

Contrast Ratio: Shifting Burden of Proof in Informal Arguments

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Previous research demonstrated an antiprimacy effect in conversational arguments (Bailenson & Rips, 1996; Rips, 1998). In those studies, participants perceived the speaker presenting the 1st proposition in the dialogue as having more burden of proof than the 2nd speaker. In this article, I demonstrate that antiprimacy occurs because the 1st speaker tends to proportionally have fewer contrasts than does the 2nd speaker. A claim only provides contrast if it attacks another speaker's previous claim. First speakers tend to have low contrast ratios because the initial claim in the argument does not clash with an existing claim. In these experiments, antiprimacy shifts as a function of the ratio of contrasts between the 2 speakers. In Experiment 1, antiprimacy disappeared when the 1st speaker offered 1 more claim than did the 2nd speaker. In Experiment 2, antiprimacy decreased as the number of total claims in the argument increased. In Experiment 3, the 2nd speaker accrued an extra contrast and shifted the burden of proof by querying the 1st speaker. In all 3 studies, contrast ratio can explain burden of proof decisions. These results offer insight toward the manner in which people process conversational arguments and assess burden of proof.

People have different opinions on a multitude of pressing issues that surround them, and sometimes these opposing ideas clash. Disputes are a common occurrence in everyday discourse, be it among friends in informal peer settings (Resnick, Salmon, Zeitz, Haley Wathen, & Hallowchak, 1993), family members (Dunn & Mann, 1987), children in an elementary school (Knudson, 1994), business associates during negotiations (O'Neill, 1991), students working together to solve problems (Trognon, 1993), or politicians discussing an issue (Lax & Sebenius, 1991). These arguments typically involve two or more individuals attempting

to convince each other or a third party of a particular issue or claim and can occur in a formal arena, such as a planned debate, or in an informal manner, such as discussions with relatives or colleagues. Research has shown that these interactions result in qualitative improvements in the participants' reasoning (Kuhn, 1997).

Most previous experiments on arguments used unilateral descriptions, passages, or lists of traits as stimuli, and not an actual dialogue (see McGuire, 1985, for a review). There has been very little research dedicated to the process of reasoning during interactive arguments, as Trognon (1993) and Resnick et al. (1993) pointed out. Nonconversational passages tend to be quite different from everyday disputes that occur when two or more speakers interact and present their points of view at separate and alternating moments. During a dialogue, speakers have the option of making a number of acceptable moves (Orsolini, 1993; Reichman-Adar, 1984; Rips, 1998). Each move can produce a unique result and change the direction of the conversation.

According to Lewis (1979), participants keep track of the dialogue and employ differential strategies as it changes. New utterances affect the conversational record in a variety of ways, depending on the history of the conversation, type of information assumed by the arguers, and degree of cooperation between the speakers. In this sense, information in the form of a dialogue is subject to factors not present in passages by a single speaker. Research that examines claims in isolation may be missing crucial parts of arguments—the ones inherent to conversational dynamics.

One of these features largely unique to interactive arguments is clash. Previous research has shown that in arguments between multiple speakers, rebuttals serve an arguer predominantly when they respond to an existing claim (Koller, 1993). Koller's studies showed that rebuttals initiated alone (i.e., rebuttals that answer claims of which the judge is unaware) had an extremely adverse effect on the speaker. In contrast, when the same rebuttals are executed in response to an existing claim, they provided more support. The importance of clash in conversational arguments also can be seen when arguers present a type of claim called an *undercutting defeater* (Pollock, 1989). When a speaker offers an undercutting defeater, he or she does not challenge the truth of a proposition. Instead, he or she calls into question the degree of clash between two propositions (i.e., "Your last claim has nothing to do with my argument"). Rips (1998) demonstrated that participants who rated speakers' acceptance levels of individual claims are sensitive to differences between the two strategies.

When people in an argument clash with opposing claims, they must defend those claims with accepted evidence and explanations. After making a series of statements, each speaker has some degree of *burden of proof*. In other words, the participants have to do a certain amount of persuading to prove they are correct. Assume two speakers, A and B, take opposing viewpoints in an argument. If Speaker A presents claims that are far superior in strength to those of Speaker B,

then A would have little to do to prove his or her position. The burden would lie on B, who would then be forced to overcome the presumption created by the disparity between the quality of the two positions.

In conversational debates, clash is essential in reducing burden of proof. In observing conversational argument strategy employed by debaters, Wood (1968) and Freeley (1966) indicated that refuting the opponent's claims with evidence and explanation is the basic way in which arguers support their position. This makes intuitive sense; in disputes in which the arguers get to refute each other's claims in front of a judge, an individual statement only adds support to a speaker's position if it is more convincing than the opposing speaker's refutation of that claim. In the following sections, the notion of burden of proof is elaborated. I first discuss the traditional notion of burden of proof used in formal judicial settings and then turn to examine burden of proof in informal arguments.

BURDEN OF PROOF IN FORMAL ARGUMENTS

In the U.S. judicial system, judges use rules to decide whether information is admissible as evidence, and jurors are asked to use them to assess the quality of the evidence (Wigmore, 1935). In formal legal arguments, rigid guidelines indicate presumption; one of the sides in the argument incurs some degree of burden of proof by default. In other words, even if the sides present arguments that are equally convincing and there is no way to resolve the dispute based on the evidence, a specified party still loses. The amount of default burden depends on the context of the argument. In the legal system, variation in burden depends on the ultimate cost (to the defendant) of the outcome of the argument (Farley & Freeman, 1995). The outcome cost of sending an individual to jail for life (the outcome of a criminal trial) is higher than the outcome cost of taking financial resources from that individual (the outcome of a civil trial). Consequently, the burden for the prosecution is higher in the former instance.

People do base their decisions on default burden of proof; in a study by Kassin and Wrightsman (1979), mock jurors were less likely to convict a defendant when they received the burden of proof instructions at the trial's outset than when they received the instructions at the trial's close. According to those authors, early presentation of the instructions affected how jurors interpreted the evidence more than the post hoc presentation.

However, the precepts dictating proof are not as well defined in disputes that occur outside of a trial setting; participants of informal arguments in social situations are not held accountable to consistent instructions and rigid legal guidelines. Nonetheless, judges of informal disputes clearly assign burden of proof to one of the participants. The research described in the following section describes the general rules that people employ when assessing burden in these informal disputes.

BURDEN OF PROOF IN INFORMAL ARGUMENTS

Burden of proof in informal arguments is unique. Unlike a formal argument, in which the context rigidly dictates which side is assigned a higher burden from the outset, both speakers in an informal argument have a certain level of burden (Rips, 1998). In general, when a speaker makes a claim, then it is his or her burden to defend that claim with evidence. Speakers who offer radical or unpopular claims have a higher burden than speakers who present commonly accepted ideas (Walton, 1998). Furthermore, burden of proof in informal disputes increases for a speaker with a high number of claims that all of the speakers in the argument reject (i.e., one speaker concedes that he or she was wrong about a claim that other parties reject) or that are still in contention (Rips, 1998; Walton & Krabbe, 1995).

Often, however, neither speaker concedes a claim, although people judging the argument still consistently assign burden of proof to a given speaker. In these situations, Bailenson and Rips (1996) demonstrated that the first speaker to initiate a claim in the conversation has the greater burden. In their studies, participants read naturalistic dialogues between two speakers having a dispute. The results demonstrated an antiprimacy effect, in that the first speaker who initiated the debate with a context-setting claim incurred more burden of proof than did the second speaker. This effect occurred even though the speakers offered the same number of propositions, and furthermore the individual propositions of the two speakers were rated as equally strong when evaluated in isolation. Consequently, the bias against the first speaker seemed to be an effect of position that only surfaced in structured dialogue, as most previous studies have not shown a disadvantage in persuasion for items at the top of a serial list.

One plausible explanation for antiprimacy has to do with the roles of the two speakers. In a study about the manner in which people plan conversations, Scholtens (1991) described the difference between the initiator of the conversation and the recipient. The initiator “stages” the argument in that he or she makes the first claim that does not refute any existing claim. By setting the context, this first claim provides the underlying structure or script to be more or less followed for the remainder of the argument. According to Scholtens, the recipient does not have as much control in molding the hierarchy of the conversation, as his or her job is geared primarily toward following the text and understanding: collecting information, signaling irrelevant ideas, pointing out falsities, and giving general reactions.

On one hand, the analogy between the recipient and the second speaker of the dispute is incomplete because both speakers in an informal conversational argument can employ the exact same strategies throughout the argument to change the structure (i.e., Resnick et al., 1993; Rips, 1998; Walton & Krabbe, 1995). However, the division of roles is appealing because the first speaker occupies a structurally unique position: He or she does not respond to an existing claim. In the next section, I discuss a measure that captures those differential roles as well as measures the degree of clash and burden of proof in the argument.

CONTRAST RATIO

Arguments in conversation are different from traditionally studied, one-sided arguments in that they feature interaction between speakers. When a speaker in a conversational dispute offers a proposition, he or she often is responding to an existing proposition made by the other speaker. Consequently, judges of the dispute do not assess claims in a vacuum. Instead, they compare a given claim to the claim to which it responds.

A claim is defined as a speaking turn in which a speaker offers relevant¹ information, explanation, or evidence. A contrast is defined as a claim that responds to a previous claim made by an opposing speaker. In most arguments, this tends to be the claim that immediately precedes a given claim in the conversational structure (although see Rips, 1998, for a discussion of nonlinear argument structures). In this article, I argue that speakers in conversational arguments have higher burden of proof when their contrast ratio is low. A contrast ratio is simply the number of contrasts made by a speaker divided by the total number of contrasts in the argument.

Using contrast ratio as a basis for burden of proof assessments allows a number of predictions. Previous studies (e.g., Rips, 1998) have shown that when a person concedes their own claims, they have more burden of proof. Contrast ratio explains these data because a speaker's contrast ratio decreases when they have fewer claims that attack their opponent's claims. In an argument, claims are most productive when they act to refute existing claims.

Certain claims do not respond to an existing claim even when they are not conceded. For example, the first claim in a dispute does not attack any claim by another speaker. According to the contrast model, the first claim should not help speakers reduce their burden of proof. Moreover, conversational maneuvers that do not provide evidential or explanatory substance to the dispute, such as queries, can reduce a speaker's burden of proof simply by changing contrast structure in the dialogue. The following section describes a series of studies that demonstrate how contrast ratio modulates burden of proof decisions.

OVERVIEW OF EXPERIMENTS

In the following experiments, I demonstrate that the antiprimacy effect varies as a function of contrast ratio. If the first speaker has a high contrast ratio, that is, if he has more contrasting claims than the second speaker, then there should not be an antiprimacy effect. If the first speaker has a low contrast ratio, then there should be an antiprimacy effect.

¹By "relevance," I refer to Walton's (1998) probative relevance in which "a proposition is probatively relevant to another proposition only if it can be used to prove or cast doubt on this other proposition according to the methods of proving or casting doubt appropriate for a type of dialogue" (p. 64).

In Experiment 1, participants judged arguments in which the two speakers offered the same number of claims as well as arguments in which the first speaker offered one more claim than the second speaker. In arguments in which the first speaker made an extra claim, his contrast ratio is equal to .5 because the first speaker makes up for not receiving a contrast at the initial claim. Consequently, in this condition, I predicted that antiprimacy would disappear.

In Experiment 2, participants judged arguments of three different lengths. In all three lengths, the second speaker had one more contrast than did the first speaker because the initial claim does not make a contrast. I predicted the most antiprimacy in the shortest arguments because the first speaker's contrast ratio is the lowest in this condition, in which the total number of contrasts overall is smallest. Correspondingly, the first speaker should have the lowest burden of proof in the longest arguments, in which his or her contrast ratio is not as low.

In Experiment 3, I examined the effect of querying on burden of proof. Participants judged arguments in which the first speaker queried the second speaker, as well as arguments without queries. Even though a query contains no evidence or explanation, it changes the contrast ratio in the argument. In situations in which a query causes the first speaker to gain an extra contrast, antiprimacy should disappear.

EXPERIMENT 1

In Experiment 1, participants examined a series of arguments. The arguments could feature either the same number of claims by each speaker or an extra claim by the initiator. The model predicts antiprimacy for arguments in which the two speakers present an equal number of claims, but not for arguments in which the initiator has an extra claim because, in this latter situation, the speakers each contribute the same number of contrasts.

Method

Materials. I constructed booklets of eight different argument topics consisting of either 9 or 10 statements each. Each argument appeared on a separate page. The content of the arguments varied but typically involved entertainment, politics, or college life, as Argument 1 illustrates:

- (1) a. Calvin: I think that more than just Democrats and Republicans should be allowed to participate in presidential debates.
- b. Ronnie: There is no point in listening to people's views who have absolutely no chance of winning the election.

- c. Calvin: Third parties have a chance to win—look at how well Ross Perot did in 1992.
- d. Ronnie: In the past two decades, no third-party candidate has captured more than a quarter of the electoral votes—it would be a waste of time.
- e. Calvin: Well maybe if they got opportunities to voice their opinions in public forums they would do better.
- f. Ronnie: Public forums wouldn't help—third party candidates are all a bunch of crackpots anyway.
- g. Calvin: Just because they are not in the mainstream doesn't mean they are not serious.
- h. Ronnie: Third party candidates advocate all sorts of zany ideas, banning government, legalizing crime, and all sorts of things.
- i. Calvin: Many of the third party ideas are valid solutions—ones that help the environment and alleviate social ills.
- j. Ronnie: There is no way to know whether or not their solutions are valid because they have never been in power.

Claim j is underlined to indicate its absence in the condition in which the initiator has more claims than the recipient. In arguments with Claim j, Ronnie has five contrasts and Calvin has four (because Calvin does not get a contrast for the first claim). Because the total number of contrasts in the argument is nine, Calvin's ratio is .44. However, in arguments without Claim j, Ronnie only has four contrasts and the total number of contrasts is eight. Consequently, in this condition, both Ronnie and Calvin have a ratio of .5.

Design. There were two groups of participants: One saw arguments with 9 claims (i.e., the initiator had an extra claim), and one saw arguments with 10 claims (the two speakers had the same number of claims). For each group, participants received a booklet with every 1 of the 8 argument topics and 8 additional filler arguments. Every participant saw the 16 arguments in one of 12 different random orders.

Procedure. The first page of the booklet contained instructions and a sample argument. Participants read the instructions on their own. They were told they would see a series of arguments and were to decide "which of the two people has got more work to do in order to prove that they are correct." This specific wording was designed to prevent participants from associating the term *burden of proof* with courtroom procedure and has been used in previous studies on burden of proof (Bailenson & Rips, 1996; Rips, 1998). They were instructed to circle the name of the person they believed had to do more to prove that they were correct. In addition, they were asked to rate how confident they were in their choice by cir-

cling a number on a scale ranging from 1 (*extremely low confidence*) to 7 (*extremely high confidence*). Sessions typically took about 40 min.²

Participants. Fifty-two participants took part in the experiment to fulfill a requirement in an Introductory Psychology course. Twenty-eight participants assessed the 9-claim arguments and 24 participants assessed the 10-claim arguments. Participants were all native speakers of English and were tested in small groups of up to 6 people.

Results and Discussion

For each participant, I computed a burden of proof score by multiplying his or her confidence ratings (from 1 to 7) by his or her speaker choice (1 for first speaker and -1 for second speaker). The grand burden of proof mean was -.35 and was not significantly different from zero. There was a main effect for number of claims in that there was more antiprimacy for 10-line arguments ($M = .81, SD = 4.51$) than for 9-line arguments ($M = -.49, SD = 4.79$), $F(1, 50) = 11.62, p < .01$.

It is important to note that the lack of antiprimacy in the nine-line arguments is not merely due to having both the first and last claim in the argument because previous work by Bailenson and Rips (1996) showed that even when the initiator makes the final claim, he still has the burden of proof (under conditions in which the total number of contrasts were held constant). In that study, I changed the argument structure such that the first speaker did not offer the final claim and demonstrated similar results in regards to antiprimacy.

The results from Experiment 1 demonstrate that first speakers in conversational arguments can avoid the antiprimacy effect by ensuring they have the same number of contrasts as their opponents. According to the contrast model, it should be the case that as the first speaker gains more contrasts, the impact of having one fewer than the second speaker should diminish because the ratio changes less with a large numerator. To demonstrate this relation, I manipulated argument length in the next study.

EXPERIMENT 2

In Experiment 2, participants assessed burden of proof on arguments of varying lengths. Participants viewed arguments consisting either of four, six, or eight claims.

²Participants in Experiment 1 also received a second booklet in which they rated the strength of all the claims in the arguments. One half of the participants received the strength rating booklet first, and one half of the participants received the burden of proof booklets first. There was no difference in the mean burden of proof score between participants who rated burden of proof first or second. The strength rating data were used for a separate study.

Consider Argument 1. In that dispute, each speaker makes five claims; however, the contrast ratio for Calvin is .8. Consider the situation in Argument 2.

- (2) a. Calvin: I think that more than just Democrats and Republicans should be allowed to participate in presidential debates.
- b. Ronnie: There is no point in listening to people's views who have absolutely no chance of winning the election.
- c. Calvin: Third parties have a chance to win—look at how well Ross Perot did in 1992.
- d. Ronnie: In the past two decades, no third-party candidate has captured more than a quarter of the electoral votes—it would be a waste of time.

Argument 2 is simply the first six claims from Argument 1. In this dispute, Calvin has one contrast, whereas Ronnie has two. Consequently, Calvin's contrast ratio is .33. Even though Calvin still only has one less contrast than his opponent in Argument 2, his contrast ratio is lower than it was in Argument 1 (.44). In other words, the contrast model predicts that first speakers should have more burden of proof in shorter arguments.

There were 18 participants in this study. We used 15 different argument topics. The arguments were taken from a previous study in which the average claim strength from all of the first speaker's claims was equal to the average claim strength from the second speaker's claims. Each participant received a packet with 5 arguments of each of the three lengths, resulting in 15 total arguments in the packet. Argument topics were randomized, and across participants each argument topic appeared in the three length conditions an equal number of instances. The procedure was identical to that used in Experiment 1.

As predicted, there was a significant linear trend, $F(1, 17) = 6.02, p < .05$, with the highest burden of proof score for the first speaker in the four-claim arguments ($M = 1.24$) and the lowest burden of proof for the first speaker in the eight-claim arguments ($M = -.13$). Burden of proof for the six-claim disputes was between the other two conditions ($M = 1.04$). In conclusion, the antiprimacy effect was strongest in the shorter arguments. In long disputes with many contrasts, the first speaker does not suffer as much from offering the initial claim without a contrast as he does in short arguments.

In the following study, I tested query in argument. By definition, a query is not a claim because it does not provide actual explanation or evidence. However, a query impacts the structure of the conversation and consequently can indirectly affect contrast ratio.

EXPERIMENT 3

In this study, I isolated the effects of query in conversational arguments. Participants read short arguments between two speakers. Each argument appeared in two structures, one in which the second speaker makes a challenge (i.e., "Why do you

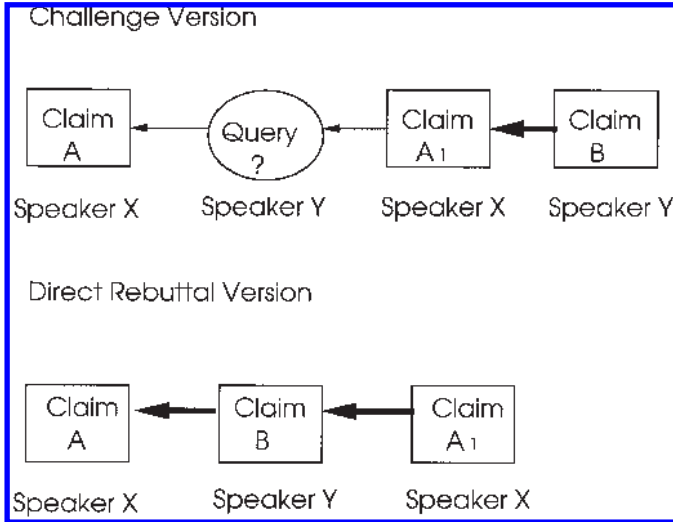


FIGURE 1 A graphical representation of the effect challenges have on argument structure. Bold lines represent contrast relations. Notice how Speaker B has an extra contrast in the Challenge version, even though the two speakers offer the same number of claims in both versions.

say that?") to the first claim (*challenge*) and one in which the second speaker offers a direct rebuttal to the first claim (*direct rebuttal*).

The two structures are represented in Figure 1, in which bold arrows represent contrasts. For a given argument topic, the substantive claims are exactly the same for both versions. In other words, Claim A₁ is the same in the challenge version as it is in the direct rebuttal version, except it is located in a different place in the argument structure. Note that even though the speakers offer the same number of substantive claims in both conditions, in the challenge structure, Speaker Y makes a query and changes the course of the dialogue such that Speaker X gains one fewer contrast. In the challenge condition, there is only one contrast at Claim B. Consequently, Speaker Y has a ratio of 1, whereas Speaker X has a ratio of zero. In the direct rebuttal, each speaker gets a contrast—one at Claim B and one at Claim A₁.

I predicted a main effect of structure, in that Speaker Y should have lower burden of proof in the challenge condition because he has a higher contrast ratio than his opponent in this condition.

Materials

The materials were 16 short argument topics consisting of three claims each. The arguments featured the same topics used in Experiment 1. A pretest ensured that across argument topics, the average claim strength of the first speaker's claims were equal to the average claim strength of the second speaker's claims.

Design and Procedure

Participants read the short arguments and rated burden of proof in the same way as in the previous two studies. The experimenter instructed participants that they only saw a portion of the argument; the beginnings and ends of the section did not necessarily reflect the beginnings and ends of the argument. In this fashion I hoped to mitigate the effects of having opposite speakers presenting the final claim in the dispute. In other words, Figure 1 demonstrates that in the challenge version, Speaker Y gets the final speaking turn, and in the direct rebuttal version, Speaker X gets the final speaking turn. However, previous research has shown that neither offering an extra nonclaim speaking turn nor the final claim (i.e., having the last word) affects burden of proof in disputes (Bailenson & Rips, 1996). Regardless, I instructed participants that the last claim on the page was not necessarily the final speaking turn in the dispute.

Participants saw all 16 argument topics. For each participant, 8 of the arguments were of the direct rebuttal structure and 8 of the arguments were of the challenge structure. The order of arguments was randomized, and across participants each argument appeared in each structure an equal number of times.

Participants

The participants were 28 Northwestern University undergraduate students who took part to gain partial credit in an Introductory Psychology course.

Results and Discussion

The dependent variable was the percentage of participants who chose the first speaker as having more burden of proof. As predicted, there was a main effect for structure in that the second speaker was chosen less often as having the burden of proof in the challenge condition (43.64%) than in the direct rebuttal condition (57.52%), $F(1, 27) = 5.22, p < .05$. The results of Experiment 3 provide support for the contrast model. In arguments in which the second speaker used the query to gain an extra contrast (challenge condition), the first speaker had high burden of proof.

GENERAL DISCUSSION

In previous studies on conversational arguments (Bailenson, 1997; Bailenson & Rips, 1996; Rips, 1998), the first speaker typically had fewer contrasts than the second speaker, and antiprimacy resulted.

In this work, I offer the contrast model to explain burden of proof decisions. The contrast model assumes that a claim reduces burden of proof in a conversational argument only if the claim clashes with an existing claim by an opponent. Consequently, first speakers in a dispute tend to be at a disadvantage because the first proposition in the conversation does not demonstrate clash. In this set of ex-

periments, participants largely based their burden of proof decisions on the ratio of speakers' contrasts.

In Experiment 1, antiprimacy disappeared when the first speaker equalized the number of contrasts by making an extra claim. In Experiment 2, antiprimacy was mitigated in longer arguments. The more contrasts overall in the dispute, the less participants punished the first speaker for having one fewer contrast. In Experiment 3, the second speaker used a query to gain an extra contrast and reduce his burden of proof.

Arguments occurring in a dialogue context are unique because their structure reflects not only the evidence and explanations within the propositions, but also the structural features of the discourse. In a conversational dispute, speakers use language to forge relations between claims and also to indicate their clash with the propositions in the dispute. Moreover, burden of proof can shift from one speaker to the other, depending on conversational moves such as queries. This model explores these conversational moves and sheds light on how people reason in everyday situations.

Although these studies provide support for the contrast model, there are a number of limitations worth mentioning. Initially, even though the conversational stimuli from these studies were more realistic than most experimental stimuli used in past research, they still are somewhat unnatural. For example, the scope of argument topics is relatively limited, and there are only a few types of conversational structures utilized. In addition, it is important to stress that a multitude of social factors, such as charisma and sex of the speakers, also might affect the outcome of an argument. I hold these factors constant across experimental conditions, but future research should test the contrast model in regard to these important variables. Furthermore, in this study, participants always read arguments from a workbook. It would be worthy to test the predictions of the contrast model in auditory exchanges between debaters. Finally, the first claim in the dispute never featured the first speaker responding to an existing or implicit claim. Although previous research (Bailenson & Rips, 1996) explored different types of initial claims, more work on this distinction is necessary.

Using contrasts is a way of modeling a person's burden of proof decisions based solely on the clash structure of the argument. As discussed previously, people rely on a host of other factors when assessing burden of proof, such as claim strength, outcome cost, and public opinion. However, in situations in which these factors are comparable for both speakers, such as in a political debate between two popular candidates, this contrast model becomes especially useful.

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