

Smiling in spontaneous dyadic signed interaction: disentangling feedback and alignment functions



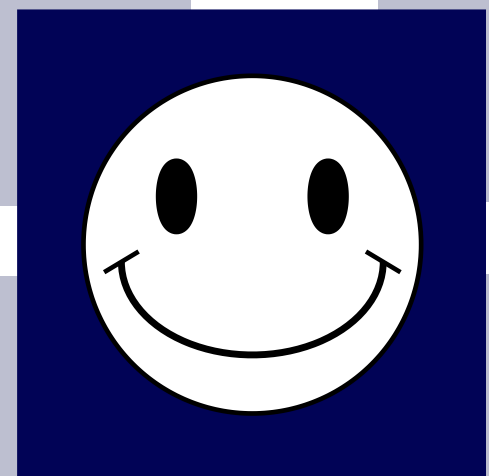
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Introduction

Smiles and laughter are often produced as feedback signals (Brunner 1979) with smiles mostly as continuers and laughter as assessments (Bauer et al. forthcoming).

Smiles and laughter are particularly susceptible to alignment (Mui et al. 2018) showing similarity and togetherness (Bavelas et al. 1986).



Feedback

Any interactional move that display some kind of stance towards another interlocutor's utterance (Allwood et al. 1992). Feedback may indicate passive reciprocity (continuers), acknowledge and agree to what has been claimed; state a piece of information as new; or evaluate a piece of information (assessments) (Schegloff 1982; Gardner 2001).

Alignment

A cross-participant repetition of any (lexical, syntactic or gestural) communicative behaviour (Bavelas et al. 1986; Rasenberg et al. 2022). As interlocutors see each other using a specific behaviour, they prime each other to re-use it to implicitly increase similarity of interlocutors' mental situation models (Pickering & Garrod 2004).

RQs & Hypotheses

① Form variation

Does the intensity of a smiling behavior determine its communicative function, with lower-intensity smiles primarily serving as feedback and higher-intensity smiles being more associated with alignment?

H1: Smiles rated lower on the intensity scale predominantly serve as feedback, while higher intensity smiles are more likely to be associated with alignment.

② Cross-linguistic variation

Are there differences in the frequency and form of smiling behavior across three languages?

H2: Russian signers exhibit greater reservation in their utilization of smiling.

Data sources



PJM CORPUS
(ORKPJM)
Wójcicka et al., 2020



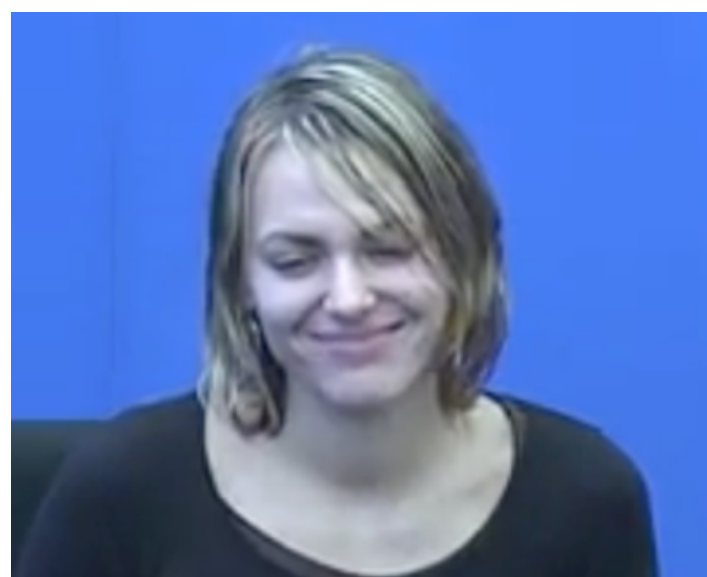
DGS CORPUS
(My DGS annotated)
Konrad et al., 2020



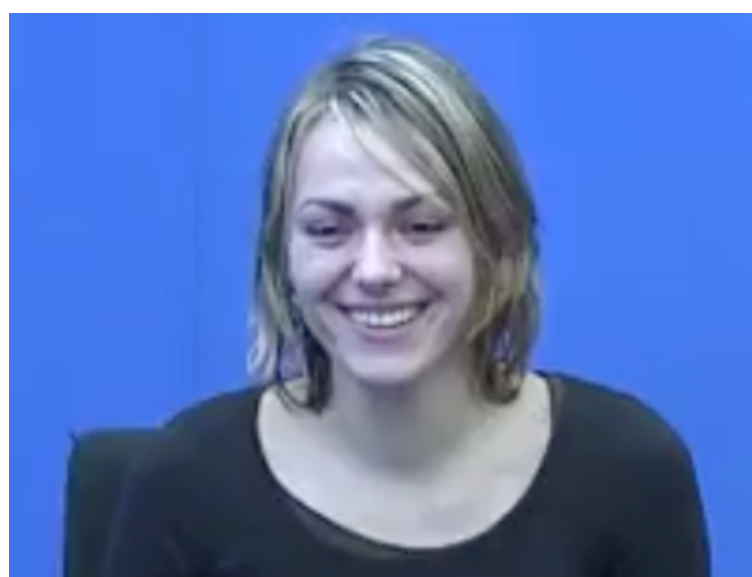
RSL CORPORA
Burkova, 2015;
Bauer & Poryadin, 2023



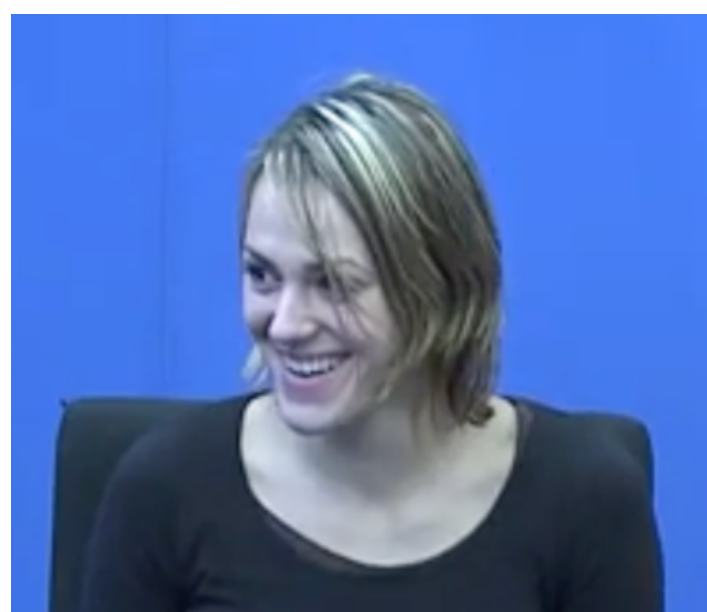
Material & Method



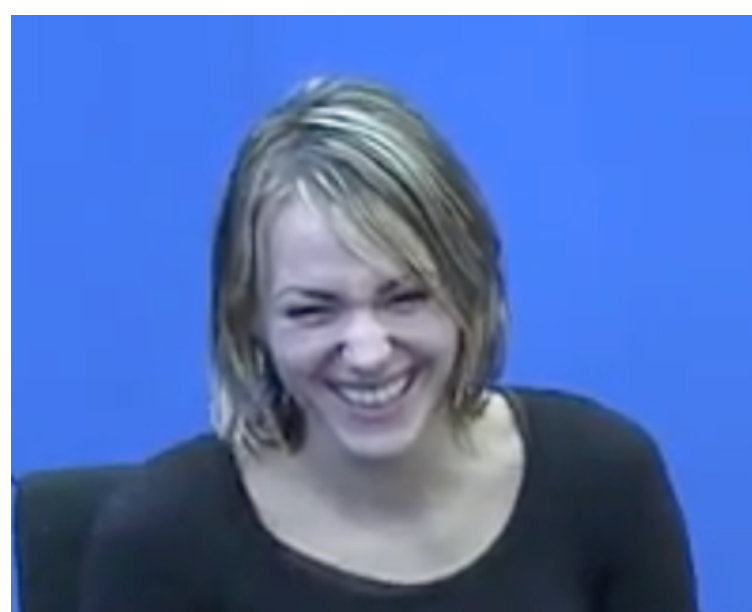
closed mouth smile (S1)



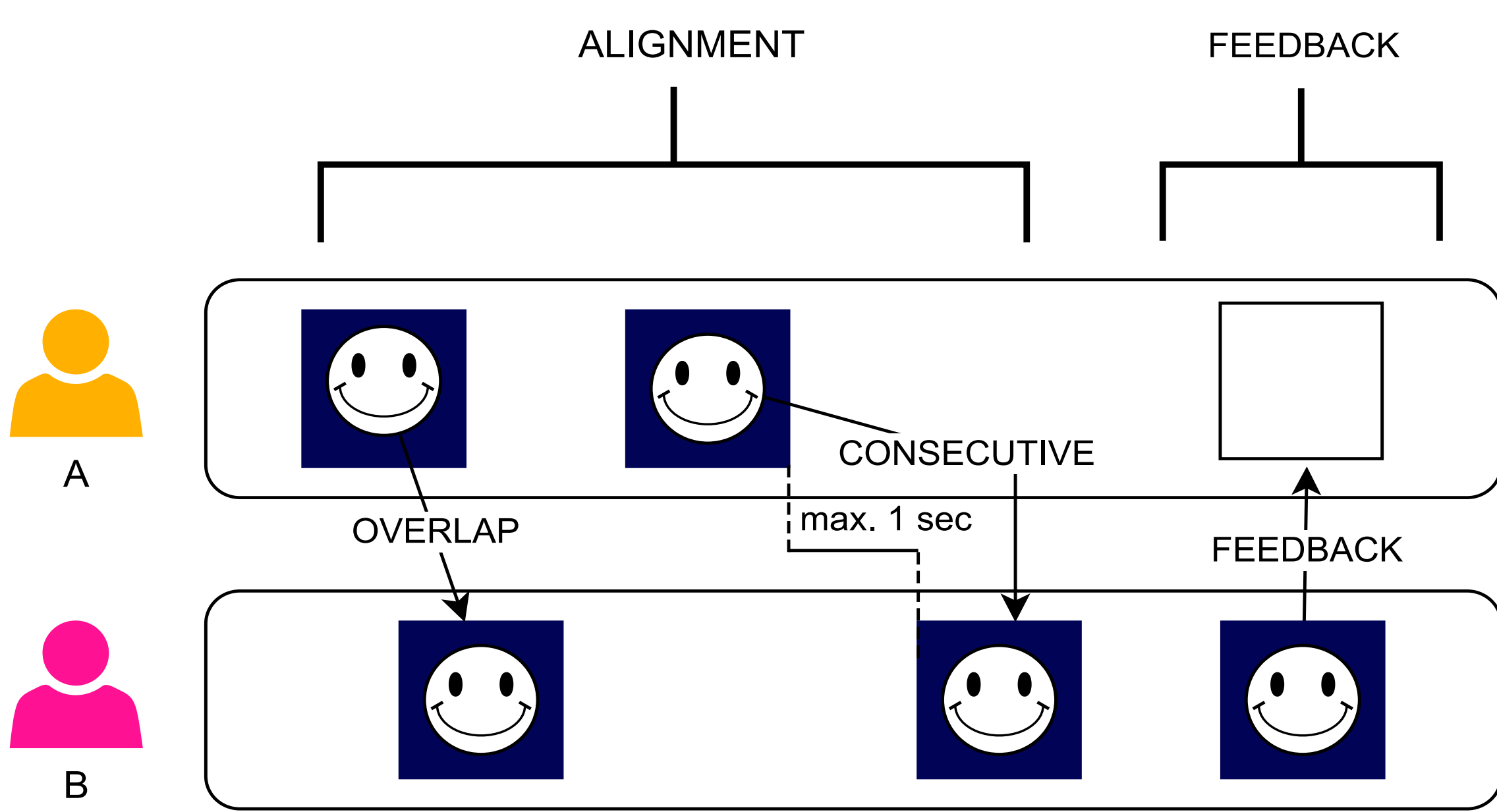
open mouth smile (S2)



wide open mouth smile (S3)



laugh (S4)



	PJM	DGS	RSL
Number of analysed dialogues	3	3	3
Length of analysed dialogues	01:38:12	01:35:40	01:38:58
Number of informants	6	6	6

Form annotation

Smiling Intensity Scale

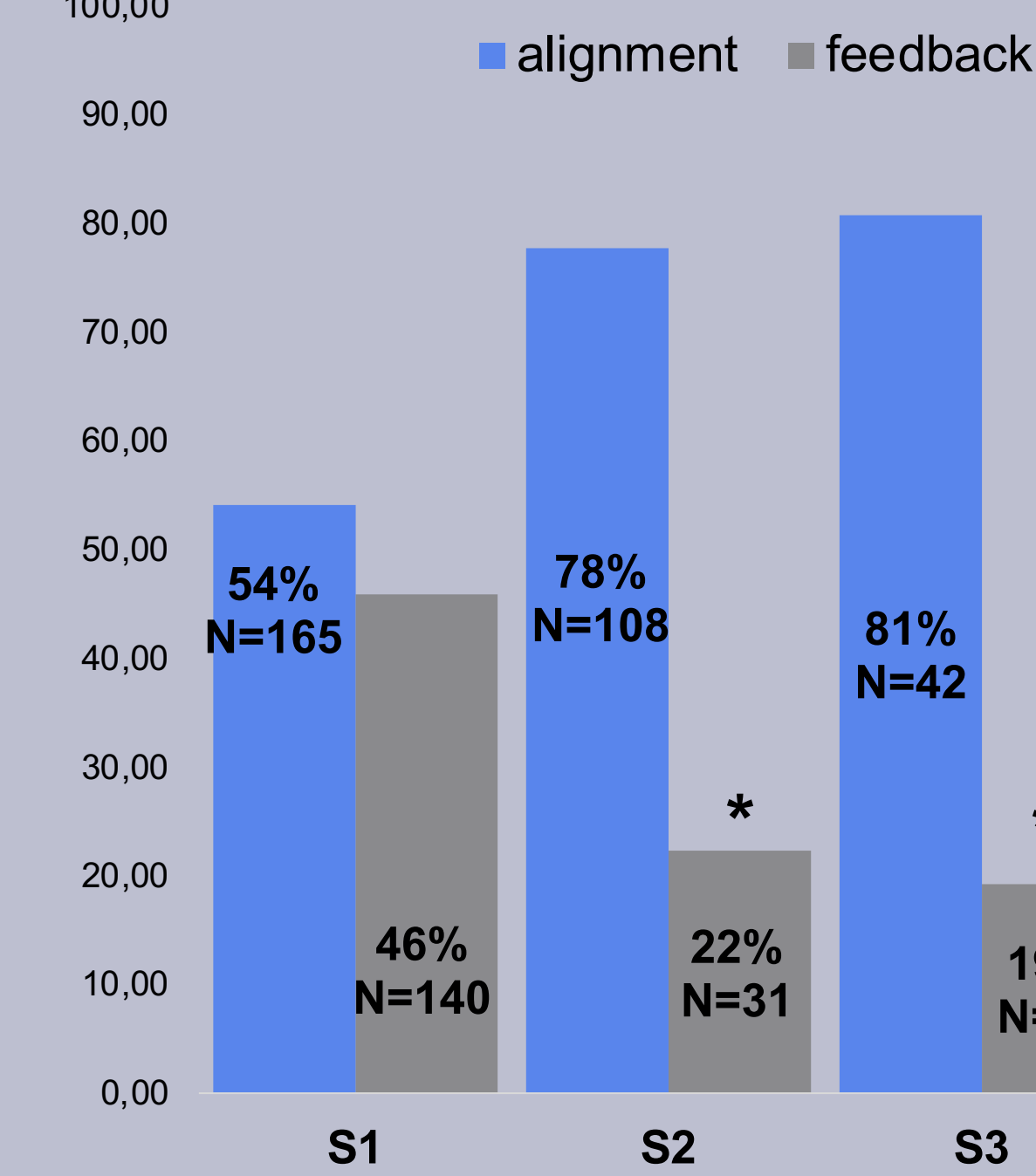
(Gironzetti et al. 2016)

Function annotation Visualization of an interaction between two people, each rectangle represents an instance of a smiling behavior. Alignment occurs when one individual's (interlocutor A) smiling behavior is re-used by the other individual (interlocutor B) in an overlapping timeframe. If interlocutor B replicates the smiling behavior within a 1000 ms window, this is also considered alignment (diagram adapted from Rasenberg et al. 2022).

Data samples

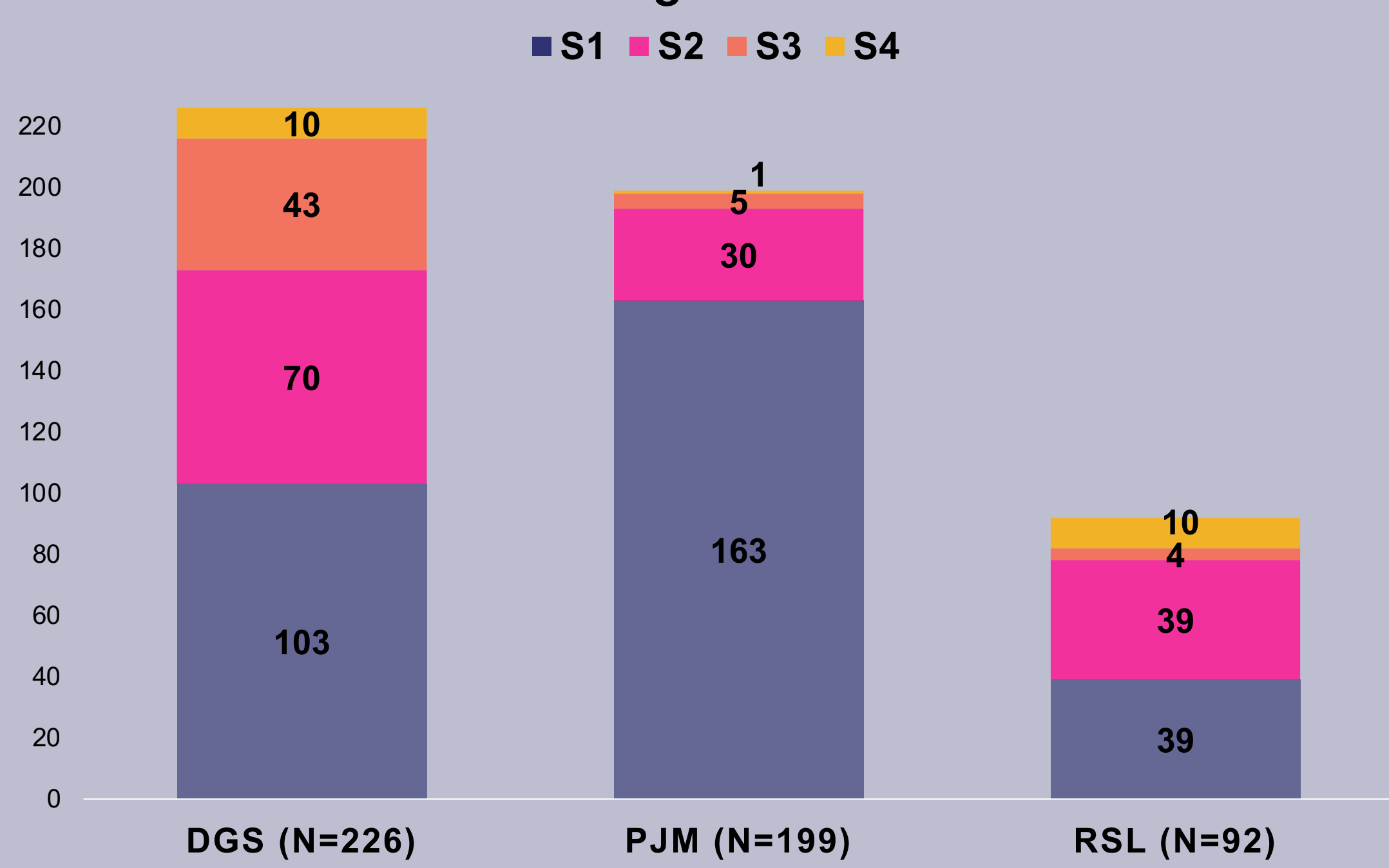
Findings

① Form-function pairing of smiling behaviour

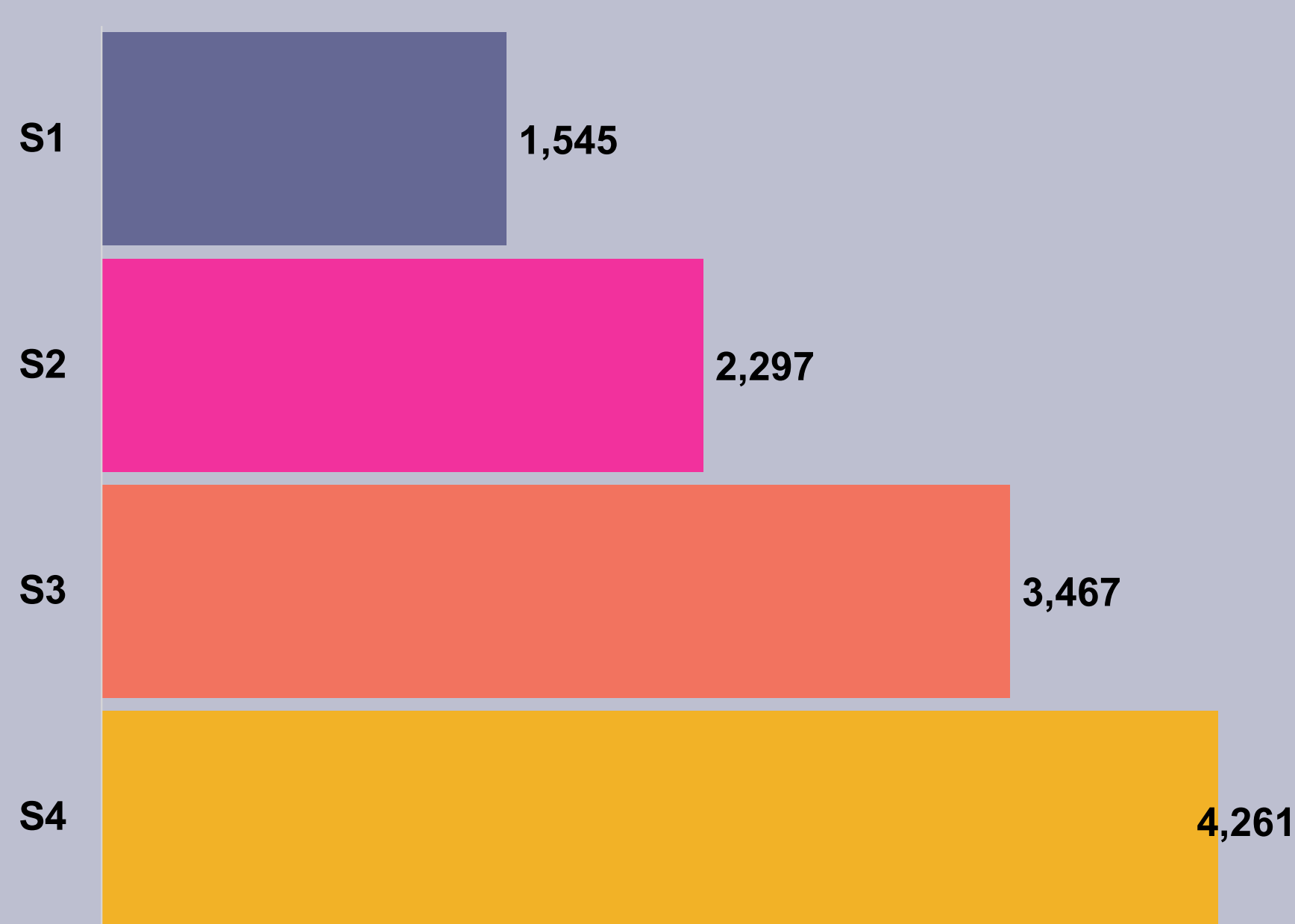


S2: $\chi^2 (1, N = 139) = 45.16, p < .001$; S3: $\chi^2 (1, N = 52) = 21.17, p < .001$; S4: $\chi^2 (1, N = 21) = 11.89, p < .001$

② Cross-linguistic variation in the frequency of smiling behavior



Median duration of different types of smiles in the data (sec)



References

Allwood, J., Nivre, J., Ahlsén, E. (1992). On the Semantics and Pragmatics of Linguistic Feedback. *Journal of Semantics*, 9(1), p. 1–26; Bauer, A., Poryadin, R. (2023). "Russian Sign Language Conversations." Data Center for the Humanities (DCH); Bauer, A., Gipper, S., Hosemann, J., Herrmann, T.-A. (forthcoming). Rethinking linguistic feedback: Multimodal addressee's signals in signed and spoken languages. Bavelas, J.B., Black, A., Lemery, C.R., Mullett, J. (1986). "I show how you feel": Motor mimicry as a communicative act. *Journal of Personality and Social Psychology*, 50, p. 322–329; Brunner, L.J. (1979). Smiles can be back channels. *J Pers Soc Psychol.*, 37, p.728–734; Gardner, R. (2001) When Listeners Talk: Response tokens and listener stance. *Pragmatics & Beyond New Series*, 92, Amsterdam: John Benjamins Publishing Company, doi:10.1075/pbns.92; Burkova, S. (2015). Russian Sign Language Corpus. Novosibirsk; Gironzetti, E., Attardo, S., Pickering, L. (2016). Smiling, Gaze, and Humor in Conversation: A Pilot Study. In *IVITRA Research in Linguistics and Literature*, edited by Leonor Ruiz-Gurillo, 14:235–54. Amsterdam: John Benjamins; Konrad, R., Hanke, T., Langer, G., König, S., König, L., Nishio, R., Regen, A. (2022). Public DGS Corpus: Annotation Conventions (Revision 4.1). Project Note AP03-2018-01. Project Notes of the DGS Corpus Project. Hamburg, Germany: DGS-Korpus project, IDGS, Hamburg University; Mui, P.H.C., Goudbeek, M.B., Roex, C., Spierts, W., Swerts M.G.J. (2018). Smile Mimicry and Emotional Contagion in Audio-Visual Computer-Mediated Communication, *Frontiers in Psychology* 9; Rasenberg, M., Pouw W, Özyürek A, Dingemans M. (2022). The multimodal nature of communicative efficiency in social interaction. *Scientific Reports*, 12(1):19111; Schegloff, EA. (1987). Analyzing Single Episodes of Interaction: An Exercise in Conversation Analysis. *Social Psychology Quarterly*, 50(2), p. 101–114; Wójcicka, J., Kuder, A., Mostowski, P., Rutkowski, P. (2020). Open Repository of the Polish Sign Language Corpus. Warsaw: Faculty of Polish Studies, University of Warsaw.

Summary & Discussion

1. H1 is partially confirmed: we observe a correlation between the intensity of smiling behavior and conversational strategy. Higher-intensity smiles are indeed more likely to be associated with alignment, lower-intensity smiles serve both communicative functions equally. Specifically, the greater the intensity of a smile, the higher the probability that it will be aligned between the interlocutors.
2. Consistent with H2, we find that smiles and laughter occur less frequently in PJM than in DGS, and even less frequently in RSL than in PJM. RSL signers demonstrate greater reservation in their use of smiling, which may be influenced by cultural factors.
3. There is a correlation between the intensity and duration of smiles in free conversation. Specifically, higher intensity smiles tend to have a longer duration.
4. Based on priming theories of alignment (Pickering & Garrod, 2004), a partner's behavior directly activates corresponding motor representations in the observer. Consequently, more intense smiles serve as stronger primes, prompting the observer to replicate the behavior and align their actions accordingly.