Chapter 5

Construal Level Theory and Online Truth Judgments: Investigating the Role of Spatial Proximity and Construal Level Congruency

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Abstract

The present study contributes to the recent literature on online cognitive heuristics by adopting a construal level theory (CLT) approach and investigating how truth judgments of tweets are influenced by the available psychological distance cues in message contents and the construal level orientation of participants. According to CLT, psychologically close events (i.e., spatially, temporally, socially and hypothetically close) are represented concretely whereas psychologically distant ones are represented abstractly. Therefore, psychologically proximal (vs. distant) stimuli are expected to be processed more congruently when matched with a concrete (vs. abstract) mindset. In an experiment we tested whether ambiguous tweets about various news items and events will be perceived to be truer when there is a congruency between the psychological distance cues in the tweet content (i.e., spatially close vs. far) and the construal level orientation of the participant (i.e., concrete vs. abstract mindset). Based on CLT, we expected the tweets involving spatially close (vs. spatially far) distance cues to be judged faster and more often as true when participants read them while maintaining a concrete mindset (vs. an abstract mindset). Findings did not support the hypothesis as no interaction effect between construal level and psychological distance was observed for reaction times or truth judgments. Results, however, revealed a main effect of psychological distance whereby tweets involving close psychological distance cues were overall judged faster and more often as true. In light of the findings we discuss the potential of applying CLT to understanding people’s heuristic online credibility perceptions.
From choosing hotels and restaurants to getting advice on health and financial decisions, people increasingly rely on online information to make judgments regarding various aspects of their lives (Fox & Duggan, 2013; Horrigan, 2008; Purcell & Rainie, 2014). The Internet’s emergence as a major information source brings new concerns regarding the quality of information users are exposed to (Eysenbach, Powell, Kuss, & Sa, 2002; Kata, 2010; Mendoza, Poblete & Castillo, 2010; Zubiaga & Ji, 2014). The vast amount of available information together with factors like the lack of editorial processes and source anonymity create an ambiguous information environment and bring new responsibilities for users when judging what constitutes truth on the Internet (Danielson, 2006; Flanagin & Metzger, 2007; 2008; Johnson & Kaye, 2014). Given the high reliance on online information in every aspect of people’s lives, it becomes crucial to understand the processes by which users’ judge the veracity of online information.

While we might expect online users to approach the new responsibility of finding quality information by systematically evaluating the information they get, mounting evidence suggests they usually do not engage in effortful verifications (Flanagin & Metzger, 2000; 2007; Hilligoss & Rieh, 2008; Metzger & Flanagin, 2013; Metzger, Flanagin & Medders, 2010; Metzger, Flanagin, & Zwarun, 2003; Sundar 2008). Previous research has shown that users ignore important credibility indicators such as source and recentness of information, and rather rely on readily available cues like how many times a message is “liked” and shared, or how visually appealing the design of a website is (Fogg et al., 2003; Fox, 2006; Fox & Rainie, 2002; Metzger et al., 2003; Wathen & Burkell, 2002). This tendency of users to rely on available cues and effortless strategies has led researchers to investigate heuristics that might guide online credibility judgments (Metzger & Flanagin, 2013; Metzger, Flanagin & Medders, 2010; Sundar, 2008; Sundar, Knobloch-Westerwick, & Hastall, 2007). So far, different heuristics that can influence credibility perceptions have been proposed. For instance, it has been suggested that when online information addresses more sensory modalities (e.g., audiovisual instead of only text; realism heuristic), is shared or liked more times (endorsement heuristic), comes from a recognizable source (reputation heuristic), or is in line with users’ expectations (expectation violation heuristic), it is perceived as more credible (Metzger & Flanagin, 2013; Metzger, Flanagin & Medders, 2010; Sundar, 2008).

These heuristics identified in previous literature mainly focus on the technological, interactive and design aspects of online information.
However, recent research based on construal level theory (CLT) has pointed out that there might be other heuristics that are instigated by cues embedded in the content of online messages (Sungur, Hartmann & van Koningsbruggen, 2016; Sungur, van Koningsbruggen & Hartmann, 2017). Two main concepts of CLT, (1) psychological distance cues, which are spatial, temporal, social, and likelihood information in online messages and (2) construal level or the level of abstraction or concreteness of mental representations have been suggested to systematically influence credibility related perceptions (Hansen & Wänke, 2010; Kim, Rao & Lee, 2009; Wright et al., 2012). In the present study, we aim to extend past applications of CLT to understanding online credibility judgments. Specifically, we examine if the congruency between psychological distance cues embedded in online message content and users’ construal level influences truth judgments.

**Construal Level Theory and Online Truth Judgments**

CLT is a psychological theory that examines the relationship between the psychological distance of events and the way they are mentally construed and evaluated. According to CLT, as distance of events from people’s immediate experience increases, the representation of the events becomes more abstract (Bar-Anan, Liberman & Trope, 2006; Trope & Liberman, 2010). For instance, one’s thoughts about an approaching holiday may include concrete details such as the day of the flight, tasks to be completed before leaving, or activities to do at the holiday destination. However, thinking about a holiday a year from now, one would tend to not focus on such concrete details but rather think about the more general and stable aspects of holidays, such as that it would involve relaxation and fun. This relationship between distance and level of representations, that is, construal level, forms the first assertion of CLT: proximal stimuli are construed concretely and in rich detail while distant stimuli are construed abstractly and in a generalized manner (Bar-Anan, Liberman & Trope, 2006; Trope & Liberman, 2010).

While the holiday example focuses on the temporal distance dimension, other factors that create distance from people’s immediate experience trigger similar effects. According to CLT, these other dimensions are: spatial distance (i.e., here vs. far away), social distance (i.e., me vs. others) and hypothetical distance (i.e., real vs. hypothetical situations). Together with temporal distance (i.e., now vs. past/future), these distances form the four dimensions
of psychological distance (Liberman, Trope & Stephan, 2007). According to the second assertion of CLT, the four psychological distance dimensions are cognitively interrelated (Bar-Anan, Liberman, Trope & Algom; 2007; Trope & Liberman, 2010). The reason is that, these dimensions all define the ways in which stimuli can be close or be removed from people’s immediate experience and consequently determine the implications that stimuli have for people. Because of this, the different distance dimensions are said to share a common meaning based on psychological distance and are cognitively associated (Bar-Anan, Liberman, Trope & Algom; 2007; Maglio, Trope & Liberman, 2013a; Trope & Liberman, 2010). Moreover, these dimensions tend to be experienced together; people’s immediate experiences involve an actual event (i.e., low hypotheticality) that they themselves (i.e., close social distance) experience here (i.e., close spatial distance) and now (i.e., close temporal distance). The same association applies to far distances as well, for instance, future events (i.e., far temporal distance) tend to be more hypothetical than certain, or spatially distant events tend to happen to other people (i.e., far social distance) than us. Accordingly, CLT asserts that, when people lack information regarding a psychological distance dimension such as the location of an event, they may infer it from the information they have on other psychological distance dimensions (Maglio, Trope & Liberman, 2013b). For example, when people know that an event has a low probability (i.e., high hypothetical distance), they tend to infer that the event took place in a distant location or time (i.e., high spatial and temporal distance) rather than a close location or time (Sungur et al., 2017; Wakslak, 2012).

CLT and Truth Judgments

Scholars first adapted the CLT framework to understanding credibility related judgments in offline contexts. These initial studies have shown several different processes within the CLT framework that can enhance truth perceptions. One of the findings of these earlier studies was that concretely written statements (e.g., using more descriptive action words) are perceived to be truer compared to abstractly written statements (e.g., using more adjectives) (Hansen & Wänk, 2010). Similarly, statements are found to be truer when participants were primed to have concrete mindset (i.e., low-level construal) as opposed to abstract mindset (i.e., high-level construal, Wright et al., 2012). The enhanced truth finding for linguistic concreteness was attributed to the detailed, vivid nature of concrete statements (Hansen & Wänke, 2010). The ease that one can vividly represent and imagine events has been shown to increase how likely the events are perceived (Carrol, 1978;
Gregory, Cialdini, & Carpenter, 1982; Sherman, Cialdini, Schwartzman, & Reynolds, 1985). Similarly, the enhanced truth perceptions for low-level concrete construal is also explained by the tendency to have increased likelihood perceptions in concrete mindsets and decreased likelihoods for the abstract mindsets (Wakslak & Trope, 2009; Wakslak, Trope, Liberman & Alony, 2006). In conclusion, enhanced truth judgments for concreteness has been attributed to the vividness, ease of imagination and increased likelihood perceptions.

Other findings from the previous applications of the CLT framework have shown the effect of congruency among the CLT elements for enhancing credibility related perceptions. For instance, trivia statements were more often perceived as true if they contained psychological distance information with congruent distance dimensions (e.g., socially and temporally close or socially and temporally far) as compared to psychological distance information with incongruent distances (e.g., socially close but temporally far or socially far and temporally close) (Wright et al., 2012). Another study showed that when construal level of statements of a politician with regards to an election (i.e., focusing on how or why) and the temporal distance of the election (i.e., temporally close or far) were congruent (i.e., how and temporally close, why and temporally far), the persuasiveness of the politician’s message was enhanced (Kim, Rao & Lee, 2009). Furthermore, these early studies provided preliminary evidence that truth perceptions are enhanced when linguistic concreteness of statements matches the concreteness of the mindset of the readers (i.e., reading concretely written statements after a concrete mindset manipulation and abstractly written statements after an abstract mindset manipulation; Henderson et al., 2006).

The enhanced truth judgment observed in these cases have been explained by ease of processing or processing fluency that arise from congruency (Alter & Oppenheimer 2009; Kim et al., 2009; Schwarz, 2004). Processing fluency is a metacognition that signals the ease of mental operations (Alter & Oppenheimer, 2008; 2009; Oppenheimer, 2008; Reber & Unkelbach, 2010). An easy and fluent evaluation of information has been shown to instigate positive cognitions including feelings of truth (Alter & Oppenheimer, 2009; Forster, Fabi & Leder, 2015; Reber & Schwarz, 1999; Winkielman, Schwarz, Fazendeiro, & Reber, 2003). Given the association among psychological distance dimensions, statements that involve congruent psychological distances (i.e., both close and both far), are also suggested to be processed easier than statements involving incongruent distance information (Alter & Oppenheimer, 2009; Wright et al., 2012). This ease of processing
then is suggested to explain the enhanced truth perceptions. Moreover, it has been suggested that when there is a congruency or fit between mindset and processed information, this fit creates a fluency (Alter et al., 2007; Higgins 2000; Higgins et al. 2003). Consequently, truth perceptions are suggested to be enhanced when there is a congruency as opposed to when there is no congruency among psychological distance dimensions and among psychological distance and construal level.

Based on these earlier findings, two separate CLT mechanisms can be proposed that might be influencing truth perceptions. Firstly, it can be stated that concreteness as opposed to abstractness increases truth perceptions due to factors like vividness and ease of imagination. Secondly, congruency within the CLT elements can enhance truth perceptions. This congruency can be achieved among psychological distance dimensions. Messages that contain psychological distance cues with similar distances (i.e., both close or far distances) should appear to be truer than messages containing dissimilar distances (i.e., close on one dimension and far on the other) due to ease of processing. Similarly, congruency between construal level and psychological distance dimensions should enhance truth perceptions also due to easier and more fluent processing. People should tend to rate psychologically distant (vs. close) information as truer, for example, if they are in an abstract (vs. concrete) mindset.

CLT and Online Truth Perceptions
While there has been some research on CLT and truth perceptions in offline contexts, further investigation of CLT propositions with regard to online information is required as it has been suggested that psychological distance dimensions may not be similarly associated in online contexts as they are in offline contexts (Backstrom, Sun & Marlow, 2010; Katz & Byrne, 2013; Norman, Tjomsland, & Huegel, 2016). While people tend to experience dimensions with similar distances in offline contexts (e.g., here and now), it is more common to repeatedly experience situations where psychological distance dimensions with different distances co-occur in online contexts (e.g., not here but now). For instance, people can engage in live video conversations with people from the other side of the world (e.g., not here but now) or similarly can ignore to respond to an email from a person in the next office (e.g., here but not now). Particularly, it is suggested that the prominence of spatial distance is diminished in online contexts (Cumiskey, 2011; Guadagno, Muscanell, Rice & Roberts, 2013; Kaltenbrunner et al., 2012; Lim, Cha, Park, Lee & Kim, 2012; Norman, et al., 2016). Due the
different consequences of distance as well as the abundance of unique psychological distance cues in online contexts, application of CLT to online credibility judgments requires further investigation.

Applying CLT to understanding online truth judgments is a rather new endeavor. So far only a few studies investigated the influence of CLT-factors on credibility-related outcomes in online contexts and provided initial evidence that psychological distance dimensions are similarly associated in online contexts as in offline contexts (Sungur, et al., 2016; 2017; on persuasion: Kim et al., 2009; Zhao & Xie, 2011). Specifically, they showed that online users utilize probability (i.e., hypothetical distance) and spatial distance cues within tweets: users attribute tweets with low probability outcomes to spatially distant locations and tweets with high probability outcomes to spatially close locations. Furthermore, another study has shown that online news items with ambiguous baseline plausibility (i.e., not perceived as extremely plausible or implausible) were perceived to be more likely to the extent that the described events happened in socially close countries (Sungur, Hartmann, van Koningsbruggen, 2018). Finally, another study demonstrated that the believability of a spatially distant news event was enhanced among participants reading it in an abstract mindset as compared to a concrete mindset (Sungur et al., 2016). This latter finding suggests that congruency between psychological distance cues embedded in the online information and people’s construal level when processing this information affects the believability of online content.

The Present Study

While these initial studies linking CLT to online credibility judgments have merit, they also leave unanswered questions. Accordingly, the aim of the present research is two-fold: Firstly, to advance our theoretical understanding regarding how construal level and psychological distance cues in online contexts jointly influence people’s truth judgments. So far, only one study examined the congruency between user’s construal level and the psychological distance information with regards to believability of online messages (Sungur et al., 2016). This study demonstrated that an online news report about a spatially distant event became more believable if participants maintained an abstract mindset as compared to a concrete mindset. However, believability perceptions did not increase among participants reading a spatially close news item in a concrete mindset. Therefore, in the present study, we aim to follow up on this research to examine to what extent the congruency between mental representations and psychological distance
information, specifically in the form of spatial distance, within the content of online messages influences users’ truth perceptions. Based on the CLT propositions relating to truth, our main hypothesis is that truth perceptions of online information will be higher when there is a congruency between users’ mindset and the online content: psychologically close online messages (taking place in spatially proximal locations) should be more believable when evaluated in a concrete mindset, and psychologically distant online messages (i.e., taking place in spatially distant locations) should be more believable when evaluated in an abstract mindset.

The second aim of the present study was to address some of the methodological shortcomings of previous research. Sungur et al. (2016) investigated the construal level and psychological distance congruency by asking participants to judge the believability of only one specific news item. Even though single stimuli designs are widely used in media psychological research, such designs have only limited generalizability compared to multiple stimuli designs (O’Keefe, 2015; Reeves, Yeykelis, & Cummings, 2016). In the present study we, therefore, aimed to address this limitation by using multiple stimuli. Instead of using only one online news report, in the present study participants had to judge the veracity of 20 tweets by responding whether they found them to be true or false. In addition to the truth judgments, we included a reaction time measure to take a closer look at how fast the information was judged. Given the association between processing fluency and reaction times (i.e., higher fluency is related to faster reaction times; Schooler & Hertwig, 2005), we hoped to provide some additional information with regards to the proposition that truth outcomes that involve congruency of CLT elements are instigated via processing fluency.

Method

We conducted a lab experiment that employed a 2 (Construal level: Low vs. High) x 2 (Psychological distance: Close vs. Far) mixed factorial design to test the effect of construal level and psychological distance congruency on truth perceptions. Construal level constituted the between-subjects factor whereas psychological distance, respectively its operationalization based on spatial distance, was manipulated within subjects.
Participants
One hundred and twenty VU University Amsterdam students participated in the study for course credit or in return of 2 Euros as well as a chance to win a cinema voucher for 10 Euros. Prior to data collection, inclusion criteria were set to identify what data were eligible for analysis. According to these criteria, participants were required to have a good command of Dutch language (i.e., speak it longer than 6 years) and follow the instructions of the construal level manipulation task adequately ($n = 3$ [language] and $n = 8$ [instructions] participants did not fulfill these criteria). The final sample consisted of 109 participants (55 women, 54 men; $M_{age} = 22.18$ years and $SD_{age} = 2.15$).

Materials

**Construal level manipulation.** Construal level was manipulated by a computerized version of the How and Why task (Freitas, Gollwitzer & Trope, 2004). The How and Why task primes construal levels by focusing participants on the how or why of performing actions (Wakslak & Trope, 2009; Freitas et al. 2004; Fujita, Trope, Liberman, & Levin-Sagie, 2006). Low-level construals are primed by prompting participants to think about *how* to perform an action such as turning the key to lock a door, while high-level construals are primed by prompting participants to think about *why* to perform the action, in this case locking the door to secure the house (Vallacher & Wegner, 1987). In the present study, participants were randomly assigned to the How or Why condition. In the How condition, participants received a goal (“Improve and maintain physical health”) and were asked “how” (e.g., by going to the gym) to achieve this goal. In the Why condition, participants received the same goal and were asked “why” (e.g., to live longer) they would like to achieve it (see Figure 1). Participants had to answer “how” or “why” four times, in each case responding to a prior self-given response. Each response was coded based on whether they fulfill the assigned “how?” or “why?” question following procedure by Freitas et al., (2004). Participants were required to give at least three appropriate responses for the manipulation to be deemed successful.

**Psychological distance manipulation.** In the present study, participants were asked to read and assess 20 different tweets. Psychological distance was manipulated by varying the spatial distance information in these 20 tweets. Half of the tweets took place in different locations within the participants’ country (e.g., The Netherlands, Amsterdam, Utrecht; close
psychological distance), while the other half took place in distant countries and cities (e.g., Australia, Japan, New York; far psychological distance). Events depicted in the tweets were fictional and they covered various different topics such as local news (e.g., A new shop for recycling cellphones has opened near the university campus) and trivia statements (e.g., South America hosts the highest number of animal species in the world) (see Appendix I). Even though the tweets were fictional, they involved events or information that could potentially happen in the given locations. We wanted the tweets to be ambiguous in their truthfulness such that they had to be judged under uncertainty and could not be quickly discarded as false or accepted as true based on common knowledge.

In order to ensure this ambiguity, tweets were selected based on a pilot study. In the pilot study, participants ($N = 20$) were asked to judge the ambiguity of 50 fictitious tweets (25 spatially close and 25 spatially distant). Participants were told that the tweets were retrieved from Twitter during the preceding four months. Furthermore, participants were informed that some of the tweets contained correct while others contained incorrect information. Participants reported how sure they were regarding the truthfulness of the tweets (1 = I am completely sure this is false, 4 = neutral, 7 = I am completely sure this is true). In addition to this ambiguity question, participants judged how easy it was to understand the statements in the tweets, because ease of processing has been shown to influence truth perceptions (Reber & Unkelbach, 2010) (“This tweet was easy to understand”: 1 = strongly disagree, 7 = strongly agree). Based on the pilot study, we selected 10 spatially close and 10 spatially distant tweets which consistently received mid-scale scores (between 3 and 5) on ambiguity. The selected spatially distant and far tweets were judged equally ambiguous ($M_{close} = 4.47, SD_{close} = .78; M_{far} = 4.48, SD_{far} = .64; t(19) = .07, p = .94, Cohen’s $d = .01$) and easy to understand ($M_{close} = 6.16, SD_{close} = .99; M_{far} = 6.01, SD_{far} = .92; t(19) = 1.45, p = .17, Cohen’s $d = .16$).

**Measures**

**Truth perceptions.** Truth perceptions were measured by asking participants to press “L” for True and “A” for False on their keyboards. For each tweet participants had to make a choice between True or False as fast as possible. Participants were given only 5 seconds per tweet to respond. This way, in addition to creating the natural heuristic evaluation conditions, we could also keep the duration of the experiment after the How and Why
task short and similar for all participants. Previous research has shown that Twitter users spend on average three seconds to read a tweet (Counts & Fisher, 2011) and between 2.4 and 3.2 seconds to form a credibility judgment (Robins, Holmes & Stansbury, 2010); therefore, we concluded five seconds should be sufficient for each presented tweet. If a participant did not respond within the given five seconds, no further response was recorded, these cases amounted to a total of 3.03% of all responses. After collecting responses to all 20 tweets, two separate truth scores for close and far tweets were created by calculating the percentages of “true” responses to all valid responses in each distance category (Close tweets: $M = .62$, $SD = .15$; Far tweets: $M = .57$, $SD = .18$)

**Reaction times.** Participants’ reaction times for choosing True or False for each tweet were measured in milliseconds. An average reaction time score for close and far tweets was calculated (Close tweets: $M = 2803.58$, $SD = 544.4$; Far tweets: $M = 2987.38$, $SD = 538.02$).

**Control questions.** We measured participants’ familiarity with Twitter (“How familiar are you with Twitter?” 1 = very unfamiliar, 5 = very familiar) and trust in Twitter (“I trust the information on Twitter”, 1 = totally disagree, 5 = totally agree). Participants had medium levels of familiarity with ($M = 3.15$, $SD = 1.1$) and trust ($M = 2.94$, $SD = .94$) in Twitter. In addition, participants in the How and Why conditions did not differ in terms of familiarity with Twitter ($t(107) = -1.28$, $p = .20$, Cohen’s $d = 0.25$) or trust ($t(107) = 1.36$, $p = .19$, Cohen’s $d = 0.03$). After the demographic questions (i.e., age, sex, handedness – right, left or both hands, language proficiency), we asked participants to indicate what they thought the study was about to check awareness of our hypotheses. No participant was able to guess the aim of the study.

**Procedure**
Participants were individually seated in cubicles of the lab. They received a short practice session to get familiarized with the time constrained nature of the truth judgment task. This was done as a first task and even before the construal level manipulation in order to minimize the time between exposure to the manipulation and participants’ truth ratings. Participants were told that the training was needed for an unrelated study they would be asked to complete later on and that it was conducted at the start so they will not be distracted again until they were finished. In the practice session,
participants received ten tweets and had to respond within five seconds. Once participants reported that they were comfortable with the task, they could begin with the actual study. After the training, participants completed the How and Why task. Participants were told that this was a new thought exercise. After the How/Why task, the screen color and layout changed and participants were told they were going to begin with the other study they earlier trained for. Participants received the 20 tweets in a randomized order. Similar to the pilot, participants were told that the tweets were taken from various Twitter accounts and anonymized for the purpose of the study. In addition, participants learned that some of the tweets were actually true and others false and that they should report their own truth judgments as fast and accurately as possible. Finally, participants received the demographic and control questions. At the end of the study participants were debriefed regarding the fictitious nature of the tweets. The experiment took about 15 minutes to complete.

## Results

### Manipulation Check

Responses to the How and Why task were coded following the recommendations by Freitas et al., (2014). A response received a score of +1, if it fulfilled the why-criterion “X by Y”, X being the response and Y being the prompt (e.g., live longer by maintaining and improving physical health). A response received a score of -1 if it fulfilled the how-criterion “Y by X” (e.g., maintain and improve physical health by going to the gym). A response received a score of 0 if it did not follow these two rules. Higher scores (a maximum of 4) were indicative of a successful manipulation, participants exposed to the How task ($M = -3.93, SD = 0.26$) received significantly lower scores compared to participants exposed to the Why task ($M = 3.78, SD = 0.42$), $t(89.5) = 117.27, p < .001, \text{Cohen's } d = 22.5$).

### Control Variables

There was no effect of handedness on truth judgments or reaction times (see Table 1). While trust in Twitter did not correlate significantly with any of the dependent variables, familiarity with Twitter was significantly and positively correlated with reaction time for spatially close tweets ($r = .21, p < .05$). There was also a significant positive correlation between Twitter familiarity and trust ($r = .26, p < .05$) (See Table 2).
Truth Judgments
The effects of construal level and psychological distance on the truth perceptions of tweets were analyzed with a mixed ANOVA with psychological distance as the repeated measure and construal level as the between-factor. Results revealed a main effect of psychological distance, \( F(1, 107) = 6.24, p = .014, \eta^2_p = .055 \). Participants found spatially close tweets significantly truer (\( M = .62, SD = .15 \)) than spatially far tweets (\( M = .57, SD = .18 \)). We observed no main effect of construal level, \( F(1, 107) = .42, p = .52, \eta^2_p = .004 \). Importantly, and in contrast with our main hypothesis, the construal level and psychological distance interaction was also not significant, \( F(1, 107) = .06, p = .81, \eta^2_p = .001 \).

Reaction times
Reaction times were analyzed with a mixed ANOVA with psychological distance as the repeated measure and construal level as the between-factor. Results were in line with the truth judgment scores. A main effect of psychological distance was found on reaction times, \( F(1, 107) = 22.18, p < .001, \eta^2 = .17 \). Participants made truth judgments faster for spatially close tweets (\( M = 2805.66, SD = 544.4 \)) than spatially distant tweets (\( M = 2987.03, SD = 538 \)). The main effect of construal level, \( F(1,107) = .14, p = .71, \eta^2_p = .001 \) as well as the interaction between construal level and psychological distance, \( F(1,107) = 1.8, p = .182, \eta^2_p = .017 \) were not significant.

Since familiarity with Twitter had a significant correlation with the reaction time for spatially close tweets we reran the analysis with Twitter familiarity as a covariate. The overall pattern of results did not change. Psychological distance still showed a significant main effect on reaction times, \( F(1,105) = 8.96, p = .003, \eta^2_p = .079 \) and there was no main effect of construal level, \( F(1,105) = 1.12, p = .293, \eta^2_p = .011 \) or an interaction between construal level and psychological distance, \( F(1,105) = .75, p = .39, \eta^2_p = .007 \). Furthermore, familiarity with Twitter did not have a main effect, \( F(1, 105) = 2.77, p = .1, \eta^2 = .026 \); did not interact with construal level, \( F(1, 105) = 1.12, p = .29, \eta^2_p = .011 \) or psychological distance, \( F(1, 105) = 2.43, p = .12, \eta^2 = .023 \). Similarly, there was no interaction effect between construal level, psychological distance and familiarity with Twitter, \( F(1, 105) = .27, p = .61, \eta^2_p = .003 \).
Discussion

In the present study, we tested the proposition that a congruency between user’s construal level (concrete, low-level vs. abstract, high-level) and psychological distance cues (close vs. far) embedded in the content of online messages would influence truth perceptions of these messages. Specifically, we expected higher truth perceptions for congruent matching of construal level of the mindsets and psychological distance of the messages. However, results did not support our prediction: no interaction was observed between construal level and the distance within messages on truth perceptions or on reaction times. Instead, our results demonstrated a main effect of psychological distance: tweets that included spatially close information were judged faster and more often as true than tweets involving spatially distant information. This finding suggests that psychological closeness in online messages increases truth perceptions.

Congruency and Truth Perceptions

In the current study, we did not observe the predicted interaction effect between construal level and psychological distance on truth perceptions. While the association between construal level and psychological distance has been well established in CLT literature (Bar-Anan et al., 2006; Fujita et al., 2006; Liberman & Trope, 1998; Wakslak et al., 2006), potential effects of congruency on a different outcome -like truth perceptions- have not yet been fully explored. It is possible that observing the effect of congruency on another variable is harder than simply observing that there is an association.

Nevertheless, the current finding is inconsistent with two earlier studies demonstrating congruency effects on truth perceptions (Hansen & Wänke, 2010; Sungur et al., 2016). In an offline context, Hansen and Wänke (2010) found that statements were perceived to be truer when the mindset of participants was congruent with the statements’ psychological distance. While Hansen and Wänke also used the How and Why task to manipulate construal level, they primed psychological distance perceptually by varying the location of the stimuli (i.e., foreground vs. background in pictures). In the current study, however, psychological distance was manipulated conceptually by embedding spatial distance cues within tweets. Based on these differences, it could be argued that a perceptual representation of distance might be a stronger cue of psychological distance than a conceptual spatial distance information embedded in tweet contents. Consequently, it can be suggested that observing the congruency effect depends on the specific ways in which
psychological distance and construal level are operationalized and contexts that congruency is achieved.

At the same time, it should be noted that Sungur et al. (2016) did observe a (partial) congruency effect by using the How and Why task and manipulating psychological distance within the text of an online message. In their study participants reported enhanced believability perceptions when maintaining an abstract mindset and judging a spatially distant event, but psychological distance did not influence perceptions when participants maintained a concrete mindset. Participants made, however, only one judgment, while participants in the current study made multiple judgments. It could be that the mindset manipulation in the present study was not strong enough to exert influence on multiple judgments.

Another explanation could be that in the present study the close distance manipulation might have been stronger than in the previous study. In the previous study, spatial closeness was induced by using the country name of the participants (i.e., US) as the location of the news event. The authors argued that this might have been a rather general and not very specific way of inducing psychological closeness. In the present study, however, closeness was induced by more proximal and concrete examples such as the participants’ university campus or cities that they live in. It might be therefore possible that the vividness or ease of imagination of these more proximal and concrete stimuli have had a stronger influence that might have overshadowed other priming effects. Given that responses were also given under time pressure; the distance cues might have been more salient than the mindset manipulation when responding. Overall, even though at this point inconclusive, the discussed differences between stimuli and methodologies used in this versus other studies might partly explain the present findings.

Psychological Distance and Truth Perceptions

Even though we were unable to show a congruency effect, we did observe a main effect of psychological distance; tweets depicting events taking place in spatially close locations were judged more often to be true than spatially distant ones. The reaction times revealed a similar pattern as the truth ratings; spatially close tweets were overall judged faster than spatially distant ones. These findings are in line with previous CLT studies on truth perceptions (Hansen & Wänke, 2010, Wright et al., 2012). It has been shown that concretely written statements enhance truth perceptions compared to abstractly written statements (Hanse & Wänke, 2010). Like concretely written statements, psychologically close information is also more vivid,
detailed, and specific compared to psychologically distant information. It has been suggested that the concrete representations, due to their detailed and vivid nature are easier to imagine and thus perceived as truer.

The same reasoning can also be applied to the current findings. It is likely that participants could imagine the statements in tweets about spatially close locations easier than tweets about spatially distant locations due to their higher concreteness. It is possible that these highly concrete representations were also easier to imagine and easier to make sense of than tweets involving information about far distances that are represented more abstractly. For instance, a participant reading a tweet about a new shop for recycling smart phones on her campus has can more vividly represent this information; thus she might more easily feel it to be true. In contrast, the same participant reading a tweet about a distant unfamiliar American town would probably find it more difficult to imagine this concretely, resulting in a weaker inclination to immediately perceive the tweet to be true. This assumption is also in line with findings suggesting that online news events of ambiguous baseline plausibility (i.e., not entirely plausible or implausible) are judged to be more likely if they presumably take place in socially close contexts (Sungur et al., 2018). The fact that psychologically close tweets triggered faster reaction times than distant tweets also support the assumption that they were indeed processed more easily.

**Implications**
The current findings have several implications for online cognitive heuristics and CLT literature. Firstly, the increased truth perceptions for spatially close tweets from the current study adds to growing evidence on the existence of an online credibility heuristic based solely on psychological distance. Taken together with previous findings which showed that likely tweets are attributed to spatially close locations (and unlikely tweets to spatially distant locations) (Sungur et al., 2017) and that online news events are deemed to be more likely in socially close locations as opposed to socially distant ones (Sungur et al., 2018), it seems that online users indeed employ psychological distance cues in online messages as a heuristic in judging the believability of online information. Based on this converging evidence, we can expect that ambiguous online information will be judged to be more credible to the extent that it is psychologically close.

This finding also has important implications for persuasive communication where perceptions of truth, believability or likelihood are often critical. The current findings might be especially relevant for
communicating topics like climate change (Lorenzoni, Nicholson-Cole & Whitmarsh, 2007; Spence, Poortinga & Pidgeon, 2012) and distant tragedies (Joye, 2015), where psychological distance seems to be an obstacle in persuading message receivers. Accordingly, senders (e.g., experts or journalists) might increase the believability of their messages by taking the receiver’s psychological distance into account and making the events feel closer by presenting information with regards to spatially, socially, temporally or hypothetically closer contexts.

Secondly, the existence of a distance effect but the lack of a congruency effect between the mindset construal and psychological distance information might imply that these two CLT mechanisms exert a different amount of influence on truth perceptions. It could be that psychologically close information, due to being more concrete, vivid and easier to imagine generally leads to higher truth perceptions. The congruency between the construal level and the psychological distance on the other hand, could have a weaker influence. Even more, perhaps once proximity related cues are sufficiently strong, they might outweigh potential influences of the construal level. This would suggest a hierarchy in cues that users rely on when heuristically forming truth judgments, according to which they would first rely on psychological proximity that allows them “to picture” described events, and only if this is not sufficiently possible, would infer truth based on a matching of construal level and psychological distance.

Finally, the present study is one of the few studies to explore potential underlying mechanisms of truth outcomes within the CLT framework. Firstly, Hansen and Wänke (2010), provided evidence for the initial link between concreteness, truth and vividness by showing that concrete statements are perceived as more vivid next to being perceived as truer. They suggested that vividness contributes to the imaginability of the statements, which in turn enhances the truth perceptions. In another study, Kim et al. (2009), have shown that the effect of congruency between construal level of statements (i.e., how vs. why focus) and psychological distance of a related decision (i.e., soon or later) on the persuasiveness of messages was partially mediated by how fluently they are processed (fluency was operationalized as whether the information feels right, is ordinary and convincing vs. feels wrong, attention grabbing and not convincing). The present study adds to these previous CLT research by suggesting that ambiguous tweets involving psychologically close information are processed faster than tweets involving psychologically distant information.
Limitations and Future Research
While it is easier to control and manipulate psychological distance dimensions such as spatial distance (as in the present study) or temporal distance, it is more complicated to control the inherent hypotheticality of realistic messages. Even though we tried to ensure the ambiguousness of the presented tweets by carefully pre-testing and selecting only tweets that were consistently judged to be ambiguous, it is likely that due to differences in participants’ knowledge associated with the presented events, or maybe simply due to actual slight differences in probability of the presented fictitious events, the hypotheticality of the messages might have interfered with the extent they were perceived as true. Hypotheticality—a ubiquitous quality of any statement—might thus have been a less well-controlled factor in our stimuli messages. One should take this limitation into account when interpreting the current results as well as results from previous CLT-related research to which this limitation also typically applies.

Finally, given the lack of conceptually and methodologically consistent research focusing on the effects of congruency on outcomes such as truth or believability, we were only able to speculate about some of the current findings. Importantly, given the small number of studies that have tested the congruency effect on credibility related perceptions, especially in an online context, we need to interpret the previous and current findings with caution. More work on congruency and believability should be done using comparable manipulations and outcome variables to draw stronger conclusions regarding the existence of congruency effects on online truth judgments in the future.