Peer response – unit10-peer-responses-from-colleagues

Thank you for your insightful discussion on Agent Communication Languages (ACLs). I agree with your point that ACLs go beyond simple data exchange by embedding meaning and intent, which makes them highly valuable in heterogeneous and open systems like e-commerce and supply chains. This "shared semantics" truly differentiates ACLs from traditional method invocation.

I also found your observation about the trade-off between ACLs and conventional mechanisms such as APIs particularly important. While APIs provide speed and simplicity, ACLs support interoperability and autonomy—capabilities increasingly necessary as systems scale across organizational boundaries. As Jennings (2001) highlights, the ability of agents to negotiate, cooperate, and resolve conflicts depends on standardized communication protocols, something APIs alone cannot provide.

At the same time, your mention of performance limitations is crucial. In time-sensitive domains such as real-time trading or critical infrastructure monitoring, the overhead of parsing and interpreting ACL messages could indeed be a constraint (Russell and Norvig, 2020). This highlights the importance of context: ACLs shine in dynamic, decentralized environments, whereas simpler methods often remain sufficient in tightly controlled ones.

Overall, I think your post underscores how ACLs embody a shift from function execution toward true coordination and collaboration in AI systems. The challenge, as you point out, lies in balancing semantic richness with efficiency, depending on the system's requirements.

References

Jennings, N.R. (2001) 'An agent-based approach for building complex software systems', Communications of the ACM, 44(4), pp. 35–41.

Russell, S. and Norvig, P. (2020) Artificial intelligence: a modern approach. 4th edn. Harlow: Pearson.