

## ONLINE PAPER APPENDIX

*Pilot Study on Carelessness (Introduction)*

The objective of this pilot study was to confirm that carelessness for durable and non-durable products is associated with product neglect (e.g., neglecting repair, not looking for the product in case of loss), risky behaviors (e.g., endangering the product), and faster consumption rates (e.g., pouring more product than usual).

We recruited 100 respondents (50% female;  $M_{\text{age}} = 36$ , American) for a paid online survey through Amazon Mechanical Turk. All participants were told: “Imagine the following two people and answer the questions that follow. Person A appears to be more careless than average with her products. Person B appears to be less careless than average with her products.” Participants were then asked five questions regarding persons A and B. To reduce potential demand effects, questions were phrased in opposite directions, with higher numbers indicating higher care for the question on willingness to look for the lost phone and, vice versa, higher numbers indicating higher carelessness for the other questions. Specifically, participants answered the following questions: 1. “In case of loss of a product (e.g., a phone), how likely is this person to check online whether someone found the product and possibly returned it?” (1 = Not likely at all, 7 = Extremely likely); 2. “How likely is this person to endanger her products?” (1 = Not likely at all, 7 = Extremely likely); 3. “In case of product damage, would this person be more likely to repair or to replace her products?” (1 = More likely to repair, 7 = More likely to replace); 4. “When using consumable products (e.g., shampoo, perfume), how quickly does she use them?” (1 = Very slow, 7 = Very fast); 5. “When using consumable products (e.g., shampoo,

perfume), how much does she pour each time?” (1 = Very little amount of product, 7 = Very big amount of product).

Paired sample t-tests revealed that the more careless person was seen as less likely to look for lost products ( $M_A = 3.79$  vs.  $M_B = 5.4$ ,  $t(97) = 5.84$ ,  $p < .001$ ), more likely to endanger her products ( $M_A = 5.47$  vs.  $M_B = 2.97$ ,  $t(98) = 8.69$ ,  $p < .001$ ), and more likely to dispose of, rather than maintain, her products ( $M_A = 4.98$  vs.  $M_B = 3.66$ ,  $t(98) = 4.17$ ,  $p < .001$ ). In addition, participants inferred that the more careless person would also consume her non-durable products in a faster fashion ( $M_A = 5.45$  vs.  $M_B = 3.16$ ,  $t(98) = 9.42$ ,  $p < .001$ ) and use more of them each time ( $M_A = 5.47$  vs.  $M_B = 3.21$ ,  $t(97) = 9.81$ ,  $p < .001$ ).

In sum, these results indicate that people associate carelessness for durable and non-durable products with product neglect, risky behaviors, and faster consumption rates. We use these different behaviors throughout our studies as ways to measure carelessness.

### *Discontinuity Analysis (Study 1A)*

To complement the analysis of Study 1A, we performed a discontinuity analysis considering the release of the next model on the market as the cutoff point. We used an OLS regression to predict the number of phones reported in a given week (dependent variable) as a function of the release date of the next model (same continuous variable as in the regression analysis reported in the paper), the release of the next phone (dummy variable coded as 0 if the next model has not been released yet and 1 if the next model has already been released), and the interaction between these two variables. The table below shows the regression results. As hypothesized, we detect a statistically significant discontinuity in the number of reported losses

before and after the release date of the next model ( $\beta = -0.32$ ,  $t(303) = -3.21$ ,  $p = .001$ ). As a further check, we also conducted the same analysis controlling for the number of Apple iPhones sold worldwide and found again significant effects for all the independent variables.

TABLE: PREDICTORS OF REPORTED LOSSES OF APPLE IPHONES ON THE IMEI DETECTIVE WEBSITE, DISCONTINUITY ANALYSIS (STUDY 1A)

Predictors	Unstandardized Coefficient	Std. Error	Standardized Coefficient	t-value	p-value
<i>Intercept</i>	2.231	0.149		14.971	0.001
<i>Days to the release of the next model (IV<sub>1</sub>)</i>	0.003	0.001	1.176	3.594	0.001
<i>Release of the next model (IV<sub>2</sub>)</i>	-0.574	0.179	-0.320	-3.209	0.001
<i>Interaction IV<sub>1</sub>*IV<sub>2</sub></i>	-0.004	0.001	-1.135	-4.015	0.001

$R^2 = 0.079$

#### *Regression Results (Study 1B)*

*Results.* We analyzed responses using linear regression with repair neglect as the first dependent variable and with the following independent variables: a dummy variable for availability of the new phone on the market (coded as 1 for availability of the new phone on the market and 0 otherwise), paid price, and remaining book value of the phone as a percentage of the original value. The analysis revealed a significant and positive effect of availability of the new phone on the market ( $\beta = .09$ ,  $t(588) = 2.31$ ,  $p = .021$ ), a significant effect of paid price ( $\beta = -.25$ ,  $t(588) = -6.57$ ,  $p < .001$ ), and a significant effect of book value ( $\beta = -.25$ ,  $t(588) = -6.44$ ,  $p < .001$ ). Next, we conducted the same analysis on willingness to pay to repair the current phone as the second dependent variable. The analysis revealed a significant and negative effect of availability of the new phone on the market ( $\beta = -.082$ ,  $t(585) = -2.36$ ,  $p = .018$ ), a significant

effect of paid price ( $\beta = .54$ ,  $t(585) = 16.08$ ,  $p < .001$ ), and a significant effect of book value ( $\beta = .15$ ,  $t(585) = 4.49$ ,  $p < .001$ ). Finally, we conducted the same analysis on interest in participating in a risky lottery as the third dependent variable and found a significant and positive effect of availability of the new phone on the market ( $\beta = .12$ ,  $t(588) = 2.66$ ,  $p = .008$ ), a non-significant effect of paid price ( $\beta = -.04$ ,  $t(588) = -.98$ , NS), and a non-significant effect of book value ( $\beta = -.03$ ,  $t(588) = -.58$ , NS).

*Follow-up Study: The Perceived Realism of Ads on Carelessness (Study 1B)*

The objective of this follow-up study was to complement the results of Study 1B on the extent to which people are consciously aware of the effect of upgrades and address potential social desirability concerns in Study 1B. In this follow-up, we use an ad featuring other people engaging in seemingly carelessness practices with their phones to test whether people acknowledge the existence of an upgrade effect in others. Asking about other consumers should reduce the extent to which participants are willing to admit carelessness in the presence of upgrades due to social desirability worries.

*Method.* We recruited 124 respondents (51% female;  $M_{\text{age}} = 39$ , Italian) for a paid online survey through Qualtrics. The advertising and survey questions were in Italian, the native language of respondents. First, we asked participants to watch a 30-second ad (<http://bit.ly/1SorckM>) by Telecom Italia Mobile (TIM), one of the biggest telecommunication companies in Italy. Similar to the Virgin Mobile ad described at the beginning of the paper, this ad features a series of characters damaging their phones “accidentally.” For example, one girl drops her phone in a river, and one man throws his mobile under a cement roller (see figure

below for two representative screenshots). The narrator says, “Sometimes our passion for technology makes us do crazy things. Like coming up with the most improbable excuses to get a rid of our old phone and get a new model. Enough with these tricks! With TIM, you can get a new phone!” The ad was airing on national TV when we conducted the study (July 2015). After showing them the video, we asked participants to answer the following questions: 1. “How realistic is the idea that consumers would damage their products on purpose?” (1 = Not realistic at all, 7 = Extremely realistic)<sup>1</sup>; and 2. “Why might the people in the advertising behave like this?” (Open-ended).

*Results.* Participants did not think that the ad was realistic ( $M = 2.95$ ) and, in absolute terms, the rating was lower than the scale midpoint ( $t(123) = 6.85, p < .001$ ). We coded the content of the open-ended question on the presumed reasons to explain the behaviors depicted in the ad. The content analysis revealed the following most recurring categories: 30% of comments mentioned that the video was just an unrealistic advertising idea (e.g., “Just to grab attention with something unrealistic, but fun,” “It is just an advertising”); 25% of comments mentioned superficiality and exhibitionism (e.g., “Futility,” “To show off,” “Because people are slave of consumerism”); 15% of comments mentioned not knowing why people would behave this way; 12% of comments mentioned upgrading (e.g., “They want to change phone,” “To get the new Samsung”); 10% of comments listed other miscellaneous reasons (e.g., “Anger”), and lastly 8% of comments mentioned wanting a justification to upgrade (e.g., “So that they are justified to upgrade,” “To avoid guilt”). This follow-up study demonstrates that, even when explicitly presented with *other* consumers breaking products on purpose and using tricks to upgrade, the

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<sup>1</sup> The sensitivity and understanding of this scale were validated vis-à-vis three other test ads with varying degree of realism (full details reported in this appendix right after this study).

vast majority of people do not acknowledge the effect of upgrade. Only a fifth of participants mentioned either willingness to upgrade (12%) or need for justification (8%) in their comments

FIGURE: SCREENSHOTS FROM TIM ADVERTISING



#### *Scale Validation Test for Ad Realism Measure*

The objective of this test was to validate the sensitivity and understanding of the question on the realism of the TIM ad employed in the follow-up study previously reported in this appendix.

*Method.* We recruited 103 participants (50% female;  $M_{\text{age}} = 39$ , American) for a paid online survey through Amazon Mechanical Turk. We selected three commercials aired during

the Super bowl game 2016 as the study stimuli. We deliberately picked a very unrealistic ad (“Puppy-Monkey-Baby” by Mountain Dew, <https://www.youtube.com/watch?v=ql7uY36-LwA>), a moderately unrealistic ad (“Distant memory” by Advil <https://www.youtube.com/watch?v=xryoyvdTVnw>), and a realistic ad (“Good morning” by McDonald’s (<https://www.youtube.com/watch?v=SEbrNUXGq0Q>)). Each participant was assigned to watching two commercials randomly selected from among the three ads. After watching each ad, participants were asked to rate the realism of the commercial. Specifically, for “Puppy-Monkey-Baby,” participants answered, “How realistic is the idea that consumers would follow a puppy-monkey-baby?” In the case of “Distant memory,” participants rated, “How realistic is it that consumers would feel so energetic?” For “Good morning,” participants indicated, “How realistic is it that would eat and drink as in the ad?” As in the main study, all answers were rated on a 7-point scale (1 = Not realistic at all, 7 = Extremely realistic).

*Results.* As expected, “Puppy-Monkey-Baby” was rated as very unrealistic ( $M = 1.98$ ) and, in absolute terms, the rating was lower than the scale midpoint ( $t(52) = 9.88, p < .001$ ). “Distant memory” was also seen as unrealistic ( $M = 3.15$ ) and rated below the midpoint ( $t(51) = 4.26, p < .001$ ). Finally, “Good morning” was seen as a realistic ( $M = 5.66$ ) and rated above the midpoint ( $t(49) = 8.69, p < .001$ ). The picture below offers a visual display of the scores (including TIM from the main study) on the 7-point question scale. In sum, the scale employed in the follow-up study to rate the extent to which respondents saw the TIM commercial as plausible is a sensitive and valid measure.

FIGURE: SCALE VALIDATION RESULTS



*Material for the Jenga Game (Study 2)*

A: Basic Mug (retail value = \$1.00)



B: Upgrade Mugs (average retail value = \$9.67)





### C: Jenga Tower



*Pretest: Functional and Hedonic Products (Studies 3A, 3B, 4)*


The objective of this pretest was to examine a series of products (durable and non-durable) varying from utilitarian to hedonic.

*Method.* We recruited 61 American respondents for a paid online survey through Amazon Mechanical Turk. Participants were asked to rate a randomized list of six products: eyeglasses, sunglasses, toothpaste, shampoo, laundry softener, and perfume. To minimize demand effects, the focal products were interspersed with six other commonly used products (i.e., wallet, keychain, laundry detergent, toilet paper, body cream, shaving cream). Using the same measures employed in previous research on hedonic versus functional products (Dhar and Wertenbroch 2000; Okada 2005), participants rated each product on the following two dimensions: 1. “How functional is this product?” (1 = Not at all functional, 7 = Extremely functional), and 2. “How hedonic is this product?” (1 = Not at all hedonic, 7 = Extremely hedonic).

*Results.* For each product, we reverse-coded the rating on functionality and averaged it with the hedonism rating. As expected in the domain of durable products, the sunglasses were rated as a more hedonic product than eyeglasses ( $M_{\text{sunglasses}} = 3.35$  vs.  $M_{\text{eyeglasses}} = 2.16$ ,  $t(60) = 7.44$ ,  $p < .001$ ). Moreover, for non-durable products, perfume was the product most highly rated as hedonic ( $M_{\text{perfume}} = 5.03$ ), followed by laundry softener ( $M_{\text{softener}} = 3.49$ ), shampoo ( $M_{\text{shampoo}} = 2.78$ ), and finally toothpaste ( $M_{\text{toothpaste}} = 2.34$ ; all pairwise comparisons  $p$ -values  $< .001$ ).

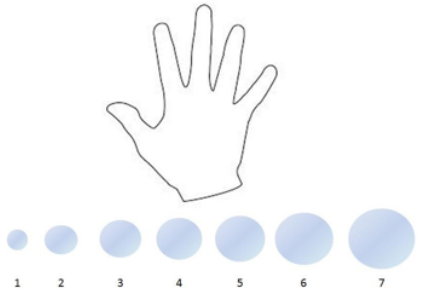
FIGURE: SELECTED STIMULI, CONDITIONS, AND QUESTIONS (STUDIES 3A, 3B)



<p><b>Full Bottle Condition</b></p> <p>Imagine you own the bottle of softener depicted below. Your bottle of softener is full.</p>  <p>Softener level</p>	<p><b>Quarter-full Bottle Condition</b></p> <p>Imagine you own the bottle of softener depicted below. Your bottle of softener contains about one fourth of the product.</p>  <p>Softener level</p>	<p><b>Quarter-full Bottle and Upgrade Condition</b></p> <p>Imagine you own the bottle of softener depicted below. Your bottle of softener contains about one fourth of the product. You have already decided that you want to upgrade to a different softener.</p>  <p>Softener level</p>
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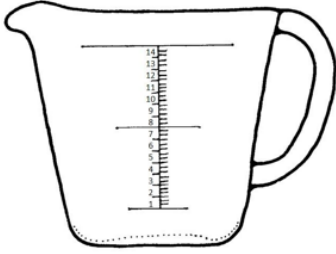
**Shampoo**

Imagine you were washing your hair and the circles below represented the different amount of shampoo you may use for this shower. How much shampoo would you pour on the palm of your hand?



**Laundry Detergent**

Imagine you were doing laundry, how much softener would you pour for this load in the measuring cup represented below?



*Scale Validation Test for Usage Measure (Studies 3A, 3B)*

The objective of this test was to validate the sensitivity and understanding of the question on “intended usage of the product compared to usual” employed in Studies 3A and 3B.

*Method.* We recruited 103 participants (50% female;  $M_{\text{age}} = 39$ , American) for a paid online survey through Amazon Mechanical Turk. Participants read four product scenarios, one per product (shampoo, toothpaste, perfume, and laundry softener). To test the sensitivity of the usage-compared-to-usual measure, two scenarios were intentionally framed to elicit higher usage than usual; conversely, the other two were framed to elicit lower usage than usual. In the case of shampoo, participants read, “Imagine you are leaving for a one-week trip. You are washing your hair before departure. The circles below represented the different amount of shampoo you may use. You will not be able to wash your hair during the trip (i.e., for one week). How much shampoo would you pour on the palm of your hand?” (from 1 to 7). Subsequently, participants were asked, “Is the amount of shampoo you decided to use more or less than what you typically use when washing your hair?” (1= Less than usual; 4 = Same as usual; 7 = More than usual). In the case of laundry softener, participants read, “Imagine you were doing laundry and your load this time is very light; how much softener would you pour in the measuring cup represented below?” (from 1 to 14). Subsequently, participants were asked, “Is the amount of softener you decided to use more or less than what you typically use when laundering your clothes?” (same scale as shampoo). In the case of toothpaste, participants read, “Imagine you about to wash your teeth and you won’t be able to wash them again for 24 hours. How much toothpaste would you put on your toothbrush?” (from 1 to 7). Next, participants were asked, “Is the amount of toothpaste you decided to use more or less than what you typically use when washing your

teeth?” (same scale as shampoo). Finally, in the case of perfume, participants read, “Imagine you were going to the gym, how many times would you spray the perfume on you?” (from “none” to “seven times or more”). Next, participants were asked, “Is the amount of perfume you decided to use more or less than what you typically use?” (same scale as shampoo). The visual aids for these questions were identical to those employed in the Studies 3A and 3B.

*Results.* For the two product scenarios eliciting higher consumption than average (i.e., shampoo and toothpaste), participants indicated wanting to use more than usual ( $M_{\text{shampoo}} = 4.58$ ;  $M_{\text{toothpaste}} = 4.53$ ; both ratings higher than 4,  $p$ -values  $< .001$ ). In contrast, for the two product scenarios eliciting lower consumption than average (i.e., softener and perfume), participants indicated wanting to use less than usual ( $M_{\text{softener}} = 3.37$ ;  $M_{\text{perfume}} = 3.02$ ; both ratings lower than 4,  $p$ -values  $< .001$ ). In sum, the scale employed in the paper to rate intended product usage as compared to average is a sensitive and valid measure.

*Pilot Study: Justifying Product Upgrades in the Face of Damage (Study 4)*

This pilot study examines the basic premise that individuals perceive damage to owned products as a validation and justification for purchasing new, upgraded products. We manipulate the physical state of a pair of glasses within three experimental conditions (*intact vs. minor-damage vs. major-damage* physical product state) and ask participants to rate their willingness to upgrade to a newer pair. Based on the pretest (reported earlier in this this online appendix), we selected both a utilitarian and hedonic product (eyeglasses vs. sunglasses) and, to avoid social desirability biases, we framed the scenario in two different ways (self vs. other). We predict that participants will be more likely to upgrade when the product is either damaged or broken

because they perceive this decision to be justifiable. In contrast, we expect that participants will disapprove of upgrading when the product is intact. Moreover, we examine individual-level differences in lay rationalism (Hsee et al. 2015), and we expect these effects to be particularly accentuated for people who chronically experience a high need to rationalize and justify their decisions. All the results' figures are reported in the main paper.

*Method.* We decided in advance to recruit 950 participants (about 80 per condition). We recruited 958 respondents (47% female;  $M_{\text{age}} = 35$ , American) for a paid online survey through Amazon Mechanical Turk. We randomly assigned participants to one of 12 conditions in a 3 (*intact* vs. *minor-damage* vs. *major-damage* physical condition) x 2 (*functional* vs. *hedonic* product type) x 2 (*self* vs. *other* framing) between-subjects design. The framing manipulation was included to account for potential differences between the two scenarios due to social desirability concerns. In the *self-framing* conditions, participants were asked to imagine that they owned a functional product, namely a pair of eyeglasses (or a pair of sunglasses in the *hedonic* product conditions) and were randomly assigned to one of the three physical product state conditions. In the *intact* condition, participants read, “The lenses of your eyeglasses are intact”; participants in the *minor-damage* condition read, “The lenses of your eyeglasses are mildly scratched”; and participants in the *major-damage* condition read, “The lenses of your eyeglasses are extremely scratched.” Subsequently, all participants were told about a decision to upgrade: “You just found out that a new version of your current eyeglasses model has been released. You decide to upgrade to the new model.” In the *other-framing* conditions, participants were randomly assigned to six analogous scenarios (i.e., three for eyeglasses and three for sunglasses) about another person. In the case of eyeglasses, for example, participants read: “Imagine a middle-aged man whose name is John. John owns a pair of eyeglasses. The lenses of John’s

eyeglasses are intact [mildly scratched / extremely scratched]. He just found out that a new version of his current eyeglasses model has been released.” After reading the description, participants answered two questions assessing their propensity to upgrade and the degree of approval towards the upgrading decision (Cronbach’s  $\alpha = .87$ ): 1. “If a pair of glasses you owned was really in this condition, would you get a new pair?” (1 = Definitely no, 4 = Maybe, 7 = Definitely yes); 2. “To what extent do you agree with the decision to upgrade?” (1 = Strongly disagree, 4 = Neither agree nor disagree, 7 = Strongly agree). Next, all participants rated two items on the justifiability of the decision (Cronbach’s  $\alpha = .62$ ):<sup>2</sup> “Is upgrading a justifiable decision?” 1 = Not justifiable at all, 4 = Somewhat justifiable, 7 = Very justifiable); 2. Would you feel the need to explain yourself if you bought the new pair? (1 = Definitely no, 4 = Maybe, 7 = Definitely yes; reverse coded). Finally, participants completed the six-item (Cronbach’s  $\alpha = .80$ ) lay rationalism scale (Hsee et al. 2015).

*Results.* We conducted a full factorial between-subjects ANOVA on willingness to upgrade as the dependent variable. The analysis revealed a significant main effect of physical state of the glasses ( $F(2, 946) = 282.6, p < .001$ ), a significant main effect of product type ( $F(1, 946) = 20.0, p < .001$ ), and a significant main effect of framing ( $F(1, 946) = 10.7, p = .001$ ). None of the interactions was significant. Planned contrasts showed that participants in the *major-damage* condition ( $M_{\text{maj-dam}} = 6.07$ ) were more willing to upgrade relative to participants in the *minor-damage* condition ( $M_{\text{min-dam}} = 5.31, t(955) = 7.16, p < .001$ ) and in the *intact* condition ( $M_{\text{intact}} = 3.62, t(955) = 22.9, p < .001$ ). Propensity to upgrade in the *minor-damage* condition fell in between the *major-damage* and *intact* conditions, and was significantly higher than the *intact* condition ( $t(955) = 15.72, p = .001$ ). The main effects for product type and framing indicate that,

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<sup>2</sup> Owing to the low reliability of the justifiability items, we also performed all the following analyses with the two items separately. We find the same pattern of results when each justifiability item is considered separately.

on average, participants were more willing to upgrade in the case of the functional product than the hedonic one ( $M_{\text{eyeglasses}} = 5.19$  vs.  $M_{\text{sunglasses}} = 4.8$ ,  $t(956) = 3.52$ ,  $p < .001$ ), and when the scenario was framed in terms of another individual rather than in personal terms ( $M_{\text{other}} = 5.12$  vs.  $M_{\text{self}} = 4.87$ ,  $t(956) = 2.34$ ,  $p = .019$ ).

We then conducted the same analyses on justifiability and found the same pattern of results. A full factorial between-subjects ANOVA revealed a significant main effect of physical state of the product ( $F(2, 946) = 179.8$ ,  $p < .001$ ), a significant main effect of product type ( $F(1, 946) = 9.5$ ,  $p = .002$ ), and a significant main effect of framing ( $F(1, 946) = 12.6$ ,  $p < .001$ ). None of the interactions was significant. Planned contrasts showed that participants in the *major-damage* condition ( $M_{\text{maj-dam}} = 6.04$ ) perceived the decision to upgrade as significantly more justifiable relative to participants in the *minor-damage* condition ( $M_{\text{min-dam}} = 5.58$ ,  $t(955) = 4.36$ ,  $p < .001$ ) and the *intact* condition ( $M_{\text{intact}} = 4.16$ ,  $t(955) = 17.93$ ,  $p < .001$ ). Rates of justifiability in the *minor-damage* condition fell in between results for the *major-damage* and *intact* conditions and were significantly higher than rates of justifiability in the *intact* condition ( $t(955) = 13.56$ ,  $p < .001$ ). The main effects for product type and framing indicate that, on average, participants justified more the decision to upgrade for the functional product than for the hedonic one ( $M_{\text{eyeglasses}} = 5.39$  vs.  $M_{\text{sunglasses}} = 5.13$ ,  $t(956) = 2.56$ ,  $p = .010$ ) and that they justified the decision more when the scenario was framed for others than for themselves ( $M_{\text{other}} = 5.39$  vs.  $M_{\text{self}} = 5.12$ ,  $t(956) = 2.82$ ,  $p = .005$ ).

In sum, the decision to upgrade was seen as more appropriate and justifiable when the product was damaged, even just lightly so, than when the product was intact, especially for necessary products and in the case of others upgrading. Since there were no interactions with the manipulations of product type and framing, we collapsed these conditions and concentrated the



analysis on the focal independent variable of physical state of the product (i.e., *intact* vs. *minor-damage* vs. *major-damage* conditions) when testing mediation and moderation.

*Mediation.* We examined whether justifiability mediated the relationship between the physical state of the product and willingness to upgrade following the Hayes and Preacher (2012) method for mediation with multi-categorical independent variables. We created two dummy-coded variables (one with the *major-damage* condition coded as 1 and the other conditions coded as 0; the other with the *minor-damage* condition coded as 1 and the other conditions coded as 0) and included them simultaneously as predictors in the regression analysis. The effects of both major and minor damage on propensity to upgrade were significantly reduced (from  $B_{\text{maj-dam}} = 2.45$ ,  $t(955) = 22.9$ ,  $p < .001$ , to  $B_{\text{maj-dam}} = 1.23$ ,  $t(954) = 12.88$ ,  $p < .001$ , for the *major-damage* condition; and from  $B_{\text{min-dam}} = 1.69$ ,  $t(955) = 15.72$ ,  $p < .001$ , to  $B_{\text{min-dam}} = .76$ ,  $t(954) = 8.41$ ,  $p < .001$  for the *minor-damage* condition) when justifiability was included in the mediation model and justifiability was a significant predictor ( $B = .65$ ,  $t(954) = 25.45$ ,  $p < .001$ ). Furthermore, the bias-corrected confidence interval of the indirect effects through justifiability excluded zero for both the difference between the *intact* condition and the *major-damage* condition (indirect effect = 1.22; 95% CI = 1.06 to 1.41) and for the difference between the *intact* condition and the *minor-damage* condition (indirect effect = .92; 95% CI = .77 to 1.09). In summary, the results support the notion that when a product is broken or (importantly) slightly damaged, people find upgrading justifiable and thus are inclined to upgrading to a newer version.

*Moderation.* Responses were analyzed using a linear regression with willingness to upgrade as the first dependent variable and with the following independent variables: a variable for major-damage (coded as 1 for *major-damage* condition and -1 otherwise), a variable for minor-damage (coded as 1 for *minor-damage* condition and -1 otherwise), the lay rationalism

scale (z-scores), and the two interactions between the scale and each of the damage conditions. The analysis revealed a significant main effect of *major-damage* condition ( $B = 1.22$ ,  $SE = .05$ ,  $t(952) = 23.27$ ,  $p < .001$ ), a significant main effect of *minor-damage* condition ( $B = .83$ ,  $SE = .05$ ,  $t(952) = 15.92$ ,  $p < .001$ ), a non-significant main effect of lay rationalism ( $B = .08$ ,  $SE = .05$ ,  $t(952) = 1.49$ , NS), a significant interaction between *major-damage* condition and lay rationalism ( $B = .30$ ,  $SE = .05$ ,  $t(952) = 5.96$ ,  $p < .001$ ), and a significant interaction between *minor-damage* condition and lay rationalism ( $B = .27$ ,  $SE = .05$ ,  $t(952) = 5.08$ ,  $p < .001$ ).

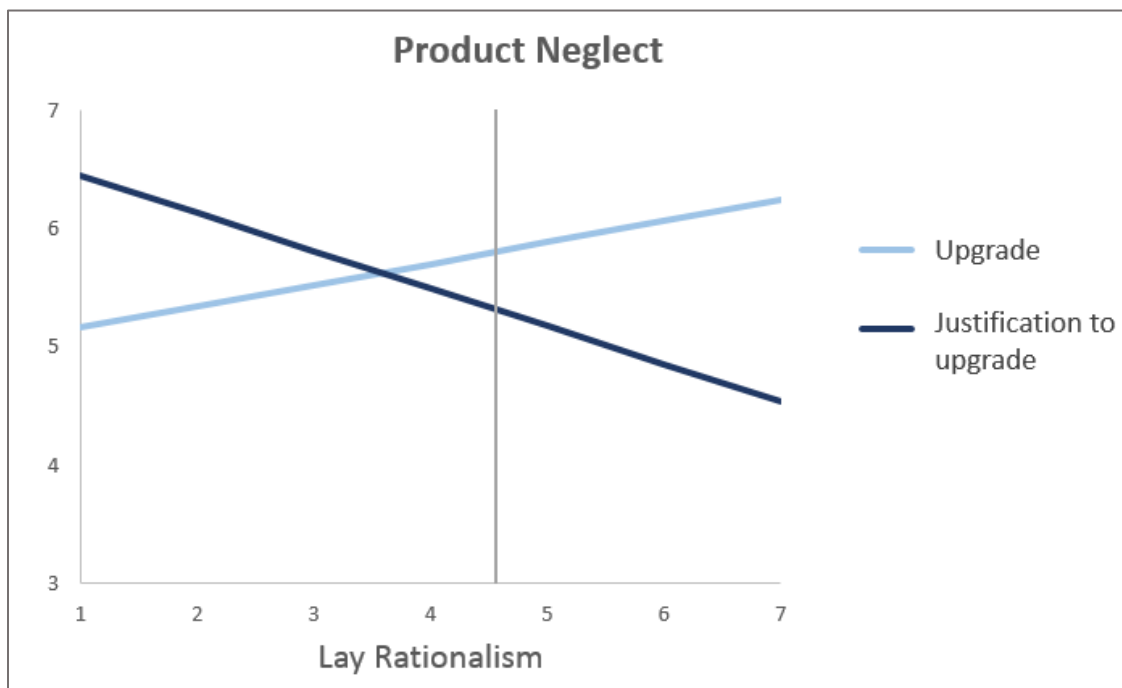
The same analysis performed on justifiability as the second dependent variable revealed an analogous pattern of results. The analysis revealed a significant main effect of *major-damage* condition ( $B = .93$ ,  $SE = .05$ ,  $t(952) = 18.14$ ,  $p < .001$ ), a significant main effect of *minor-damage* condition ( $B = .71$ ,  $SE = .05$ ,  $t(952) = 13.78$ ,  $p < .001$ ), a significant main effect of lay rationalism ( $B = .21$ ,  $SE = .05$ ,  $t(952) = 3.92$ ,  $p < .001$ ), a significant interaction between *major-damage* condition and lay rationalism ( $B = .27$ ,  $SE = .05$ ,  $t(952) = 5.38$ ,  $p < .001$ ), and a significant interaction between *minor-damage* condition and lay rationalism ( $B = .29$ ,  $SE = .05$ ,  $t(952) = 5.60$ ,  $p < .001$ ).

*Mediated Moderation.* As reported above, lay rationalism moderated both the dependent variable (willingness to upgrade) and the mediator (justifiability). We then conducted a mediated moderation analysis using model 8 in PROCESS (Hayes 2013). The interaction between lay rationalism and the dependent variable (willingness to upgrade) was significantly reduced when the mediator (justifiability) was included in the model (indirect effect = .18; 95% CI: .12, .25). Justifiability was a stronger mediator at higher levels (indirect effect = .72; 95% CI: .62, .84) than at lower levels of lay rationalism (indirect effect = .35; 95% CI: .26, .45).

*Discussion.* In conclusion, the results of this pilot study support the notion that when a product is broken or (importantly) slightly damaged, people find upgrading justifiable and therefore upgrade to a newer version regardless of the product type (functional vs. hedonic) and of the framing (self vs. other). Consistent with our expectations, we also found a significant interaction with lay rationalism. Specifically, high lay-rationalistic participants saw upgrading in the case of damage as more justifiable and appropriate than low lay-rationalistic participants. In contrast, in the case of an intact product, high lay-rationalistic participants saw upgrading as less justifiable and appropriate than participants scoring low on lay rationalism.

*Moderation Results (Study 4)*

FIGURE: MODERATION RESULTS, FLOODLIGHT ANALYSIS (STUDY 4)



Note. Gray horizontal line fixed at Johnson–Neyman point (4.56).

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