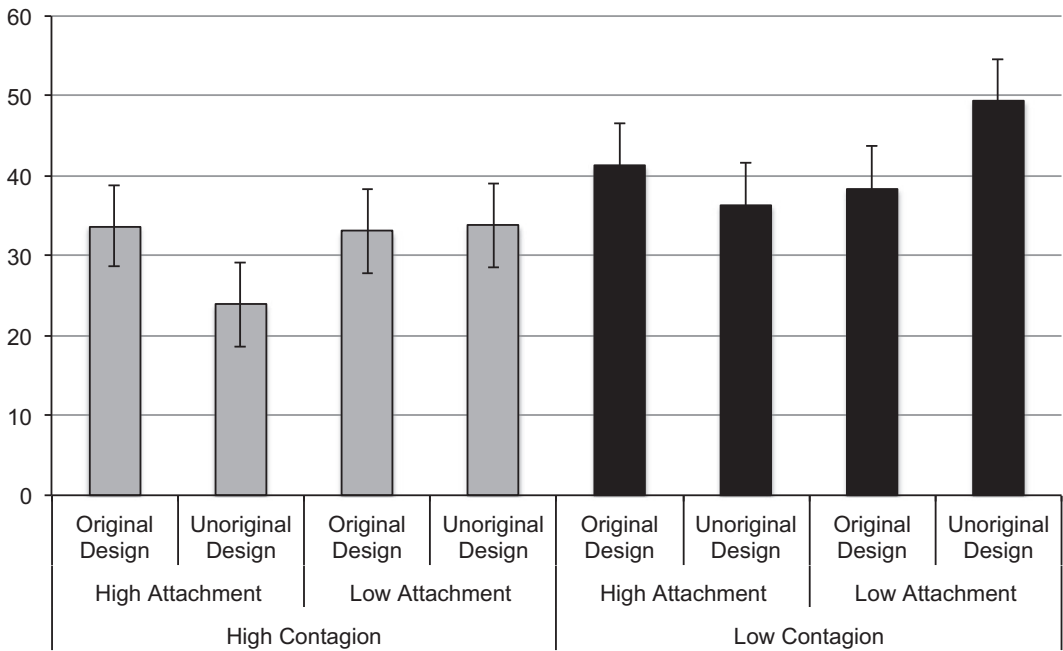


Fig. 4. Study 2. Mean ratings (*SE*) that it is the same painting (reverse coded from actual scale).

notions of contagion and the artist's soul. For example, to explain why it was not Dawn participants said, "It wasn't touched by Frederick's hands, seen by his eyes," "It is a copy, not the original which Frederick poured his heart and soul into. A copy may be identical, but it is truly never the original," "It is a copy, it has no soul," "The identity of a painting (what it 'is' or 'is not') must consist of more than just its visual qualities. Art is a manifestation of the soul." These justifications were quite different than those provided when participants thought the painting was the same—for example, "He did not paint the original painting so the duplicate is not missing the element of him being the painter."

### 3.3. Discussion

In this study we manipulated different types of information about a painting's history to examine some factors that could cause people to rely more or less on materialism (sameness of *stuff*) when making persistence judgments. Indeed, in some cases, the identity judgments resembled persons (i.e., that a duplicate was not the same painting), while in other cases they resembled judgments about ordinary artifacts, like hammers (i.e., that the duplicate *was* the same painting). Moreover, in this study, the central factor seemed to be whether or not the artist physically created it himself. This result is consistent with the results of the first study and our hypothesis that people might be more materialist

about artworks because the original pieces are imbued with the artist's essence. Some participants spontaneously referenced this idea in their justifications.

The failure to find effects on the other dimensions is less informative—after all, it could simply be that superior manipulations would also produce effects. Indeed, we think it is likely that there may be other ways (in addition to contagion) in which an object may come to be seen as an extension of an individual's identity (and thus, containing the person's essence). Therefore, we see Experiment 2 as an exploratory study whose findings invite further research to more fully understand the many ways that people differentiate between objects that are seen as extensions of the self versus mere possessions.

#### 4. General discussion

The goal of this paper was to examine whether research on how people track the persistence of human agents can inform how people value one-of-a-kind objects like artworks. We began by reviewing previous work demonstrating that persistence judgments for persons tend to rely more on materialism (the sameness of the actual physical stuff) than do persistence judgments regarding ordinary artifacts. In other words, people tend to report that when the original is destroyed, a molecule-for-molecule copy of a person is *not* the same individual, while a molecule-for-molecule copy of a hammer is the same individual.

We then turned to intuitions regarding original artwork and the observation that although most artworks are inanimate, people tend to put special value on original artwork over perfect duplicates (Newman & Bloom, 2012). We proposed that this may occur because art is seen as a physical extension of the self and imbued with the person's soul/essence. In turn, when reasoning about the continuity of art, people place greater emphasis on the sameness of "physical stuff" (i.e., materialism), because the original possess an essence that cannot be duplicated. The results of two experiments were consistent with this proposal.

The first study demonstrated that even when all other information is held constant (the artist is unknown, the objects are not valuable, etc.) the mere categorization of an object as "art" versus a "tool" makes the duplicate artwork *less* likely to be seen as a continuer of the original object. And, the results from both Studies 1 and 2 provide further support for this proposal by demonstrating that physical contact with the original artist seems to play a crucial role in these judgments. Thus, in terms of judgments about identity continuity, the present studies demonstrate that there are important ways in which judgments about ART appear to be more similar to judgments about PERSONS (in their reliance on sameness of substance) than judgments about other kinds of artifacts.

These studies also raise a number of interesting issues for future research. The first involves both the similarities and differences between reasoning about the continuity of a person versus an extension of that person. Past research has shown that the continuity of persons matters because these judgments influence how we treat our future selves

and other people (Bartels & Rips, 2010; Bartels & Urminsky, 2011; Bartels, Kvaran, & Nichols, 2013; Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009). And the current studies suggest intriguing parallels between the way that people conceptualize humans and art. However, while there are important parallels between people and art, there are also obvious differences—indeed, continuity judgments for art seem to fall somewhere in between people and other artifacts. This raises interesting questions about how people conceive of the aspect of the person's identity that is *in* that artwork. For example, is it seen as a “watered-down” version of the person's essence? Do changes in who owns the object or the passage of time reduce the extent to which an item contains the person's essence? Is there a limited quantity of the essence, such that there are a finite number of objects that can be seen as extensions of the self?

The fact that reasoning about the continuity of individual persons is related to (but apparently different from) reasoning about the continuity of art, suggests an opportunity to learn more about how people conceive of the “piece of the person” that resides in the object. Moreover, another article in this special issue (Gelman, Noles, & Stilwell) finds that children as young as 3 years old are sensitive to ownership when tracking objects, and ownership seems to be somewhat special in this respect—children's ability to accurately track objects is superior when the objects are assigned an owner versus merely given a label. Perhaps the tendency to see artwork as an extension of the self and beliefs about essence are importantly related to these early-emerging abilities.

A second question for future research concerns the boundary conditions of these effects. Here, we have conceived of notions of transferred essence and contagion as an example of the “extended self hypothesis” (Belk, 1988; Clark & Chalmers, 1998; James, 1890; Olson, 2011). And, we examined artwork in particular because it appears to be one domain in which preferences for the original object are especially pronounced. However, it also seems that participants do not think that all objects that a person has had contact with are extension of the self. Indeed, in the Blok et al. (2005) Study 2 discussed in this paper, all of the objects were labeled as one of Jim's possessions (e.g., Jim's hammer) which he presumably had contact with and yet, participants seemed quite willing to endorse the notion that a molecule-for-molecule copy *was* the same object. That said, there is also a large market for celebrity memorabilia which tends to consist of relatively ordinary and otherwise worthless artifacts that acquire monetary value solely because they have been touched by the celebrity (Newman et al., 2011). Therefore, there seems to be a fair degree of complexity surrounding the question of exactly when an artifact will be thought of as an extension of the self and imbued with the person's essence versus not. The present studies make initial headway in this area by suggesting that if something is thought to contain the person's essence, then people should think that the identity of that object resides with the same physical stuff. Nonetheless, future research could examine this phenomenon more closely to delineate the specific conditions in which objects are, or are not, likely to be seen as extensions of the self.

Finally, returning to the broader issue of how people track the continuity of human agents, the fact that people respond to the sameness of *stuff* when making continuity

judgments about persons and some objects points to a fascinating inconsistency in people's intuitive theories. Almost by definition, a soul or essence is an immaterial entity. And yet, it is precisely in the cases where people seem to assume the existence of some soul/essence that they employ a very *physical* model of how it persists across time and how it may "infect" other objects. While theorists have long noted the ways in which people may be intuitive dualists, conceiving of individuals both as a physical body and immaterial soul (Bloom, 2004), the intuitions observed here seem to suggest that the *more* that people infer the existence of a soul (in the person, or in a piece of art), the *more* likely they are to rely on the continuity of the same physical matter when making identity judgments.

One way to interpret this may be as an instance of a more general phenomenon for people to instantiate abstract, complex, and potentially unfamiliar concepts in very concrete, familiar physical models. For example, Barrett and Keil (1996) found that while participants readily endorse the idea that God is omnipotent, omniscient, and omnipresent, when reasoning about God in context of a narrative, participants drastically distort information to conform to very naturalistic, human-like terms. Or, as another example, Newman and Keil (2008) found that young children first conceive of an essence as a single, localized entity that is buried deep with an organism and will even apply such a model when reasoning about homogenous substances, such as gold or rocks. An interesting avenue for future research may be to look at this aspect of identity in greater detail.

In sum, the goal of this paper was to explore identity judgments about art and the parallels to reasoning about the persistence of human agents and other types of artifacts. In showing the relation between these processes we suggest that these studies help to inform both current understanding of what makes some objects "one-of-a-kind," as well as broader questions regarding the nature of people's intuitive theories for tracking the persistence of individual objects and other human agents.

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## Note

1. Given the original purpose of the experiment, this study also varied (between-subjects) the category of the pictured outcome. For example, the object was either the same category as the original (e.g., a cat), a related one (e.g., a dog) or an unrelated one (e.g., a toaster). However, in the present analysis we were only concerned with cases in which the pre- and postdevice objects appeared identically.

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