

# ***APROCO: A Programmable Coordination Broker***

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## *Hypothesis*

Using normal blackboard systems, the coordination abstractions are always hidden inside the components (agents) and their protocol to the blackboard. If we could encapsulate these abstractions into special agents, we would gain a lot of flexibility as well as reusability.

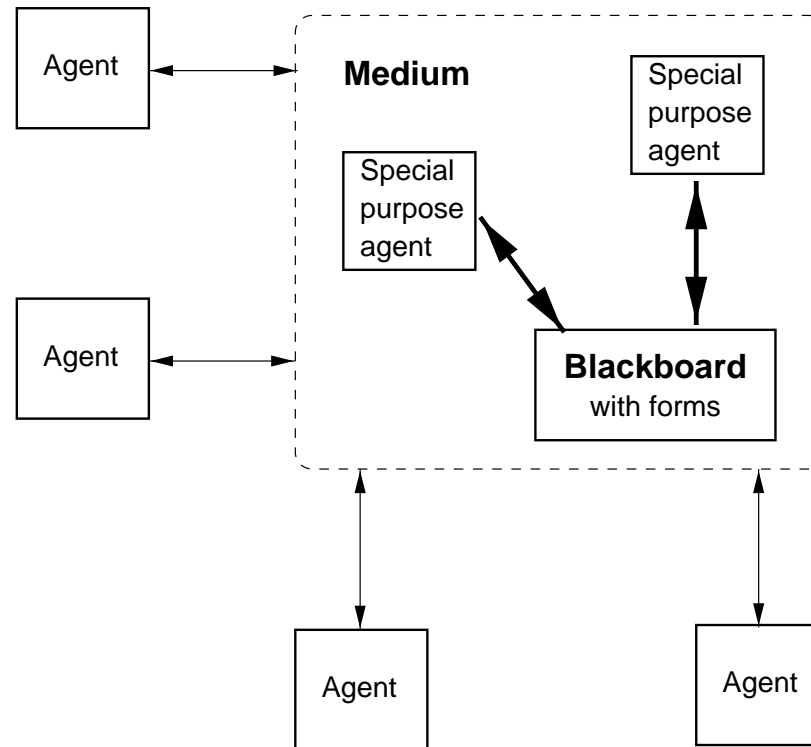
## *Goals*

- find a useful set of “coordination agents” to build a coordination medium for multi-agent systems
- try out the model of agents communicating (and coordinating) with forms using requirements of real-world example applications

## Overview of APROCO:

Coordination broker for multi-agent systems based on Linda-like blackboards.

- *Forms* instead of tuples as basic communication items
- Special *coordination agents* provide coordination services for client agents. They can be adapted, added, removed or exchanged to make a *programmable coordination medium*.



## Forms

Forms are interesting because they allow easy extensibility of protocols while providing full backward compatibility (e.g. *electronic mail*).

Forms represent “best practice”:

- default values
- easy to wrap up code

For the use with blackboard systems we have to define a *matching algorithm for forms*, ideally it would be “compatible” with the one for tuples.

Form A

x = 10
y = 4

Form B

z = 3
x = 10
y = 4
w = "x"

## Coordination Agents

Coordination agents are proactive encapsulations of coordination abstractions.

Coordination agents could deliver the following services to the client agents:

- gather and maintain global configuration information
- provide secure communication between agents
- provide access control for information items
- provide a naming service
- provide transactions
- bridging mismatched communication protocols