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## *Cleanliness is Next to Morality, Even for Philosophers*

**Abstract:** *A number of studies have shown that seemingly morally irrelevant factors influence the moral judgments of ordinary people. Some argue that philosophers are experts and are significantly less susceptible to such effects. We tested whether an unconscious cleanliness prime — the smell of Lysol — affects the judgments of both non-philosophers and professional philosophers. Our results suggest that the direction of cleanliness effects depends both on the respondent and whether the question is framed in the second or third person. They also provide evidence that cleanliness cues affect the moral judgments of both non-philosophers and philosophers, challenging the philosopher-as-expert view.*

### **1. Introduction**

It might seem like our moral judgments are guided by stable ethical principles, but recent studies have demonstrated that ordinary people's moral judgments and actions are affected by a surprising array of seemingly irrelevant factors including cues to cleanliness such as the use of antiseptic hand wipes (Helzer and Pizarro, 2011) and the smell of Windex (Liljenquist *et al.*, 2010). Some of these cleanliness cue effects (e.g. Liljenquist *et al.*, 2010) are the result of *unconscious* cleanliness priming. That is, some cleanliness cues affect people's moral judgments even when they are not aware of the cue.

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A number of studies have shown that feelings of disgust influence our moral judgments, typically by making them harsher (e.g. Wheatley and Haidt, 2005; Schnall *et al.*, 2008b; Horberg *et al.*, 2009). As with cleanliness primes, many of these disgust primes are unconscious (e.g. Wheatley and Haidt, 2005). The effects of cleanliness and disgust primes may stem from a common cognitive mechanism. Schnall *et al.* (2008a), for example, found that while disgust primes lead to harsher moral judgments, cleanliness primes lead to less severe moral judgments. Schnall *et al.* (2008a) cast cleanliness and disgust as opposite influences on moral judgment; in some cases, cleanliness feelings can even reduce the severity of moral judgments caused by feelings of disgust. Yet others (e.g. Zhong *et al.*, 2010) have found the opposite: that cleanliness primes sometimes lead to *more* severe moral judgments.

Though much more research will be needed to determine the precise effects of disgust and cleanliness, that such influences have *any* effect on moral judgment provides ammunition to certain critics of intuition-use. Some have argued that the influence of irrelevant factors on the philosophical intuitions of ordinary people indicates the unreliability of such influenced intuitions (Weinberg *et al.*, 2010). If the smell of Windex is irrelevant to the truth of a given moral proposition, but the smell's presence nevertheless affects the moral judgment, we have reason to believe that judgment to be unreliable. Call this the irrelevant influence challenge to the reliability of intuitions. This challenge may become even more worrying if our moral judgments are affected by irrelevant influences about which we are not conscious.

Some, however, claim that studies on ordinary people do little to question the reliability of *philosophers'* judgments (Hales, 2006; Ludwig, 2007). Those who adopt this line of defence to the irrelevant influence challenge argue that we should rely on the intuitions of philosophers, since philosophers are experts in philosophical intuition. There is, of course, an important empirical premise in this type of argument, *viz.* that philosophers' intuitions are significantly less susceptible to influence by irrelevant factors. This type of 'expertise' argument fails if it turns out that philosophers are equally or more susceptible to influence by irrelevant factors than non-philosophers.

## 2. Experiment

We investigated whether an unconscious cleanliness prime affects the moral judgments of philosophers in the same way that it affects non-

philosophers, and whether this effect depends on who is performing the action to be judged, the participant or another person.

### *2.1 Methods*

We presented 168 undergraduate students at a Rutgers University bus stop and 117 attendees in the conference registration line at the American Philosophical Association Eastern Division 2011 conference with paper surveys containing eight moral purity scenarios used previously by Helzer and Pizarro (2011) (Figure 1A; Appendix 1). Participants rated the action in each scenario on a scale from 1 (not at all wrong) to 7 (totally wrong). Participants were randomly assigned to receive either ‘actor scenarios’, depicting themselves as the acting agents in each scenario, or ‘observer scenarios’, depicting someone else as the acting agent. Crossed with this factor, participants were randomly assigned to ‘clean’ surveys sprayed with Lysol or ‘control’ surveys sprayed with water prior to distribution. Participants received surveys in one of two time blocks, either a clean or control time block, and were randomly assigned to either an actor or observer condition. During the clean time blocks participants received surveys previously sprayed with Lysol and during the control time block participants received surveys previously sprayed with water. Clean surveys were sprayed with Spring Waterfall Scent Lysol spray and control surveys were sprayed with water at least 15 minutes before the clean or control time blocks began and all surveys were dry prior to distribution. Distribution of clean and control surveys was staggered and at least fifteen minutes were left in between each testing session at both the Rutgers University bus stop and APA Eastern Division conference. There were six time blocks (three clean condition, three control condition) at the Rutgers University bus stop and eight time blocks (four clean condition, four control condition) at the APA Division conference.<sup>1</sup>

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[1] We are grateful to an anonymous referee for raising possible concerns about this methodology. Time blocks were used to allow the scent (from clean condition surveys) to vanish before control condition surveys were distributed. However, as a referee notes, a possible consequence might be that there are uncontrolled differences in the environment or participant pool that affected our results. Perhaps the crowdedness of the registration line during clean distribution sessions differed from crowdedness during control distribution sessions, and our results demonstrate the impact of crowdedness in addition to (or instead of) cleanliness or agency. While there were a number of testing time blocks at both the APA and the bus stop, within 15 minutes of each clean condition time block session there was also a control condition time block session conducted. This precaution should assuage most concerns about possible confounds.

## 2.2 Results

Ratings for the eight scenarios were combined into one overall measure (Cronbach's  $\alpha = .805$ ) and subjected to a 2(expertise: philosopher vs. students)  $\times$  2(agent: actor vs. observer)  $\times$  2(cleanliness: clean vs. control) ANOVA (Figure 1B). A main effect of expertise ( $F(1,284) = 170.72, \eta^2 = 0.36, p < .0001$ ) indicated harsher judgments from students than from philosophers.

### A Example Scenario

#### Actor Condition

You leave work, unwrapping a sandwich for lunch. As you are about to bite into the sandwich, you notice that part of the bread is moldy. Rather than eating it, you give the sandwich to a homeless man who is asking for spare change.

#### Observer Condition

A man leaves work, unwrapping a sandwich for lunch. As he is about to bite into the sandwich, he notices that part of the bread is moldy. Rather than eating it, he gives the sandwich to a homeless man who is asking for spare change.

(not at all wrong)      1   2   3   4   5   6   7      (totally wrong)

### B Mean Ratings

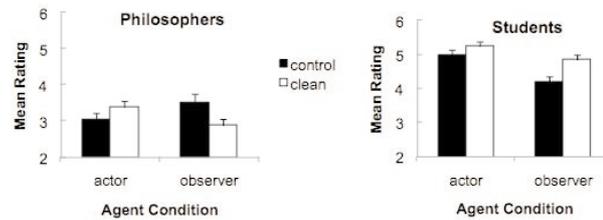


Figure 1. (A) One scenario used in the experiment, in actor and observer conditions. (B) Philosopher ( $n = 117$ ) and student ( $n = 168$ ) mean ratings in each experimental condition.

An agent  $\times$  expertise interaction ( $F(1,284) = 5.58, \eta^2 = 0.01, p = .02$ ), was modified by a 3-way cleanliness  $\times$  agent  $\times$  expertise interaction ( $F(1,284) = 7.71, \eta^2 = 0.02, p = .006$ ). Students and philosophers showed divergent actor-observer effects in the control condition: students rated themselves more harshly than others, while the philosophers rated others more harshly than themselves, replicating a previous finding (Tobia *et al.*, forthcoming). In contrast, in the clean condition students and philosophers showed an actor-observer effect in the same direction; the cleanliness manipulation caused a reversal of the actor-observer effect for philosophers but not for students. Put differently, the cleanliness manipulation caused students to give higher ratings in both the actor and observer conditions, and caused philosophers to give higher ratings in the actor condition, but *lower* ratings in the observer condition.

We next conducted separate ANOVAs for the students and philosophers. Philosophers showed a cleanliness  $\times$  actor-observer interaction ( $F(1,113) = 6.15, \eta^2 = 0.05, p = .01$ ) but no main effects of either factor. As explained above, this interaction indicates that the philosopher actor/observer effect was in opposite directions in the clean and control conditions.

Students did not show a condition  $\times$  actor-observer interaction ( $F(1,164) = 1.68, \eta^2 = 0.01, p = .20$ ), but they did show main effects of actor-observer ( $F(1,164) = 15.24, \eta^2 = 0.08, p < .0001$ ) and of cleanliness condition ( $F(1,164) = 8.56, \eta^2 = 0.05, p = .004$ ). Thus, students gave higher ratings for the actor compared to the observer condition, and they gave higher ratings in the clean compared to the control condition.

We sought to compare effect sizes between the philosopher and student groups. As should be clear from the pattern of results, students show a larger main effect of cleanliness and agent, but show no interaction, while philosophers show an interaction but neither main effect. To compare effect sizes we compared  $r^2$  values of students and philosophers (encompassing *both* the interaction and main effects). Philosophers show an  $r^2$  of 0.058 (95% CI  $-0.021$  to  $+0.138$ ), while students show an  $r^2$  of 0.133 (95% CI  $+0.0396$  to  $+0.227$ ). Thus, although the  $r^2$  was numerically larger for students, it was not statistically larger. We conclude that philosophers are not less influenced by the agent and cleanliness factors than students.

As a final analysis to test the claim that cleanliness affects both students and philosophers, we used the cleanliness  $\times$  agent  $\times$  expertise interaction ANOVA reported above and computed contrasts for the cleanliness effect for each of four groups (control vs. clean): student actors, student observers, philosopher actors, and philosopher observers. There was no effect of cleanliness for philosopher actors ( $F(1,277) = 1.44, \eta^2 = 0.003, p = 0.23$ ) or student actors ( $F(1,277) = 1.28, \eta^2 = 0.003, p = 0.26$ ). However, there was a cleanliness effect for philosopher observers ( $F(1,277) = 6.00, \eta^2 = 0.013, p = 0.01$ ) as well as for student observers ( $F(1,277) = 8.42, \eta^2 = 0.018, p = 0.004$ ). Thus, the main effect of cleanliness in both groups (philosopher and student) was only significant in *observer* conditions. Importantly, however, the cleanliness effect was in opposite directions for the students and philosophers: the clean scent caused student observers to be more harsh in their moral judgments but caused philosopher observers to be less harsh in their judgments.

### 2.3 Discussion

Our results indicate that the moral judgments of both philosophers and lay people are influenced by an unconscious cleanliness prime, but in different ways. This interaction pattern is consistent with several potential accounts. Perhaps the students' intuitions are more emotion driven, while the philosophers' are more reason driven, and the cleanliness manipulation increases the emotional salience of the scenarios. Under this interpretation, philosophers give overall lower ratings than the students since they are less moved to harsh judgment based on the emotions evoked by the violations. The emotional factors, which influence the students to judge more harshly, are emphasized by the cleanliness manipulation, resulting in increased student ratings. The increased emotional salience of the scenarios has a different effect for philosophers; when the emotional aspects are emphasized (by the cleanliness prime) in self-regarding violations, philosophers become harsher, but when the emotional aspects are emphasized in other-regarding violations, philosophers are less harsh.

We might also consider our results in the context of theories that distinguish among different types of moral codes (e.g. Rozin *et al.*, 1999). The different pattern for philosophers and lay people found here may reflect differences in responsiveness to certain moral codes; philosophers may be substantially less responsive to purity related violations than non-philosophers. While the cleanliness reminder unconsciously emphasizes the disgusting aspects of the purity violations for student as well as for philosopher participants, this has different effects within each group. Students, being more responsive to purity considerations, respond more harshly to purity violations when feelings of disgust or cleanliness are unconsciously activated. Philosophers, being far less responsive to purity considerations, respond less harshly to others' purity violations when feelings of disgust or cleanliness are unconsciously activated. Perhaps here the increased focus on purity aspects comes with a decreased focus on other aspects (e.g. harm or justice) that are valued more highly by philosophers. Further research will be needed to arbitrate between these, and other, possible explanations.

However, our results do count against one popular view of the effect of cleanliness on moral judgment. That view, advocated by Schnall *et al.* (2008a), for example, is that cleanliness and disgust are emotions that have *opposing* effects on moral judgment: disgust makes moral judgment harsher and cleanliness makes moral judgment less harsh. Our results provide evidence against this type of view by

demonstrating that cleanliness sometimes leads to harsher moral judgments. Yet, our results indicate cleanliness does not *always* increase the severity of moral judgment; in fact, sometimes cleanliness decreases a moral judgment's severity, as when philosophers are in the observer condition. Thus, our results need not be entirely incompatible with Schnall *et al.*'s (2008a), but our broader conceptual picture differs. The rejected view casts disgust as an emotion that increases moral judgment severity and cleanliness as an emotion that decreases moral judgment severity. Our results suggest that differences in participants (philosopher/student) and agency (actor/observer) matter and that the complete story of the causal effect of cleanliness cues on moral judgment is more nuanced.

What is most important for our present purpose is that while it appears that non-philosophers' moral judgments differ from those of philosophers, the same irrelevant factors affect the moral judgments of both groups, albeit in different ways. These results supply evidence that professional philosophers are influenced by a type of environmental factor and provide two strikes against the philosopher-as-expert view: philosophers are subject to actor-observer effects *and* are influenced by cleanliness cues.

Before turning to general conclusions, it is worth clarifying further the main result of our study.<sup>2</sup> We describe the Lysol manipulation as an 'unconscious cleanliness prime', but there are two different ways in which the cleanliness prime might be understood to be unconscious. Participants may have been unconscious of the smell of Lysol *or* they may have been unconscious of the Lysol smell's effect on their moral judgments, despite being conscious of the smell itself. That is, our 'unconscious cleanliness prime' might be taken to refer to either an unconscious *smell* of Lysol or to an unconscious *influence* of the Lysol smell on moral judgment.

Our experimental results should not be taken as evidence bearing on the first interpretation — that the Lysol smell itself is unconscious. A cost of surveying participants at bus stops and registration lines was that we could not collect post-survey data (e.g. reported consciousness of a clean scent). It may prove of interest, though not consolation, to those curious about participants' consciousness of the Lysol smell to note that of all participants surveyed, none commented or raised questions about any type of scent — and participants, philosophers in

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[2] We thank the editors of the *Journal of Consciousness Studies* for drawing our attention to this issue.

particular, were keen to offer unsolicited comments about various aspects of the survey.

Our ‘unconscious cleanliness prime’ is better understood under the second interpretation; the Lysol prime *unconsciously influences* participants’ moral judgments. Whether or not participants were conscious of the Lysol smell itself, we assume participants did not consciously use the smell as evidence when responding to the survey vignettes. Thus, our experimental results indicate an unconscious influence of the cleanliness prime.

### 3. Conclusions

Our main finding is that the intuitive judgments of both non-philosophers and philosophers are influenced by a seemingly irrelevant environmental factor: an unconscious cleanliness prime. This provides evidence against the type of expertise defence of philosophical intuition that claims philosophers are less susceptible to influence by irrelevant factors. Importantly, our results suggest that sometimes even those with rigorous training (like philosophers) cannot escape the effect of certain unconscious influences.

One might object that an expertise defence need not claim that philosophers’ intuitions are immune to these types of environmental factors; perhaps philosophers are affected by many of the same irrelevant things as ordinary people. While the target expertise defence need not claim philosophers’ *immunity* to influence by irrelevant factors, what it does claim is that philosophers are significantly less susceptible to these influences. Thus, our cleanliness effect should be seen as evidence in the debate. It is worth noting that evidence that poses problems for the expertise defence has been accumulating. In addition to the cleanliness effect presented here, order (Schwitzgebel and Cushman, 2011), question framing (Tobia *et al.*, forthcoming), personality (Schulz *et al.*, 2011), and native language (Vaesen and Peterson, draft) all appear to influence the intuitions of philosophers and non-philosophers alike.

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### **Appendix 1: Survey Vignettes from Helzer & Pizarro (2011)**

#### *Sexual Purity Violations*

(Grandma’s Bed) While house sitting for his grandmother, a man and his girlfriend have sex on his grandmother’s bed.

(Fetus Picture) After a late-term miscarriage, a woman asks her doctors to take a picture of her cradling the miscarried fetus.

(Teddy) A woman enjoys masturbating while cuddling with her favorite teddy bear.

(Incest) After they have been sexually active for over a year, a woman and her boyfriend discover that they have the same father — they are actually half brother and sister, but were raised in separate families from the time they were born. They decide that the new information doesn’t matter, and continue their sexual relationship. The couple is careful to use protection.

*Non-Sexual Purity Violations*

(Dog) A family's dog was killed by a car in front of their house. They cremate the dog, and sprinkle the remains in the sandbox where the neighbourhood children play.

(Joke) As a practical joke, a man unwraps his office mate's lunch and places it in a sterilized bed pan.

(Mouldy Sandwich) A man leaves work, unwrapping a sandwich for lunch. As he is about to bite into the sandwich, he notices that part of the bread is mouldy. Rather than eating it, he gives the sandwich to a homeless man who is asking for spare change.

*Non-Purity Violation*

(Skit) A man and his son are acting in a skit at the local community centre. As part of the skit, the director calls on the son to slap his father in the face. The son complies with this request.