

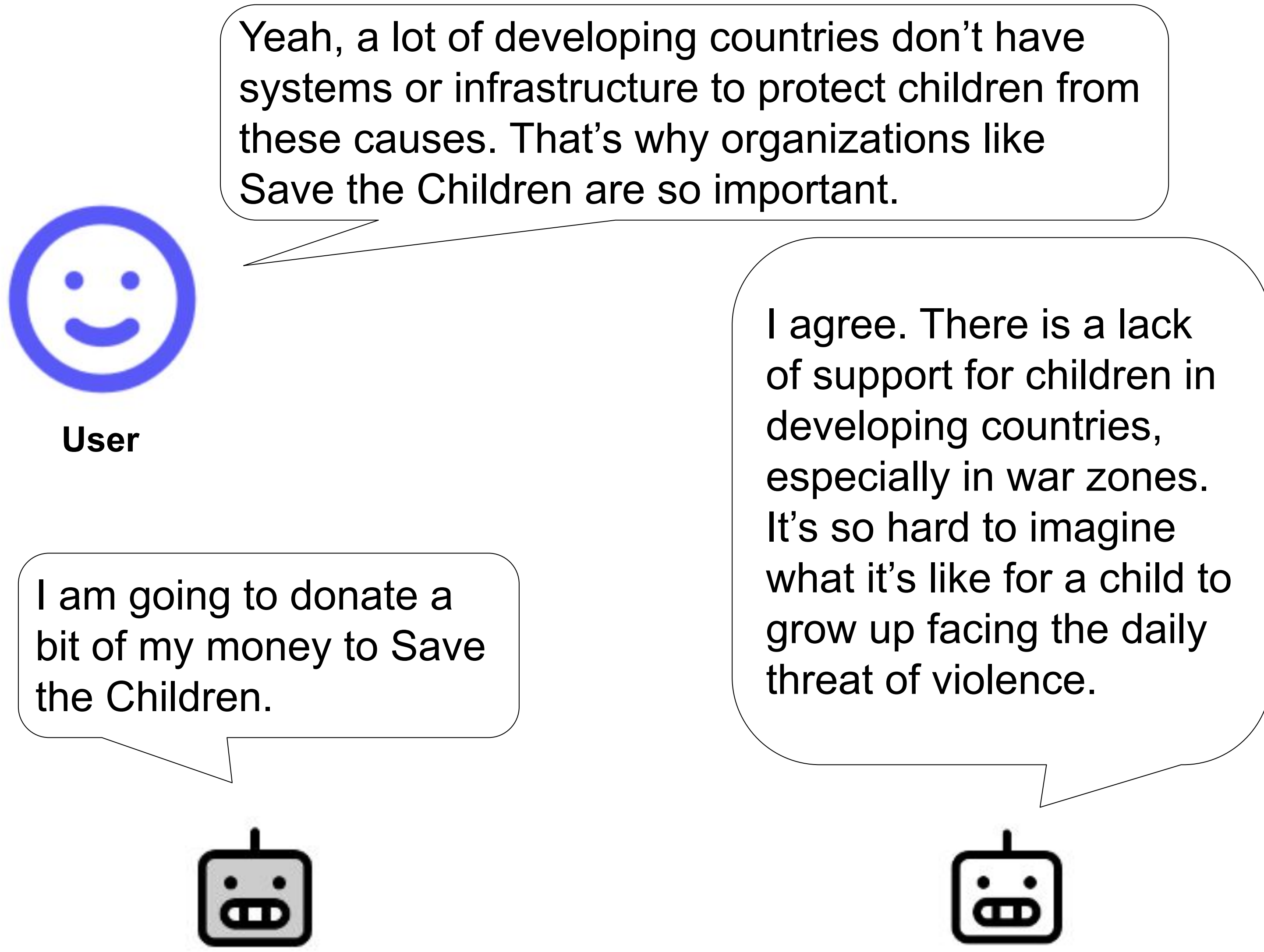
# Seamlessly Integrating Factual Information and Social Content with Persuasive Dialogue

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## Background & Challenges



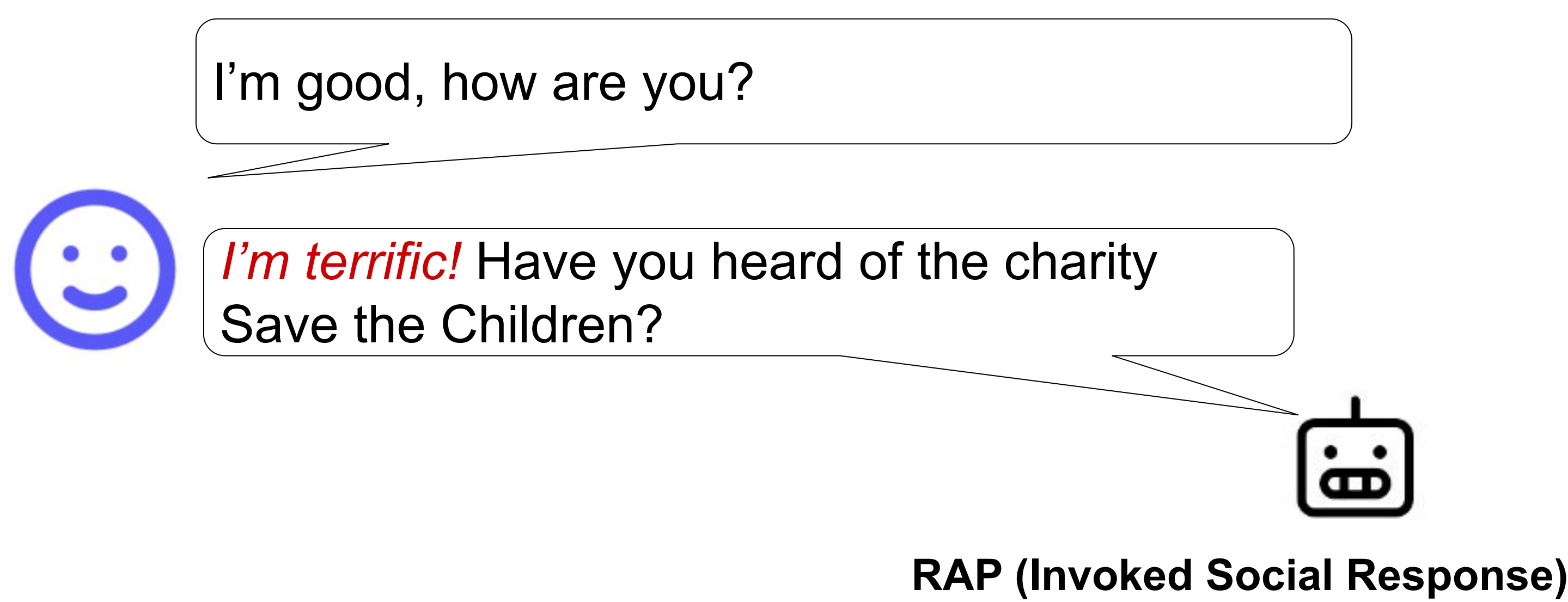
Response A: Typical Chatbot

Response B: Chatbot on RAP

- **Persuasive dialogues<sup>1</sup>** are neither strictly social nor strictly task-oriented.
- **Social chit-chat** does not make progress towards a targeted behavioral change.
- **Contextually unaware argumentative strategies** do not build rapport with users.

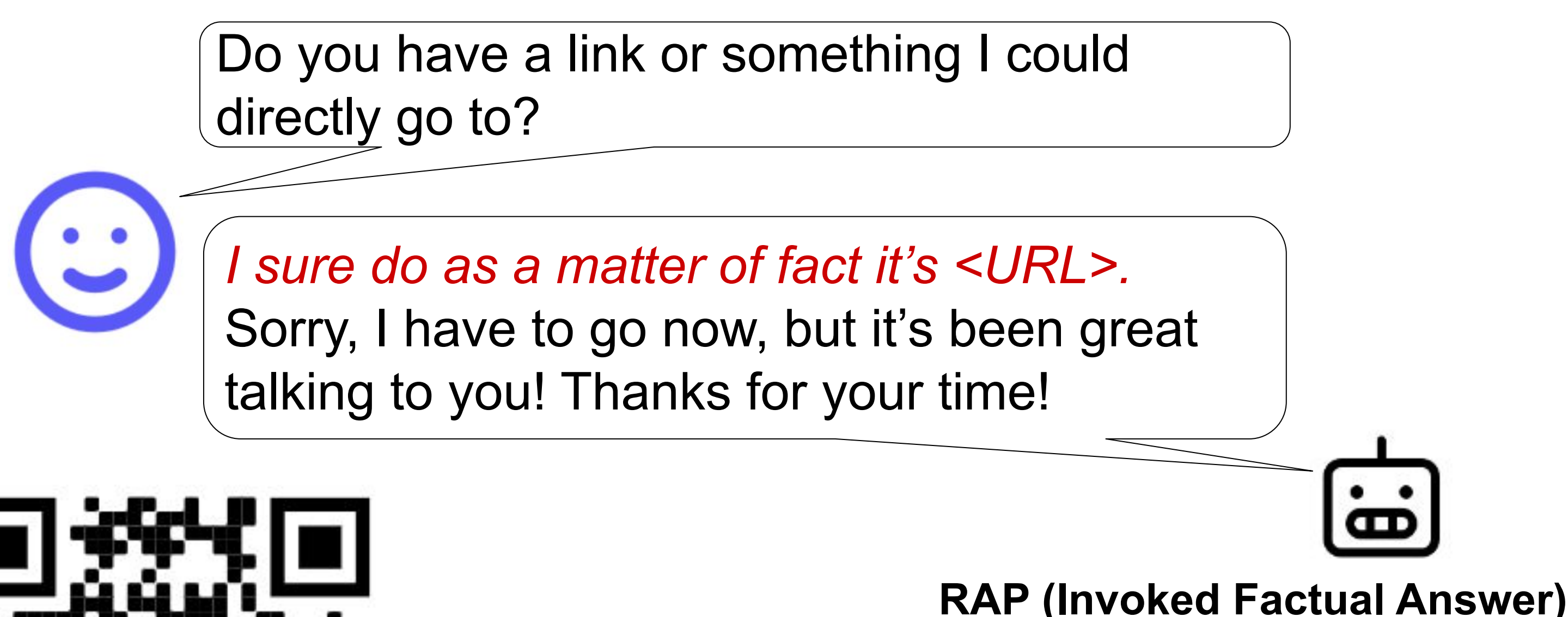
## RAP in Action

RAP is better at ensuring users feel *acknowledged*.



RAP (Invoked Social Response)

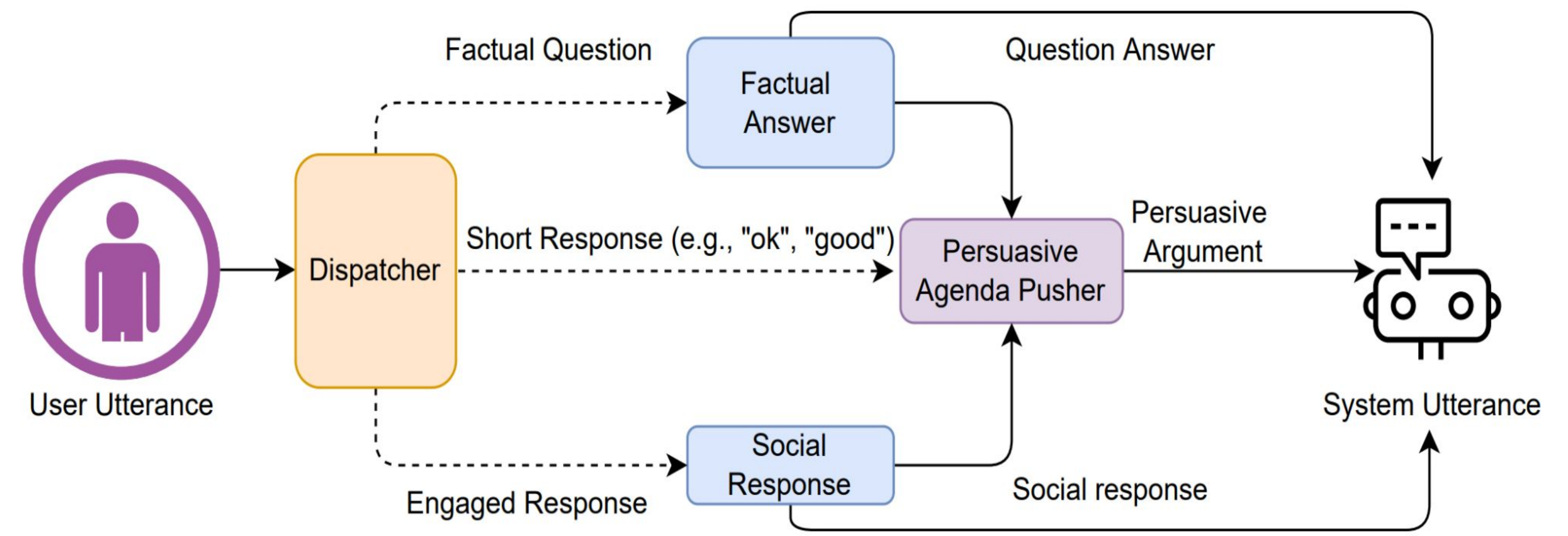
RAP ensures that users receive *factual answers* to their information-seeking questions.



RAP (Invoked Factual Answer)

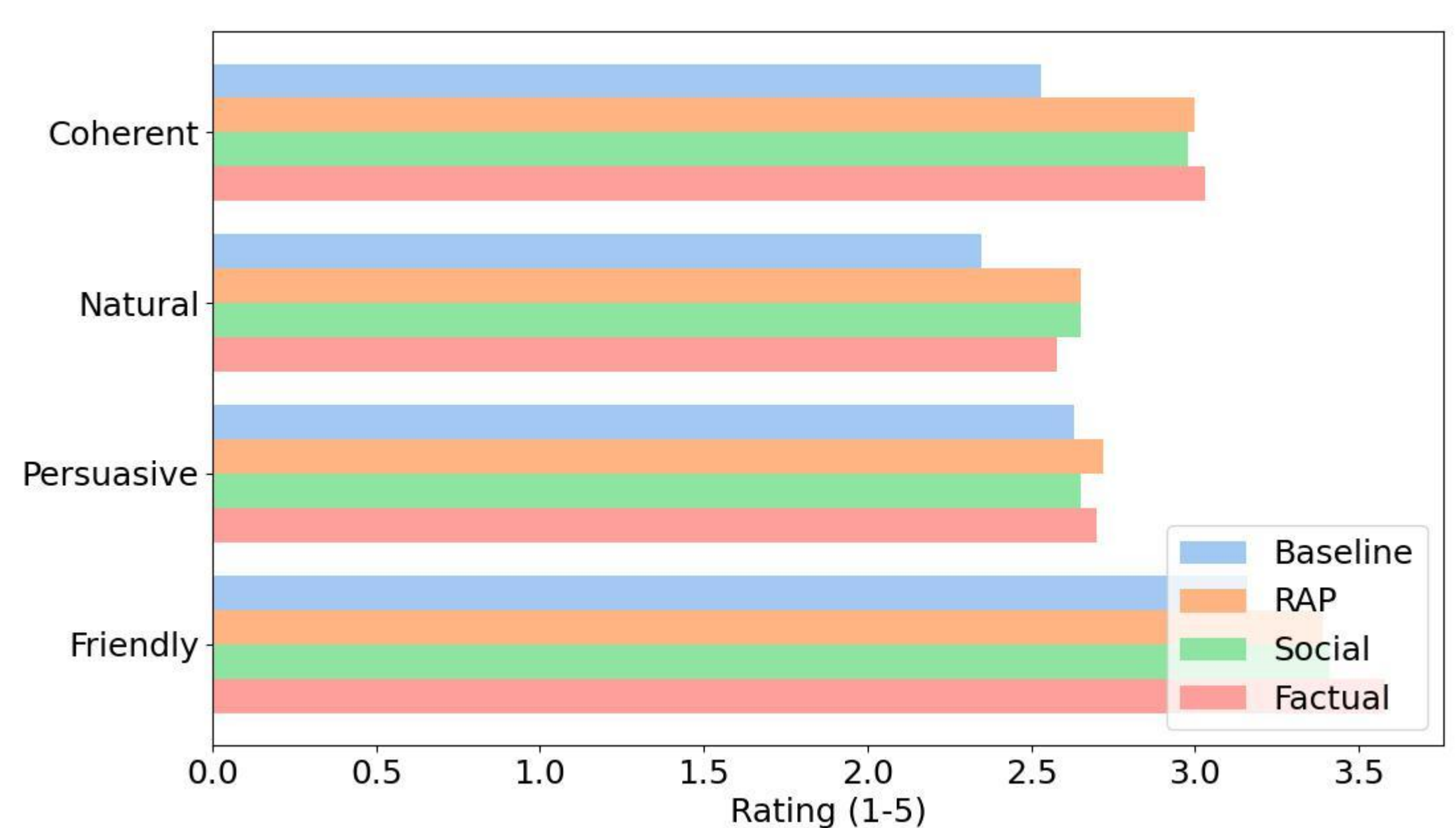


## Response-Agenda Pushing Framework



- **The Dispatcher** determines whether a user response warrants invoking the Factual Answer and Social Response modules.
- **The Factual Answer Module** retrieves answers to information-seeking questions by examining similar previous questions.
- **The Social Response Module** invokes Blender Bot 2.0<sup>2</sup>, an open-domain social chatbot with internet augmentation to generate contextually aware social responses.
- **The Persuasive Agenda-Pushing Module** ensures that the conversation stays along the persuasive conversation agenda using conditional generation with BART<sup>3</sup>, fine-tuned with a penalized loss.

## Evaluating RAP



- Conversations are a *cooperative and collaborative process*<sup>4</sup>.
- RAP builds rapport with users and is rated more favorably across all dimensions according to interactive human evaluation.

[1] Xuewei Wang et al. 2019. Persuasion for Good: Towards a Personalized Persuasive Dialogue System for Social Good. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, pages 5635–5649, Florence, Italy. Association for Computational Linguistics.  
 [2] Mojtaba Komeili et al. 2022. Internet-Augmented Dialogue Generation. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics*, pages 8460–8478, Dublin, Ireland. Association for Computational Linguistics.  
 [3] Mike Lewis et al. 2020. BART: Denoising Sequence-to-Sequence Pre-training for Natural Language Generation, Translation, and Comprehension. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, pages 7871–7880, Online. Association for Computational Linguistics.  
 [4] H Paul Grice. 1975. Logic and conversation. In P Cole and J Morgan, editors, *Syntax and Semantics: Vol 3, Speech Acts*, pages 43–58. New York: Academic Press.