

# FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

## FIPA Accept Proposal Communicative Act Specification

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|------------------------|------------------------------------------------------|----------------------------|------------|
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*Geneva, Switzerland*

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## **1 Scope**

This document specifies the Accept Proposal communicative act which is compliant to [FIPA00037] requirements.

## 2 Accept Proposal

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Summary</b>      | The action of accepting a previously submitted proposal to perform an action.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Content</b>      | A tuple, consisting of an action expression denoting the action to be done, and a proposition giving the conditions of the agreement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Description</b>  | <p><i>Accept-proposal</i> is a general-purpose acceptance of a proposal that was previously submitted typically through a <i>propose</i> act (see [FIPA00051]). The agent sending the acceptance informs the receiver that it intends that (at some point in the future) the receiving agent will perform the action, once the given precondition is, or becomes, true.</p> <p>The proposition given as part of the acceptance indicates the preconditions that the agent is attaching to the acceptance. A typical use of this is to finalise the details of a deal in some protocol. For example, a previous offer to “hold a meeting anytime on Tuesday” might be accepted with an additional condition that the time of the meeting is 11.00.</p> <p>Note for future extension: an agent may intend that an action becomes done without necessarily intending the precondition. For example, during negotiation about a given task, the negotiating parties may not unequivocally intend their opening bids: agent a may bid a price p as a precondition, but be prepared to accept price p'.</p> |
| <b>Formal Model</b> | $\langle i, \text{accept-proposal}(j, \langle j, \text{act} \rangle, \phi) \rangle \equiv$ $\langle i, \text{inform}(j, \text{Ii Done}(\langle j, \text{act} \rangle, \phi)) \rangle$ $\text{FP: } B_i \alpha \wedge \neg B_i (B_i f_j \alpha \vee U_i f_j \alpha)$ $\text{RE: } B_j \alpha$ <p>Where:</p> $\alpha = \text{Ii Done}(\langle j, \text{act} \rangle, \phi)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Example</b>      | <p>Agent i informs j that it accepts an offer from j to stream a given multimedia title to channel 19 when the customer is ready. Agent i will <i>inform</i> (see [FIPA00046]) j of this fact when appropriate:</p> <pre>(accept-proposal   :sender i   :receiver j   :in-reply-to bid089   :content     ((action j (stream-content movie1234 19))      (B j (ready customer78)))   :language FIPA-SL)</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### 3 References

- [FIPA00037] FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.  
<http://www.fipa.org/specs/fipa00037/>
- [FIPA00046] FIPA Inform Communicative Act Specification. Foundation for Intelligent Physical Agents, 2000.  
<http://www.fipa.org/specs/fipa00046/>
- [FIPA00051] FIPA Propose Communicative Act Specification. Foundation for Intelligent Physical Agents, 2000.  
<http://www.fipa.org/specs/fipa00051/>