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**Linguistic Style Accommodation Shapes Impression Formation and Rapport
in Computer-Mediated-Communication**

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Abstract

Communication accommodation theory predicts that social power plays an important role in influencing communicative behaviors. Previous research suggests these effects extend to linguistic style, thought to be a non-conscious aspect of communication. Here, we explore if these effects hold when individuals converse using a medium limited in personal cues, computer-mediated-communication (CMC). We manipulated social power in instant messaging conversations and measured subsequent interpersonal impressions. Low power induced greater likelihood of linguistic style accommodation, across between- (Study 1) and within-subjects (Study 2) experiments. Accommodation by those in a low power role had no impact on impressions formed by their partner. In contrast, linguistic style accommodation by individuals in a high-power role was associated with *negative* interpersonal impressions formed by their lower power partner. The results show robust effects of power in shaping language use across CMC. Further, the interpersonal effects of linguistic accommodation depend upon the conversational norms of the social context.

Keywords

communication accommodation theory, computer-mediated communication, social power, impression formation, linguistic style

1 **Linguistic style accommodation shapes impression formation and rapport in computer-** 2 **mediated-communication**

3

4 In modern life, computer-mediated-communication (CMC) is pervasive and abundant, taking
5 a variety of forms including email, social media, blogs, online community forums and more.

6 How CMC shapes the ways in which we communicate, the development and maintenance of

7 relationships, and the interpersonal effects of changing communication technologies, is a

8 continuing focus in interpersonal CMC research (Walther, 2011). In an organizational

9 context, communication technologies such as instant messaging enable teams to

10 communicate over great distances. Many organizations are now using instant messaging as a

11 tool to facilitate collaboration amongst geographically dispersed teams (Handel & Herbsleb,

12 2002). Instant messaging is quicker and more convenient compared to email or telephone

13 calls, as messages are sent and received instantly. In some organizations instant messaging is

14 used more than twice as often than face to face meetings or telephone calls (Quan-Haase,

15 Cothrel, & Wellman, 2005).

16 One concern about the increasing use of instant messaging in organizations relates to

17 how virtual team members develop good relationships when they do not physically see or

18 interact with one another. This is especially relevant for relationships between different

19 levels of organizational hierarchy, such as supervisors and subordinates; managers can find

20 maintaining positive working relationships and good levels of rapport with virtual team

21 members particularly challenging when relying on instant messaging to communicate

22 (Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002). Some research claims this is due to

23 increased social distance between supervisors and subordinates, created by the reduced

24 richness of nonverbal and social cues when communicating using instant messaging (Quan-

25 Haase et al., 2005). Thus, the characteristics of CMC may impact on effective

26 communication, which in turn influence the development of social and task-related
27 relationships, both of which are thought to be critical for the success of virtual teams
28 (Jarvenpaa & Leidner, 1998). For instance, where team members communicated effectively
29 over CMC (in terms of frequent communication, acknowledging other's contributions, and
30 providing explicit feedback on other's suggestions) this was associated with positive
31 perceptions of team members' social and task-related attractiveness, and in turn better work
32 performance (Walther & Bunz, 2005).

33 An individual's level of power or status within a relationship is already thought to
34 have an influence on how he/she communicates. Individuals in low positions of power often
35 alter their language (use of specific phrases or vocabulary) to be more like those in high
36 power. This has been observed in face-to-face conversations between individuals in high
37 (legal professionals) versus low (witnesses) positions of power in the courtroom (Gnisci,
38 2005) and computer-mediated communications between individuals of low versus high status
39 in online community forums (Dino, Reysen, & Branscombe, 2009). Communication
40 accommodation theory (Giles, 2016) defines such adaptations to our communicative
41 behaviors as *accommodation*, motivated by a desire on the part of the low powered individual
42 to affiliate with or gain the approval of their higher power partner. Further, accommodation
43 in language use is influential in interpersonal impressions and the formation of rapport
44 between conversationalists in face-to-face interactions (Jacob, Gueguen, Martin, & Boulbry,
45 2011) and in CMC (Scissors, Gill, & Gergle, 2008). Power, as either a psychological
46 construct or hierarchical structure, is thus implicated in how conversationalists construct
47 messages, and the language used in such messages then influences interpersonal impressions.

48 In this paper we are particularly interested in how power in instant messaging
49 conversations impacts on the production, perception and evaluation of an aspect of language
50 considered to be non-conscious: linguistic style. Linguistic style is defined by an individual's

51 use of function words, which are processed and produced non-consciously (Chung &
52 Pennebaker, 2007). Although most of our vocabulary consists of content words, function
53 words (such as pronouns, conjunctions, and articles) represent over half of the words used
54 during an interaction, have little independent semantic meaning, and are used to express
55 grammatical relationships within a sentence (Pennebaker, 2011). Linguistic style refers not
56 to *what* an individual says (message content) but *how* an individual conveys the message.
57 Person A's linguistic style, for example, could be to use many first-person pronouns in his or
58 her speech ("*I* love this movie, *I* can't wait until *I* see it again") whereas Person B's style may
59 be to use fewer pronouns ("*Me* too, going again soon"). Thus, accommodation on the part of
60 Person B might involve increasing the use of personal pronouns to accommodate towards the
61 style of Person A ("*I* love it too, *I*'m going again soon"). Due to their lack of independent
62 meaning, use of function words relies on shared social knowledge; thus, an individual's use
63 of function words is proposed to link to social behaviors (Tausczik & Pennebaker, 2010) and
64 be representative of interpersonal alignment between conversationalists (Ireland et al., 2011).
65 Studying accommodation in linguistic style thus provides an unobtrusive window into the
66 nature of personal relationships, and the factors influencing interpersonal communications
67 that occur outside of an individual's awareness.

68 Research shows that being in a low position of power does induce individuals to
69 accommodate their linguistic style towards that of their higher power partner in face-to-face
70 communications (Muir, Joinson, Cotterill, & Dewdney, 2016). Where conversationalists
71 accommodate their linguistic style to be similar to one another, this has also been associated
72 with positive interpersonal outcomes such as group cohesiveness (Gonzales, Hancock, &
73 Pennebaker, 2010; Taylor & Thomas, 2008), and increased perceptions of social
74 attractiveness and rapport (Muir et al., 2016). However, it is unclear the extent to which
75 these effects extend to computer-mediated forms of communication. One possibility is that

76 such effects will directly translate to messages produced and received via CMC. Such a
77 position might assume that text-based communications are a direct replication of spoken
78 language, just with less rich non-verbal cues (e.g., speech minus voice). If individuals
79 produce and perceive language in the same way using CMC as when communicating face to
80 face, we might expect to see similar effects of power upon linguistic style, and similar effects
81 of accommodation in linguistic style upon perceptions of rapport, social and task
82 attractiveness. Alternatively, theories of CMC (such as social information processing
83 theory), suggest people do not simply type out the same words they would have spoken, but
84 rather adapt to the limits of technology by choosing different words and symbols to express
85 what they want to convey (Walther, 1992). Hypothetically, this could be associated with
86 individuals using and/or perceiving function words differently in CMC compared to face-to-
87 face communications. Thus, we explore the impact of power upon accommodation in
88 linguistic style, and the relationship between linguistic style accommodation and perceptions
89 of rapport, social and task attractiveness in instant messaging, a synchronous form of
90 computer-mediated communication.

91 **Communication Accommodation Theory**

92 We draw upon communication accommodation theory (CAT: Giles, 2016) as being a
93 theoretical framework pertinent to understanding factors that influence accommodation in
94 linguistic style and interpersonal impressions in instant messaging. CAT encompasses face-
95 to-face (FtF) communications and has also been applied to a variety of online or otherwise
96 computer-mediated interactions (Gasiorek, Giles, & Soliz, 2015). Further, CAT has been
97 employed in a variety of applied contexts including the workplace, making it particularly
98 relevant for our interests. Accommodative communications are theorized to be key in
99 relationship satisfaction and success in organizations: for instance, non-accommodative
100 communications between managers and subordinates may lead to lower productivity and high

101 employee turnover (Gnisci, Giles, & Soliz, 2016). In the following section, we briefly
102 introduce CAT and summarize relevant work on the impact of power on linguistic style and
103 the interpersonal outcomes of language use in CMC.

104 Communication accommodation theory (CAT) describes the ways in which people
105 adjust their communication behaviors during social interactions, their motivations for doing
106 so and the social consequences (Giles, 2016). Early iterations of CAT defined
107 communication behaviors in terms of *convergence* and *divergence*: *convergence* describes
108 when people alter their communication behaviors to be similar to others, whilst *divergence*
109 describes ways in which people accentuate dissimilarities in communicative behaviors (Giles
110 & Smith, 1979).

111 Recent developments within CAT have refined communicative behaviors as being
112 *accommodative* or *non-accommodative*. How behaviors are defined in these terms depends
113 on the subjective perceptions and evaluations of the recipient (Giles & Gasiorek, 2014).
114 Individuals have notions about what constitutes appropriate communicative behavior in
115 particular contexts, and use these notions to evaluate the communication patterns of others.
116 Accommodative communications are those that are perceived to be appropriate, desirable, or
117 facilitating communication. Converging one's communication behaviors (e.g., accent, pitch
118 or use of specific words or phrases) to be similar to conversational partners is often perceived
119 as accommodative and is positively received. Non-accommodative communications are
120 those perceived not to be adjusted appropriately for one or both individuals (Gasiorek, 2016).
121 Non-accommodation can take the form of over-accommodation, if the extent of
122 accommodation is perceived to be greater than desired (e.g., patronizing talk), whereas too
123 little accommodation is perceived as under-accommodation. Importantly, subjective
124 evaluations are key to whether behavior is perceived as accommodative or non-
125 accommodative; although behaviors may be objectively accommodative (e.g., convergence in

126 speech rate or word use), they may be subjectively evaluated by the recipient as non-
127 accommodative if inappropriate to the circumstances and social roles of the
128 conversationalists (Gasiorek, 2016; Giles & Gasiorek, 2014). People accommodate when
129 they want to affiliate, decrease social distance, or facilitate comprehension, and non-
130 accommodate when they want to disaffiliate, increase social distance or hinder
131 comprehension (Dragojevic, Gasiorek, & Giles, 2016).

132 **Power and Linguistic Style in CMC**

133 CAT predicts that individuals in low power roles are motivated to seek social approval from
134 their higher power partner, leading to accommodation in their communications (Giles, 2016).
135 There is evidence this does indeed occur when individuals communicate in a variety of
136 contexts, both face-to-face and via CMC. For instance, interviewees accommodate their
137 speech style towards that of their interviewers in employment interviews (Willemyns,
138 Gallois, Callan, & Pittam, 1997) and in a courtroom situation, witnesses accommodate their
139 language use towards that of legal professionals (Gnisci, 2005).

140 The opposite pattern can sometimes be seen where high powered individuals
141 accommodate towards low power, particularly where the individual in the higher power
142 position assumes a nurturing or mentoring role. Health professionals, arguably in a higher
143 position of power than patients, have been observed to make use of discourse management
144 (e.g., guiding the conversation in specific ways through topic selection or backchanneling)
145 and emotional expression strategies in order to accommodate towards patients (Watson &
146 Gallois, 1998). Further, de Siqueira and Herring (2009) reported an academic advisor
147 accommodated the pace of message production in instant messaging chats towards that of
148 each of her four doctoral students. However, such instances seem to be the exception rather
149 than the rule, and where there is a formal hierarchical power relationship in place (as opposed
150 to a nurturing or mentoring one) the predicted low towards high power accommodation

151 pattern is more likely to be observed. People in low status positions often accommodate the
152 nature of their messages (e.g., to be more conforming and agreeing) when talking to high
153 status members on online message forums (Dino et al., 2009; Jones, Cotterill, Dewdney,
154 Muir, & Joinson, 2014) and via email (Gilbert, 2012). Relevant to our study, in an
155 organizational context, subordinates accommodate towards supervisors more often than the
156 opposite (Littlejohn, 1992, p. 117).

157 There is limited evidence that this extends to non-conscious aspects of language use
158 such as linguistic style. Danescu-Niculescu-Mizil et al. (2012) found use of a particular class
159 of function words (e.g., articles) in one utterance by a high-status individual on Wikipedia
160 pages (administrators) increased the probability of their lower status interaction partner (non-
161 administrators) also using that particular class of function words in their next utterance.
162 Along similar lines, Jones et al. (2014) found that individuals with low status in an online
163 community forum were more likely to accommodate their linguistic style when conversing
164 with high status members, compared to the other way around.

165 A limitation of this previous work is that social status or power was inferred, instead
166 of being directly measured or manipulated. In the present research, we address such issues
167 by experimentally manipulating an individual's level of social power to ensure power
168 differentials between conversationalists are clearly defined. Further, the communications
169 studied were asynchronous, as is the case with communications on online forums or message
170 boards. We therefore examine if changes in linguistic style in relation to social power occur
171 in synchronous CMC (instant messaging). In line with predictions from CAT and previous
172 research we form the following hypotheses:

173 H_{1a}: There will be a greater frequency of conversations characterized by
174 individuals in a low power role accommodating their linguistic style towards
175 higher power partners, compared to the other way around.

176

177 H_{1b}: Individuals in a low power role will exhibit a greater general tendency to
178 accommodate their linguistic style, compared to individuals in a high-power role.

179 **Linguistic Style and Interpersonal Impressions in CMC**

180 A key prediction of CAT is that accommodative communications are related to positive
181 evaluations of the communication, the individual and the relationship, and a variety of
182 research supports this assumption (Soliz & Giles, 2014). Communication style (e.g., word
183 choice and typographic information) is theorized to influence interpersonal impressions in
184 CMC due to the limited number of other available cues on which to base perceptions
185 (Hancock & Dunham, 2001; Walther, 1992). Consistent with this view, and with predictions
186 from CAT, accommodation in word use over CMC has been associated with positive
187 interpersonal impressions. For example, accommodation in word use over email has
188 positively influenced perceptions of rapport (Crook & Booth, 1997), and lexical mimicry
189 (repetition of words or word phrases) was associated with increased perceptions of trust by
190 people conversing via instant messaging (Scissors et al., 2008) and negotiators using online
191 chat-rooms (Swaab, Maddux, & Sinaceur, 2011).

192 Although linguistic style accommodation between individuals communicating face-
193 to-face predicts positive social outcomes, these outcomes have mostly been operationalized in
194 terms of dyadic measures, such as successful outcomes of negotiations (Taylor & Thomas,
195 2008), or relationship initiation (Ireland et al., 2011) instead of individual recipient
196 evaluations of the speaker. To our knowledge, only one previous study has examined
197 individual interpersonal impressions associated with linguistic style accommodation, and
198 reports increases in perceived rapport between conversationalists and social attractiveness of
199 the speaker in association with linguistic style accommodation in face-to-face
200 communications (Muir et al., 2016). However, there is little evidence that such effects

201 translate to CMC. One study found that although dyads accommodated their linguistic style
202 towards each other when communicating over CMC, this was unrelated to ratings of
203 subjective rapport (Niederhoffer & Pennebaker, 2002). Contrarily, other research has shown
204 linguistic style accommodation when communicating over CMC was positively related to
205 group cohesiveness (Gonzales et al., 2010), although this was a measure of group
206 performance as opposed to an assessment of individual interpersonal impressions.

207 We examine the effects of linguistic style accommodation upon three interpersonal
208 impressions relevant to the success of workplace relationships: rapport, social attractiveness,
209 and task attractiveness. Rapport, particularly in a workplace context, is defined as perceived
210 closeness, harmony and trust, built through verbal communications and self-disclosure
211 (Gremier & Gwinner, 2000). Rapport is an important measure of the quality of workplace
212 relationships. For instance, organizational success and job satisfaction is claimed to be
213 reliant on perceived solidarity (an aspect of rapport, relating to feeling close and having a lot
214 in common) felt between supervisors and subordinates (MacDonald, Kelly, & Christen,
215 2014). In our study we utilize a measure of rapport employed in previous research into
216 linguistic style, which operationalizes rapport as subjective feelings that the conversation
217 went smoothly, that the individual felt comfortable during the conversation, and that the
218 individual truly got to know their partner (Niederhoffer & Pennebaker, 2002).

219 We use McCroskey and McCain's (1974) measures of social and task attractiveness
220 which are described as part of interpersonal attractiveness, the tendency to evaluate another
221 person in a positive or negative way. Social attractiveness represents interpersonal liking,
222 and includes items referring to the desire to be friends with the target individual, whereas task
223 attractiveness relates to the target individual's reliability in a task or work situation and how
224 rewarding they would be to work with. Both these aspects of interpersonal attraction have
225 been positively associated with better work performance in an organizational context

226 (Walther & Bunz, 2005). Hence, we explore how linguistic style accommodation by
227 individuals in high and low power roles over instant messaging influences these three aspects
228 of interpersonal impressions. CAT predicts that accommodative behaviors are associated
229 with positive perceptions formed by their conversational partner. Following this and
230 predictions from prior research (e.g., Muir et al., 2016) we would expect:

231 H₂: Greater linguistic style accommodation over CMC is associated with
232 positive perceptions made by the recipient of the speaker's social and task
233 attractiveness, and rapport felt between conversationalists.

234 **Present Research**

235 We present two studies designed to examine the effects of power on linguistic style, and the
236 effects of changes in linguistic style on perceptions of rapport, social and task attractiveness
237 in instant messaging. We utilized a 'speed networking' paradigm (c.f. Muir et al., 2016) in
238 which participants had multiple short conversations with each other 'round-robin' style,
239 whilst playing either a high or low power role. Participants had these conversations using an
240 online chat system which allowed them to send and receive messages instantly. We
241 calculated the extent of linguistic style accommodation for each conversation, and as an
242 overall tendency by each participant within his or her power role. We also collected self-
243 report measures of rapport, social and task attractiveness by each participant of each of their
244 conversational partners. Study 1 used a between-subjects design in which participants played
245 either a high or low power role, or a neutral power role. Study 2 utilized a within-subjects
246 design, in which participants undertook both high and low power roles, to test the reliability
247 and stability of the effects of power upon linguistic style accommodation. Note, due to the
248 similarities between Study 1 and 2, for brevity we present a combined method and results for
249 both studies.

250 **Method**

251 ***Participants and Design***

252 *Study 1.* Fifty-four participants took part in Study 1 (25 females, 28 males). Participants
253 ranged from 18 to 25 years old ($M = 20.83$, $S.D. = 1.99$), and were undergraduate students.
254 Study 1 utilized a between-subjects design. Thirteen participants were in the low power role
255 (workers), thirteen participants were in the high-power role (judges) and twenty-eight
256 participants were in the neutral power role (collaborators).

257 *Study 2.* Thirty participants took part in Study 2 (15 females, 15 males), ranging from 18 to
258 23 years old ($M = 19.24$, $S.D. = 1.62$). In this study we used a within-subjects design.
259 Participants undertook both the worker and judge role, in a counterbalanced order: fourteen
260 participants undertook the worker role before the judge role, and sixteen participants
261 undertook the judge role before the worker role.

262 In both studies participants were unknown to each other prior to the study, and were
263 paid a small monetary reward at the end of the study.

264 ***Procedure and Measures***

265 *CMC System.* We utilized a free online synchronous chat program designed for business
266 team chat (<https://www.hipchat.com>). Two participants at a time could enter an individual
267 chat-room and converse privately. Participants typed their message into the chat system and
268 upon pressing 'send', their message was instantly seen by their conversational partner.
269 Participants created their own usernames for use within the CMC system, with most
270 participants using their initials or first names. Although some personal information could be
271 indicated by usernames (e.g., if a first name was clearly male or female) no other information
272 was available about with whom they were chatting. The Hip Chat system automatically kept
273 a secure transcript of all messages sent and received by users in each chat-room. These
274 transcripts were only available for access by the administrative account owner (in this case,
275 the first author) and were retrieved later for analysis.

276 *Power manipulation.* We utilized a power manipulation to create a situation in which
277 participants felt they had either high or low levels of power (Muir et al., 2016). Participants
278 were randomly allocated to play either a Worker role (low power) or Judge role (high power).
279 Workers (low power) were given a set of instruction sheets, with each sheet containing a
280 different hypothetical business idea (e.g., a new smartwatch). Workers pitched a different
281 business idea to each Judge (high power). Judges had the ability to award workers extra
282 money depending on their evaluations of the Workers, meaning Judges had power over
283 Workers.

284 The study took place in a computer laboratory, with each participant seated at an
285 individual workstation with a PC connected to the internet. Upon arrival, participants were
286 randomly allocated to either the Judge or Worker role, logged on to the HipChat program and
287 were instructed in how to use the system. Participants acting as Judges each entered an
288 individual private chat-room, and remained in this chat-room for the duration of the study.
289 Workers were given a set of instruction sheets, upon which was listed the chat-room they
290 should enter (e.g., “please enter *Room 2*”) and the business idea they should discuss with the
291 Judge in that chat-room. Workers moved between chat-rooms, and had a five-minute private
292 one-to-one conversation with each Judge, in which they discussed the business idea proposed
293 by the Worker. This procedure was followed until each Worker had conversed with each
294 Judge, pitching a different business idea each time, so each Judge heard a different business
295 idea from each Worker.

296 In Study 1 (between-subjects) participants were in either the Judge or Worker role.
297 So, each participant in Study 1 had thirteen conversations: each of the thirteen Workers had a
298 conversation with each of the thirteen Judges, meaning a total of 169 five-minute dyadic
299 conversations between individuals of low vs. high power were generated. In Study 2 (within-
300 subjects) participants swapped roles half-way through, and a total of 162 dyadic

301 conversations between individuals of high vs. low power were generated.¹ Participants in
302 Study 2 were unaware they would be swapping roles half-way through.

303 *Control group.* A separate group of participants acted as a control group ('*Collaborators*')
304 in Study 1. The same procedure was followed as for Workers and Judges, with the exception
305 that there was no power imbalance between participants. Participants were randomly
306 allocated to one of two groups (Group A and Group B). Group B collaborators ($N = 14$) were
307 given hypothetical business ideas to discuss with Group A collaborators ($N = 14$), but neither
308 group was responsible for awarding extra money to the other. Thus, collaborators were in a
309 neutral power situation. Group A collaborators remained within an individual private chat-
310 room, whilst participants in Group B moved between chat-rooms. Thus, each of the fourteen
311 participants in Group A had a conversation with each of the fourteen participants in Group B,
312 generating 196 dyadic conversations between individuals of neutral power.

313 *Measures of interpersonal impressions.* At the end of each five-minute conversation all
314 participants completed the following measures: (1) a measure of subjective rapport felt during
315 the conversation (Niederhoffer & Pennebaker, 2002; 3 items, Study 1 $M = 14.94$, $S.D. = 3.56$,
316 $\alpha = .76$, Study 2 $M = 14.97$, $S.D. = 3.85$, $\alpha = .82$); and (2) measures of their partner's social (4
317 items, Study 1 $M = 14.80$, $S.D. = 2.52$, $\alpha = .77$, Study 2 $M = 14.76$, $S.D. = 2.68$, $\alpha = .83$) and
318 task attractiveness (4 items, Study 1 $M = 14.92$, $S.D. = 2.52$, $\alpha = .82$, Study 2 $M = 15.02$, $S.D.$
319 $= 2.57$, $\alpha = .79$; McCroskey & McCain, 1974). Judges had additional measures to complete
320 after each conversation evaluating the worker's idea and how much extra money to award.

321 At the end of the study participants completed a manipulation check. In Study 1 they
322 rated the extent to which they felt they had power during the conversations, on a scale from 1
323 (*not at all*) to 5 (*very much*). In Study 2 participants rated the extent to which they felt they
324 had power during the conversations *in each role*, on a scale from 1 (*not at all*) to 5 (*very*
325 *much*). Participants were then debriefed and paid an equal small monetary reward.

326 Linguistic Data and Computational Measure of Accommodation

327 Computational measures of accommodation have been developed to quickly and easily
328 quantify instances of communication accommodation in text. Relevant to our interest in
329 linguistic style, linguistic style matching (LSM) is one measure which quantifies the degree
330 to which linguistic style similarity exists within a dyadic conversation (Niederhoffer &
331 Pennebaker, 2002). LSM measures the degree to which people produce similar rates of
332 function words in conversation, by calculating a score for an individual for each of nine
333 function word categories (see Table 1) then comparing these scores with their conversational
334 partner. To calculate LSM, the absolute value of the difference in use of a function word
335 category between two speakers is divided by the total for each category. All nine categories
336 are then averaged to yield an LSM score for the dyad ranging between 0 and 1, with 1
337 representing complete matching in function word use between conversationalists. As a
338 dyadic score of linguistic style similarity, LSM has been used to predict dyadic or group
339 outcomes (e.g., Ireland et al., 2011). However, LSM provides a single score per dyad and so
340 does not capture the extent to which each individual accommodates his or her linguistic style.
341 For instance, LSM will not reveal if one individual in a dyad changes their usual linguistic
342 style to a greater, or lesser, extent compared to their conversational partner.

343 *<Table 1 here>*

344 We, therefore, chose to use the Zelig Quotient (ZQ) as a computational method for
345 quantifying linguistic style accommodation for each individual (Jones et al., 2014). The ZQ
346 measure determines the extent to which individuals accommodate their linguistic style
347 towards or away from each of their conversational partners, thus allowing us to examine the
348 effects of high vs. low power upon linguistic style accommodation. This measure has been
349 used in previous research into the effects of power upon linguistic style in face-to-face
350 communications (Muir et al., 2016), and is explained in more detail in Jones et al., (2014).

351 The HipChat software automatically kept a verbatim transcript of all messages sent
352 and received by individuals within each of the private chat-rooms. These transcripts were
353 firstly segmented into turns for each participant. This was achieved by segmenting the
354 transcript into transmission units (the text transmitted by a participant at one time) and then
355 into turns, which represent consecutive uninterrupted transmission units from the same
356 participant. Turns can consist of a single transmission unit or of several consecutive
357 uninterrupted units together. The transcripts were then processed using the Linguistic Inquiry
358 and Word Count program (Pennebaker, Booth, Boyd, & Francis, 2015) to yield the
359 percentages of function words uttered by each participant in each turn, in each conversation.
360 We used the LIWC percentages to calculate Zelig Quotient (ZQ), as follows. ZQ firstly
361 establishes an individual's baseline (or usual) linguistic style by calculating their average use
362 of nine function word categories (see Table 1) across all the conversations we have for that
363 individual. The extent to which an individual changes their linguistic style from their
364 baseline style to converge towards or diverge away from the linguistic style of each of their
365 conversational partners is then computed (*pairwise speaker to recipient ZQ scores*). Further,
366 by averaging the pairwise ZQ scores across all conversational partners, we can also estimate
367 the individual's *general tendency* to accommodate their linguistic style to that of others,
368 within his or her power role (*overall ZQ scores*). Positive Zelig Quotients (greater than zero)
369 represent convergence towards the linguistic style of their conversational partner. Negative
370 scores (less than zero) represent divergence away from the linguistic style of their partner.
371 Zelig Quotients close to zero represent maintenance of the individual's own baseline
372 linguistic style, with any movement in linguistic style due to noise, rather than convergence
373 or divergence. We calculated pairwise speaker-to-recipient ZQ scores for each conversation
374 and an overall ZQ score for each participant, following the procedure described in Jones et al.

375 (2014).²

376 **Results**

377 *Manipulation Checks*

378 *Study 1.* A one-way ANOVA confirmed a significant difference in perceived personal
379 power between the groups of judges, workers and collaborators ($F(3, 53) = 3.54, p = .02, \eta^2$
380 $= .17$). Judges perceived they had a greater level of personal power ($M = 4.46, S.D. = .77$)
381 compared to Workers ($M = 3.46, S.D. = 1.12$). There was no such difference in the
382 perception of personal power in the two groups of collaborators, who both rated their level of
383 personal power at a similar level (Group A $M = 4.14, S.D. = .77$, Group B $M = 4.35, S.D. =$
384 $.74$).

385 *Study 2.* A within-subjects ANOVA confirmed a significant main effect of power role, in
386 that participants perceived significantly greater levels of personal power when they were in
387 the judge role ($M = 4.23, S.D. = .77$) compared to the worker role ($M = 3.60, S.D. = 1.06; F$
388 $(1, 28) = 5.99, p = .02, \eta^2 = .17$). The order in which participants undertook roles was not
389 significant in influencing perceived personal power ($F(1, 28) = 1.88, p = .18, \eta^2 = .06$) and
390 there was no interaction between role order and power role ($F(1, 28) = 1.06, p = .31, \eta^2 =$
391 $.03$). Thus, the experimental manipulation of power was successful in inducing the perception
392 of a power difference in both studies.

393 *H₁: The Effects of Power upon Linguistic Style Accommodation*

394 We hypothesized that individuals in a low power role would exhibit a greater frequency of
395 conversations characterized by *convergence* in linguistic style towards higher power partners,
396 than individuals in a high-power role would exhibit convergence towards lower power
397 partners (H_{1a}). This hypothesis was partially supported: power role did not significantly
398 predict the frequency to which individuals exhibited divergence or convergence in Study 1
399 ($\chi^2(3) = 1.79, p = 0.61$) but did in Study 2 ($\chi^2(1) = 4.81, p = .03$). Figures 1 and 2 present

400 the pairwise speaker-to-recipient ZQs for judges vs. workers (high vs. low power, Figure 1)
401 and the two groups of collaborators (neutral power, Figure 2), as a percentage of the total
402 number of conversations. These scores demonstrate the extent to which each individual
403 accommodated their linguistic style within each conversation. Judges exhibited a slightly
404 higher percentage of negative ZQs (indicating linguistic style divergence) than workers (63%
405 of conversations compared to 57% in Study 1, 62% of conversations compared to 43% in
406 Study 2). The opposite is apparent for convergence, with workers showing a slightly higher
407 percentage of positive ZQs (31% in Study 1, 36% in Study 2) compared to judges (25% in
408 Study 1, 26% in Study 2). Collaborators showed similar levels of divergence (Group A 56%,
409 Group B 54%) and convergence (Group A 27%, Group B 28%).

410 <Figures 1 and 2 about here>

411 We further predicted that individuals in a low power role would exhibit a greater
412 general tendency to accommodate their linguistic style, compared to individuals in a high-
413 power role (H_{1b}). Consistent with this hypothesis, power role was a significant influence
414 upon overall ZQ in Study 1 ($F(3, 53) = 2.8, p = .05, \eta^2 = .06$) and Study 2 ($F(1, 28) = 9.71,$
415 $p = .004, \eta^2 = .25$).³ In general, the overall ZQ scores (which represent an individual's
416 tendency to accommodate their linguistic style, within their social role) showed that
417 divergence in typical linguistic style was common; on average, all groups exhibited negative
418 overall ZQ scores. However, overall ZQ of workers (Study 1 $M = -.16, S.D. = .07$, Study 2 M
419 $= -.09, S.D. = .11$) were greater than those of judges (Study 1 $M = -.23, S.D. = .14$, Study 2 M
420 $= -.22, S.D. = .17$), showing that across both studies workers exhibited significantly less
421 divergence in their typical linguistic style compared to judges. There were no significant
422 differences in overall ZQ between collaborators (Group A $M = -.21, S.D. = .08$, Group B $M =$
423 $-.24, S.D. = .17; t(26) = 1.2, n.s., d = .22$).

424 ***Exploratory Analyses: Temporal Dynamics of Accommodation***

425 Prior research suggests that accommodation may not remain at a similar level throughout the
426 course of a conversation. For instance, Riordan, Markman, and Stewart (2013) found
427 convergence in message length and production times in instant messaging conversations
428 increased with each additional turn in the conversation. In contrast, Bonin et al. (2013)
429 examined the time-course of lexical mimicry between individuals (mimicking the words used
430 by a conversational partner) and found it did not increase or decrease linearly, but rather
431 fluctuated over the course of a conversation. Hence, we performed some exploratory
432 analyses to examine the temporal dynamics of linguistic style accommodation in Study 1.

433 *Turn-by-turn linguistic style similarity.* We firstly explored similarity in linguistic style on a
434 turn-by-turn basis in the dyads of workers-judges and collaborators, to see if dyads became
435 more or less similar in their linguistic style over the time-course of the conversation. We
436 computed LSM on a turn-by turn basis by applying the LSM calculation to adjacent turns
437 uttered by dyads (e.g., we calculated LSM for turn 1 for both participants in the dyad, then
438 turn 2, and so on). This yields a score showing similarity in linguistic style between
439 individuals at each turn in the conversation. We then used these turn-by-turn LSM scores in
440 a linear mixed model in which we predicted the turn-by-turn LSM scores from power role
441 (workers-judges versus collaborators) and turn number. Use of a linear mixed model allowed
442 us to control for nested observations in the dataset (Heck, Thomas, & Tabata, 2014, pp. 4 -
443 11). Linguistic style similarity decreased slightly with each additional turn in the
444 conversation ($b = -.006$, $F(1, 1861) = 25.53$, $p < .001$) but the lack of interaction with power
445 role indicates this effect applied across all dyads ($F(1, 1861) = .57$, $p = .45$).

446 *Linguistic style accommodation: Development over multiple conversations.* We next
447 explored linguistic style accommodation over the multiple conversations undertaken by
448 participants during the study, to see if participants became more or less convergent/divergent
449 in their linguistic style with each additional conversation. Using a linear mixed model, we

450 predicted pairwise speaker-to-recipient ZQ scores from power role (worker vs. judge vs.
451 collaborator) and conversation number. Levels of linguistic style accommodation did not
452 increase or decrease with each additional conversation ($F(1, 120) = .02, p = .89$) and there
453 was no interaction of conversation number with power role ($F(2, 130) = .13, p = .87$).

454 *H₂: Effects of Linguistic Style Accommodation upon Interpersonal Impressions*

455 H₂ predicted that greater linguistic style accommodation would be associated with a positive
456 impression formed of the speaker by the recipient, in line with CAT. In the following
457 analyses, we therefore predicted Person B's ratings of A in terms of rapport, social and task
458 attractiveness, from the extent of Person A's linguistic style accommodation (pairwise ZQ
459 score). In all analyses we utilized a linear mixed model to control for nested observations in
460 the dataset (Heck et al., 2014, pp. 4 - 11). For clarity, in the main we report only significant
461 results here.

462 In line with H₂, increasing ZQ by collaborators was associated with positive increases
463 in partner's ratings of rapport (GroupA rating GroupB $b = .85, t(71) = 2.30, p = .02$; GroupB
464 rating GroupA $b = .61, t(69) = 2.1, p = .03$) and task attractiveness (GroupA rating GroupB b
465 $= .60, t(67) = 2.47, p = .02$; GroupB rating GroupA $b = .52, t(67) = 2.5, p = .02$). However,
466 this hypothesis was not supported for Workers and Judges. Across both studies we observed
467 no significant relationship between the extent of linguistic style accommodation by
468 individuals in the low power position (Workers) and Judge's ratings. Further, the extent of
469 linguistic style accommodation by Judges significantly and negatively predicted Workers'
470 ratings of Judges. With increases in Judges' ZQ, there was a corresponding decrease in
471 Worker's ratings of rapport (Study 1 $b = -1.99, t(43.62) = -2.92, p = .005$, Study 2 $b = -2.25,$
472 $t(4.47) = -2.59, p = .05$), social attractiveness (Study 1 $b = -.87, t(32.5) = -2.17, p = .04$) and
473 task attractiveness (Study 2 $b = -1.64, t(35.37) = -2.27, p = .03$).

474 **Discussion**

475 The purpose of this paper was to explore how power influences linguistic style, and the
476 effects upon interpersonal impressions in CMC. Using CAT as a guiding theoretical
477 framework, across two studies we show that power influenced the extent to which individuals
478 changed their linguistic style in synchronous CMC (instant messaging). Our hypotheses
479 regarding power were supported: individuals in a low power position were more likely to
480 change their linguistic style to be similar to their higher power partner, rather than the other
481 way around. Our hypothesis regarding interpersonal impressions was partially supported,
482 and demonstrates the importance of social roles in forming perceptions of conversational
483 partners in CMC. Consistent with CAT, where there was no power differential between
484 participants, increasing linguistic accommodation was associated with forming positive
485 interpersonal impressions of partner's rapport and task attractiveness. Contrarily, linguistic
486 style accommodation by participants in a position of high power was associated with poor
487 interpersonal impressions formed by their lower power partner of their rapport, social and
488 task attractiveness. We provide novel evidence as to the importance of power relationships in
489 influencing non-conscious language use and interpersonal impressions in text-based
490 communications, and suggest theoretical contributions for CAT.

491 *Linguistic Divergence as Speech Complementarity*

492 Across both studies, Judges and Workers exhibited linguistic style *divergence* when
493 communicating using instant messaging, in terms of negative overall Zelig Quotients. This is
494 not uncommon in studies investigating linguistic style accommodation in both face-to-face
495 (Muir et al., 2016) and online interactions (Huffaker, Jorgensen, Iacobelli, Tepper, & Cassell,
496 2006; Jones et al., 2014). The concept within CAT of *speech complementarity* could account
497 for this divergence in linguistic style between high and low power conversationalists
498 (Dragojevic et al, 2016). Speech complementarity describes communicative behaviors that
499 appear divergent in nature, but have the function of conveying and reinforcing social roles.

500 This concept is related to behavioral complementarity, in which individuals engage in
501 opposing behaviors to develop and reinforce social roles, particularly those associated with
502 hierarchy. People often engage in complementary behaviors as opposed to mimicking one
503 another's behaviors. For instance, Tiedens and Fragale (2003) observed participants
504 engaging in opposing postural behaviors, to preserve hierarchy: faced with a dominant
505 posture from a confederate, participants adopted a submissive posture, and vice versa.
506 Complementary postural behavior was also linked to greater ratings of liking and feelings of
507 comfort in the interaction, compared to postural mimicry (Tiedens & Fragale, 2003).
508 Complementarity is particularly relevant in organizational hierarchies, where there can be
509 strong structured expectations regarding appropriate behavior at levels of the hierarchy.
510 There is evidence that dominant behavior from a supervisor is often met with submissive
511 behavior from supervisees (Moskowitz, Ringo Ho, & Turcotte-Tremblay, 2007), which acts
512 to confirm status in the interaction and reflect appropriate behavioral norms. In the case of
513 our experimental paradigm, objectively measured divergence in linguistic style may be
514 representative of individuals attempting to reflect and preserve their respective power roles
515 communicatively. Thus, the observation of linguistic style divergence by both Workers and
516 Judges is consistent with CAT, and suggests individuals may use speech complementarity in
517 a similar way to behavioral complementarity to preserve and reinforce hierarchical roles in
518 the workplace.

519 ***Power influences Linguistic Style Accommodation***

520 Overall, workers diverged their linguistic style to a *lesser* extent than judges, and in
521 individual conversations were more likely to show convergence (i.e., positive Zelig
522 Quotients). Notably, the effects of power were robust and reliable: these effects occurred
523 regardless of whether the power role was stable (between-subjects: Study 1) or shifting
524 (within-subjects: Study 2). Our results are consistent with previous research into the effects

525 of power on linguistic style in both face-to-face communication (Muir et al., 2016) and in
526 online communities (Jones et al., 2014). Conversing with an individual in a higher power role
527 is proposed to trigger motivations to gain social approval, which then leads to greater
528 accommodation in communication behaviors (Giles, 2016). Our results confirm that power is
529 indeed a strong influence on the way people express themselves. Importantly, its influence
530 extends to non-conscious language use when relying purely on the written (typed) word to
531 communicate.

532 In respect of the temporal dynamics of linguistic style accommodation, our exploratory
533 analyses revealed a slight decrease in linguistic style similarity between conversationalists
534 with every additional turn in the conversation. Although this was a small effect ($b = -.006$),
535 potentially this could suggest increasing divergence in linguistic style over the course of the
536 conversation. This contrasts with previous research which showed increasing convergence
537 with every turn in the conversation (Riordan et al., 2013). However, Riordan et al. (2013)
538 studied temporal dynamics of message length and production time, in comparison to our
539 focus on the use of function words. It is possible that our participants did show increasing
540 convergence over time in aspects of communication that we did not measure, as CAT
541 predicts people can converge on some aspects of communication whilst diverging on others
542 (Dragojevic et al., 2016). We further found that participants did not become more or less
543 convergent or divergent with each additional conversation. Although we only examined
544 temporal dynamics within a short time-span and a relatively small number of conversations,
545 this could suggest people have a fairly consistent linguistic style, within a particular social
546 power role. A fruitful avenue for future research would be examining interactions between
547 high vs. low power individuals across a longer time period, to further explore the temporal
548 dynamics of linguistic style accommodation.

549 *Linguistic Style influences Interpersonal Impressions over CMC*

550 We show that social context, in this case power relationships, influences whether changes in
551 linguistic style in text-based communications have a positive or negative impact upon
552 interpersonal impressions. Across both studies, there was no effect of Workers'
553 accommodation upon the perceptions formed by Judges, but the extent of linguistic style
554 accommodation exhibited by Judges negatively predicted interpersonal impressions formed
555 by Workers. Essentially, when individuals communicated in a way that was not consistent
556 with their power role, this was perceived negatively. Our findings suggest that where
557 individuals with roles at different levels of an organizational hierarchy communicate using
558 instant messaging, messages which adhere to the norms associated with an individual's role
559 in the hierarchy are preferred. We propose two different theoretical perspectives which may
560 shed light on these findings: CAT and expectancy violation theory (EVT).

561 One interpretation of these results from a CAT perspective suggests that in situations
562 where speech complementarity is the preferred or desired communicative behavior, violations
563 of this norm may be perceived negatively. This may be particularly the case in a workplace
564 environment, where there are often clear expectations regarding hierarchy-appropriate
565 communicative behaviors. Divergence in communications where there are clear status
566 differences between speakers is often expected and desired, and perceived as serving an
567 affiliative function, conveying respect, or enhancing message comprehension (Gasiorek,
568 2016). In our studies, convergence in linguistic style by individuals in the high position of
569 power towards those in the lower position of power was role-inconsistent and disrupted
570 speech complementarity, and thus could have been perceived negatively. This interpretation
571 is in line with research suggesting negative interpersonal impressions can result from
572 departures from expectations of appropriate communications associated with hierarchical
573 roles. For instance, when legal professionals (in a high position of power in a courtroom)
574 accommodate their communications downwards by downgrading their formal communication

575 style towards the defendant's more informal language, this can be interpreted negatively by
576 defendants as inappropriate to the situation, or patronizing (Linell, 1991). Moreover, in line
577 with our results, mimicry in the context of a negotiation exercise benefits individuals in lower
578 status positions, but not those in higher status (Curhan & Pentland, 2007). Thus, extending
579 this to the workplace, accommodation in linguistic style by individuals in a position of high
580 power (such as a supervisor towards a subordinate) could be perceived as inappropriate to the
581 expectations and conversational norms characteristic of the hierarchical relationship and
582 interpreted negatively (Gasiorek, 2016).

583 An alternative explanation refers to recent formulations of expectancy violation theory,
584 which invokes increases in uncertainty as an explanation for negative evaluations of
585 unexpected behaviors (Afifi & Burgoon, 2000). According to EVT (Burgoon & Hale, 1988),
586 when expectations about communicative behaviors are violated (e.g., when a conversational
587 partner decreases or increases conversational distance, counter to expectations), this can be
588 evaluated either positively or negatively (Burgoon & Walther, 1990). Our results could
589 suggest that the roles of 'judge' or 'worker' activated cognitive models or schemas associated
590 with high vs. low power roles, including expectations of language use and other
591 communicative behaviors (Fiske & Tablante, 2015). Accommodation by individuals in the
592 high-power role towards those in the low power role was schema-inconsistent (Crockett,
593 1988) and thus a violation of the social and communicative expectations associated with a
594 high-power role. It was however, a *positive* violation of the expected behaviors and as such,
595 according to EVT should have resulted in increased ratings of rapport, social and task
596 attractiveness. However, uncertainty reduction theory (Berger & Calabrese, 1975) proposes
597 an aspect of communication is providing information about the speaker, which can either
598 increase or decrease uncertainty about future expected behaviors. If people communicate in a
599 way which violates expectations, this can increase uncertainty about future communications,

600 which then leads to negative interpersonal impressions. In line with this, where individuals in
601 high positions of power in a negotiation situation displayed linguistic signals inconsistent
602 with the role (e.g., linguistic terms displaying submissiveness) this negatively influenced their
603 gains in the negotiation (Belkin, Kurtzberg, & Naquin, 2013). When viewed in this way, our
604 results are consistent with research showing behaviors incongruent with expectations
605 heighten uncertainty, and are associated with negative perceptions of interpersonal
606 attractiveness (Afifi & Burgoon, 2000). Thus, we suggest that interpersonal impressions
607 formed over CMC are based not only on the available cues, including language cues, but on
608 the cognitive models people use in interpreting these cues and predicting future
609 communicative behavior.

610 *Implications*

611 CAT acknowledges the importance of social roles and power in communication behaviors.
612 We have demonstrated accommodative processes, specifically in linguistic style, occurring in
613 relation to power using instant messaging as a communicative medium. We therefore add to
614 the literature base of CAT extending the framework from face-to-face communication to
615 encompass a variety of online or otherwise computer-mediated interactions (Gasiorek et al.,
616 2015). Thus, at a broader level, our results could be taken as evidence that CMC
617 technologies which involve real time synchronous message exchange (e.g., instant
618 messaging, online chat) do a fair job of approximating face-to-face conversations. We report
619 similar effects of power upon linguistic style accommodation in CMC as those observed in
620 face-to-face communication (Muir et al., 2016). Text-only communication methods, whilst
621 altering the *content* of communication, may not fundamentally alter the effects of power upon
622 the *style* in which we communicate.

623 Our findings also have implications for language use by individuals in high levels of
624 power in an organizational hierarchy. The findings suggest that communicating in a manner

625 consistent with expectancies of appropriate communicative behaviors may be particularly
626 important for individuals at high level roles within the hierarchy. This may involve
627 intentionally not mimicking subordinates' behavior and instead engaging in behavioral and/or
628 speech complementarity, to preserve status in interactions and maintain positive working
629 relationships with members lower down in the hierarchy.

630 *Limitations and Future Directions*

631 We acknowledge that the artificial nature of the studies presented herein places limits on the
632 conclusions we can draw from the findings; strangers engaging in a one-time conversation in
633 an experimental laboratory situation may not exhibit the same communicative behaviors and
634 reactions compared to individuals involved in on-going relationships within a real-world,
635 professional workplace hierarchy. A further limitation of these studies concerns the short
636 time periods in which participants conversed (five minutes). Researchers often allocate
637 substantially longer times for CMC compared to face-to-face interactions, due to the extra
638 time taken to type a response. Potentially, then, participants in our studies had only a limited
639 opportunity to form full interpersonal impressions of their interaction partners, limiting the
640 validity of our conclusions. However, one study that directly compared personal impressions
641 formed over face-to-face and CMC conversations found that although face-to-face
642 conversationalists exchanged many more utterances compared to CMC, CMC participants
643 were also able to form impressions and actually showed greater confidence in their
644 evaluations. Thus, people are not necessarily limited by the medium when forming
645 impressions over CMC and allocating extra time may not be necessary (Tidwell & Walther,
646 2002).

647 An interesting avenue for future research in this area concerns a closer inspection of
648 the interpersonal dynamics associated with accommodation. For instance, we could examine
649 conversation initiation (e.g., who begins speaking first in a conversation) as an indicator of

650 conversational dominance, and explore relationships with linguistic style accommodation and
651 interpersonal impressions.⁴ Further, CAT predicts there are optimal levels of accommodation,
652 and in some situations convergence above that threshold will be viewed negatively but a
653 certain level of divergence viewed positively (Dragojevic et al., 2016). Giles and Smith
654 (1979) reported that where individuals converged on many aspects of their communication
655 (such as speech rate, pronunciation and message content) this was perceived as
656 overaccommodative, and evaluated more negatively compared to convergence on only
657 speech rate and message content. Consequently, in our studies, even if convergence in
658 linguistic style by judges was not consciously detected by workers, it is possible that this
659 accommodation occurred concurrently with other aspects of their communications that we
660 did not measure, such as message content or length. Accommodation in multiple aspects of
661 the message could therefore have been perceived as over-accommodative and perceived
662 negatively. In future research, it would thus be informative to examine further the
663 relationship between style accommodation and other message aspects, and associations with
664 perceptions of accommodation. We also plan to investigate if there is a ‘sweet spot’ of
665 linguistic style accommodation in association with high versus low power roles; the optimal
666 balance between convergence and divergence which links to the most favorable interpersonal
667 outcomes, without engendering perceptions of over- or under-accommodation (Gasiorek,
668 2016).

669 **Conclusions**

670 We demonstrate that despite the limitations of computer mediated modes of communication,
671 power transcends these to shape non-conscious language use. Further, we illustrate that the
672 interpersonal effects of accommodative communications can be highly context dependent.
673 The communication medium, in combination with social context in terms of power roles,

674 appears to be an important factor in whether linguistic style accommodation is interpreted
675 positively or negatively by conversationalists.

676

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687 **Notes**

688 1. Study 2 was conducted over three separate experimental sessions. In session 1 ($N =$
689 14), each of the seven participants in the worker role had a conversation with each of
690 the seven participants in the judge role, generating 49 dyadic conversations.
691 Participants were then given the instructions for the opposite role and the process was
692 repeated, generating a further 49 conversations. Sessions 2 and 3 had uneven
693 numbers of participants ($N = 9$ and $N = 7$ respectively). To manage this, the
694 participant currently without a conversational partner sat out that particular round of
695 conversations. Thus, in session 2, four participants in the worker role had a
696 conversation with each of the five participants in the judge role, generating 20
697 conversations, before swapping roles and generating a further 20 conversations. In
698 session 3, three participants in the worker role had a conversation with each of the

699 four participants in the judge role, generating twelve conversations, before swapping
700 roles and generating a further twelve conversations.

701 2. ZQ is calculated as follows. To characterise the extent to which an individual
702 accommodated (or not) their linguistic style, we first estimated their baseline
703 linguistic style by averaging the percentages of function words they uttered across all
704 the conversations they had in the study (e.g., every conversation a worker had with
705 each of the judges). We then calculated the extent to which, for each individual
706 conversation, variation in the individual's linguistic style from their baseline was due
707 to noise, or due to accommodation towards (or away from) their partner's linguistic
708 style. This yields a pairwise speaker-to-recipient ZQ score for each conversation.
709 Each of the pairwise ZQ scores (i.e., a score for each conversation) was then averaged
710 to yield an overall ZQ score for that individual, representing general tendency to
711 accommodate their linguistic style within their role in the study.

712 3. There were no significant effects of role order ($F(1, 28) = 1.25, p = .27, \eta^2 = .04$) and
713 no interaction between power role and role order ($F(1, 28) = .96, p = .33, \eta^2 = .03$).

714 4. We thank an anonymous reviewer for this suggestion.

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Table 1. Word Categories used for Calculating Linguistic Style

Category	Examples
Personal pronouns	I, his, their
Impersonal pronouns	It, that, anything
Articles	A, an, the
Conjunctions	And, but, because
Prepositions	In, under, about
Auxiliary verbs	Shall, be, was
High frequency adverbs	Very, rather, just
Negations	No, not, never
Quantifiers	Much, few, lots

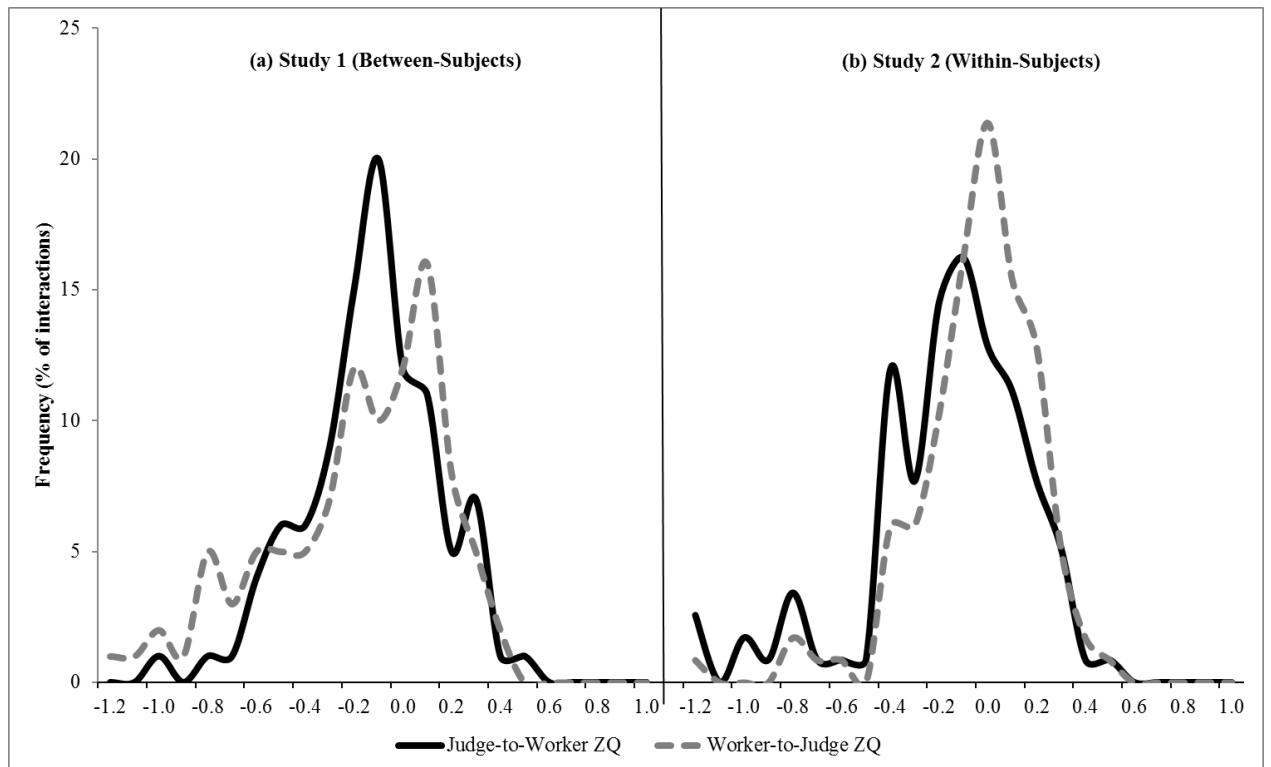


Figure 1. Pairwise speaker-to-recipient Zelig Quotient distributions for conversations between workers (low power) and judges (high power) in Study 1 (a) and Study 2 (b). Positive (+) ZQs represent convergence, negative (-) ZQs represent divergence.

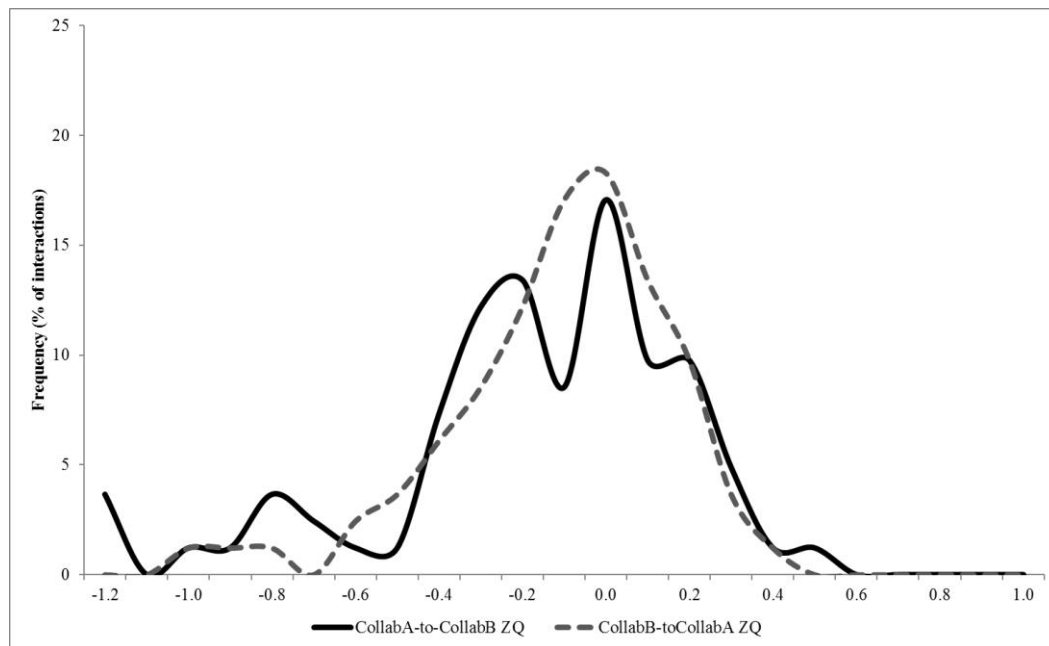


Figure 2. Pairwise speaker-to-recipient Zelig Quotient distributions for conversations between collaborators (neutral power) in Study 1. Positive (+) ZQs represent convergence, negative (-) ZQs represent divergence.

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