

GENDER ROLES AND IMPLICIT CAUSALITY

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Abstract

Sentence interpretation is crucial for a complete understanding of one another. Past research has discovered a phenomenon termed implicit causality, which is the person or thing that is viewed as the cause of the action of a sentence. Current research suggests that gender and social power can act to moderate causal attributions (LaFrance, Brownell, & Hahn, 1997). The present study was a conceptual replication of LaFrance et al., but accounted for a methodological issue of their study. Participants were asked to complete 48 partial sentences with an explanation for the action that occurred. The findings suggested that the social power and the placement of the names within the experimental sentences resulted in differing causal attributions.

Gender Roles and Implicit Causality

One of the most well-known speakers on the intricacies of language was not Edward Sapir, Benjamin Lee Whorf, or even Noam Chomsky. George Carlin is likely one of the most recognizable names when it comes to language. A stand-up comedian for nearly half a century, Carlin spoke of the ambiguity of the English language for much of that time. His observations are not out of the ordinary, however, as linguistics has been a prominent area of study for centuries. Scholars from a diverse array of disciplines ranging from sociology to neurology have studied language. Moreover, in the mid-20th century, the area of psycholinguistics garnered more interest, as researchers studied the cognitive aspects of language. Topics such as speech acts, conversational implicatures, politeness, and rule violation have all been explored. Although various topics relating to linguistics have been studied, questions regarding how we interpret the causes of actions still exist. The present study will investigate how factors such as verb type and social power influence our interpretation of actions.

Psycholinguistics of the late 1960s brought with it the study of implicit causality. Implicit causality is essentially the person, or thing, that is viewed as the cause of the action of a sentence (Holtgraves, 2002). Attributing the causality is not so cut-and-dry, however. For instance, in the sentence “Bob irritates Rachel” people are more likely to indicate that Bob was the cause of the action, whereas in the sentence “Bob likes Rachel” the same people are more likely to say that Rachel was the cause of the action. The difference in the implicit causality of these two sentences lies within the verb that is used. In the first sentence, *irritates* is an action verb, which has the related semantic roles of

agent (perceived as the doer of an action), and patient (someone or something that is acted upon). In general, people tend to assign greater causal weight to the agent (e.g. Bob), because anyone can be acted on, whereas the number of people who can act is more limited (Corrigan, 2001; Holtgraves, 2002).

Alternatively, in the second sentence, *likes* is a state verb, which has the related semantic roles of experiencer (someone having a particular experience) and stimulus (someone or something eliciting that experience). People tend to assign greater causal weight to the stimulus (e.g. Rachel), because anyone can experience a state, but the number of people who can elicit a state is limited. These findings are fairly robust, and even hold across sentences written in passive voice (Corrigan, 2001; Holtgraves, 2002).

Foundations of Implicit Causality

Abelson and Kanouse (1966) were two of the first researchers to write about implicit causality, though they did not realize it at the time. Their main objective was to study propaganda to better understand how people react to its assertions. Abelson and Kanouse's research analyzed three previous studies that all evaluated how participants responded to generic statements. Although their conclusions were highly speculative, Abelson and Kanouse's statements fall in line with current research findings. Specifically, their findings suggested that participants' patterns of responses changed when different kinds of verbs were used in the generic experimental statements.

Garvey and Caramazza (1974) were the first to argue that a sentence's causality is implicit within the verb used, although they did not specify that implicit causality was related to the type of verb used (i.e. action or state). Instead they reasoned that there are

some verbs whose causality is usually implicit in the object of a sentence, and other verbs whose causality is usually implicit in the subject of a sentence. Garvey and Caramazza then explained that this difference in causal attribution occurs because verbs are full of information including causes and effects that are then brought into every communication. Essentially, Garvey and Caramazza were saying that it is because of all of the information inherent in a verb that one can attribute implicit causality.

Two more important figures to the study of implicit causality were Brown and Fish (1983). They were the first researchers to identify action and state verbs as the cause of differing implicit causality within sentences. Brown and Fish presented participants with partial sentences to complete. Their findings suggested that when sentences utilized action verbs, greater causal weight was assigned to the agent, and when sentences utilized state verbs, greater causal weight was assigned to the stimulus.

Explanations of Implicit Causality

Researchers debate several explanations for implicit causality. Some researchers endorse a Whorfian hypothesis as an explanation for implicit causality, which suggests that “language imposes a structure on causal thinking that overrides basic nonlinguistic, attributional mechanisms” (Holtgraves, 2002, p. 167). The most prominent Whorfian hypothesis was proposed (and later rejected) by Brown and Fish (1983), and is termed the priming, or lexical hypothesis, and insists that the language we use restricts how we think about events.

Other explanations for implicit causality are not based on a Whorfian hypothesis, and for the most part presume that the structure of language reflects predispositions

fundamental to people, but is not determined by those predispositions. The most prominent non-Whorfian hypothesis was also proposed by Brown and Fish (1983) and is termed the causal schema hypothesis. The basis for this hypothesis is that language is a result of primitive schemas people have for thinking about causality, and that these causal schemas are inherent in the verb.

Contradictions to Implicit Causality

Of course, implicit causality is not without its problems. Some researchers have reported findings contradictory to past studies. For instance, Au (1986) conducted three studies regarding implicit causality in which she had participants complete partial sentences that included an interpersonal event (e.g. *flatter, thank*). Au's findings were consistent with past findings regarding the implicit causality of state verbs (i.e. causality was attributed to the stimulus). However, her findings were inconsistent in that they suggested that the causes of some action verbs were attributed to the agent of a sentence, whereas the causes of other action verbs were attributed to the patient. Au concluded that some interpersonal action verbs are associated with the agent causing the events, whereas other interpersonal action verbs are associated with the patient causing the events.

Likewise, VanKleeck, Hillger, and Brown (1988) found the same pattern of results as Au (1986). However, VanKleeck et al. provided participants with sentences and asked them to rate how likely it was that either person in the sentence was the cause of the action. Their findings suggested that the use of interpersonal verbs influenced the causal attributions participants made. The findings of Au (1986) and VanKleeck et al. (1988) differed from the findings of other studies of implicit causality. However, their

research suggests that the phenomenon of implicit causality is not static, and its pattern of results may be moderated by the different kinds of words one uses.

Alternative Model

Related to the notion of implicit causality is Semin and Fiedler's (1988) linguistic category model, which extends the implicit causality model. It differs from implicit causality because it is not concerned solely with the relationships between causal attributions and action and state verbs alone. Instead, the linguistic category model extends its analysis to four different kinds of action and state verbs, and adjectives that lie on a continuum of abstractness to concreteness. The four kinds of verbs Semin and Fiedler are concerned with are descriptive action verbs (e.g. *meet, visit*), which are the most concrete, followed by interpretive action verbs (e.g. *help, imitate*), followed by state action verbs (e.g. *anger, excite*), followed by state verbs (e.g. *like, hate*), and finally adjectives (e.g. *honest*), which are the most abstract. The linguistic category model broadens how past researchers viewed verbs, to include elements like degree of verifiability and how revealing a verb is, and as a result better reveals how researchers examine and show the relationship between language and thought.

Related Topics

Over 30 years after Abelson and Kanouse (1966) first identified the causality implicit within certain words, a new, related phenomenon termed implicit consequentiality was proposed by Stewart, Pickering, and Sanford (1998). Crinean and Garnham (2006) explain that actions not only have causes, they also have consequences related to those actions. Specifically, implicit consequentiality is a focus on one person

as the principal bearer of the consequence of an action, and is based mostly on expectations. As with past research on implicit causality, researchers investigating implicit consequentiality usually have participants engage in sentence completion as their experimental task. For instance, a study by Stewart et al. presented participants with partial sentences (e.g. Because Bob annoyed Rachel...), and asked them to complete each one. Findings have suggested that people show consequentiality biases in an opposite pattern than the biases that have been shown in implicit causality research. In fact, Stewart et al.'s findings suggested that the implicit consequentiality of a verb (e.g. *annoy*) would result in a participant's focus on Rachel. Therefore, the consequence of Bob annoying Rachel is that Rachel is in a state of being annoyed, and the actual consequence is that she is likely to react as a result of her annoyance.

Extending Implicit Causality

Implicit causality has been studied a myriad of ways since the 1960s. For instance, Au's (1986) study of implicit causality utilized a participant sample that consisted of children. In fact, Au concluded that children are also responsive to implicit causality, to the point where their responses follow the same patterns as adults'. These findings suggest that research conducted on implicit causality is fairly generalizable to populations of people other than college students.

More recently, Corrigan (2001) conducted three experiments to investigate the causal attributions of situations more similar to real-life. She argued that the experimental conditions in which researchers study implicit causality are very dissimilar to real-life situations, and may not elicit the same patterns of results. Corrigan's main

goal was to determine whether certain nouns would interact with action and state verbs to add to predictions of causal attributions. Specifically, Corrigan had participants read sentences and rate how likely it was that each person within those sentences was the cause of the action that occurred. Her findings suggested that certain aspects of a sentence (i.e. the nouns and verbs used) all interact to result in its specific causal attribution.

Additionally, Pyykkönen and Järvikivi (2010) conducted an investigation of implicit causality in spoken language. They had participants listen to stories and view corresponding photographs presented on a computer screen while their eye movements were tracked. Participants were instructed to orally continue 10 of the 40 stories they heard using the characters presented in that story. Pyykkönen and Järvikivi's findings suggested that implicit causality is not only a phenomenon of text, but that it is evident in spoken discourse as well. However, their findings also lend support to the idea that all aspects of a particular sentence interact and contribute to its causal attribution.

Again, the present study's goal is to determine if there are circumstances that moderate the effects of implicit causality. Past research has studied implicit causality in multiple ways. As a result, there is strong evidence to suggest that implicit causality is not easily attributed solely to the type of verb used in a sentence, as past researchers have suggested. Therefore, the present study will investigate the effect of verb type, order of phrasing, and social power on peoples' interpretations of implicit causality.

Social power, gender roles, and language. An investigation by Mannetti and DeGrada (1991) had participants indicate whether an ambiguous sentence they read

referred to the object or subject of that sentence. They were then asked to rate their level of confidence for each answer they provided. Their findings suggested that the gender of the sentence subject and object influenced the participants' causal attributions.

Specifically, their findings suggested that males were often assigned greater causal attributions than females. They also found that participants were more confident in their judgments of sentences involving state verbs than sentences involving action verbs.

Based on these findings it seems reasonable to suggest that significant differences could also be found in research that manipulates other contextual factors (i.e. the role of the sentence subject and object).

Furthermore, LaFrance, Brownell, Hahn (1997) conducted three studies investigating the implicit causality of sentences varying gender and social power. Additionally, they manipulated verb valence by conducting a pilot study to determine positive action and state verbs (e.g. *encourages*, *adores*) and negative action and state verbs (e.g. *criticizes*, *dislikes*). In each study, participants read sentences, and were asked to rate how likely it was that each person in the sentence was the cause of the action that occurred. LaFrance et al.'s findings suggested that males were assigned causality to a significantly greater extent than females when action verbs were used, regardless of the females' position as agent or patient. Moreover, their findings suggested that females were assigned causality to a significantly greater extent than males when state verbs were used, regardless of the males' position of experiencer or stimulus. LaFrance et al. concluded that their results were evidence for women's lower status in interpersonal interactions. Likewise, when they analyzed the effect of social power on causal

attributions their findings suggested that greater social power was related to greater causal attributions, but that women were still assigned lower causal ratings than men.

Lastly, research by Kollock, Blumstein, and Schwartz (1985) suggested that conversational interactions between men and women often put the man in a position of power, with the woman acting in a supportive way. Again, these findings can be extended to the idea that in reading about interactions between men and women, significant differences will be found in the causal attributions of those interactions, insofar as the man will be assigned greater causal attribution unless social power is manipulated.

The Present Investigation

The purpose of the present study is to determine if significant differences occur in the ways that participants attribute the actions of sentences, which include instances of women and men in non-traditional gender roles. Based on past research by Mannetti and DeGrada (1991), LaFrance et al. (1997), and Kollock et al. (1985) the hypothesis for the present investigation is that social power will affect causal attributions regardless of gender, gender role, and the type of verb used, to the extent that the person perceived as having the power will be assigned the cause of the action to a significantly greater degree than the person without power.

The present study is a conceptual replication of LaFrance et al.'s (1997) research, which suggested that gender and social power influenced how sentences were interpreted, regardless of the kind of verb used. However, LaFrance et al.'s research raised a methodological question. That is, they utilized a task that asked participants to rate how likely each person in each sentence was of being the cause of the action of that sentence.

It is possible that LaFrance et al.'s experimental task elicited demand effects in their participants. Taking that into consideration, the present study kept the purpose of the research less salient to participants to try to avoid demand characteristics.

Pilot Study Method

Participants

Participants were 54 undergraduate students enrolled in a General Psychology course at a large Midwestern United States university. Eighty percent were female, and 19% were male (one participant failed to respond), with a mean age of 19.39 years ($SD = 2.12$). Eighty-seven percent were White, 7% were Asian or Pacific Islander, 4% identified as Latino/a, and 2% were multiracial. Students signed up as part of a research requirement for their General Psychology course.

Materials

The pilot study consisted of two tasks. The first task was designed to determine the list of action and state verbs that would be used in the main study. Participants were presented with a list of 88 present tense verbs and verb phrases, 53 were action verbs (e.g. *comforts*, *protects*, *rejects*), and 35 were state verbs (e.g. *desires*, *remembers*, *hears*). The list of verbs was comprised of 32 verbs used by LaFrance et al. (1997) and 56 verbs added to the list by the principal researcher. Verbs were chosen based on a subjective belief that some verbs could be construed as feminine (e.g. *comforts*) or masculine (e.g. *protects*) in nature. The participants were then directed to rate how masculine or feminine they found each of those 88 verbs or verb phrases on a Likert-type scale situated to the

right of each verb, with a response range of 1 (*extremely masculine*) to 7 (*extremely feminine*).

The second task was designed as a manipulation check to ensure that there was consensus on who in each of 13 social relationships held the positions of high and low social power. Participants were presented with 13 social relationships (e.g. *doctor – nurse, executive chef – line cook, parent – child*). The list of social relationships was developed by using one relationship pair from LaFrance et al. (1997), and five pairs from Garvey and Caramazza (1974), the other seven pairs were added to the list by the principal researcher. The pairs were chosen based on the principal researcher's belief that one person in each pair held a greater amount of social power than the other person in the pair. The participants were then directed to specify which member of each social relationship pair held more power by using a forced-choice response format.

Procedure

The pilot study took place online using an online testing system. Participants were able to sign up and participate from any computer that had internet access. Upon signing into the study using their university username and password, participants were directed to read the instructions, and if they decided to participate, they were brought to the pilot study. The instructions also indicated that they had 30 minutes to complete the entire study. For the first task, participants provided their masculine/feminine ratings of the 88 action and state verbs. After providing their ratings of the action and state verbs, participants then made decisions regarding the social power of the 13 relationship pairs.

After both tasks, the participants were asked to provide their demographic information including gender, age, and race.

Forty-eight of the original 88 verbs were used in the main study based on the participants' ratings, and consisted of 12 highly gendered action verbs, 12 highly gendered state verbs, 12 neutral action verbs, and 12 neutral state verbs. A verb was judged to be highly gendered if its mean rating for all 54 participants was below three (indicating masculinity) or above five (indicating femininity). Likewise, a verb was judged to be neutral if its mean rating for all 54 participants was between 3.5 and 4.5. Furthermore, all of the 13 relationship pairs were used in the main study because the social power was strongly agreed upon (i.e. Greater than 75% of participants indicated the same member of each pair possessed more social power than the other member).

Method

Participants

Participants were 235 undergraduate students enrolled in a General Psychology course at a large Midwestern United States university. However, 61 response sets were removed from the analyses because they did not meet the minimum criteria set in place to be analyzed. Specifically, response sets were removed if more than 20% of a participant's responses were unsuitable (i.e. An explanation of the cause of the action that did not include either "he" or "she"). One hundred seventy-four response sets were analyzed. Seventy-six percent of participants were female, and 24% were male, with a mean age of 19.25 years ($SD = 1.25$). Ninety percent were White, 4% were Black, 2% were Latino/a, 2% were multiracial, 1% was Asian or Pacific Islander, and 1% was

Native American. Students signed up as part of a research requirement for their General Psychology course.

Materials

The experimental materials consisted of 48 pairs of sentences. The introductory sentence described the social relationship between a female and a male using the relationship pairs evaluated in the pilot study (e.g. *Jack is an executive and Beth is his secretary*). A partial sentence followed, which described an action (e.g. *Jack fixes Beth's car because*). The participants were asked to complete each sentence by providing an explanation for the action that occurred. The verbs or verb phrases used in each partial sentence were the 24 action verbs and 24 state verbs as determined by the pilot study. The 48 pairs of sentences consisted of a new pair of names, where one of the names was always male and one of the names was always female. The full list of experimental stimuli can be found in the Appendix.

Procedure

As with the pilot study, experimental sessions were conducted online, using an online testing system. Participants could sign up and participate from any computer that had internet access. Once again, after signing into the study using their university username and password, participants were directed to read the instructions, if they decided to participate, they were brought to the main study. The instructions also indicated that they had one hour to complete the entire study.

The study was a 2 (social power: high or low) x 2 (placement in sentence: male object/female subject or female object/male subject) x 2 (verb type: action or state)

within-subjects design. Participants were directed to read 48 pairs of sentences, and complete each partial sentence with an explanation of the action that occurred. Every participant saw the same name pairs, social relationships, and verb type in the same order, however, the online testing system was programmed to randomize which name was given higher social power, and which name was seen as the object, for each of the 48 pairs of sentences. For instance, every participant always read about Jack and Beth in the first pair of sentences, but some participants read that Beth was a doctor as the object of the sentence, some read that Beth was a doctor as the subject of the sentence, some read that Beth was a nurse as the subject of the sentence, and some read that Beth was a nurse as the object of the sentence. Following the 48 pairs of sentences, participants were asked to provide their demographic information including gender, age, and race.

Results

A generalized estimating equation (GEE) was utilized to analyze participants' responses to the three independent variables of interest: verb type, social power, and placement within the sentence (i.e. subject or object). GEE is a version of logistic regression that allows for an analysis of multiple measurements per participant.

The analysis revealed that there were significant main effects for both Placement, $\chi^2(1) = 15.899, p < .000$, and Power, $\chi^2(1) = 5.701, p = .017$, but not for Verb Type, $\chi^2(1) = .058, p = .810$. This suggests that the placement of the names within each sentence, and the corresponding social power of those names had a greater impact on participants' responses than the kind of verb that was used. Specifically, names that were placed first were identified as causes more than names placed second for action verbs, whereas

names that were placed second were identified as causes more than names placed first for state verbs. Also, names with less social power were identified as causes more often than names with more social power. Additionally, the interaction between Placement and Power was not significant, $\chi^2(1) = .304, p = .582$, which suggests that a name's placement within a sentence and its corresponding social power together did not have any impact on the participants' responses. The three-way interaction between Placement, Verb Type, and Power was also not significant, $\chi^2(1) = 1.087, p = .297$. This suggests that the effects of these three variables combined did not influence the participants' responses. However, two significant higher-order interactions were revealed, and will be the focus of this discussion. Specifically, there was a significant Placement x Verb Type interaction, $\chi^2(1) = 716.533, p < .000$, and there was a significant Power x Verb Type interaction, $\chi^2(1) = 4.337, p = .037$. The results can be found in Table 1.

To further understand the interactions that occurred, crosstabs of placement, verb type, and participant response were then analyzed. Although crosstabs were run to see the pattern of results in more detail, we cannot say with 100% certainty where the significance is coming from. The results suggest that when a male name was the object of a sentence with an action verb, participants were more likely (66.1%) to attribute the cause of the action to the male, than the female. Likewise, when a female name was the object of a sentence with an action verb, participants were more likely (61.9%) to attribute the cause of the action to the female, than the male. The opposite pattern of results was suggested with sentences that utilized state verbs. That is, when a male name was the object of a sentence with a state verb, participants were more likely (70.1%) to

attribute the cause of the action to the female, than the male. And, when a female name was the object of a sentence with a state verb, participants were more likely (70.7%) to attribute the cause of the action to the male, than the female. The results can be found in Table 2.

Likewise, crosstabs of power, verb type, and participant response were then analyzed. To reiterate, although crosstabs were run to see the pattern of results in more detail, we cannot say with 100% certainty where the significance is coming from. These results suggest that when a male name was in a position of power in a sentence that utilized an action verb, participants were more likely (51.1%) to attribute the cause of the action to the female, than the male. Moreover, when a female name was in a position of power in a sentence that utilized an action verb, participants were more likely (55.0%) to attribute the cause of the action to the male, than the female. No differences occurred in the pattern of results for social power and state verbs, however. Participants were just as likely (50.7%), to attribute the cause of the action to the male regardless of which name was in the position of power, when a state verb was utilized. The results can be found in Table 3.

Discussion

The hypothesis of the present study, that the person perceived as having more power will be assigned the cause of the action to a significantly greater degree than the person with less power, was not supported. In fact, by accounting for a methodological issue in past research by LaFrance et al. (1997) the present study was able to clarify LaFrance et al.'s results. Specifically, when an action verb was present, causal

attributions were assigned to the person with less power significantly more often than the person with more power, whereas LaFrance et al. found greater causal attributions assigned to the person with greater power.

It is likely that this difference in results was found because of the difference in experimental procedures. LaFrance et al. kept the purpose of their study very salient to participants, which may have resulted in a demand effect that brought about the exact findings they expected to see. The present investigation kept the purpose of the study less salient, which was intended to elicit more realistic responses from the participants. For instance, when presented with a scenario involving a female boss punching her subordinate, it is more realistic to imagine that the reason this woman (who is in a position of responsibility and authority) was forced to act in such a way was because of something her subordinate did. Likewise, when a male in a position of power acts in such a way, it is more realistic to imagine that his actions were a result of something his subordinate did. This was the pattern of results found in the present study.

The pattern of results for sentences with state verbs differed from the findings of sentences with action verbs, however. That is, participants were just as likely (50.7%) to assign the cause of sentences with state verbs to the male, whether he had high or low social power. It is entirely possible that these results were found because over 90% of the highly gendered state verbs utilized for the main study were judged to be highly feminine in the pilot study (rather than half of the verbs being judged as masculine, and half of the verbs being judged as feminine, like the highly gendered action verbs). Whether this is true is impossible to ascertain without further research. It is also possible that there was

indeed no relationship between state verbs and social power, and the results that were found were accurate.

Another important finding of the present investigation is that its results were able to support past research by Brown and Fish (1983), which suggested that the kind of verbs people use in everyday discourse dictates where they assign causality. That is, agents are assigned the cause of action verbs to a significantly greater degree than patients, and stimuli are assigned the cause of state verbs to a significantly greater degree than experiencers.

Limitations

One limitation of the present study is that although it was designed as a within-subjects experiment, not all participants were exposed to the same number of sentences from each condition. For instance, some participants may have only seen three sentences from the first condition, but eight from another, whereas other participants may have seen a more equal distribution of sentence conditions. It is entirely possible that the results were skewed as a result of this; however, the online testing system that was used to administer the surveys would not allow us to account for randomizing conditions *and* an equal distribution of conditions simultaneously.

Future Directions

As discussed in the method, a pilot study was conducted to determine the list of highly gendered and neutral action and state verbs for use in the main study. The goal was to ascertain whether the use of gendered verbs in sentences (e.g. *punches*) would result in differing causal attributions. For instance, the pilot determined that participants

found the action verb *punches* to be highly masculine. Perhaps causal attributions for the verb *punches* would be linked more often to men than to women regardless of their social power or placement in the sentence. However, the use of highly gendered versus neutral action and state verbs was not used as an independent variable in the final analysis of this research because the set-up of the online experiment did not allow for an entirely within-subjects design. Future research should explore whether the genderedness of the verb used in a sentence influences the implicit causality of that sentence.

Importance and Conclusions

In sum, this study shows that social power and placement both separately interact with the kinds of verbs one uses to influence people's causal attributions. Researchers, understanding this implicit causality, can work to investigate how people assign the causes of actions in textual and verbal discourse. The choices people make when they speak and write can have important results, as in the perpetuation of stereotypes (Holtgraves, 2002). If researchers have a good understanding of how people make their linguistic choices and interpret sentences, it is reasonable to believe that researchers will also have a better idea about the formation and perpetuation of stereotypes.

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Table 1

Main Effects and Interactions for Placement, Power, and Verb Type

	Wald Chi-Square	Df	Sig.
Placement	15.899	1	.000
Power	5.701	1	.017
Verb Type	.058	1	.810
Placement * Power	.304	1	.582
Placement * Verb	716.533	1	.000
Power * Verb	4.337	1	.037
Placement * Verb *	1.087	1	.297
Power			

Table 2

Responses as a Function of Verb Type and Placement in Sentence

Verb Type	Placement	Response	
		Male Cause	Female Cause
Action	Male First	66.1%	33.9%
Action	Female First	38.1%	61.9%
State	Male First	29.9%	70.1%
State	Female First	70.7%	29.3%

Table 3

Responses as a Function of Verb Type and Social Power

Verb Type	Social Power	Response	
		Male Cause	Female Cause
Action	Male High	48.9%	51.1%
Action	Female High	55.0%	45.0%
State	Male High	50.7%	49.3%
State	Female High	50.7%	49.3%

Appendix

Participants saw one sentence from each of the 48 sets of sentences below:

- 1a. Imagine that Jack is a doctor, and Beth is a nurse. Jack overpowers Beth because
- 1b. Imagine that Jack is a nurse, and Beth is a doctor. Jack overpowers Beth because
- 1c. Imagine that Beth is a doctor, and Jack is a nurse. Beth overpowers Jack because
- 1d. Imagine that Beth is a nurse, and Jack is a doctor. Beth overpowers Jack because

- 2a. Imagine that Mike is a professor, and Tara is a student. Mike interrupts Tara because
- 2b. Imagine that Mike is a student, and Tara is a professor. Mike interrupts Tara because
- 2c. Imagine that Tara is a professor, and Mike is a student. Tara interrupts Mike because
- 2d. Imagine that Tara is a student, and Mike is a professor. Tara interrupts Mike because

- 3a. Imagine that Evan is a CEO, and Sarah is an executive. Evan prefers Sarah because
- 3b. Imagine that Evan is an executive, and Sarah is a CEO. Evan prefers Sarah because
- 3c. Imagine that Sarah is a CEO, and Evan is an executive. Sarah prefers Evan because
- 3d. Imagine that Sarah is an executive, and Evan is a CEO. Sarah prefers Evan because

- 4a. Imagine that Seth is a warden, and Megan is an inmate. Seth fears Megan because
- 4b. Imagine that Seth is an inmate, and Megan is a warden. Seth fears Megan because
- 4c. Imagine that Megan is a warden, and Seth is an inmate. Megan fears Seth because
- 4d. Imagine that Megan is an inmate, and Seth is a warden. Megan fears Seth because

- 5a. Imagine that Josh is a director, and Leah is an actor. Josh trusts Leah because
- 5b. Imagine that Josh is an actor, and Leah is a director. Josh trusts Leah because
- 5c. Imagine that Leah is a director, and Josh is an actor. Leah trusts Josh because
- 5d. Imagine that Leah is an actor, and Josh is a director. Leah trusts Josh because

- 6a. Imagine that Wes is a manager, and Allie is an employee. Wes misinterprets Allie because
- 6b. Imagine that Wes is an employee, and Allie is a manager. Wes misinterprets Allie because
- 6c. Imagine that Allie is a manager, and Wes is an employee. Allie misinterprets Wes because
- 6d. Imagine that Allie is an employee, and Wes is a manager. Allie misinterprets Wes because

- 7a. Imagine that David is a judge, and Amy is a bailiff. David discredits Amy because
- 7b. Imagine that David is a bailiff, and Amy is a judge. David discredits Amy because
- 7c. Imagine that Amy is a judge, and David is a bailiff. Amy discredits David because
- 7d. Imagine that Amy is a bailiff, and David is a judge. Amy discredits David because

8a. Imagine that Noah is a Lieutenant Colonel in the Marine Corps, and Angie is a Private. Noah cleans for Angie because

8b. Imagine that Noah is a Private in the Marine Corps, and Angie is a Lieutenant Colonel. Noah cleans for Angie because

8c. Imagine that Angie is a Lieutenant Colonel in the Marine Corps, and Noah is a Private. Angie cleans for Noah because

8d. Imagine that Angie is a Private in the Marine Corps, and Noah is a Lieutenant Colonel. Angie cleans for Noah because

9a. Imagine that Paul is a parent, and Erica is a child. Paul irritates Erica because

9b. Imagine that Paul is a child, and Erica is a parent. Paul irritates Erica because

9c. Imagine that Erica is a parent, and Paul is a child. Erica irritates Paul because

9d. Imagine that Erica is a child, and Paul is a parent. Erica irritates Paul because

10a. Imagine that Nate is an executive, and Holly is his secretary. Nate hates Holly because

10b. Imagine that Nate is a secretary, and Holly is an executive. Nate hates Holly because

10c. Imagine that Holly is an executive, and Nate is her secretary. Holly hates Nate because

10d. Imagine that Holly is a secretary, and Nate is an executive. Holly hates Nate because

11a. Imagine that Cole is a lawyer, and Anne is an intern. Cole owes Anne because

11b. Imagine that Cole is an intern, and Anne is a lawyer. Cole owes Anne because

11c. Imagine that Anne is a lawyer, and Cole is an intern. Anne owes Cole because

11d. Imagine that Anne is an intern, and Cole is a lawyer. Anne owes Cole because

12a. Imagine that Joel is an executive chef, and Cassie is a line cook. Joel disobeys Cassie because

12b. Imagine that Joel is a line cook, and Cassie is an executive chef. Joel disobeys Cassie because

12c. Imagine that Cassie is an executive chef, and Joel is a line cook. Cassie disobeys Joel because

12d. Imagine that Cassie is a line cook, and Joel is an executive chef. Cassie disobeys Joel because

13a. Imagine that Andy is a pilot, and Jenny is a flight attendant. Andy fancies Jenny because

13b. Imagine that Andy is a flight attendant, and Jenny is a pilot. Andy fancies Jenny because

13c. Imagine that Jenny is a pilot, and Andy is a flight attendant. Jenny fancies Andy because

13d. Imagine that Jenny is a flight attendant, and Andy is a pilot. Jenny fancies Andy because

14a. Imagine that Kyle is a manager, and Liz is an employee. Kyle assaults Liz because

14b. Imagine that Kyle is an employee, and Liz is a manager. Kyle assaults Liz because

14c. Imagine that Liz is a manager, and Kyle is an employee. Liz assaults Kyle because

14d. Imagine that Liz is an employee, and Kyle is a manager. Liz assaults Kyle because

15a. Imagine that James is a judge, and Kimberly is a bailiff. James imitates Kimberly because

15b. Imagine that James is a bailiff, and Kimberly is a judge. James imitates Kimberly because

15c. Imagine that Kimberly is a judge, and James is a bailiff. Kimberly imitates James because

15d. Imagine that Kimberly is a bailiff, and James is a judge. Kimberly imitates James because

16a. Imagine that Ryan is a doctor, and Julia is a nurse. Ryan pays for Julia's dinner because

16b. Imagine that Ryan is a nurse, and Julia is a doctor. Ryan pays for Julia's dinner because

16c. Imagine that Julia is a doctor, and Ryan is a nurse. Julia pays for Ryan's dinner because

16d. Imagine that Julia is a nurse, and Ryan is a doctor. Julia pays for Ryan's dinner because

17a. Imagine that Aaron is an executive chef, and Christy is a line cook. Aaron needs Christy because

17b. Imagine that Aaron is a line cook, and Christy is an executive chef. Aaron needs Christy because

17c. Imagine that Christy is an executive chef, and Aaron is a line cook. Christy needs Aaron because

17d. Imagine that Christy is a line cook, and Aaron is an executive chef. Christy needs Aaron because

18a. Imagine that Adam is a parent, and Laura is a child. Adam comforts Laura because

18b. Imagine that Adam is a child, and Laura is a parent. Adam comforts Laura because

18c. Imagine that Laura is a parent, and Adam is a child. Laura comforts Adam because

18d. Imagine that Laura is a child, and Adam is a parent. Laura comforts Adam because

19a. Imagine that Phil is a professor, and Jessica is a student. Phil cares about Jessica because

19b. Imagine that Phil is a student, and Jessica is a professor. Phil cares about Jessica because

19c. Imagine that Jessica is a professor, and Phil is a student. Jessica cares about Phil because

19d. Imagine that Jessica is a student, and Phil is a professor. Jessica cares about Phil because

20a. Imagine that Rick is a Lieutenant Colonel in the Marine Corps, and Mary is a Private. Rick slaps Mary because

20b. Imagine that Rick is a Private in the Marine Corps, and Mary is a Lieutenant Colonel. Rick slaps Mary because

20c. Imagine that Mary is a Lieutenant Colonel in the Marine Corps, and Rick is a Private. Mary slaps Rick because

20d. Imagine that Mary is a Private in the Marine Corps, and Rick is a Lieutenant Colonel. Mary slaps Rick because

21a. Imagine that Rob is a lawyer, and Nicole is an intern. Rob dislikes Nicole because

21b. Imagine that Rob is an intern, and Nicole is a lawyer. Rob dislikes Nicole because

21c. Imagine that Nicole is a lawyer, and Rob is an intern. Nicole dislikes Rob because

21d. Imagine that Nicole is an intern, and Rob is a lawyer. Nicole dislikes Rob because

22a. Imagine that Ben is a warden, and Rachel is an inmate. Ben hears Rachel because

22b. Imagine that Ben is an inmate, and Rachel is a warden. Ben hears Rachel because

22c. Imagine that Rachel is a warden, and Ben is an inmate. Rachel hears Ben because

22d. Imagine that Rachel is an inmate, and Ben is a warden. Rachel hears Ben because

23a. Imagine that Kevin is a CEO, and Andrea is an executive. Kevin fixes Andrea's car because

23b. Imagine that Kevin is an executive, and Andrea is a CEO. Kevin fixes Andrea's car because

23c. Imagine that Andrea is a CEO, and Kevin is an executive. Andrea fixes Kevin's car because

23d. Imagine that Andrea is an executive, and Kevin is a CEO. Andrea fixes Kevin's car because

24a. Imagine that Peter is an executive, and Susie is his secretary. Peter surprises Susie because

24b. Imagine that Peter is a secretary, and Susie is an executive. Peter surprises Susie because

24c. Imagine that Susie is an executive, and Peter is her secretary. Susie surprises Peter because

24d. Imagine that Susie is a secretary, and Peter is an executive. Susie surprises Peter because

25a. Imagine that Martin is a pilot, and Emily is a flight attendant. Martin flatters Emily because

25b. Imagine that Martin is a flight attendant, and Emily is a pilot. Martin flatters Emily because

25c. Imagine that Emily is a pilot, and Martin is a flight attendant. Emily flatters Martin because

25d. Imagine that Emily is a flight attendant, and Martin is a pilot. Emily flatters Martin because

26a. Imagine that Jake is a director, and Abby is an actor. Jake understands Abby because

26b. Imagine that Jake is an actor, and Abby is a director. Jake understands Abby because

26c. Imagine that Abby is a director, and Jake is an actor. Abby understands Jake because

26d. Imagine that Abby is an actor, and Jake is a director. Abby understands Jake because

27a. Imagine that Brett is a CEO, and Kelsey is an executive. Brett makes a quilt for Kelsey because

27b. Imagine that Brett is an executive, and Kelsey is a CEO. Brett makes a quilt for Kelsey because

27c. Imagine that Kelsey is a CEO, and Brett is an executive. Kelsey makes a quilt for Brett because

27d. Imagine that Kelsey is an executive, and Brett is a CEO. Kelsey makes a quilt for Brett because

28a. Imagine that Brian is a Lieutenant Colonel in the Marine Corps, and Tina is a Private. Brian believes Tina because

28b. Imagine that Brian is a Private in the Marine Corps, and Tina is a Lieutenant Colonel. Brian believes Tina because

28c. Imagine that Tina is a Lieutenant Colonel in the Marine Corps, and Brian is a Private. Tina believes Brian because

28d. Imagine that Tina is a Private in the Marine Corps, and Brian is a Lieutenant Colonel. Tina believes Brian because

29a. Imagine that Tyler is a manager, and Mindy is an employee. Tyler accuses Mindy because

29b. Imagine that Tyler is an employee, and Mindy is a manager. Tyler accuses Mindy because

29c. Imagine that Mindy is a manager, and Tyler is an employee. Mindy accuses Tyler because

29d. Imagine that Mindy is an employee, and Tyler is a manager. Mindy accuses Tyler because

30a. Imagine that Dan is a pilot, and Gina is a flight attendant. Dan punches Gina because

30b. Imagine that Dan is a flight attendant, and Gina is a pilot. Dan punches Gina because

30c. Imagine that Gina is a pilot, and Dan is a flight attendant. Gina punches Dan because

30d. Imagine that Gina is a flight attendant, and Dan is a pilot. Gina punches Dan because

31a. Imagine that Luke is a parent, and Emma is a child. Luke agrees with Emma because

31b. Imagine that Luke is a child, and Emma is a parent. Luke agrees with Emma because

31c. Imagine that Emma is a parent, and Luke is a child. Emma agrees with Luke because

31d. Imagine that Emma is a child, and Luke is a parent. Emma agrees with Luke because

32a. Imagine that Tom is a lawyer, and Ashley is an intern. Tom impresses Ashley because

32b. Imagine that Tom is an intern, and Ashley is a lawyer. Tom impresses Ashley because

32c. Imagine that Ashley is a lawyer, and Tom is an intern. Ashley impresses Tom because

32d. Imagine that Ashley is an intern, and Tom is a lawyer. Ashley impresses Tom because

33a. Imagine that Zack is a professor, and Jenna is a student. Zack loathes Jenna because

33b. Imagine that Zack is a student, and Jenna is a professor. Zack loathes Jenna because

33c. Imagine that Jenna is a professor, and Zack is a student. Jenna loathes Zack because

33d. Imagine that Jenna is a student, and Zack is a professor. Jenna loathes Zack because

34a. Imagine that Carl is a doctor, and Molly is a nurse. Carl notices Molly because

34b. Imagine that Carl is a nurse, and Molly is a doctor. Carl notices Molly because

34c. Imagine that Molly is a doctor, and Carl is a nurse. Molly notices Carl because

34d. Imagine that Molly is a nurse, and Carl is a doctor. Molly notices Carl because

35a. Imagine that Ethan is a director, and Sophie is an actor. Ethan snuggles with Sophie because

35b. Imagine that Ethan is an actor, and Sophie is a director. Ethan snuggles with Sophie because

35c. Imagine that Sophie is a director, and Ethan is an actor. Sophie snuggles with Ethan because

35d. Imagine that Sophie is an actor, and Ethan is a director. Sophie snuggles with Ethan because

36a. Imagine that Matt is an executive chef, and Becky is a line cook. Matt rejects Becky because

36b. Imagine that Matt is a line cook, and Becky is an executive chef. Matt rejects Becky because

36c. Imagine that Becky is an executive chef, and Matt is a line cook. Becky rejects Matt because

36d. Imagine that Becky is a line cook, and Matt is an executive chef. Becky rejects Matt because

37a. Imagine that Frank is a judge, and Hilary is a bailiff. Frank shops for Hilary because

37b. Imagine that Frank is a bailiff, and Hilary is a judge. Frank shops for Hilary because

37c. Imagine that Hilary is a judge, and Frank is a bailiff. Hilary shops for Frank because

37d. Imagine that Hilary is a bailiff, and Frank is a judge. Hilary shops for Frank because

38a. Imagine that Nick is an executive, and Lucy is his secretary. Nick wrongs Lucy because

38b. Imagine that Nick is a secretary, and Lucy is an executive. Nick wrongs Lucy because

38c. Imagine that Lucy is an executive, and Nick is her secretary. Lucy wrongs Nick because

38d. Imagine that Lucy is a secretary, and Nick is an executive. Lucy wrongs Nick because

39a. Imagine that Isaac is a warden, and Melanie is an inmate. Isaac remembers Melanie because

39b. Imagine that Isaac is an inmate, and Melanie is a warden. Isaac remembers Melanie because

39c. Imagine that Melanie is a warden, and Isaac is an inmate. Melanie remembers Isaac because

39d. Imagine that Melanie is an inmate, and Isaac is a warden. Melanie remembers Isaac because

40a. Imagine that Glen is a parent, and Katie is a child. Glen influences Katie because

40b. Imagine that Glen is a child, and Katie is a parent. Glen influences Katie because

40c. Imagine that Katie is a parent, and Glen is a child. Katie influences Glen because

40d. Imagine that Katie is a child, and Glen is a parent. Katie influences Glen because

41a. Imagine that Dylan is an executive, and Rose is his secretary. Dylan makes a scrapbook for Rose because

41b. Imagine that Dylan is a secretary, and Rose is an executive. Dylan makes a scrapbook for Rose because

41c. Imagine that Rose is an executive, and Dylan is her secretary. Rose makes a scrapbook for Dylan because

41d. Imagine that Rose is a secretary, and Dylan is an executive. Rose makes a scrapbook for Dylan because

42a. Imagine that Joe is a lawyer, and Audrey is an intern. Joe protects Audrey because

42b. Imagine that Joe is an intern, and Audrey is a lawyer. Joe protects Audrey because

42c. Imagine that Audrey is a lawyer, and Joe is an intern. Audrey protects Joe because

42d. Imagine that Audrey is an intern, and Joe is a lawyer. Audrey protects Joe because

43a. Imagine that Drew is a warden, and Grace is an inmate. Drew disagrees with Grace because

43b. Imagine that Drew is an inmate, and Grace is a warden. Drew disagrees with Grace because

43c. Imagine that Grace is a warden, and Drew is an inmate. Grace disagrees with Drew because

43d. Imagine that Grace is an inmate, and Drew is a warden. Grace disagrees with Drew because

44a. Imagine that Stuart is a director, and Vanessa is an actor. Stuart refuses Vanessa because

44b. Imagine that Stuart is an actor, and Vanessa is a director. Stuart refuses Vanessa because

44c. Imagine that Vanessa is a director, and Stuart is an actor. Vanessa refuses Stuart because

44d. Imagine that Vanessa is an actor, and Stuart is a director. Vanessa refuses Stuart because

45a. Imagine that Jeremy is a manager, and Ellen is an employee. Jeremy forgets Ellen because

45b. Imagine that Jeremy is an employee, and Ellen is a manager. Jeremy forgets Ellen because

45c. Imagine that Ellen is a manager, and Jeremy is an employee. Ellen forgets Jeremy because

45d. Imagine that Ellen is an employee, and Jeremy is a manager. Ellen forgets Jeremy because

46a. Imagine that Tony is a doctor, and Sharon is a nurse. Tony accepts Sharon because

46b. Imagine that Tony is a nurse, and Sharon is a doctor. Tony accepts Sharon because

46c. Imagine that Sharon is a doctor, and Tony is a nurse. Sharon accepts Tony because

46d. Imagine that Sharon is a nurse, and Tony is a doctor. Sharon accepts Tony because

47a. Imagine that Charlie is a professor, and Janet is a student. Charlie suspects Janet because

47b. Imagine that Charlie is a student, and Janet is a professor. Charlie suspects Janet because

47c. Imagine that Janet is a professor, and Charlie is a student. Janet suspects Charlie because

47d. Imagine that Janet is a student, and Charlie is a professor. Janet suspects Charlie because

48a. Imagine that Dustin is a CEO, and Hannah is an executive. Dustin shelters Hannah because

48b. Imagine that Dustin is an executive, and Hannah is a CEO. Dustin shelters Hannah because

48c. Imagine that Hannah is a CEO, and Dustin is an executive. Hannah shelters Dustin because

48d. Imagine that Hannah is an executive, and Dustin is a CEO. Hannah shelters Dustin because