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Collaborative meaning-making: the emergence of novel languages in humans, machines, and human-machine interactions

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Propositions

Accompanying the dissertation

Collaborative Meaning-Making

The Emergence of Novel Languages in Humans, Machines, and Human-Machine Interactions

1. Diverse responses to new environments can benefit grounding symbolic communicative signals. (chapter 2)
2. Vision-and-language models do not consistently exhibit human-like cross-modal associations. (chapter 4)
3. Measuring structural properties of emerged languages in Reinforcement Learning simulations requires targeted evaluation beyond merely using established metrics. (chapter 5)
4. General processes of learning and using language that shape human linguistic systems towards communicative efficiency, also optimise languages for inductive biases in Large Language Models. (chapter 6)
5. Optimising for communicative success is indispensable for collaborative meaning-making between humans and machines. (chapter 7)
6. Adapting established experiments of language evolution and psycholinguistics to investigate machine intelligence advances our understanding of both human and artificial cognition. (this dissertation)
7. Computational linguistics must refrain from becoming the field of Artificial Intelligence.
8. Human data and interactions are necessary in research on cognition and Artificial Intelligence.
9. Evaluations purely based on popular benchmarks distort the progression of Natural Language Processing / understanding.
10. Prompting is just another hyperparameter.
11. Interdisciplinary research and collaborations during a PhD are undervalued.
12. Public outreach about Artificial Intelligence is as important as publishing.

Tom Kouwenhoven

Leiden, October 30, 2025