

Social affect and individual differences in lexical entrainment

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Speakers tend to imitate each other's lexical choices to refer to objects with several names (*umbrella* vs *brolly*) (**Lexical Entrainment**). Lexical entrainment has been explained variously as a consequence of recently processed labels being more accessible than others (Pickering & Garrod, 2004) and as a response to the communicative needs of the addressee (Clark, 1996). However, individuals' tendency to lexically entrain might also have a pro-social component. For example, lexical entrainment could also be affected by social situational factors such as the partner's likeability (social affect) and whether or not the speaker has a previous relationship with (e.g., has previously interacted with) their current conversational partner (partner effects) (Brennan & Clark, 1996; von Baaren et al., 2003). Such factors might be particularly important when individuals feel socially excluded, and in individuals who might be more susceptible to social influences. In this study, we investigated the effects of social exclusion, partner effects, and personality traits in speakers' tendency to lexically entrain to a conversational partner.

We recruited 120 native speakers of British English, who engaged in a ball-tossing game (Cyberball, Williams et al., 2000) and a subsequent interactive online matching-and-naming task (based in the task used in Branigan et al. (2011)). Participants completed the two activities consecutively; they were told that in both activities, they would be interacting with remote players via a computer (in reality, the partners' responses were simulated). In the ball-tossing game, participants played with two 'players' and we manipulated the degree of participants' social inclusion (**Social Conditions**). In the **Social Exclusion Condition**, participants were never passed the ball after the two initial tosses and thus received fewer ball tosses than the other 'players'. In the **Social Inclusion Condition**, participants received an equal number of ball tosses as the other 'players'. In the subsequent matching-and-naming task, participants alternated turns with a 'partner' to match and name one out of two images that appeared on the screen. Experimental items comprised a target that could be named with both a highly favoured label, e.g. *umbrella*, and a disfavoured, but acceptable, label, e.g., *brolly*. The materials were pre-tested in a sample drawn from the same population as the participants in the main experiment. The 'partner' always named the experimental targets before the participants, using the disfavoured name exclusively. We measured entrainment as the proportion of trials in which participants used the same disfavoured labels the 'partner' used before. In this task, we manipulated participants' beliefs about whether they were playing with one of the 'players' with whom they had played the ball-tossing game (**Same Partner Condition**) or with a 'partner' with whom they had not played before (**New Partner Condition**). We used a 2x2 between-participants factorial design, crossing **Social Conditions** (**Social Exclusion Condition** vs **Social Inclusion Condition**) and **Partner Conditions** (**Same Partner Condition** vs **New Partner Condition**). In a separate session, participants completed a self-report personality traits survey (i.e., Big Five, John et al., 1991).

We found strong evidence for **Lexical Entrainment**. Participants' frequency of use of disfavoured labels was significantly higher than the frequency of use of those labels in a spontaneous naming task used to norm our materials ($V=120$, $p<.005$). There was no main effect of **Social Conditions** on **Lexical Entrainment**. Overall, participants assigned to the **Social Exclusion Condition** (SE) were as likely to use the disfavoured lexical label as those assigned to the **Social Inclusion Condition** (SI) (SE: $M=32\%$, $SD=21\%$; SI: $M=37\%$, $SD=21\%$; Beta: 0.18, $p>.05$, $\chi^2(1)=1.5$). However, there was a main effect of **Partner Conditions**. Participants in the **Same Partner Condition** (SP) were less likely to entrain than participants in the **New Partner**

Condition (NP) (SP: M=30%, SD=22%; NP: M=40%, SD=26%; Beta: 0.31, $p=.03$, $\chi^2(1)=4.5$, $p=.03$). But this effect was not uniform across **Social Conditions**: In the **Social Exclusion Condition**, participants assigned to the **New Partner Condition** in the naming task were more likely to entrain than those assigned to the **Same Partner Condition** (NP: M=39%, SD=30%, SP: M=24%, SD=21%, Beta: .5, $p=.035$, $\chi^2(1)=4.3$, $p=.037$). But there was no effect of **Partner Condition** in the **Social Inclusion Condition** (NP: M=40%, SD=20%, SP: M=35%, SD=22%, Beta: .15, $p>.05$, $\chi^2(1)=0.89$, $p>.05$). We also found a significant, negative effect of **Neuroticism** on **Lexical Entrainment** (Beta: -.28, $p=.045$; $\chi^2(1)=3.9$, $p=.047$). Crucially, there was a significant interaction between **Neuroticism** and **Social Conditions**: **Neuroticism** showed a significant, negative effect on **Lexical Entrainment** in **Social Exclusion** trials (Beta: -.66, $p<.01$; $\chi^2(1)=8.18$, $p<.01$), but not in **Social Inclusion** trials (Beta: .08, $p>.05$; $\chi^2(1)=$, $p>.05$). No other personality traits had an effect on **Lexical Entrainment**. Given previous findings showing gender effects on **Neuroticism** scores (Goodwin et al., 2004), we carried out further exploratory analyses to test for an effect of **Gender** on **Lexical Entrainment**, and found that females entrained significantly less often than males (Females: M=30%, SD=19%, Males: M=41%, SD=30%; Beta: .33, $p=.024$; $\chi^2(1)=4.95$, $p=.026$).

Overall, our results show strong evidence for lexical entrainment in an online task. But more importantly, they suggest that individuals' tendency to lexically entrain to a partner is mediated by whether or not they have a previous relationship with that partner (here, via non-linguistic interaction in a game). In addition, we found evidence that individuals' tendency to entrain to a partner with whom they have previously interacted is mediated by whether that partner had socially excluded them or not. Taken together, these findings demonstrate that lexical entrainment is affected by social situational factors, and implicate a pro-social component to entrainment effects. Strikingly, we also found evidence that effects of social exclusion on speakers' tendency to lexically entrain are mediated by Neuroticism, which has been linked to social anxiety (Newby et al., 2017). Altogether, our results demonstrate that entrainment has a pro-social component that is mediated by personality traits. We are currently running another experiment aiming at replicating the results of the present experiment and further interrogating gender effects on lexical entrainment.

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