

**Two Types of Typicality:
Rethinking the Role of Statistical Typicality in Ordinary Causal Attributions**
Justin Sytsma, Jonathan Livengood, and David Rose

**Appendices:
Vignettes and Statistical Analyses**

Appendix 1: Study 1, Pen Case

In Knobe and Fraser (2008) they present the original version of the Pen Case. This vignette involves two characters (Professor Smith and an administrative assistant). While each one is described as acting typically, Professor Smith acts in a way that is impermissible and the administrative assistant acts in a way that is permissible. Roxborough and Cumby (2009) test a variation on this vignette in which the administrative assistant is now described as acting atypically. In Study 1, we tested these two vignettes, as well as a third variation in which Professor Smith is described as acting atypically, while the administrative assistant acts typically. After each vignette, participants were asked to rate how much they agreed or disagreed with the following two statements on a 7-point scale:

1. Professor Smith caused the problem.
2. The Administrative Assistant caused the problem.

The text of the three vignettes used in Study 1 is given below, with the captions characterizing the action of Professor Smith followed by the action of the administrative assistant.

Typical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

The administrative assistants typically do take the pens. Unfortunately, so do the faculty members. The receptionist has repeatedly emailed them reminders that only administrative assistants are allowed to take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

The administrative assistants typically do take the pens. In contrast, the faculty members typically do not take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Typical/Impermissible x Atypical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

The administrative assistants typically do not take the pens. Unfortunately, the faculty members typically do take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these three vignettes were collected online through the Philosophical Personality website (<http://www.philosophicalpersonality.com>). Participants were 151 native English speakers, 18 years of age or older, with at most minimal training in philosophy. (Participants were counted as having more than minimal training in philosophy if they were philosophy majors, had completed a degree with a major in philosophy, or had taken graduate-level courses in philosophy.) These participants were 72.8% women, with an average age of 35.0 years, and ranging in age from 18 to 69 years.

To analyze the results, we used MANOVA to test whether assignment to a particular Pen Case version affected participants' answers. The MANOVA model is:

$$\begin{bmatrix} Ans_P \\ Ans_A \end{bmatrix} = \begin{bmatrix} \alpha_{tt} + \alpha_{ta} \cdot I_{ta} + \alpha_{at} \cdot I_{at} \\ \beta_{tt} + \beta_{ta} \cdot I_{ta} + \beta_{at} \cdot I_{at} \end{bmatrix} + \begin{bmatrix} \varepsilon_P \\ \varepsilon_A \end{bmatrix}$$

We did not detect any effect for population-level statistical norms (Pillai's trace = 0.022, $F(4,296) = 0.806$, $p = 0.5219$). Based on Roxborough and Cumby's results, we predicted that our participants' mean response for the administrative assistant would be unaffected by the probe assignment; whereas, the mean response for Professor Smith would increase when his behavior was atypical (from the baseline in which both acted typically) and decrease when the administrative assistant's behavior was atypical (from the baseline in which both acted typically). Simulations showed that our samples had good power to detect the predicted effect. On the conservative assumption that the real change in mean response is at least 0.375 on a seven-point scale, we had better than 0.8 power to detect the effect (that is, in more than 800 out of 1000 simulations based on distributions fitting this description, the test we ran reports a significant result at the 0.05 level). Assuming the real

change in mean response is at least 0.75 on a seven-point scale, we had better than 0.99 power to detect the effect. (Actually, this size difference was detected in all 1000 simulations.)

Appendix 2: Study 2, Pen Case without Permissibility Information

In our second study, permissibility information was removed from the three vignettes used in Study 1. In addition, we added a fourth vignette in which both Professor Smith and the administrative assistant are described as acting atypically. Following each vignette, participants were asked to rate how much they agreed or disagreed with the same two statements given above for Study 1.

Typical x Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

In fact, both the administrative assistants and the faculty members typically do take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical x Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

While the administrative assistants typically do take the pens, the faculty members typically do not take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Typical x Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

While the faculty members typically do take the pens, the administrative assistants typically do not take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical x Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

Nonetheless, neither the administrative assistants nor the faculty members typically do take the pens.

On Monday morning, one of the administrative assistants encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these four vignettes were collected online through the Philosophical Personality website. Participants were 151 native English speakers, 18 years of age or older, with at most minimal training in philosophy. These participants were 76.5% women, with an average age of 34.7 years, and ranging in age from 18 to 71 years.

To analyze the results, we used MANOVA to test whether assignment to a particular Pen Case variant (without permissibility information) affected participants' answers. The MANOVA model is:

$$\begin{bmatrix} Ans_P \\ Ans_A \end{bmatrix} = \begin{bmatrix} \alpha_{tt} + \alpha_{ta} \cdot I_{ta} + \alpha_{at} \cdot I_{at} + \alpha_{aa} \cdot I_{aa} \\ \beta_{tt} + \beta_{ta} \cdot I_{ta} + \beta_{at} \cdot I_{at} + \beta_{aa} \cdot I_{aa} \end{bmatrix} + \begin{bmatrix} \varepsilon_P \\ \varepsilon_A \end{bmatrix}$$

Again, we did not detect any effect for population-level descriptive norms (Pillai's trace = 0.018, $F(6,358) = 0.554$, $p = 0.767$). Assuming that mean responses for population-level atypical behaviors differ from typical ones by 0.325 (either by uniformly raising or uniformly lowering them) on a seven-point scale, we had better than 0.8 power to detect the effect at the 0.05 significance level. If the effect is supposed to obtain only when the behaviors of the two characters have different typicality values, then our test is slightly weaker. Assuming a difference of 0.325 (in either direction), our test has approximately 0.75 power. Assuming a difference of 0.5, our test has better than 0.95 power.

The mean for the Typical responses (N=183) was 3.10 with $sd = 1.95$; the mean for the Atypical responses (N=183) was 3.14 with $sd = 1.92$. A Welch t-test comparing them was not significant ($t = -0.1727$, $df = 360.993$, $p = 0.863$). This test has better than 0.8 power to detect effects of size $d \geq 0.3$, where $d = 0.3$ corresponds to a medium-small effect.

Appendix 3: Study 3, Agent-Level Pen Case

In our third study, we changed to the vignettes used in Study 1 to describe the characters as specifically acting agent-level typically or atypically. In addition, we added a fourth vignette, as in Study 2, in which both Professor Smith and the administrative assistant (John) are described as acting atypically. In each vignette Professor Smith is described as acting impermissibly, while John is described as acting permissibly. Following each vignette, participants were asked to rate how much they agreed or disagreed with the following two statements:

1. Professor Smith caused the problem.
2. John caused the problem.

Typical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

One of the administrative assistants, John, almost always takes a pen every time he passes the receptionist's desk. Unfortunately, one of the faculty members, Professor Smith, also almost always takes a pen every time he passes the receptionist's desk. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

One of the administrative assistants, John, almost always takes a pen every time he passes the receptionist's desk. In contrast, one of the faculty members, Professor Smith, almost never takes a pen when he passes the receptionist's desk. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Typical/Impermissible x Atypical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

One of the administrative assistants, John, almost never takes a pen when he passes the receptionist's desk. Unfortunately, one of the faculty members, Professor Smith, almost always takes a pen every time he passes the receptionist's desk. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical/Impermissible x Atypical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The administrative assistants are allowed to take the pens, but faculty members are supposed to buy their own.

One of the administrative assistants, John, almost never takes a pen when he passes the receptionist's desk. Likewise, one of the faculty members, Professor Smith, almost never takes a pen when he passes the receptionist's desk. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these four vignettes were collected online through the Philosophical Personality website. Participants were 216 native English speakers, 18 years of age or older, with at most minimal training in philosophy. These participants were 69.9% women, with an average age of 36.9 years, and ranging in age from 18 to 84 years.

To analyze the results, we used MANOVA to test whether assignment to a particular Agent-Level Pen Case version affected participants' answers. The MANOVA model is the same as that used in Study 2. The omnibus test rejects the null hypothesis that $\alpha_{tt} = \alpha_{ta} = \alpha_{at} = \alpha_{aa} = 0$ and $\beta_{tt} = \beta_{ta} = \beta_{at} = \beta_{aa} = 0$, indicating that agent-level statistical norms matter for folk causal attributions in this case (Pillai's trace = 0.424, $F(6,424) = 18.99$, $p = 2.2e-16$). However, rejecting the omnibus null does not tell us precisely how typicality matters. In order to compare the effect of permissibility to the effect of typicality in this case, we fit the two-way ANOVA model:

$$Ans = \beta_0 + \beta_1 \cdot Typ + \beta_2 \cdot Perm + \varepsilon$$

where *Typ* is equal to 1 if the action is typical and 0 if the action is atypical, and *Perm* is equal to 1 if the action is impermissible and 0 if the action is permissible. Both variables were highly significant ($p=2.2e-16$ and $p=1.7e-7$), and the estimated coefficients were $b_0=2.45$, $b_1=1.83$, and $b_2=0.97$. As predicted, an agent-level action is more likely to be called a cause of a bad outcome when it is typical. (We also tested a model with an interaction term, which turned out to be non-significant.)

Appendix 4: Study 4, Agent-Level Pen Case without Permissibility Information

In our fourth study, we removed the permissibility information from the four vignettes used in Study 3.

Typical x Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

One of the administrative assistants, John, almost always takes a pen every time he passes the receptionist's desk. Unfortunately, one of the faculty members, Professor Smith, also almost always takes a pen every time he passes the receptionist's desk.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical x Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

One of the administrative assistants, John, almost always takes a pen every time he passes the receptionist's desk. In contrast, one of the faculty members, Professor Smith, almost never takes a pen when he passes the receptionist's desk.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Typical x Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

One of the administrative assistants, John, almost never takes a pen when he passes the receptionist's desk. Unfortunately, one of the faculty members, Professor Smith, almost always takes a pen every time he passes the receptionist's desk.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Atypical x Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. Both the administrative assistants and the faculty members in the department are able to take the pens.

One of the administrative assistants, John, almost never takes a pen when he passes the receptionist's desk. Likewise, one of the faculty members, Professor Smith, almost never takes a pen when he passes the receptionist's desk.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. Both take pens. Later that day, the receptionist needs to take an important message... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these four vignettes were collected online through the Philosophical Personality website. Participants were 167 native English speakers, 18 years of age or older, with at most minimal training in philosophy. These participants were 74.3% women, with an average age of 35.3 years, and ranging in age from 18 to 82 years.

To analyze the results, we used the same MANOVA model as in Study 2. We rejected the null hypothesis that $\alpha_{tt} = \alpha_{ta} = \alpha_{at} = \alpha_{aa} = 0$ and $\beta_{tt} = \beta_{ta} = \beta_{at} = \beta_{aa} = 0$, indicating that agent-level descriptive norms matter for folk causal attributions in this case (Pillai's trace = 0.272, $F(6,326) = 8.55$, $p = 1.2e-8$). Follow-up t-tests confirmed that characters behaving agent-level typically are more likely to be said to have caused the bad outcome than are characters who behaved agent-level atypically. We compared aggregated responses for Professor Smith acting typically ($m=3.90$, $sd=2.05$) to aggregated responses for Professor Smith acting atypically ($m=2.45$, $sd=1.74$). A Welch t-test shows that these means are significantly different ($t=4.948$, $df=158.7$, $p=1.89e-6$). Similarly, we compared aggregated responses for John, the administrative assistant, acting typically ($m=3.87$, $sd=2.20$) to aggregated responses for John acting atypically ($m=2.80$, $sd=1.91$). A Welch t-test shows that these means are also significantly different ($t=3.34$, $df=163.25$, 0.00052).

Appendix 5: Study 5, Modified Agent-Level Pen Case

In our fifth study, we rewrote the four vignettes used in Study 3 to further flesh-out the example.

Typical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

One of the administrative assistants—John—typically takes pens from the receptionist’s desk: John takes a pen almost every day. Likewise, one of the faculty members—Professor Smith—also typically takes pens from the receptionist’s desk: Professor Smith takes a pen almost every day. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Atypical/Impermissible x Typical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

One of the administrative assistants—John—typically takes pens from the receptionist’s desk: John takes a pen almost every day. In contrast, one of the faculty members—Professor Smith—typically does not take pens from the receptionist’s desk: Professor Smith almost never takes a pen. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Typical/Impermissible x Atypical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

One of the administrative assistants—John—typically does not take pens from the receptionist’s desk: John almost never takes a pen. In contrast, one of the faculty members—Professor Smith—typically takes pens from the receptionist’s desk: Professor Smith takes a pen almost every day. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Atypical/Impermissible x Atypical/Permissible:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

One of the administrative assistants—John—typically does not take pens from the receptionist’s desk: John almost never takes a pen. Likewise, one of the faculty members—Professor Smith—also typically does not take pens from the receptionist’s desk: Professor Smith almost never takes a pen. The receptionist has repeatedly e-mailed reminders that only administrative assistants are allowed to take the pens in order to ensure that everyone is clear on the point.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these four vignettes were collected online through the Philosophical Personality website. Participants were 198 native English speakers, 18 years of age or older, with at most minimal training in philosophy. These participants were 68.2% women, with an average age of 34.1 years, and ranging in age from 18 to 77 years.

To analyze the results, again we used the same MANOVA model as in Study 2. We rejected the null hypothesis that $\alpha_{tt} = \alpha_{ta} = \alpha_{at} = \alpha_{aa} = 0$ and $\beta_{tt} = \beta_{ta} = \beta_{at} = \beta_{aa} = 0$, indicating that

agent-level descriptive norms matter for folk causal attributions in this case (Pillai's trace = 0.1581, $F(6,388) = 5.55$, $p = 1.55e-5$). In order to compare the effect of permissibility to the effect of typicality in this case, we fit the same two-way ANOVA model described for Study 3 (note 15). Again, we let *Typ* equal 1 if the action was typical and 0 if the action was atypical, and we let *Perm* equal 1 if the action was impermissible and 0 if the action was permissible. Both variables were highly significant ($p=6.78e-6$ and $p=0.0072$), and the estimated coefficients were $b_0=3.74$, $b_1=0.64$, and $b_2=0.64$. As predicted, an agent-level action is more likely to be called a cause of a bad outcome when it is typical. (We also tested a model with an interaction term, which turned out to be non-significant.)

Appendix 6: Study 6, Modified Population-Level and Agent-Level Pen Case

In our sixth study, we expanded on the vignettes used in Study 5, by including information about population-level and agent-level typicality. This study used a $2 \times 2 \times 2 \times 2$ between-subjects design—Professor Smith Population-Level x John Population-Level x Professor Smith Agent-Level x John Agent-Level—resulting in 16 vignettes total. As in Study 5, in each vignette Professor Smith is described as acting impermissibly, while the administrative assistant John is described as acting permissibly.

Population-Typical/Agent-Typical x Population-Typical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. Likewise, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, like most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Typical x Population-Typical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. Likewise, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Typical x Population-Atypical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own. As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. Likewise, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist’s desk: Professor Smith almost never takes a pen. And, like most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist’s desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Typical x Population-Atypical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist’s desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist’s desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist’s desk: Most of the faculty members take a pen almost every day. Likewise, as a group the administrative assistant’s typically do take pens from the receptionist’s desk: Most of the administrative assistants take a pen almost every day.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist’s desk: Professor Smith almost never takes a pen. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist’s desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Atypical x Population-Typical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty

members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. In contrast, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Atypical x Population-Typical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. In contrast, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day.

And, like most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist’s desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Atypical x Population-Atypical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist’s desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist’s desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist’s desk: Most of the faculty members take a pen almost every day. In contrast, as a group the administrative assistant’s typically do *not* take pens from the receptionist’s desk: Most of the administrative assistants almost never take a pen.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist’s desk: Professor Smith almost never takes a pen. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist’s desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist’s desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Typical/Agent-Atypical x Population-Atypical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Despite this, as a group the faculty members typically do take pens from the receptionist's desk: Most of the faculty members take a pen almost every day. In contrast, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist's desk: Professor Smith almost never takes a pen. And, like most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Typical x Population-Typical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens. Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. In contrast, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, like most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Typical x Population-Typical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. In contrast, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Typical x Population-Atypical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the

department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. In contrast, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist's desk: Professor Smith almost never takes a pen. And, like most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Typical x Population-Atypical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. In contrast, as a group the administrative assistant's typically do take pens from the receptionist's desk: Most of the administrative assistants take a pen almost every day.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist's desk: Professor Smith almost never takes a pen. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down

information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Atypical x Population-Typical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. Likewise, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Atypical x Population-Typical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. Likewise, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Unlike most of the faculty members, one of the faculty members—Professor Smith—typically does take pens from the receptionist's desk: Professor Smith takes a pen almost every day. And, like most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Atypical x Population-Atypical/Agent-Typical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. Likewise, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist's desk: Professor Smith almost never takes a pen. And, unlike most of the administrative assistants, one of the administrative assistants—John—typically does take pens from the receptionist's desk: John takes a pen almost every day.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Population-Atypical/Agent-Atypical x Population-Atypical/Agent-Atypical:

The receptionist in the philosophy department keeps her desk stocked with pens. The department is comprised of two main groups: The administrative assistants and the faculty members. University policy is to provide administrative assistants with pens (and other supplies), while faculty members are supposed to use their research budgets to buy their own.

As such, administrative assistants in the philosophy department are allowed to take pens from the receptionist's desk, while faculty members in the philosophy department are not allowed to take pens from the receptionist's desk. Further, to make certain that everyone in the department knows the policy, the receptionist has repeatedly e-mailed reminders to them stating that only administrative assistants (and not faculty members) are allowed to take pens.

Because of this, as a group the faculty members typically do *not* take pens from the receptionist's desk: Most of the faculty members almost never take a pen. Likewise, as a group the administrative assistant's typically do *not* take pens from the receptionist's desk: Most of the administrative assistants almost never take a pen.

Like most of the faculty members, one of the faculty members—Professor Smith—typically does *not* take pens from the receptionist's desk: Professor Smith almost never takes a pen. And, like most of the administrative assistants, one of the administrative assistants—John—typically does *not* take pens from the receptionist's desk: John almost never takes a pen.

On Monday morning, John encounters Professor Smith walking past the receptionist's desk. The receptionist is not there. Both John and Professor Smith each take a pen. A few minutes later, the receptionist returns to her desk. The phone is ringing and she answers it. The call is to inform her that her son has been in an accident. The receptionist needs to write down information about the hospital her son is at and who the attending physician is... but she has a problem. There are no pens left on her desk.

Statistical Analysis:

Responses for these sixteen vignettes were collected online through the Philosophical Personality website. Participants were 760 native English speakers, 18 years of age or older, with at most minimal training in philosophy. These participants were 72.5% women, with an average age of 34.0 years, and ranging in age from 18 to 84 years.

To analyze the results, we used MANOVA to test whether agent-level or population-level statistical norms affected participants' causal attributions. The MANOVA model is:

$$\begin{bmatrix} Ans_p \\ Ans_A \end{bmatrix} = \begin{bmatrix} \alpha_0 + \alpha_1 \cdot PP + \alpha_2 \cdot PA + \alpha_3 \cdot AP + \alpha_4 \cdot AA \\ \beta_0 + \beta_1 \cdot PP + \beta_2 \cdot PA + \beta_3 \cdot AP + \beta_4 \cdot AA \end{bmatrix} + \begin{bmatrix} \varepsilon_p \\ \varepsilon_A \end{bmatrix}$$

In this model, $PP=1$ if the professor acted population-typically (and 0 otherwise), $PA=1$ if the professor acted agent-typically (and 0 otherwise), $AP=1$ if the assistant acted population-typically (and 0 otherwise), and $AA=1$ if the assistant acted agent-typically (and 0 otherwise). The agent-typical terms are statistically significant (for the professor, Pillai's trace = 0.0287, $F(2, 753) = 11.12$,

$p = 1.75e-5$; for the assistant, Pillai's trace = 0.0105, $F(2, 753) = 3.98$, $p = 0.019$); in contrast, the population-typical terms are not statistically significant (for the professor, Pillai's trace = 0.0004, $F(2, 753) = 0.14$, $p = 0.869$; for the assistant, Pillai's trace = 0.0014, $F(2, 753) = 0.54$, $p = 0.582$). In order to compare the effect of permissibility to the effect of the two types of typicality in this case, we used the following ANOVA model:

$$Ans = \beta_0 + \beta_1 \cdot AgTyp + \beta_2 \cdot PopTyp + \beta_3 \cdot Perm + \varepsilon$$

In this model, $AgTyp=1$ if the action of the character being considered was agent-typical (and 0 otherwise), $PopTyp=1$ if the action of the character being considered was population-typical (and 0 otherwise), and $Perm=1$ if the action of the character being considered was impermissible (and 0 otherwise). The agent-typical and permissibility terms are statistically significant (for the agent-typical term, $p=1.79e-7$; for the permissibility term, $p=0$ up to machine error); in contrast, the population-typical term is not statistically significant ($p=0.309$). In addition to these, we considered models with interaction terms, but we found nothing significant.