



## Re: Peer Response

by Mariam Ibrahim Ismail Hasan Almarzooqi - Friday, 17 October 2025, 4:42 PM

Hi,

Thanks for your well-articulated post on Agent Communication Languages (ACLs) and their role in enabling autonomous agents to interact effectively. I agree that the abstraction ACLs provide, especially in languages like KQML and FIPA-ACL, is essential for fostering interoperability between diverse systems without requiring knowledge of each other's internal workings (Labrou, Finin, & Peng, 1999). This capability truly supports the scalability and flexibility needed in complex multi-agent environments.

Your point about performatives such as "ask" and "tell" is important because these enable richer social interactions among agents, allowing them to negotiate, collaborate, and form coalitions more naturally, which is crucial for intelligent distributed systems (FIPA, 2002).

You also rightly highlight the computational overhead and complexity involved in semantic parsing and reasoning, which can limit ACLs' applicability in time-sensitive scenarios. This is a known trade-off compared to direct method invocation in programming languages, which excels in efficiency and ease of debugging but lacks the flexibility for autonomous decision-making (Wooldridge, 2009).

Overall, your balanced view of the benefits and limitations of ACLs provides a great framework for deciding when to use them based on application needs. As these communication languages continue evolving, I'm curious how future advancements might reduce their complexity while retaining their semantic richness.

### References:

FIPA (2002). FIPA Communicative Act Library Specification. Available at: <https://www.fipa.org/specs/fipa00037/SC00037J.html>

Labrou, Y., Finin, T., & Peng, Y. (1999). The current landscape of agent communication languages. *IEEE Intelligent Systems*, 14(2), 45–52. <https://doi.org/10.1109/5254.758857>

Wooldridge, M. (2009). *An Introduction to MultiAgent Systems* (2nd ed.). John Wiley & Sons. <https://onlinelibrary.wiley.com/doi/book/10.1002/9781118720833>