‘Alexa, are you prudish?’ Laughter in German households with smart speakers

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Abstract

Laughter in human conversation plays a key role in managing dialogue and regulating social dynamics, facilitating turn-taking, self-correction, and affiliation (Maraev et al., 2021). Though often linked to humor, only 10-20% of laughter results from jokes (Provine, 2001). More often, it arises from context-dependent factors, such as social incongruities, signaling alignment and managing conversation flow (Mazzocconi et al., 2020). Additionally, it also plays a key role in fostering empathy.

In human-human interaction, a joke may lead to laughter and playful exchanges that shape the conversation, with each participant contributing to the dynamic social exchange. In contrast, laughter in interactions with home assistant agents is mostly reactive, emerging in response to specific commands like playing music or controlling smart devices, rather than as part of an engaged exchange between user and agent.

Existing taxonomies of laughter focus primarily on human-human interactions (Mazzocconi et al., 2020) or structured, more task-based, human-robot interactions (Perkins Booker et al., 2024). We have investigated interactions from four households in which Amazon’s Alexa, an AI-powered home assistant, was introduced. The members of the households had no, or little, prior experience of these kinds of systems. We have observed that laughter in these ‘in-the-wild’ situations of actual use tends to occur in more socially complex situations than those captured by the taxonomies of Mazzocconi

et al. (2020); Perkins Booker et al. (2024). The instances of laughter wouldn't have being occurring without Alexa in the environment, but the laugher was often assuming a human to be an overhearer or recipient and not simply a part of the human-Alexa dyadic exchange. Therefore, in this work, we aim to evaluate how and when the previously proposed laughter taxonomies apply to our dataset, and what would be necessary for a taxonomy to properly handle our observations.

References

Maraev, V., Noble, B., Mazzocconi, C., and Howes, C. (2021). Dialogue act classification is a laughing matter.

Mazzocconi, C., Tian, Y., and Ginzburg, J. (2020). What's your laughter doing there? a taxonomy of the pragmatic functions of laughter. *IEEE Transactions on Affective Computing*, 13(3):1302–1321.

Perkins Booker, N., Cohn, M., and Zellou, G. (2024). Linguistic patterning of laughter in human-socialbot interactions. *Frontiers in Communication*, 9:1346738.

Provine, R. R. (2001). *Laughter: A Scientific Investigation*. Penguin, London, U.K.