Novel and changing social evaluations of *all-lowercase* and *exclamation points*

Language is full of variation, which not only patterns along social dimensions but is also socially evaluated by language users (Campbell-Kibler 2007, Labov et al. 2011). However, social judgements are not exclusive to spoken or signed communication. In fact, people also make social evaluations when communicating in the digital space (Houghton, Upadhyay, and Klin 2018; Heath 2021), called computer mediated communication (CMC). This study investigates the social evaluations of two linguistic variables that are exclusive to CMC: capitalization and punctuation. In this study, we compare two capitalization conditions (sentences typed entirely in lowercase, and sentences with standard capitalization at the beginning of a sentence/for proper nouns) and three exclamation conditions (no punctuation, 1, or 2 exclamation points at the end of the sentence).

Previous research shows that aspects of capitalization and punctuation may have particular prosodic interpretations, which may contribute to their social evaluations (Heath 2021). Typing in all lowercase may be perceived as deadpan, sarcastic, monotone (McCulloch 2019), or deliberately passive aggressive (Heath 2021). However, these interpretations may differ across generations. The use of all-lowercase has changed with the introduction of auto-capitalization, particularly for smartphones in the mid '00s. While lowercase may have previously been perceived as lazy or lacking effort, it now often requires *more* effort than standard capitalization, with many users of all-lowercase reporting purposefully turning off the auto-capitalization function on their smartphones (Heath 2021). This shift from less effortful to purposeful use of lowercase may coincide with shifts in the social meanings indexed by all-lowercase. We therefore predict that lowercase is more marked among younger participants, which would yield stronger differentiation in social evaluations of lowercase vs. standard caps. We also predict that social meanings of lowercase may extend beyond the associations with age and sarcasm/passive aggression previously noted. In a pilot survey of 80 respondents' associations with lowercase, we found that 20% mentioned associations with femininity, regardless of texter gender, and sexuality, particularly indexing gay or bisexual identities. These associations with gender and sexuality have not been noted in previous work, so a key goal of the present study is to follow up on this novel finding in a controlled experiment. Exclamation points, similarly, have been shown to be associated with women, and additionally may index friendliness (Waseleski 2006) or emotional arousal (Heath 2021). To further probe these sociolinguistic associations, we conducted a matched guise experiment investigating social perceptions of various combinations of these two variables when used in SMS text messages. We specifically ask how these features interact and whether their evaluation changes depending on the perceived gender of the texter.

208 participants from the US or Canada evaluated 12 different single-sentence text messages that each had a unique combination of **Caps** *(lowercase or standard caps)*, **Exclamation** *(0, 1 or 2)* (Table 1), and **TexterGender** (presented as a silhouette depicting a man or woman labeled as "Man/Woman #X") (Figure 1). Each sentence had two possible instances of capitalization—the first letter of the sentence and one proper noun-–and one potential instance of an exclamation point, at the end of the sentence. The **Caps/Exclamation/TexterGender** variable combination assigned to each sentence was counterbalanced across participants. Participants rated each sentence on 10 social characteristics on a 0-100 scale. A linear mixed effects regression model was fit to the ratings for each social characteristic, with *Caps/Exclamation/TexterGender* and *participant age* all tested in interactions and retained when they improved model fit. By-participant and by-sentence intercepts were included, with fixed effects also included as random slopes when they significantly improved model fit.

As expected, lowercase guises were rated as younger, trendier, and more "online" than standard-caps guises (Figure 2, $p<0.001$). Exclamation points exhibited an incremental effect, where guises with one exclamation point were perceived as more extroverted, concerned with image, feminine, trendy, and uptight compared to those with no punctuation, and those with 2 exclamation points had even more extreme ratings on the same traits (Figure 3, $p<0.001$). There was also an effect of participant age for both variables. In general, younger participants showed more distinct evaluations across guises than older participants, particularly in ratings of "trendiness" for caps ($p< 0.05$). Older and younger participants also exhibited qualitatively different evaluations for masculinity/femininity: Older participants perceived lowercase as being more masculine, while younger participants associated it with

femininity ($p<0.05$), consistent with our pilot survey results. Relatedly, younger participants perceived exclamation points as more feminine than older participants ($p<0.001$). ***Caps, Exclamation***, and ***TexterGender*** did not interact for any ratings. Finally, the free-form responses from our pilot study were confirmed by the experimental data, not just for lowercase but also for exclamation point usage: both are associated with a queer identity ($p<0.001$), particularly among younger participants and those who identify as queer themselves. We interpret the development of both features' socio-indexical associations in light of these implicit experimental results and explicit judgments participants provided after the task. We ultimately argue that perceptions of lowercase and exclamation points are shifting over time and explore implications for cross-generational CMC.
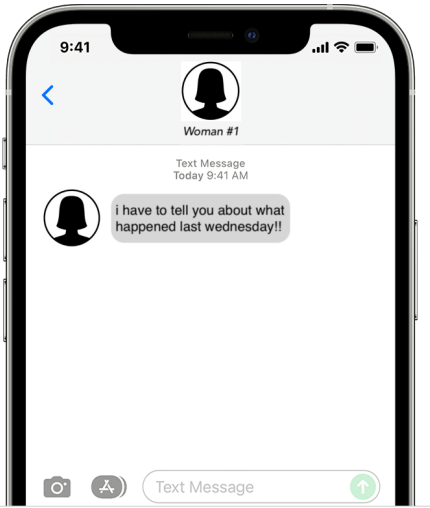

Figure 1: Example of one of the 12 stimuli participants saw in the experiment.

	All Lowercase	Standard Capitalization
0	that restaurant you recommended in philly was so good	That restaurant you recommended in Philly was so good
!	that restaurant you recommended in philly was so good!	That restaurant you recommended in Philly was so good!
!!	that restaurant you recommended in philly was so good!!	That restaurant you recommended in Philly was so good!!

Table 1: Six possible linguistic variant combinations. Each participant saw all six stimulus types twice, one paired with a male texter and another with a female texter.
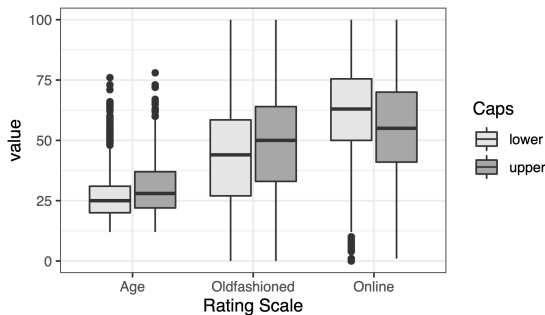

Figure 3: Exclamation points exhibit incremental social evaluations.

Figure 2: Lowercase is rated as younger, trendier (less Old-fashioned), and more "online" than standard capitalization.

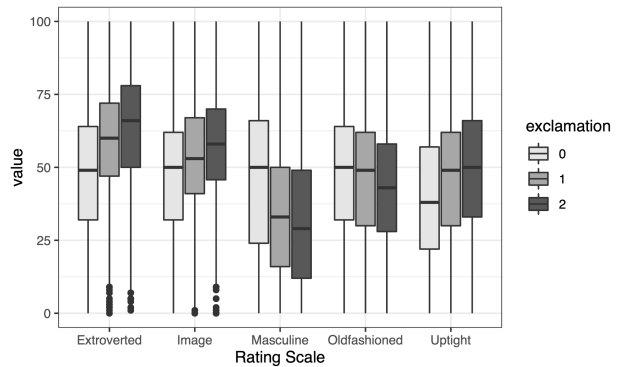References

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