



Rephrasing is not arguing, but it is still persuasive: An experimental approach to perlocutionary effects of rephrase

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ABSTRACT

Rephrase is a pragmatically complex and persuasively appealing, yet still not systematically explored communication phenomenon. Evidence from corpus data indicates that speakers rephrase frequently in argumentative settings. In light of this empirical evidence, it is a tenable assumption that speakers (are perceived to) gain rhetorical advantages by rephrasing their own or someone else's contribution. In this paper, we present three experimental studies that seek to shed light on the potential persuasive appeal of rephrase. In our set of experiments, we exploit examples taken from the corpora of rephrased arguments annotated with OVA+ (Online Visualisation of Argument) software as material for the design of experiments that seek to test the rhetorical effectiveness of two sub-types of rephrase, namely rephrase specification and rephrase generalization. In particular, we observe whether judgements on persuasiveness are related to judgements on the perceived trustworthiness of the speaker.

Our results suggest that rephrasing a contribution can impact both the perceived persuasiveness of a message and the perceived trustworthiness of the speaker. Moreover, our findings indicate that speakers perceive the segments connected through a rephrase relation as being very similar in content, which in turn suggests that rephrase is not perceived as providing a separate argument.

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1. Introduction

This paper investigates rhetorical features of rephrase in argumentative settings. A rephrase can be defined as the reformulation of a statement that neither conflicts with it, nor gives a reason to accept it (Visser et al., 2018; Centre for Argument Technology [ARG-tech], 2022; Konat et al., 2016).¹ Interestingly, even if intuitively a speaker who rephrases their own or someone else's words could be seen as 'providing more of the same', the relatively high frequency of this phenomenon in argumentative discourse seems to suggest that perhaps rephrase is not just some looser form of paraphrase, but that it might fulfill additional purposes, beyond the clarification purposes that a verbal resource like paraphrase usually

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¹ We use the term 'rephrase' as a noun, consistently with existing literature on the topic, despite the verbal status of the lexeme.

fulfills. In particular, in this paper we want to explore the possibility that speakers who rephrase statements when they argue can reap *rhetorical* benefits.

Corpus studies have convincingly shown that speakers frequently rephrase their own or someone else's contributions in argumentative discourse (see Section 2.2), so much so that metarepresentations of this kind seem to be ubiquitous in argumentative settings (Koszowy et al., 2022; Da San Martino et al., 2019; Hautli-Janisz et al., 2022). Furthermore, a recent study (Koszowy et al., 2022) has shown that people perceive rephrased statements as being more persuasive than non-rephrased statements. We assume that to explain these results, a relevant research direction would be to investigate *to what rhetorical effects* speakers rephrase: what persuasive advantages, if any, can be gained by rephrasing a contribution? Are there any specific dimensions of persuasion, in terms of the classical Aristotelian rhetorical triangle of ethos, logos and pathos, targeted by speakers who rephrase contributions in their argumentative exchanges? What exactly does rephrase allow speakers to gain in rhetorical terms? This paper takes an experimental approach to study these largely unexplored questions.

Section 2 of the paper reviews existing literature on the nature, scope, features, and effects of rephrase to expound a working definition of this phenomenon. Section 3 then presents three new experiments that we conducted to shed further light on the rhetorical effects of rephrase, in terms of the perceived persuasiveness of two subtypes of rephrase, namely specification and generalization (Experiment 1), in terms of its impact on speaker ethos (Experiment 2) and in terms of its uncertain argumentative status (Experiment 3). In Section 4, we offer a discussion of our results and some methodological reflections on the combination of corpus and experimental methodologies.

2. Rephrase in argumentation

In order to clarify the scope of our research and to situate our contribution with respect to past and current approaches, we start by reviewing existing literature on rephrase and neighboring phenomena.

2.1. Towards a definition of rephrase (types)

2.1.1. Existing accounts

Our conception of rephrase has its roots in Inference Anchoring Theory (IAT) (see Budzynska and Reed, 2011). IAT is a framework oriented toward argument technology that seeks to represent and explain the connection between *dialogical moves* and *propositional structures* in order to show how sequences of utterances establish argument structures. IAT allows us to represent both propositional and dialogical structures in one model by postulating three types of relations. The components in a dialogue are connected to each other through *transitions*, which are representations of the linear unfolding of discourse locutions capturing their functional relations according to dialogue types (these are usually annotated as 'Default Transition' as they are not essential to the description of argumentative phenomena). They appear on the right-hand side of IAT diagrams (see Fig. 1). Their propositions are then linked through *propositional relations*, which represent the connections that the speaker intends to draw between the content of the locutions (see left-hand side of IAT diagram in Fig. 1). Finally, all propositional relations are *anchored* to dialogical structures through *illocutionary connections* (i.e., a reinterpretation of speech-act theoretical illocutionary forces).

Within this theoretical framework, rephrase is one of the possible relations between propositional contents, alongside the *inference* and *conflict* relations (see Konat et al., 2016; Visser et al., 2018; Janier and Reed, 2017). In IAT, we have an *inference relation* when "one proposition is used in order to provide a reason to accept another proposition" (ARG-tech, 2022, p. 2). A *conflict relation* then holds between propositions when "one proposition is used in order to provide an incompatible alternative to another proposition" (ARG-tech, 2022, p. 2). Finally, and most importantly for our purposes, we have a *rephrase relation* when "one proposition is used to rephrase, restate or reformulate another proposition" (ARG-tech, 2022, p. 3).

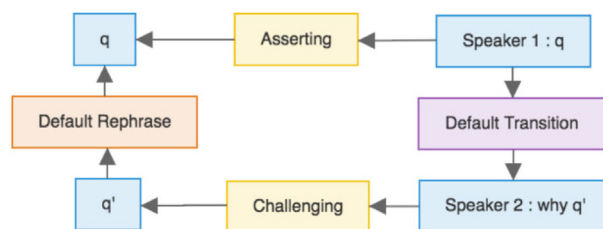


Fig. 1. Example of IAT diagram. Note. This diagram comes from Visser et al. (2018) and represents a possible straw man in challenging. In this instance, Speaker 2, instead of targeting the content of Speaker 1's locution (q), challenges a rephrased content (q').

Our definitional point of departure is therefore the propositional relation called rephrase within IAT. To get a clearer picture of the phenomenon under investigation, let us however explore in more detail its defining features. Within IAT, when it comes to rephrase or any other propositional relation, the *intention of the speaker* is of crucial importance: to talk about propositional relations is to talk about the connections that the speaker *intends* to draw between the content of different

contributions (ARG-tech, 2022). To say that a speaker rephrases is therefore to say that he or she means a contribution to be understood as connected to another contribution in a specific way, which needs to be further defined. As a starting point, it is worth pointing out that given that rephrase is one of three mutually exclusive propositional relations in IAT, the contributions that are linked through a rephrase relation are neither connected through an inference nor through a conflict relation. Describing a segment as a rephrase therefore amounts to ruling out that the contribution is meant to be understood as conflicting with (con-argument) or as giving a reason to accept (pro-argument) the original segment. As Visser et al. point out, by means of the rephrase relation speakers therefore “reformulate their claims and arguments without affecting the inferential structure” (2018, p. 2).

Zooming in on subtypes of rephrase, *rephrase specification* and *rephrase generalization* have been the subject of recent interest and empirical research. As we will see later, there is evidence that they are amongst the most frequent sub-types of rephrase in corpora of argumentative discourse (see section 2.2 and Koszowy et al., 2022). Two contributions are connected through rephrase specification when the rephrasing segment is *narrower in meaning* than the rephrased segment (e.g., ‘This candidate’s tax cut is the biggest since the 1980s. This candidate is going to cut taxes twice as much as before’, in which supplying the exact proportion of tax cuts is more specific than a vague qualification such as ‘biggest’). Two propositions are then linked through a *rephrase generalization* when the rephrasing segment is *broader in meaning* than the rephrased segment (e.g., ‘This candidate’s tax cut is the biggest since the 1980s. This candidate is going to cut taxes big time’, in which the qualifier ‘big time’ is more general than the superlative ‘biggest’). Generalization and specification therefore “semantically operate in different directions” (Koszowy et al., 2022, p. 67). For instance, while a rephrase specification might take place if a hypernym is substituted by a hyponym, a rephrase generalization will consist in moving from a hyponym to a hypernym. It should be noted that different semantic scales (e.g., “scales of quantification, axiological scales, partitive (i.e., whole–part) scales”) can be utilized to generalize or specify (Koszowy et al., 2022, p. 68). While these two subtypes of rephrase seem intuitively clear, more work is needed to uncover other possible subtypes and learn more about (i) different linguistic and pragmatic resources for rephrase and (ii) the different purposes and functions that rephrase structures may fulfill.²

2.1.2. Rephrase, paraphrase, reformulation

Another reliable stepping-stone to a definition of rephrase is the notion of *reformulation*, which the definition we cited above (ARG-tech, 2022) resorts to: when a speaker rephrases, he or she generally *reformulates* an original contribution. Insights from literature in semantics and pragmatics allow us to shed more light on it. According to Cuenca, reformulation occurs “when someone says something that has been previously said in an alternative way (‘in other words’) and assumes that the two formulations can be equated either from the semantic or the pragmatic point of view” (Cuenca, 2003, p. 1073). In line with this definition, a reformulation is thus characterized by an intention to present two segments as being equivalent on a pragmatic or semantic level: reformulation is “an equivalence operation” that presents “alternative formulations of a single idea” (Cuenca, 2003, p. 1071). The notion of reformulation is then also closely related to that of *reinterpretation*. Del Saz-Rubio, for instance, after pointing out that research on reformulation markers regrettably deals “with the notion of reformulation in passing and without providing a unitary and conceptual definition of it”, writes that “a reformulation involves the *reinterpretation* of what is conveyed by the previous discourse segment S1, or of one of its constituents, in terms of what was *said*, *meant*, or *implied*” (2007, pp. 81–82). In the same vein, Dal Negro and Fiorentini write: “In general, reformulation implies a retrogressive *interpretation* [emphasis added] of the previous utterance and allows speakers to explain, rephrase, reconsider, summarize or even distance themselves from it” (2014, p. 95). As for cognitive pragmatic frameworks, they have tended to view reformulations as instances of the *interpretive use of language* (Blakemore 1993, 1996, 1997).

Though rephrasing a contribution generally involves a reformulation, it is important to bear in mind that, within IAT, a rephrase relation is a *propositional* relation: it is a connection intentionally drawn between the *content* of different contributions. Moreover, one of the specificities of rephrase is that it *does not impact the inferential structure*: the rephrasing proposition neither conflicts with nor gives a reason to accept the rephrased proposition. Thus, insofar as there are instances of reformulation that do not involve the intentional restatement of the content of a contribution and to the extent that a speaker can mean a reformulation to be understood as impacting the inferential structure, then we have elements that are outside the intersection of reformulations and rephrases. For a borderline case, consider the following example.

(1) CLAUDIA: (a) Ben is stuck in traffic. (b) In other words, he won't be able to attend the meeting today.

In (1), Claudia presents the fact that Ben is in heavy road traffic with the intention of providing a reason as to why he will not attend the meeting on that day. In this sense, (a) and (b) are thus connected through an inference relation. But notice that (1b) can also be viewed as a reformulation, as Claudia uses the reformulation discourse marker ‘in other words’. However, given that rephrases and pro-arguments are mutually exclusive, which is to say that a segment cannot be described as a rephrase if it impacts the inferential structure (see 2.1.1), (1b) cannot be viewed as a rephrase of (1a). In (1), we therefore have an example of reformulation that falls outside the intersection between reformulation and rephrase.

Another concept that is closely related to rephrase is that of *paraphrase*. Simply put, paraphrases are contributions that convey the *same meaning* with *different words*. Narrowly speaking, we therefore have a paraphrase when two segments have

² The authors are currently involved in a research project meant to tackle these aspects and to provide a full descriptive account of linguistic and pragmatic resources for rephrase in argumentation.

no semantic distance. In linguistics, however, a broader definition is given as strict semantic equivalence is not generally viewed as a requirement for paraphrase. As Bhagat and Hovy write (2013, p. 463): “in linguistics literature paraphrases are most often characterized by an *approximate* [emphasis added] equivalence of meaning across sentences or phrases”. In this regard, De Beaugrande and Dressler, for instance, define paraphrase as “approximate conceptual equivalence among outwardly different material” (1981, p. 50). The term “quasi-paraphrases” is also sometimes adopted to deal with “sentences or phrases that convey approximately the same meaning using different words” (Bhagat and Hovy 2013, p. 464).

The concept of paraphrase is closely related to that of rephrase in that if the rephrasing segment and the rephrased segment have approximately the same meaning (and therefore fulfill the requirement of approximate semantic equivalence) they qualify as paraphrases. However, paraphrase, unlike rephrase, is *defined* in terms of an equivalence in meaning, which is to say that approximate semantic equivalence is a necessary condition for paraphrase but not for rephrase. Consider the following example, which is taken from a debate for the US Democratic presidential nomination that took place in November 2015 in Des Moines, Iowa (Peters and Woolley, 2015).

- (1) a. DICKERSON: Secretary Clinton, you mentioned radical jihadists. Marco Rubio, also running for president, said that this attack showed [...] that we are at war with radical Islam. Do you agree with that characterization, radical Islam?
 b. CLINTON: I don't think we're at war with Islam. I don't think we're at war with all Muslims. [...]
 c. DICKERSON: Just to interrupt. He didn't say all Muslims. He just said radical Islam.

In (1), two instances of the rephrase relation can be identified (for a diagrammatic visualisation of the example using the IAT framework, see Visser et al., 2018). First, Hilary Clinton rephrases the content attributed to Marco Rubio: she assigns to the Republican candidate the propositional content “this attack showed that we are at war with Islam”. In doing so, she substitutes “radical Islam” with “Islam”. Clinton then also rephrases her own statement and, in so doing, replaces “Islam” with “all Muslims”. The instances of rephrase that we find in (1) cannot be considered examples of paraphrases, as it would be, in fact, very hard to argue that the expression “radical Islam”, the word “Islam”, and the phrase “all Muslims” convey approximately the same meaning in this context. This example, since it clearly falls outside the intersection between paraphrase and rephrase, points to a border between the two phenomena: contributions that are linked through a rephrase relation but are semantically distant qualify as rephrases but not as paraphrases.

The picture of rephrase, reformulation, and paraphrase that emerges is that of three concepts that are distinct and defined in different terms but also overlapping and closely related. To sum up, by and large, both paraphrase and rephrase involve reformulation, but whereas paraphrase is characterized in terms of approximate semantic equivalence, rephrase is defined by an intention to produce a restatement that does not impact the inferential structure (i.e., that neither conflicts with nor gives a reason to accept the original).

2.2. Empirical investigations of rephrase

Empirical evidence from corpus studies shows that speakers rephrase frequently in argumentative contexts. In a recent corpus-based investigation conducted by Koszowy et al. (2022), six corpora spanning different genres were annotated within the framework of Inference Anchoring Theory (see section 2.1). The analysis found that, across corpora, the average frequencies for the propositional relations of inference, conflict, and rephrase were, respectively, 62%, 15%, and 23% (Koszowy et al., 2022). While rephrase was on average 2.7 times less frequent than inferences, it was still 1.5 times denser than conflicts. And, as Koszowy et al. point out, “in some specific types of discourse, this proportion can be even more extreme: for example, in our corpus of a popular BBC One TV program, Question Time, rephrases constitute 36% of propositional relations, while con–arguments only 8% (i.e., rephrase is 4.5 times more frequent than conflict)” (2022, p. 63).

This study thus provides empirical evidence that it is far from unusual for speakers to rephrase their own (or someone else's) contribution in argumentative discourse. And other studies support this contention. Consider, for instance, the study of the QT30 corpus, which is “the largest corpus of analysed dialogical argumentation ever created” comprising 30 episodes of the BBC TV show Question Time (19,842 utterances, 280,000 words) (Hautli-Janisz et al., 2022). The framework used to annotate QT30 is IAT, and from the relevant corpus statistics we observe that rephrase constitutes 42.6% percent of all 10,818 propositional relations, with inference composing 48% and conflict 9.4% of all relations.

Such findings on the frequency of rephrase in natural settings are striking and raise the question of why speakers seem to resort to it so much in argumentative discourse. A plausible assumption would be that this is because rephrase is perceived to have *rhetorical effects* that are (perceived to be) beneficial to speakers. Thus, shedding light on the rhetorical advantages of rephrase might help us *explain* its density in corpora of argumentative discourse: producers might rephrase frequently *because* it allows them to gain a significant rhetorical advantage. Moreover, considering that rephrasing a contribution amounts to reformulating its content without impacting the inferential structure (see section 2.1), exploring the persuasive power of this phenomenon means shedding light on the rhetorical advantages that can be gained outside of the route of justification and proof. When speakers rephrase utterances, they do not, in fact, put forward arguments: in general, they merely metarepresent their own or someone else's point. In this sense, the empirical evidence on rephrase from corpus research highlights, inter alia, that speakers do not argue in a structurally clean and textbook-like manner in natural settings, which is one of the problems to be contended with in argument reconstruction (see Oswald, 2016). Investigating the rhetorical effects of rephrase therefore also means exploring extra-logical factors that might affect persuasiveness.

To address the question of rhetorical effectiveness, the investigation of the pragmatics of rephrase needs to be expanded to capture the perlocutionary aspects of this phenomenon. And given that an understanding of the persuasive appeal of rephrase is not best acquired through corpus analysis, as the latter cannot yield any insights on the impact of the use of linguistic resources on how actual recipients experience it, we have turned to experimental methods to gather cognitive evidence of the effects of rephrase. While corpus analyses can suggest connections between variables, it is through experimental studies that we can carefully test the hypotheses that emerge from the observation of rephrase in natural settings.

Experimental research on the rhetorical effects of rephrase is still scarce. One experimental study in this direction was conducted by Koszowy et al. (2022). The experiment in question sought to investigate whether rephrasing a contribution positively affects the perceived persuasiveness of the message, compared to a non-rephrased statement. In the study, participants had to evaluate the persuasiveness of a series of statements on a slider scale that ranged from “not at all persuasive” to “very persuasive”. The statements in question were composed of two segments, the first of which was kept constant, the second of which varied across three conditions, namely *rephrase*, *no-rephrase*, and *inference* (see Table 1). The *rephrase* condition contained corpus collected instances of rephrase, the *no-rephrase* condition contained, instead of rephrase, informationally-neutral segments, while the *inference* condition containing arguments was included to make sure that any effect observed in the rephrase condition was attributable to the rephrase strategy and not to the mere presence of a strategy that participants identify as argumentative – independently of its specific nature, i.e., independently of whether it was an instance of rephrase or not. More specifically, for the inference condition, Koszowy et al. (2022) picked out *arguments from consequences* on the grounds that they were the most frequent type among the five inference categories that were distinguished in a corpus study (i.e., argument from expert opinion, argument from popular opinion, argument from correlation to cause, argument from consequences, other).

Table 1

Sample item from Koszowy et al. (2022).

Headline	Statement about a debater's conversational behaviour in a debate	
	Segment 1	Segment 2
Rephrase	It's disgraceful to behave in such a way.	This country also thinks it's disgraceful.
No-rephrase	It's disgraceful to behave in such a way.	This is how I would describe this behaviour.
Inference	It's disgraceful to behave in such a way.	This will have an impact on people's support.

The results of the experiment showed that a rephrased contribution is perceived as being significantly more persuasive than a non-rephrased one (see Fig. 2). Moreover, as expected by the authors, arguments from consequences (i.e., inferences) had a significantly higher persuasiveness score than rephrase.

This experimental evidence was the first of its kind to show that rephrase can affect the perceived persuasiveness of a message: participants do indeed appear to perceive a rephrased segment to be more persuasive than a non-rephrased one. In

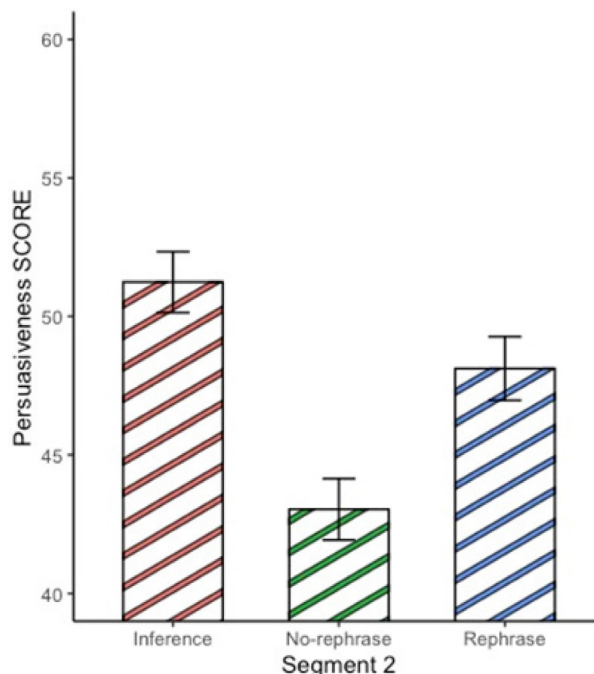


Fig. 2. Results of Authors' experimental study (Koszowy et al., 2022, p. 76). Note. The graph shows mean perceived persuasiveness in three different variations of Segment 2. Error bars represent 95% confidence intervals.

the next section, we present a series of experiments that casts further light on the complex perlocutionary effects of rephrase, notably by testing whether the sub-types of rephrase *specification* and rephrase *generalization* have comparable rhetorical effects and whether participants perceive the segments that are linked through a rephrase relation to be similar in content.

3. Experimental evidence for the rhetorical effects of rephrase

3.1. Three experimental studies

Our new set of experiments (Experiments 1, 2, and 3) seeks (i) to partly replicate Koszowy et al. (2022)'s results to assess their reliability and (ii) to expand their findings by testing two sub-types of rephrase (specification and generalization) and by employing a variety of different measurements (see sections 3.4, 3.5, and 3.6). The experiments we carried out within this set did not differ from each other in terms of conditions and material. Crucially, however, for each experiment, a different dependent variable was used so that participants' responses to different measures were collected.

We used items formulated in English that were based on naturally occurring instances of rephrase that we extracted from the three corpora "US 2016 TV Presidential Debate", "Moral Maze 2019", and "BBC Question Time 2020". These corpora were analyzed by Koszowy et al. (2022), who annotated the three propositional relations of inference, conflict, and rephrase and then re-annotated the rephrase relations present in the corpora into three groups: *specification*, *generalization*, or *other*. What emerged from the study was that the frequency of specification and generalization across the corpora was 86%, with specification (63%) clearly dominating over generalization (23%). As pointed out by Koszowy et al. (2022, p. 63) the results point to the importance of these sub-types in natural contexts and to the need to develop "a more fine-grained typology of subtypes of generalisation and specification". Crucially, the fact that the rephrase pattern of specification dominates over that of generalization in the corpora also raises the question of whether there are differences in terms of the persuasive effect and participants' perception of these sub-types, which might explain this difference in density. For these reasons, in our experiments we decided to incorporate rephrase specification and rephrase generalization as two separate conditions.

Participants were asked to evaluate a series of statements, presented one after the other. The contributions were composed of two segments, the first of which was kept constant, the second of which varied across different conditions. Our designs featured the following four conditions (see Table 2).

1. **Rephrase specification condition:** items which contained rephrase of the specification sub-type (segment 1 + segment 2, where segment 2 is a rephrase that is narrower in meaning than segment 1)
2. **Rephrase generalization condition:** items which contained rephrase of the generalization sub-type (segment 1 + segment 2, where segment 2 is a rephrase that is broader in meaning than segment 1)
3. **No-rephrase condition:** items which did not contain rephrase (segment 1 + segment 2, where segment 2 is an informationally-neutral segment)
4. **Inference condition:** items which contained another argumentative device, in this case, arguments from positive or negative consequences (segment 1 + segment 2, where segment 2 is the argument from consequences)

Table 2
Sample item.

Headline	Statement about drones	
	Segment 1	Segment 2
Rephrase generalization	Drones offer you the ability to conduct extremely discriminate strikes on an opponent.	The technology available appears to offer us the ability to conduct warfare in a much more precise way than ever before.
Rephrase specification	Drones offer you the ability to conduct extremely discriminate strikes on an opponent.	The technology available appears to offer us the ability to hit hostile vehicles in a much more precise way than ever before.
No-rephrase	Drones offer you the ability to conduct extremely discriminate strikes on an opponent.	This is what we can say at this point when it comes to describing the nature of these new weapon technologies.
Inference	Drones offer you the ability to conduct extremely discriminate strikes on an opponent.	If we invest in drones at this point, it will trigger a number of positive consequences for our industry.

The choice to include an inference condition (and arguments from consequences in particular) was made on the same grounds as Koszowy et al. (2022) (see section 2.2). For all three experiments, participants were randomly assigned to one of four lists, each containing 32 different items that included all 32 first segments and all conditions (within-subject design). The four lists differed in segment pairing so that, for instance, participants who saw a statement rephrased by generalization did not see the same statement rephrased by specification. Participants were told that they would be presented with a series of 32 statements. Each of the statements was introduced by a debate issue which provided contextual information about the statement. In all cases, the debate issue was presented as a headline (i.e., in bold, at the top of the page).

3.2. Statistical analyses

To test our hypotheses and analyze our data, we computed linear mixed models (LMMs) in R. An analysis by LMMs and not by ANOVA or t-test was chosen to avoid the latter's many statistical biases. Indeed, LMMs consider the variance of both participants and items, which the ANOVA or the t-test reduces to a single value (i.e., the generalized mean of the n items for each participant) to calculate their $F1$, $F2$ or t indices. Furthermore, LMM analysis is strongly recommended in experimental linguistics because of the many items that can be included in experiments (Brysbaert, 2007; Brysbaert and Stevens, 2018).

The analysis by p -values only allows us to distinguish between H_1 (when classically $p < .05$) and non- H_1 (when $p > .05$). However, when $p > .05$, we cannot know whether the null hypothesis H_0 is the case or whether the results favor neither H_0 nor H_1 . Thus, as advocated by Dienes and Mclatchie (2018), we used Bayes factors (B_F) in conjunction with inference using significance testing (i.e., p -values) to overcome this issue. As suggested by Dienes (2014) and Dienes and Mclatchie (2018), we used $B_F < 0.30$ as substantial evidence for H_0 , $0.30 < B_F < 3$ as no evidence, and $B_F > 3$ as substantial evidence for H_1 for Experiment 1 and 2. Supplementary material with more information about LMM's and B_F 's calculations and results, together with all R materials, including scripts, data, and figures, for each experiment are available on OSF (de Oliveira Fernandes et al., 2023).

3.3. Participants

For all experiments, participants were recruited using Prolific (www.prolific.co), a crowdsourcing web service specialized in online research. All samples were confined to English native speakers and balanced across sex (see Table 3 for sample

Table 3
Sample demographics, times of completion, and remunerations of all experiments.

	Experiment 1 <i>Persuasiveness</i>	Experiment 2 <i>Trustworthiness</i>	Experiment 3 <i>Similarity</i>
Sample size	180	179	93
Age (years)			
m (sd)	35.73 (13.65)	36.94 (14.11)	35.73 (13.29)
range	[18–89]	[19–78]	[18–73]
Gender			
Female	90	88	44
Male	89	89	48
Others	1	2	1
Completion			
Time (min.), m (sd)	9.67 (7.56)	10.25 (6.51)	9.65 (4.42)
Payment	£1.25	£1.25	£1.25

Note. n indicates sample sizes. m and sd represent mean and standard deviation, respectively.

demographics, times of completion, and payment rates for all Experiments). All participants read a consent form and gave their informed consent.

3.4. Experiment 1

3.4.1. Description of the task

With Experiment 1, we sought to establish the effects of our manipulations on *the perceived persuasiveness of the message*. In other words, we sought to investigate how the perceived persuasiveness of rephrase specification compares to that of rephrase generalization, and how both compare to that of no-rephrase and of arguments from consequence. To this end, for each statement they saw, participants had to evaluate the persuasiveness of the contribution by answering the question “How persuasive do you find this statement?” on a slider scale that ranges from “Not at all” to “Very”. To prevent any anchoring effect, in this experiment (as well as in Experiments 2 and 3) the slider handle was at first hidden. To make it visible and answer the questions, participants had to click on the slider bar and adjust the handle.

3.4.2. Results

Means of statements' perceived persuasiveness and 95% confidence intervals (95% CI) per rephrase condition are shown in Fig. 3 and Table 4. No-rephrase items (NoReph) have a significantly lower persuasiveness score than argument from consequences items (ArgCons) with substantial evidence. Although no-rephrase (NoReph) has a significantly lower persuasiveness score than rephrase specification (RephSpec), our data do not show substantial evidence to support this difference. No-rephrase (NoReph) is equivalent to rephrase generalization (RephGen) with substantial evidence. Finally, argument from consequences items (ArgCons) have a significantly higher persuasiveness score than rephrase generalization items (RephGen) with substantial evidence.

Experiment 1 indicates that rephrase specification seems to be perceived as a persuasive strategy over no-rephrase, the latter being equivalent to rephrase generalization. Experiment 2 investigates whether a similar effect can be observed in terms of the way rephrase affects speakers' perceived trustworthiness.

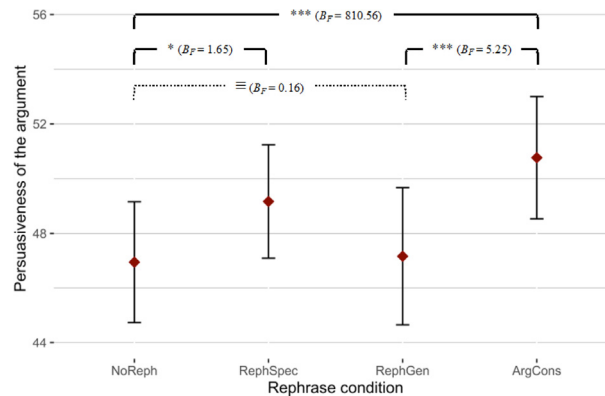


Fig. 3. Persuasiveness of the argument as a function of rephrase condition. *Note.* Error bars represent 95% confidence intervals. *** indicates $p < .001$. * indicates $p < .05$. \equiv indicates 'equivalent to' according to B_F threshold (<0.30). B_F represents Bayes factors. NoReph, RephSpec, RephGen, and ArgCons represent no-rephrase, rephrase specification, rephrase generalization, and argument from consequences, respectively.

Table 4

Descriptive statistics of the results of Experiments 1, 2, and 3.

Condition	Experiment 1 <i>Persuasiveness</i> $n = 180$	Experiment 2 <i>Trustworthiness</i> $n = 179$	Experiment 3 <i>Similarity</i> $n = 93$
	m [95% CI]	m [95% CI]	m [95% CI]
No rephrase (NoReph)	46.95 [44.74, 49.16]	51.44 [49.47, 53.41]	30.16 [26.22, 34.10]
Rephrase specification (RephSpec)	49.17 [47.10, 51.24]	53.80 [51.92, 55.68]	67.14 [64.34, 69.94]
Rephrase generalization (RephGen)	47.16 [44.65, 49.67]	52.07 [50.00, 54.14]	70.68 [67.79, 73.57]
Argument from consequence (ArgCons)	50.77 [48.53, 53.01]	51.07 [49.01, 53.13]	33.54 [29.91, 37.17]

Note. n indicates sample sizes. m and 95% CI indicate means and 95% confidence intervals, respectively. 95% confidence intervals are ranges of values that may include the population value (i.e., actual value) with 95% certainty.

3.5. Experiment 2

3.5.1. Description of the task

Experiment 2 aimed to measure the effect of our manipulations on the perceived *trustworthiness* of the speaker. This particular design is thus concerned with the impact of rephrase on the ethos (i.e., character or credibility) of the speaker. Ethos refers to, in this context, one of the Aristotelian modes of persuasion (generally alongside logos and pathos). With this experiment, we therefore move from a more general notion of persuasiveness to measuring the effects of rephrase on trustworthiness more specifically. To this end, for each statement that they read, participants had to answer the question "Based on this statement, how trustworthy would you say the speaker is?" on a slider scale that ranges from "Not at all" to "Very".

3.5.2. Results

Means of speakers' perceived trustworthiness and 95% CI per rephrase condition are shown in Fig. 4 and Table 4. No-rephrase (NoReph) has a significantly lower trustworthiness score than rephrase specification (RephSpec) with substantial evidence. No-rephrase (NoReph) is equivalent to rephrase generalization (RephGen) with substantial evidence. Although rephrase specification (RephSpec) has a significantly higher score than rephrase generalization (RephGen), it was impossible to measure our data's evidence to support this difference. Finally, rephrase specification (RephSpec) items have a significantly higher trustworthiness score than argument from consequences (ArgCons) items with substantial evidence.

With Experiments 1 and 2, there is now evidence for the rhetorical effectiveness of rephrase specification pointing to both its perceived persuasiveness and its ethotic advantages. Yet, this does not tell us much about whether these results emerged because participants identified an argumentative nature and/or function in rephrase or not. In order to further investigate this issue, we conducted Experiment 3.

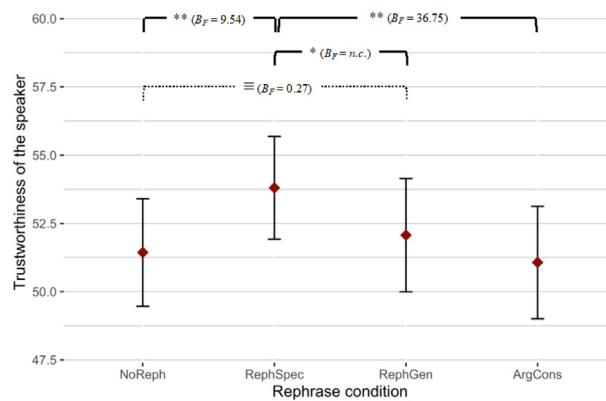


Fig. 4. Trustworthiness of the speaker as a function of rephrase condition. *Note.* Error bars represent 95% confidence intervals. ** indicates $p < .01$. * indicates $p < .05$. \equiv indicates 'equivalent to' according to B_F threshold (< 0.30). B_F represents Bayes factors. NoReph, RephSpec, RephGen, and ArgCons represent no rephrase, rephrase specification, rephrase generalization, and argument from consequences, respectively.

3.6. Experiment 3

3.6.1. Description of the task

For Experiment 3, participants were asked to evaluate the *content similarity* of the two segments (i.e., the two sentences) that compose each of the statements they read. To do so, they had to answer the question “According to you, how similar are the content of segment 1 and the content of segment 2?” on a slider scale that ranges from “Totally different” to “Totally similar”. The rationale behind Experiment 3 was that evidence of how participants perceive the units that are connected through rephrase and inference relations might help us gain a better understanding of our findings around their rhetorical effects.

3.6.2. Results

Means of segments' perceived similarity and 95% CI per rephrase condition are shown in Fig. 5 and Table 4. All differences are significant. More specifically, the segments are judged as the most similar in rephrase generalization (RephGen), then in rephrase specification (RephSpec), followed by argument from consequences (ArgCons), and finally the least similar in no-rephrase (NoReph).

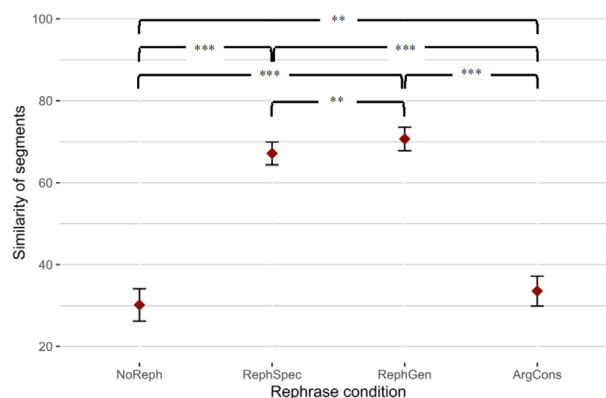


Fig. 5. Similarity of segments as a function of rephrase condition. *Note.* Error bars represent 95% confidence intervals. *** indicates $p < .001$. ** indicates $p < .01$. NoReph, RephSpec, RephGen, and ArgCons represent no rephrase, rephrase specification, rephrase generalization, and argument from consequences, respectively.

4. Discussion

4.1. Rhetorical effectiveness of rephrase

The results of Experiment 1 replicate Koszowy et al. (2022)'s insofar as they show that rephrase specification does positively affect the perceived persuasiveness of the message, when compared to an informationally-neutral segment. This accordingly provides reliable evidence that rephrase can indeed behave like an argument in terms of its effects: the persuasiveness of rephrase specification does pattern with that of inference.

This finding, when considered together with the results of Experiment 3, might give us an important insight into the particular rhetorical profile of rephrase specification. Experiment 3 in fact shows us that participants perceive the segments that are linked through a rephrase relation as being very similar in content: rephrase is thus perceived as akin to paraphrase. This suggests that a rephrased segment is not viewed by participants as a separate argument, which, in turn, highlights an interesting and in some sense furtive rhetorical property of rephrase specification: it behaves like an argument without being perceived as one. A couple of qualifications are, however, necessary at this point. First, whether naïve participants perceive a rephrasing segment as being an argument or not has little bearing on whether the rephrasing segment is, in fact, an argument: non-expert subjects might not have the requisite background to make such an evaluation. What participants' perceptions can give us is a clearer understanding of the rhetorical effects of rephrase. However, and this is the second qualification, our evidence merely suggests that the rephrasing segment is not perceived as an argument: two segments might be perceived to be similar in content and still be viewed as arguments. Further research is thus necessary to be on firm ground when it comes to the boundary between inference and rephrase.

The findings from Experiment 2 then indicate that rephrase specification does impact speaker ethos: participants perceive speakers that use the rephrase type of specification to be significantly more trustworthy than those who simply present an informationally-neutral segment. This effect might be explained in relation to the fact that, as evidenced by Experiment 1, rephrase specification positively affects the persuasiveness of the message too. However, such an explanation does not tally well with the fact that arguments from consequences, despite having a high persuasiveness score, do not appear to impact speaker *ethos*. A better explanation would hold that rephrase specification appears to both behave like an argument *and*, as evidenced by Experiment 3, not be perceived as such. While arguments from consequences are indeed persuasively powerful, the fact that participants clearly recognize their argumentative nature might more readily make speakers a target to critique, which might in turn explain why inference does not have high trustworthiness scores. In other terms, since rephrase specification behaves like an argument while not being recognized as such, participants are less vigilant than they would be if they were able to identify the argumentative intent. Indeed, “[a]wareness that the source is trying to modify our beliefs increases the chances of critical reaction”, as noted by Lombardi Vallauri et al. (2020, p. 99). It would seem rephrase specification inhibits that kind of awareness.

4.2. Implications for corpus annotations

Koszowy et al. (2022) illustrated how experimental designs could be fed by insights from corpus linguistic research on rephrase, notably by providing naturally occurring testable material. With the experimental evidence gathered here, we can now draw implications for an opposite but complementary modelling direction by discussing how the experimental findings presented in Section 3 are likely to inform the design of an annotation model to grasp the variety and the dynamics of rephrase uses. Specifically, we now discuss three beneficial experimental outcomes for the modeling of rephrase: (i) providing a detailed model for the annotation of rephrase specification as a potentially rich discursive phenomenon; (ii) designing guidelines for the annotation of ethotic features of verbal rephrase resources, and (iii) designing guidelines for the annotation of rephrase and inference.

- (i) Modeling rephrase specification kinds and uses. As Experiment 1 has shown, rephrase specification, apart from positively affecting the persuasiveness of the message, when compared to no-rephrase, is also likely to be more persuasive than rephrase generalization. This may not only explain the dominance of rephrase specification over rephrase generalization in the corpora, but also give empirical reasons to focus on designing a robust model of rephrase specification on the annotation side. Further, one possible extension of existing annotation schemes could be to explore types of specification that are likely to have a noticeable persuasive effect. A possible starting point to develop such a scheme would be to take argumentation schemes (Walton et al., 2008), which significantly resemble rephrase specification, such as, e.g., argument by analogy and argument from example, and to design the corresponding rephrase specification types (e.g., Reph-S_example, Reph-S_analogy) to be incorporated in annotation guidelines designs. A re-annotation of our corpora with those would bring some new linguistic evidence to design new experiments to test their rhetorical effects.
- (ii) Guidelines for annotating ethotic features of verbal rephrasing resources. The results of Experiments 1 and 3 indicate not only that rephrase specification patterns like an argument in terms of its persuasive effects, but also that participants do not seem to perceive it to be an argument. This could be explained by the fact that speakers are somehow aware of this rhetorical potential, and that they use rephrase specification as a means of increasing their credibility. This result might be crucial for designing a yet unexplored model of illocutionary forces for rephrasing, especially those that are related to speakers' intentions to either establish or strengthen their *ethos*. Given that rephrase annotations using Online Visualisation of Arguments software (see Visser et al., 2018) make it possible to specify the existing default Restating illocutionary intention node, our experimental findings may help to initiate an entirely new annotation scheme which distinguishes illocutionary forces realized through rephrase-specification, such as Establishing *Ethos* or Strengthening *Ethos*. Such a promising perspective for annotation scheme design may open a new avenue to capture the ethotic advantages the use of rephrase can bring about.
- (iii) Guidelines for the annotation of rephrase and inference. Finally, the findings of Experiment 3 bring conclusive evidence to solve the problem of annotating the overlap between inference and rephrase. As shown in Konat et al. (2016),

annotating rephrase may overlap with annotating an inference node. In other words, in some cases it is not entirely clear whether or not rephrase is a ‘parallel’ phenomenon with inference. If it was established that rephrase typically overlaps with inference, then an annotated rephrase, identified on the linguistic surface, should be accompanied with an inference identified on the logical relations side. Hence, the question is whether or not an annotation scheme for rephrase allows for connecting two information nodes with both rephrase and inference. Experiment 3 showed that participants perceive segments connected through a rephrase relation as being very similar in content, which suggests that they do not see it as a separate argument. This could be used as an argument to justify the corpus annotation of rephrased segments as belonging to the same informational unit as the one of the segment they rephrase. This would be relevant in terms of refining annotation guidelines, as it gives a criterion stipulating that once rephrase has been adequately identified by certain linguistic cues, annotators should refrain from mapping inferential connections between the same two nodes. Additionally, this would allow us to continue to explore, both in corpora and through experimental designs, the cognitive differences between rephrasing and inferring.

5. Conclusion

In this paper, our aim was to shed light on the complexity of the phenomenon of rephrase in use. To this end, we first discussed the definitional features of the research phenomenon under investigation, reviewed previous empirical research on rephrase and then presented three new experimental studies focused on the perlocutionary effects of this phenomenon.

The three experiments that we set forth in this paper were designed to investigate (i) how the two rephrase types of generalization and specification affect the perceived persuasiveness of the message (ii) how the same two rephrase types affect the perceived trustworthiness of speakers (ethos), and (iii) how similar participants perceive the contents of the segments that are linked through a rephrase relation to be. What emerged from our analysis replicated Koszowy et al. (2022)’s experimental study insofar as it showed that rephrase specification has a significantly higher persuasiveness score than no-rephrase and thus that it *behaves* like an argument in terms of its effects (Experiment 1). Moreover, our experiments clearly show that participants perceive rephrased segments to be very similar to the original ones, which highlights a particular rhetorical property of rephrase specification, namely that while it may behave like an argument, it does not seem to be perceived as one (Experiment 3). Finally, our results show that the rephrase pattern of specification positively impacts speaker ethos as well, when compared to an informationally-neutral segment (Experiment 2).

Our findings on the perlocutionary aspects of rephrase open up a variety of new lines of inquiry. For instance, the rhetorical properties of rephrase specification that we uncovered in our investigation prompt us to closely examine the linguistic resources of rephrase specification (e.g., the linguistic markers that introduce it) to determine whether they play a role in the rhetorical appeal of this rephrase scheme. Moreover, the cognitive evidence that we collected on the impact of rephrase specification on speaker ethos gives us ground to further explore the ethotic features of rephrase and thus to, for instance, design more elaborate experiments meant to test how participants respond to a variety of ethotic cues.

Declaration of competing interest

The authors declare that they have no conflicts of interest.

Data availability

We have shared the link to our research data in the manuscript (private link with anonymized contributors).

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References

- Bhagat, R., Hovy, E., 2013. What is a paraphrase? *Comput. Ling.* 39 (3), 463–472. https://doi.org/10.1162/COLI_a_00166.
- Blakemore, D., 1993. The relevance of reformulations. *Lang. Lit.* 2 (2), 101–120. <https://doi.org/10.1177/096394709300200202>.
- Blakemore, D., 1996. Are apposition markers discourse Markers? *J. Linguist.* 32 (2), 49–82. <https://doi.org/10.1017/S0022226700015917>.
- Blakemore, D., 1997. Restatement and exemplification: a relevance theoretic reassessment of elaboration. *Pragmat. Cognit.* 5 (1), 1–19. <https://doi.org/10.1075/pc.5.1.04bla>.
- Brysbaert, M., 2007. “The Language-as-fixed-effect-fallacy”: Some Simple SPSS Solutions to a Complex Problem (Version 2.0). Royal Holloway, University of London.
- Brysbaert, M., Stevens, M., 2018. Power analysis and effect size in mixed effects models: a tutorial. *J. Cognit.* 1 (1), 9. <https://doi.org/10.5334/joc.10>.
- Budzynska, K., Reed, C., 2011. Whence Inference. University of Dundee Technical Report.
- Centre for Argument Technology [ARG-tech], 2022. A quick start guide to inference anchoring theory (IAT).
- Cuenca, M.J., 2003. Two ways to reformulate: a contrastive analysis of reformulation markers. *J. Pragmat.* 35 (7), 1069–1094. [https://doi.org/10.1016/S0378-2166\(03\)00004-3](https://doi.org/10.1016/S0378-2166(03)00004-3).

- Da San Martino, G., Yu, S., Barróon—Cedeno, A., Petrov, R., Nakov, P., 2019. Fine-grained analysis of propaganda in news articles. In: *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing*, Hong Kong, China, November 3–7, 2019. Association for Computational Linguistics, pp. 5636–5646.
- Dal Negro, S., Fiorentini, I., 2014. Reformulation in bilingual speech: Italian *cioè* in German and Latin. *J. Pragmat.* 74, 94–108. <https://doi.org/10.1016/j.pragma.2014.09.002>.
- De Beaugrande, R., Dressler, W.V., 1981. *Introduction to Text Linguistics*. Longman.
- de Oliveira Fernandes, D., Gygax, P., Younis, R., Oswald, S., 28. Supplementary material: Rhetorical effectiveness of rephrase, an empirical approach. <https://doi.org/10.17605/osf.io/mcbre>.
- Del Saz Rubio, M.M., 2007. *English Discourse Markers of Reformulation*. Peter Lang.
- Dienes, Z., 2014. Using Bayes to get the most out of non-significant results. *Front. Psychol.* 5. <https://doi.org/10.3389/fpsyg.2014.00781>.
- Dienes, Z., Mclatchie, N., 2018. Four reasons to prefer Bayesian analyses over significance testing. *Psychon. Bull. Rev.* 25 (1), 207–218. <https://doi.org/10.3758/s13423-017-1266-z>.
- Hautli-Janisz, A., Kikteva, Z., Siskou, W., Gorska, K., Becker, R., Reed, C., 2022. QT30: A Corpus of Argument and Conflict in Broadcast Debate. In: *Proceedings of the 13th Conference on Language Resources and Evaluation (LREC 2022)*, pp. 3291–3300.
- Janier, M., Reed, C., 2017. Towards a theory of close analysis for dispute mediation discourse. *Argumentation* 31, 45–82. <https://doi.org/10.1007/s10503-015-9386-y>.
- Konat, B., Budzynska, K., Saint—Dizier, P., 2016. Rephrase in Argument Structure. In: Saint Dizier, P., Stede, M. (Eds.), *Foundations of the Language of Argumentation. COMMA 2016 Workshop*. University of Potsdam, September 13, 2016. University of Potsdam, pp. 32–39.
- Koszowy, M., Oswald, S., Budzynska, K., Konat, B., Gygax, P., 2022. A pragmatic account of rephrase in argumentation: linguistic and cognitive evidence. *Informal Logic* 42 (1), 49–82. <https://doi.org/10.22329/il.v42i1.7212>.
- Lombardi Vallauri, E., Baranzini, L., Cimmino, D., Cominetti, F., Coppola, C., Mannaioli, G., 2020. Implicit argumentation and persuasion: a measuring model. *J. Argument. Context* 9 (1), 95–123. <https://doi.org/10.1075/jaic.00009.lom>.
- Oswald, S., 2016. Commitment attribution and the reconstruction of arguments. In: Paglieri, F., Bonelli, L., Felletti, S. (Eds.), *The psychology of argument: Cognitive approaches to argumentation and persuasion*. College Publications, London, pp. 17–32.
- Peters, G., Woolley, J.T., 2015. Democratic Candidates Debate in Des Moines, Iowa. The American Presidency Project. <https://www.presidency.ucsb.edu/node/311266>.
- Visser, J., Koszowy, M., Konat, B., Budzynska, K., Reed, C., 2018. *Straw—man as misuse of rephrase*. College Publications, pp. 941–962.
- Walton, D., Reed, C., Macagno, F., 2008. *Argumentation Schemes*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511802034>.

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