Time perspective and helpfulness: Are communicators more persuasive in the past, present, or future tense?

Abstract

When people share their experiences, they can communicate seemingly identical information from different time perspectives. Time perspective manifests in words—specifically, verbs in the past tense (e.g., "the experience *was* great"), the present tense (e.g., "the experience *is* great"), or the future tense (e.g., "the experience *will be* great"). This research considers whether this linguistic shift in time perspective impacts how others interpret the message. Two naturalistic studies (sourcing over 2 million Amazon reviews) and three pre-registered lab experiments (N = 1,259) find that reviews written in the present tense (relative to the past or future tense) receive higher helpfulness ratings through a process of heightened concrete construal. Implications at the intersection of communication, psycholinguistics, and persuasion are discussed.

Keywords: Time perception; Time; Psycholinguistics; Persuasion; Advice

Word Count (4996/5000)

From intimate conversations to persuasive pitches and online rants, language is vital to much of human communication. The words people use not only reflect their internal representations but also guide the formation of representations in others. Communicators, now more than ever, take care to craft messages to ensure that their audience gets the message they are trying to send. In the process, communicators make all manner of linguistic choices, like which word to use (e.g., Loftus & Palmer, 1974) or what tone to take (e.g., Stephan, Liberman, & Trope, 2010). Just as these subtle communicative nuances can have significant effects, the present investigation proposes that verb tense – oriented to the past, the present, or the future – also changes what audiences infer.

Time perspective shifts internal thoughts. To verbs specifically, the tense people take in talking to themselves predicts execution of goal-directed behavior (Senay, Albarracín, & Noguchi, 2010) and proclivity to reengage in harmful actions (Carrera et al., 2012). Because time perspective – in the form of shifts in verb tense – can shift internal thoughts, it may similarly shift the thoughts of others in communicative contexts. As an inroad to consider this broad possibility, we examine the question of whether verb tense makes communications more or less helpful. The theoretical lens of attitudes and persuasion provides evidence that how communicators communicate determines how helpful audiences find messages to be. Updating one's opinion (Reich & Tormala, 2013), making reference to change (Kupor, Jia, & Tormala, 2021), or framing an attitude in terms of support versus opposition (Catapano & Tormala, 2021) can make messages better received. Still, the influence of time on persuasion and helpfulness, to date, has largely focused on the duration of time since the event under consideration occurred (e.g., Huang et al., 2016).

At the intersection of time, language, and attitudes, we propose that communications written in the present tense prove more helpful and persuasive than those written in the past or future tense. This prediction derives from the connection between the present tense fostering psychological closeness and concrete mental representation. First, a sense of psychological closeness can result from properties of language, such as active voice (versus passive voice; Chan & Maglio, 2020) and specific sounds (Hansen & Melzner, 2014). Further, thinking about an experience in the past or the future leads to higher-level, abstract representations of the event while that same experience in the present appears more concrete (Hansen & Trope, 2013; Nussbaum et al., 2006; Trope & Liberman, 2010). To verb tense specifically, recalling and reading descriptions in the present tense (vs. past tense) leads to more concrete construal (Carreiras et al., 1997; Carrera et al., 2014). Such concrete representations are specific, detailed, and vivid. Therefore, concrete messages are perceived as more certain, truthful, informative (Hansen & Wänke, 2010; Richardson, 1980; Wakslak, 2012; Wakslak & Trope, 2009; Wakslak, Trope, & Liberman, 2006). Accordingly, more concrete reviews are generally perceived as more useful (Shin et al., 2019).

Does mere verb tense sufficiently achieve the same communicative goals as concrete descriptions? Five studies test the prediction that passages written in the present (versus the past or the future) tense prove more persuasive. We first explore this question by way of sourcing over 2 million online reviews in Studies 1 and 2. We code each for verb tense and use these results to predict helpfulness ratings provided by users on that platform. Thereafter, we validate these naturalistic, big-data studies with three pre-registered lab experiments (Studies 3 to 5). As well, we report 2 additional experimental studies that further probe the main effect in the

supplement. All studies received approval from the Research Ethics Board at the University of Toronto; in these studies, we report all measures, manipulations, and exclusions.

Study 1

Method

We obtained a dataset of 1,254,981 Amazon fashion and beauty product reviews from UCSD's data repository (Ni et al., 2019). Data preprocessing included removing null values and reviews under 50 characters, which left 832,137 reviews for analysis. A post hoc sensitivity analysis with power = .95, α = .05, revealed a minimum detectable effect size of f = 0.000016.

We created a list of derived variables to control for a review's stylistic, content, and product factors. To control for stylistic factors, we used features generated by the Linguistic Inquiry Word Count (LIWC; Boyd et al., 2022), including factors such as word count, tone, words per sentence, pronoun, word length, affect, auxiliary verbs, adverbs, and verbs. We also controlled for a review's readability with the Flesch-Kincaid readability score, a widely used readability metric that assesses the complexity of a text by analyzing sentence length and word syllables to estimate the grade level required for comprehension (Kincaid et al., 1975). To control for a review's content factors, we used topic modelling through latent Dirichlet allocation (LDA; Blei, 2011). LDA is a statistical classification tool that scans through extensive text corpora to identify and cluster similar words into discernable 'topics' based on their contextual co-occurrence. In doing so, each document (i.e., review) in the corpus is subsequently assigned a proportional score (between 0 and 1) for each topic, indicating the degree of the document's relevance to that particular thematic cluster. Intuitively, reviews discussing similar topics should

have similar LDA topic loadings, allowing us to use these loadings as covariates to control for content-related factors in our analysis. Following conventional probabilistic modeling practices (Wallach et al., 2009), our LDA model generated 20 topic models (see Supplement for additional details). Additionally, we controlled for a review's stars, the duration the review had been up, the number of pictures accompanying the review, and review title length. Finally, to further control for product factors, we created derived variables measuring the characteristics of the underlying product being reviewed (i.e., sales rank, product ubiquity, and product category).

To measure time perspective, we used the 2022 LIWC's pastfocus, presentfocus, and futurefocus values (which measures the percentage of past, present, and future verbs within a body of text). We opted for this measure because a review can often use many time perspectives sequentially, making strictly categorical measurements inaccurate. The single outcome variable is the number of helpfulness votes received by the review.

The dispersion parameter measures data spread around the mean by dividing residual deviance by degrees of freedom, flagging over-dispersion if it surpasses 1 (Hilbe, 2011). As our dataset, with a dispersion parameter of 1.52, exemplifies a classic case of over-dispersion, we ran a log-linked negative binomial regression.

Results

On average online reviews utilized a greater percentage of present tense verbs (M = 5.72, SD = 4.68) than past tense verbs (M = 4.93, SD = 5.03) or future tense verbs (M = 1.25, SD = 2.52), see Table 2 for sample reviews. Overall, reviews with a higher percentage of present tense verbs were rated as more helpful (b = 0.006, z = 10.19, p < .001), whereas reviews with higher past tense and future tense verb percentages were rated as relatively less helpful (past tense: b = -

0.0014, $z = 2.75$, $p = .006$; future tense: $b = -0.014$, $z = -15.54$, $p < .001$; see Table 3). This suggests that a review with a one percentage point increase in present tense verbs within their text is associated with a 0.6 percent increase in helpfulness ratings, whilst reviews with a one percentage point increase in past or future tense verbs are associated with a 0.1 percent decrease or 1.35 percent decrease in helpfulness ratings. To increase robustness, we analyzed two alternative scenarios which we included in the Supplement —one with only reviews greater than 0 upvotes (as 85.7% of reviews did not receive upvotes) and another including a greater number of covariates (i.e., including 84 additional relevant LIWC covariates as controls) —and our results persisted. We carried out multicollinearity checks for all variables, ensuring that correlations were below 0.7. An extensive correlation matrix can be found in the Supplement. While the correlations between verb tenses were low to moderate, for additional robustness, we also conducted separate analyses for each verb tense without including other tenses as covariates in the Supplement.

Table 1

Mean Percentage of Verbs to Word Count Per Review

	Mean	Std. Deviation
Past Tense Percentage	4.93	5.03
Present Tense Percentage	5.72	4.68
Future Tense Percentage	1.25	2.52

Table 2

Sample Reviews based on Tense

	Review Text
Present Tense	"Works like it's supposed to. Easy to change and keeps your razor clean."
	"This thing is great. Dentist thinks I'm a great flosser now!"
Past Tense	"The blades were easy to install and made the razor work like it did when it was new."
	"Received a sample of this product, loved it and had to order it!"
Future Tense	"Great value. You will never have to buy razor blades again."
	"A little dab will do!!!! Your hair will feel softer too."

Table 3

Negative Binomial Regression Output

	Dependent variable:
	Helpfulness Votes
Constant	2.484***
	(0.050)
Verb Tense	
Past Tense Percentage	-0.001***
	(0.001)
Present Tense Percentage	0.006***
	(0.001)
Future Tense Percentage	-0.013***
	(0.001)
Text Factors	

Word Count	0.011***
	(0.000)
Sentiment Tone	-0.001***
	(0.000)
Words Per Sentence	-0.000
	(0.000)
Pronoun Usage	0.004***
	(0.000)
Emotional Affect	-0.016***
	(0.000)
Auxiliary Verb Usage	0.005***
	(0.001)
Adverb Usage	-0.010***
	(0.000)
Verb Usage	-0.003***
	(0.000)
Big Words	0.007***
	(0.000)
Readability	-0.002***
	(0.000)
Topic Models	
Topic 0	-3.557***
	(0.048)
Topic 1	-3.750***
	(0.052)
Topic 2	-4.031***
	(0.049)
Topic 3	-3.559***
	(0.056)
Topic 4	-4.750***
	(0.053)
Topic 5	-3.937***
	(0.054)
Topic 6	-3.335***
	(0.056)
Topic 7	-3.706***
	(0.050)
Topic 8	-3.924***
	(0.050)
Topic 9	-4.663***

	(0.052)
Topic 10	-3.776***
	(0.053)
Topic 11	-3.866***
	(0.056)
Topic 12	-3.434***
	(0.049)
Topic 13	-1.819***
	(0.057)
Topic 14	-3.667***
	(0.049)
Topic 15	-4.366***
	(0.052)
Topic 16	-4.611***
	(0.056)
Topic 17	-3.761***
	(0.049)
Topic 18	-5.610***
	(0.050)
Topic 19	-4.058***
	(0.057)
Review & Product Factors	
Rating Stars	-0.043***
	(0.002)
Review Duration	0.000***
	(0.000)
Brand Presence	0.175***
	(0.004)
Image Count	0.004***
	(0.000)
Title Length	-0.000***
	(0.000)
Complementary Goods	0.328***
	(0.004)
Verified Purchase	0.019***
	(0.006)
Review Summary Length	0.000**
	(0.000)
Electronics Category	-0.896***
	(0.076)

Home And Kitchen Category	-0.365***
	(0.061)
Office Category	-0.101
	(0.104)
Personal Care Category	-0.939***
	(0.099)
Sports Category	0.130***
	(0.022)
Fashion Category	-0.130***
	(0.005)
Observations	832,137
Degrees of Freedom	(df = 45; 832,091)
Residual Deviance	1,264,900
Note:	*p<0.1; **p<0.05; ***p<0.01

Study 2

Study 2 sought to reinforce the findings of Study 1 by diversifying the product categories under analysis, extending our investigation to encompass six experiential and material products, beyond just beauty and fashion. Importantly, this study also utilized Amazon review data from a period prior to the removal of downvotes by the platform in 2019. This allowed us to integrate the additional dimension of downvote data into our analyses, further enriching the robustness of our investigation.

Method

To obtain a dataset of diverse range of products, we created a random sample dataset of 1,855,358 million scraped Amazon reviews (Hugging Face, 2022) consisting of 3 experiential product categories (video games, video streaming, and digital music) and 3 material product categories (automotive, office products, and watches) categorized using product experientiality

ratings from Dai and colleagues (2020). Pre-processing, which included removing null values and reviews with under 25 characters, left 1,651,247 reviews. A post hoc sensitivity analysis with power = .95, α = .05, revealed a minimum detectable effect size of f = 0.0000079.

We controlled for a review's stylistic and content features in a similar manner as Study 1. For stylistic controls, we used the same procedures as Study 1, creating several variables (word count, tone, words per sentence, pronoun, affect, and verbs) with LIWC and deriving readability with the Flesch-Kincaid readability measure. To control for content, we again used topic modelling (Blei, 2011) and ultimately derived 15 topic models. We also accounted for a review's content factors, including a review's stars and the duration the review had been up. In terms of product factors, we controlled for a review's product category. The analyses conducted in Study 2 differed slightly from Study 1 as we included lower length reviews (i.e., review length cut-off of 25 characters vs. 50 characters) to further probe the sensitivity of our findings in Study 1 and a slightly different set of covariates (i.e., no covariates controlling for product sales rank, ubiquity, and product sub-category) due to dataset differences.

To measure time perspective, we again use the 2022 LIWC's pastfocus, presentfocus, and futurefocus values. To measure review helpfulness, we calculated review helpfulness percentage which is the ratio of helpful votes by the total number of votes (i.e., 6 helpful votes out of a total of 8 votes would result in a 75% helpfulness score), which is an operationalization of review helpfulness that has been consistently used in many previous studies (Forman et al., 2008; Hong et al., 2017; Mudambi & Schuff, 2010).

Results

On average online reviews utilized a greater percentage of present tense verbs (M = 5.50, SD = 4.37) than past tense verbs (M = 4.33, SD = 4.72) or future tense verbs (M = 1.07, SD = 2.25). An OLS regression replicates the results of Study 1, indicating that a higher percentage of present tense verbs is associated with higher helpfulness votes (b = 0.0004, z = 4.15, p < .001), whereas a higher percentage of past tense and future tense verbs is associated with lower helpfulness scores (past tense: b = -0.0015, z = -18.08, p < .001; future tense: b = -0.0013, z = -8.96, p < .001; see Table 5). This suggests that a review with a one percentage point increase in present tense verbs within their text is associated with a 0.14 percent increase in helpfulness ratings, whilst reviews with a one percentage point increase in past or future tense verbs are associated with a 0.1 percent decrease or 0.32 percent decrease in helpfulness ratings. Compared to Study 1, our current finding of similar negative effect sizes for both past and future tense verbs might be due to the analysis including a more varied product assortment where future tense statements might offer similar levels of impact. Additionally, we tested another variation of our outcome variable—helpfulness vote— which was our DV operationalization in Study 1 and replicated our results (see Supplement). We carried out multicollinearity checks for all the variables, ensuring that correlation all variables were below 0.7, an extensive correlation matrix can be found in the supplement.

Table 4

Mean Percentage of Verbs to Word Count **Per**

	Mean	Std. Deviation
Present Tense Percentage	4.33	4.72
Past Tense Percentage	5.50	4.37
Future Tense Percentage	1.07	2.25

Table 5

OLS Regression Output

	Dependent variable: Helpfulness Percent
Constant	0.6388***
	(0.0088)
Verb Tense	
Past Tense Percentage	-0.0015***
	(0.0001)
Present Tense Percentage	0.0004***
	(0.0001)
Future Tense Percentage	-0.0013***
	(0.0001)
Text Factors	
Word Count	0.0005***
	(0.0000)
Sentiment Tone	0.0003***
	(0.0000)
Words Per Sentence	0.0003***
	(0.0000)
Pronoun Usage	-0.0008***
	(0.0000)
Emotional Affect	-0.0037***
	(0.0001)
Verb Usage	-0.0001**
	(0.0001)
Big Words	0.0004***
	(0.0001)
Readability	-0.0010***
	(0.0000)
Topic Models	
Topic 0	-0.5466***
	(0.0112)
Topic 1	-0.5930***
	(0.0107)
Topic 2	-0.6625***
	(0.0110)

Topic 3	-0.4614***
	(0.0107)
Topic 4	-0.4799***
	(0.0114)
Topic 5	-0.4524***
	(0.0110)
Topic 6	-0.6801***
	(0.0107)
Topic 7	-0.5224***
	(0.0117)
Topic 8	-0.4039***
	(0.0116)
Topic 9	-0.5873***
	(0.0112)
Topic 10	-0.4167***
	(0.0114)
Topic 11	-0.5300***
	(0.0109)
Topic 12	-0.6041***
	(0.0107)
Topic 13	-0.5299***
	(0.0112)
Topic 14	-0.4282***
	(0.0114)
Review & Product Factors	
Rating Stars	0.0026***
	(0.0003)
Review Duration	0.0001***
	(0.0000)
Material Good	0.2273***
	(0.0023)
Digital Music Category	0.1137***
	(0.0024)
Office Products Category	-0.0144***
	(0.0011)
Video Category	0.1598***
	(0.0024)
Video Games Category	0.1380***
	(0.0023)
Watches Category	0.0003
	(0.0013)

Observations	1,651,247
R^2	0.161
Adjusted R^2	0.161
Residual Std. Error	0.396 (df=1651213)
F Statistic	9631.172^{***} (df=33; 1651213)
Note:	$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Study 3

This experiment aims to corroborate our naturalistic observational findings from Studies 1 and 2, testing how participants rate the helpfulness of reviews written in different verb tenses in a more controlled setting as well as provide mediation evidence that our observed effect is driven by a heightened concrete construal.

Method

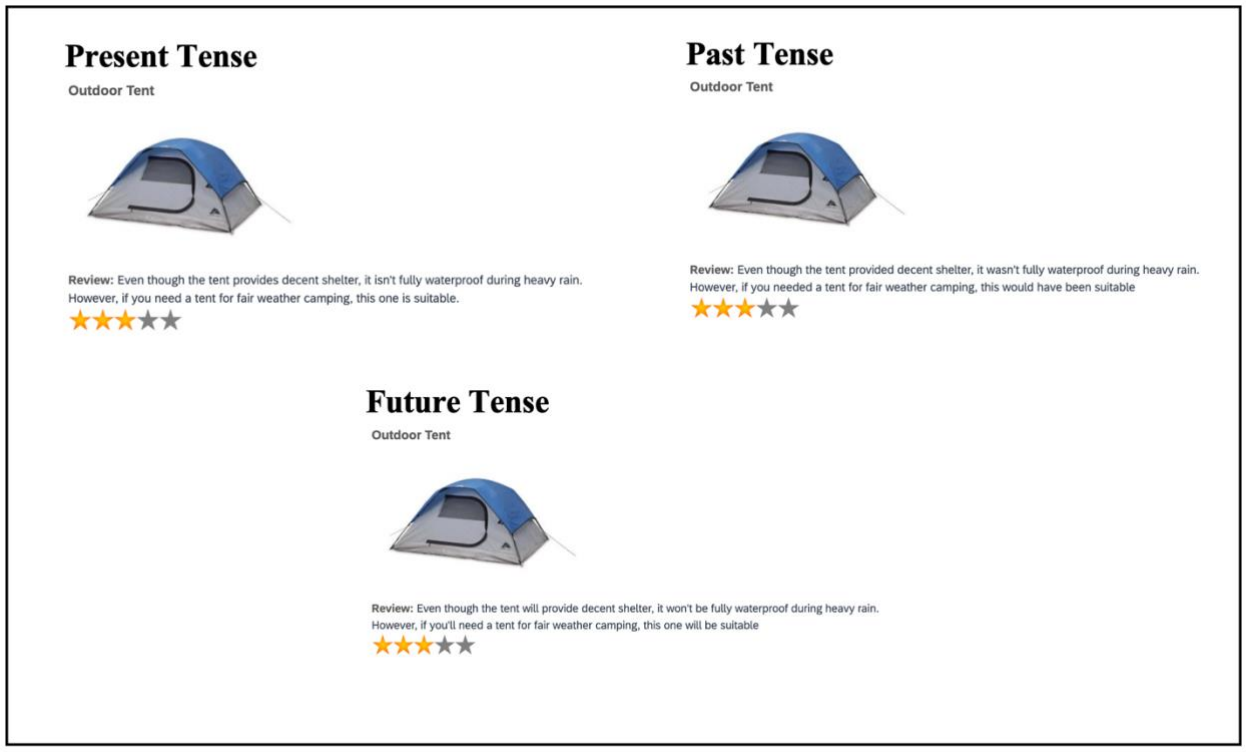
We recruited 375 participants from Prolific, of which 365 successfully passed the attention check question and were eligible. An a priori power test conducted with G*Power (Faul et al., 2007) with an estimated effect size of $f = 0.2$ and $\alpha = .05$ indicated that a sample size 384 was required. Participants were recruited on the criteria that they were based in the United States or the United Kingdom and that they listed English as a native language. One attention check was implemented at the end of the survey (see OSF), and all participants who failed the attention check were removed from the data analysis. A post hoc sensitivity analysis with power = 0.95, $\alpha = 0.05$, revealed a minimum detectable effect size of $f = 0.21$.

Participants were asked to assume the role of a shopper and then rate a review's helpfulness from 1 (*extremely unhelpful*) to 5 (*extremely helpful*) for six different products from

different categories including industrial supplies, outdoor goods, electronics, home decor, audio and theater, and home and kitchen (see OSF for full reviews). To measure concreteness we asked participates to rate how easy it was to imagine the review, how clear the review was and how relevant the review out of 7 and averaged their scores for these three measures ($\alpha = .79$). The study varied verb tense (past, future, or present) as a between-subjects variable (see Figure 1), whereby participants rated 6 review either written in the past, present, or future tenses. The affect and stars of the reviews were varied with an equal balance of 1-star, 3-star, and 5-star reviews.

Figure 1

Sample Reviews in Different Tenses



Results

Helpfulness. We conducted a one-way analysis of variance (ANOVA) and overall, verb tense significantly impacted review helpfulness, $F(2, 362) = 12.55$, $p < .001$, $\eta^2 = .065$. Across conditions, reviews that were written in the present tense were rated as being more helpful than reviews in the past tense ($\underline{M}_{diff} = 0.33$, $SE = 0.07$, $p < .001$) or future tense ($\underline{M}_{diff} = 0.29$, $SE = 0.07$, $p < .001$). For corresponding mean values, please see Figure 2 and Table 6.

Concreteness. Review concreteness varied significantly as a function of verb tense $F(2, 362) = 18.08$, $p < .001$, $\eta^2 = .091$. Present tense reviews were rated as being more concrete ($\underline{M}_{present} = 5.81$, $SE = 0.059$) than past tense reviews ($\underline{M}_{past} = 5.39$, $SE = 0.059$, $\underline{M}_{diff} = 0.43$, $SE = 0.084$, $p < .001$) and future tense reviews ($\underline{M}_{future} = 5.37$, $SE = 0.059$, $\underline{M}_{diff} = 0.44$, $SE = 0.084$, $p < .001$) . A pre-registered Hayes Process 4 mediation test (Hayes, 2012) calculating 95% CIs with 5000 bootstrap samples revealed significant indirect effects of concreteness as a mediator for the effects of past tense (vs. present tense) verbs on review helpfulness, $b = -0.26$, *CI* [-0.35, -0.17] and future tense (vs. present tense) verbs on review helpfulness, , $b = -0.27$, *CI* [-0.38, -0.16].

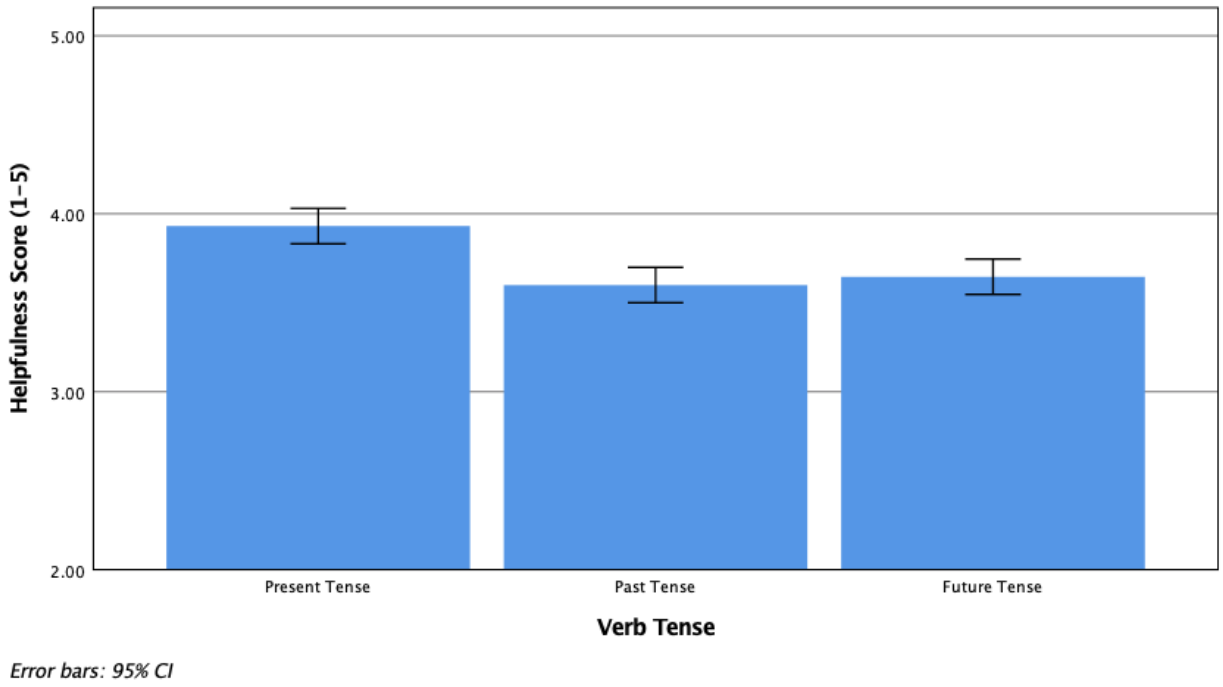
Table 6

Helpfulness Scores of Different Tenses (1-5

Condition	N	Mean	Std. Deviation
Present Tense	121	3.93	.55
Past Tense	122	3.60	.42
Future Tense	122	3.65	.67
Total	365	3.73	.58

Figure 2

Verb Tense and Helpfulness



Study 4

This experiment tests our main effect of verb tense on persuasiveness in a novel domain – that of charitable donations – whilst also providing additional mediation evidence and offering behavioural evidence in a scenario where participants make a consequential decision about their potential donation allocation.

Method

We recruited 415 participants from Prolific, of which 393 passed the attention check and were eligible. An a priori power test conducted with G*Power (Faul et al., 2007) with an estimated effect size of $f = .0.2$ and $\alpha = .05$ indicated that a sample size of 384 was required. Participants were recruited on the criteria that they were based in the United States, Canada, or the United Kingdom and that they listed English as a native language. A similar attention check

as Study 3 was employed and all participants who failed the attention check were removed. A post hoc sensitivity analysis with power = .95, $\alpha = .05$, revealed a minimum detectable effect size of $f = 0.2$.

Participants were recruited under the premise of evaluating a charitable donation proposal and then were given the opportunity to donate a percentage of a potential $50 bonus to the charity they just evaluated (see OSF for full proposals). After an initial filler task where the participants rated the charity proposal on measures such as logo design and concreteness, they were then told that they had been entered into a lottery to win a $50 bonus and asked what percentage of this bonus they would donate to that charity if they won, which served as our primary pre-registered dependent variable. To measure concreteness, we asked participants to rate how easy it was to envision the proposal out of 7. The study varied verb tense (past, future, or present) as a between-subjects variable.

Results

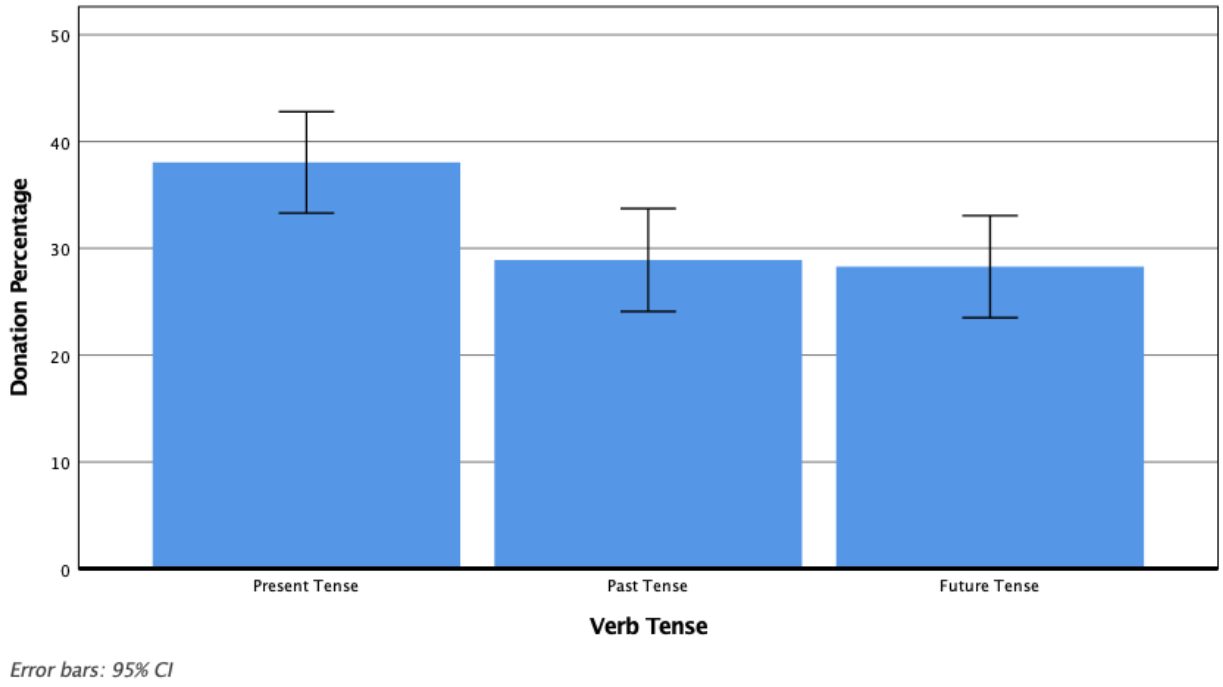
Donation Percentage. We conducted a one-way analysis of variance (ANOVA) and overall, verb tense significantly impacted donation percentage, $F(2, 390) = 5.10$, $p < .01$, $\eta 2 = .025$. Across conditions, proposals that were written in the present tense ($\underline{M}_{present} = 38.06$, $SE = 2.41$) elicited higher donation percentages than those in the past tense ($\underline{M}_{past} = 28.92$, $SE = 2.46$, $\underline{M}_{diff} = 9.15$, $SE = 3.44$, $p < .01$) or future tense ($\underline{M}_{past} = 28.29$, $SE = 2.43$, $\underline{M}_{diff} = 9.77$, $SE = 3.43$, $p < .01$).

Concreteness. Proposal concreteness varied significantly as a function of verb tense $F(2, 390) = 4.32$, $p = .014$, $\eta 2 = .022$. Present tense proposals were rated as being more concrete ($M_{present} = 4.99$ SE = 0.10) than past tense proposals ($M_{past} = 4.67$, SE = 0.11, $M_{diff} = 0.31$, $SE =$

0.15, p = .035) and future tense proposals (M_{future} = 4.57, SE = 0.10 M_{diff} = 0.41, SE = 0.15, p < .01). A pre-registered Hayes Process 4 mediation test (Hayes, 2012) calculating 95% CIs with 5000 bootstrap samples revealed significant indirect effects of concreteness as a mediator for the effects of past tense on donation percentage, b = -2.03, CI [-4.26, -0.11] and future tense (vs. present tense) verbs on donation percentage, b = -2.69, CI [-5.09, -0.75].

Figure 3

Verb Tense and Donation Percentage



Study 5

In this investigation, we aim to provide additional evidence for concrete construal being the driving force behind the effects of verb tense on review helpfulness using a moderation of

process design (Spencer et al., 2005). Our experiment hinges on the strong link between psychological closeness and the degree of concrete construal experienced by an individual (Trope & Liberman, 2010). We refer to Weber-Fechner Law (Dehaene, 2003), which suggests that when objective distance is sufficiently large, the sensitivity to further increases in this distance is diminished, thus causing a comparatively smaller shift in psychological distance (Zauberman et al., 2009). This principle is also applicable when combining two forms of psychological distance (Maglio et al., 2013b, 2013a). Consequently, in contexts where psychological distance has been manipulated to imply a certain level of psychological closeness, the further introduction of present (vs. future or past) verb tenses may have a diminished influence on the perception of review concreteness. Thus, our investigation focuses on whether layering a new form of psychological distance—represented by the manipulation of spatial distance— over the pre-existing verb tense induced psychological distance would lead to a decreased impact on the perceived helpfulness of reviews elicited by present tense wording.

In line with the Weber-Fechner Law (Dehaene, 2003), we anticipate that there will be substantial differences in review helpfulness scores when comparing evaluations of different review verb tenses in the low spatial distance condition. Conversely, in the high spatial distance condition, we expect the differences in review helpfulness to attenuate or be absent across verb tenses; given that the psychological distance should already be high due to spatial distance, the additional variation in psychological distance caused by changes in verb tense should not have a major impact.

Method

We recruited 518 participants from Prolific, out of which 477 passed the attention check question and were eligible. An a priori power test conducted with G*Power (Faul et al., 2007) with an estimated effect size of $f = 0.2$ and $\alpha = .05$ indicated that a sample size of 501 was required. Participants were recruited on the criteria that they were based in the United States and that they listed English as a native language. A similar attention check as Study 3 was employed and all participants who failed the attention check were removed. A post hoc sensitivity analysis with power = .95, $\alpha = .05$, revealed a minimum detectable effect size of $f = 0.2$.

Participants were asked to assume the role of a shopper and then rate a review's helpfulness from 1 (*extremely unhelpful*) to 5 (*extremely helpful*) for the same six reviews as Study 3. The study varied verb tense (past, future, or present) as a between-subjects variable. As well, the study manipulated the spatial distance of the review writer (between-subjects), whereby we told the participant that the review was written either in Canada (low spatial distance) or Australia (high spatial distance). Given that all participants were located in the U.S., Canada is significantly closer than Australia, and a manipulation check where we asked participants how physically close they felt the reviewer was to them confirmed this $F(1, 475) = 8.85$, $p < .01$, $\eta 2 = .018$. This made up a 3x2 between-subjects design, yielding total of 6 experimental conditions.

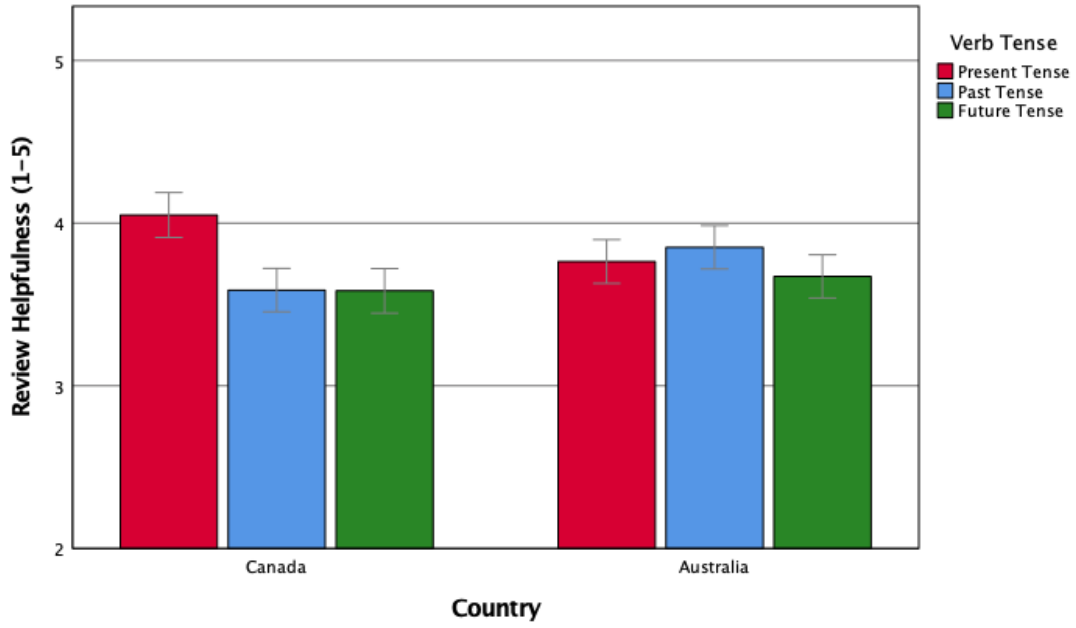
Results

Helpfulness. Following our pre-registered analysis plans, we conducted a two-way ANOVA with the verb tense and spatial distance experimental conditions as fixed factors and review helpfulness as the dependent variable. The results showed a significant interaction between the verb tense and spatial distance conditions, $F(5, 471) = 8.32$, $p < .001$, $\eta 2 = .034$. A simple effects analysis indicated that for reviews written in Canada (i.e., the low spatial distance

condition), verb tense significantly influenced review helpfulness $F(2, 471) = 14.75$, $p < .001$, $\eta 2 = .059$, and that for this condition, reviews written in the present tense ($\underline{M}_{present} = 4.05$, $SE = 0.07$) were rated as being significantly more helpful than reviews written in the past tense ($\underline{M}_{past} = 3.59$, $SE = 0.07$, $\underline{M}_{diff} = -0.46$, $SE = 0.098$, $p < .001$) or future tense ($\underline{M}_{future} = 3.58$, $SE = 0.07$, $\underline{M}_{diff} = 0.47$, $SE = 0.099$, $p < .001$). In contrast, for reviews written in Australia (i.e., the high spatial distance condition), there were no significant differences in helpfulness ratings between verb tenses $F(2, 471) = 1.75$, $p = .18$, $\eta 2 = .007$. For reviews written in Australia, there was no difference in review helpfulness between present tense reviews ($\underline{M}_{present} = 3.77$, $SE = 0.068$) and past tense reviews ($\underline{M}_{past} = 3.85$, $SE = 0.068$, $\underline{M}_{diff} = 0.087$, $SE = 0.096$, $p = .37$) or future tense reviews ($\underline{M}_{future} = 3.67$, $SE = 0.068$, $\underline{M}_{diff} = -0.092$, $SE = 0.096$, $p = .34$). We found no difference in review helpfulness for reviews written in Canada (vs. Australia), $F(1, 471) = 0.15$, $p = .70$, $\eta 2 = .000$. Finally, as a whole, review helpfulness varied as a function of verb tense, $F(2, 471) = 8.49$, $p < .001$, $\eta 2 = .035$ with present tense reviews ($\underline{M}_{present} = 3.91$, $SE = 0.049$) being rated as significantly more helpful than past tense reviews ($\underline{M}_{past} = 3.72$, $SE = 0.048$, $\underline{M}_{diff} = 0.19$, $SE = 0.069$ $p < .01$) or future tense reviews ($\underline{M}_{future} = 3.63$, $SE = 0.049$, $\underline{M}_{diff} = 0.28$, $SE = 0.069$, $p < .001$).

Figure 4

Verb Tense and Spatial Distance on Review Helpfulness



Error bars: 95% CI

General Discussion

Communication largely relies on words, and those words reveal more than just their content. Instead, how a message gets communicated exerts a unique and meaningful effect on audiences. Sentences predominantly take a subject-verb-object structure, and each element presents an opportunity for word choice to shape messages. To be sure, communicators can choose between different verbs carrying distinct implications (e.g., describing a fender-bender as a ‘hit’ or a ‘smash’; Loftus & Palmer, 1974). But the same verb itself can be set in the past, present, or future tense. This feature afforded the present investigation the opportunity to consider how time perspective in communicators colors what audiences hear. In line with our proposed hypothesis, five studies provide evidence that messages in the present tense, as

opposed to the past or future tense, make communicators more helpful and persuasive in both naturalistic and experimental settings. In particular, our findings from studies 3 to 5 suggest that this increase in persuasiveness of present tense messages may be attributed to an elevation in concrete construal, illustrating that the psychological immediacy of present tense bolsters the vividness and groundedness of the conveyed messages, thereby enhancing their impact.

This research, steeped in the mechanics of language and its impact on communication, bears significant theoretical and practical implications. On a theoretical level, this paper's findings contribute towards the growing body of research showcasing the impact of construal level on individuals' judgment and decision-making across different communication contexts (e.g., Amit et al., 2009; Chan & Maglio, 2019, 2020; Wakslak & Trope, 2009). Specifically, it contributes towards literature surrounding construal level theory by elucidating how subtle temporal cues, like verb tense, can influence construal level, altering the perceived concreteness of the message. Our results echo the findings of previous studies that construal level can be altered by verb tense and that past tense verbs are perceived more abstractly than present tense verbs (Carrera et al., 2014), as well as additionally showing that future tense verbs elicit a higher level of construal than the present tense.

The current studies also offer new insights into how language choices, such as verb tense, can affect persuasion, which aligns with and expands upon existing social-psycholinguistic literature on how language bears on time, judgment, and behavior (e.g., Chan & Maglio, 2020; Preis et al., 2012; Thorstad & Wolff, 2018). In line with previous findings, we show that more concrete online reviews prove more helpful (Li et al., 2013). Further, the properties of verb tense allow the present investigation to suggest that a time perspective anchored in the present proves more helpful for audiences. This opens the door to future consideration of other means by which

communicators might orient to the present (e.g., in their word choices or topic choices) and similarly enhance their persuasive power.

In practical terms, these findings have profound implications across multiple domains where effective communication is key, including marketing, politics, and interpersonal communication. Recognizing that present tense verbs can make messages more persuasive by increasing their concreteness provides a valuable tool for anyone aiming to deliver impactful and influential communications. Hence, from crafting persuasive proposals to making compelling reviews or writing engaging articles, the practical implications of these findings are far-reaching, underscoring the substantial real-world relevance of this research. Now more than ever, communicators find plenty of opportunities to have their voice heard: An estimated 95% of people read user-generated reviews before making a purchase (Spiegel, 2021).

Despite significant findings, this research is not without limitations, and these limitations provide exciting avenues for future investigation. In focusing on the speaker's role in communication (choosing different tenses), the present investigation did not consider how certain audiences might differently respond to verb tense. In our theory, we propose a potent present tense due to its grounding in the 'here and now,' yet it is possible that certain people, such as creative experts, might uniquely be better equipped to envision and engage with distant times (Ersner-Hershfield et al., 2009; Meyer et al., 2019; Waytz, Hershfield, & Tamir, 2015). These people may represent the past, present, and future in equally vivid terms – or at least be capable of as much – and prove less responsive to variations in verb tense. Similarly, cultural differences may also modulate reactions to verb tenses, as specific societies have unique conceptualizations of time that are deeply embedded in their language and culture (Fulmer et al., 2014). Some cultures may place a higher emphasis on historical legacy or future aspirations, which could

affect their perception and interpretation of the past, present, and future tenses (Ji et al., 2009). Future research could delve deeper into these individual differences, investigating how personal, cultural, and cognitive attributes shape the perception and interpretation of verb tenses.

Although our results align with the hypotheses initially formulated— that specific verb tenses induce changes in the perceived construal level of communication—this interpretation must be seen in light of the inherent restrictions of the mediation tests conducted (Fiedler, Harris, & Schott, 2018). This implies that other potential mechanisms, particularly in Studies 3 and 4 where psychological distance was not directly manipulated, could be contributing to the observed effects. To assuage these concerns, we adopt a moderation-of-process design in Study 5, providing stronger causal evidence that psychological distance and its reliable correlate—level of construal (Fujita et al., 2006; Trope & Liberman, 2010)—play a critical role for understanding the observed effects. Furthermore, we recognize that, like many studies examining online reviews (Dai et al., 2020; Ludwig et al., 2013; Mudambi & Schuff, 2010), we are not immune to the inherent limitation of possibly including bot reviews. However, our meticulous approach of integrating dozens of covariates and use of high-quality data sets offer a substantial counterbalance to this potential issue. As well, while our studies 1-3 and 5 did not directly measure purchase intentions, we note that previous literature has shown a strong link between review helpfulness and purchase behavior (Dai et al., 2020; Lee & Choeh, 2020; Zhang et al., 2014), adding value to our focus on review helpfulness. Lastly, while our work focuses on written communication, future investigations could extend our findings into the realm of auditory communication, specifically examining how verb tense influences perceptions and interpretations in spoken narratives or storytelling.

Open Practices

Open Data: https://osf.io/wkau6/?view_only=86db42d3a94a43bc8acd7a402e13dab3

Pre-registration:

Our pre-registrations detailed the overall design of both studies, procedural methodology, and analysis plans. However, the analysis plans did not provide specific parameters to constrain research degrees of freedom.

Study 3: https://aspredicted.org/Y1R_KQC

Study 4: https://aspredicted.org/48W_YVF

Study 5: https://aspredicted.org/FTV_4QC

Open Materials:

See OSF for materials used across Studies 3-5.

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