

FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA English Auction Interaction Protocol Specification

Document title	FIPA English Auction Interaction Protocol Specification		
Document number	XC00031E	Document source	FIPA TC C
Document status	Experimental	Date of this status	2001/01/29
Supersedes	None		
Contact	fab@fipa.org		
Change history			
2001/01/29	Approved for Experimental		

© 2000 Foundation for Intelligent Physical Agents - <http://www.fipa.org/>

Geneva, Switzerland

Notice

Use of the technologies described in this specification may infringe patents, copyrights or other intellectual property rights of FIPA Members and non-members. Nothing in this specification should be construed as granting permission to use any of the technologies described. Anyone planning to make use of technology covered by the intellectual property rights of others should first obtain permission from the holder(s) of the rights. FIPA strongly encourages anyone implementing any part of this specification to determine first whether part(s) sought to be implemented are covered by the intellectual property of others, and, if so, to obtain appropriate licenses or other permission from the holder(s) of such intellectual property prior to implementation. This specification is subject to change without notice. Neither FIPA nor any of its Members accept any responsibility whatsoever for damages or liability, direct or consequential, which may result from the use of this specification.

Foreword

The Foundation for Intelligent Physical Agents (FIPA) is an international organization that is dedicated to promoting the industry of intelligent agents by openly developing specifications supporting interoperability among agents and agent-based applications. This occurs through open collaboration among its member organizations, which are companies and universities that are active in the field of agents. FIPA makes the results of its activities available to all interested parties and intends to contribute its results to the appropriate formal standards bodies.

The members of FIPA are individually and collectively committed to open competition in the development of agent-based applications, services and equipment. Membership in FIPA is open to any corporation and individual firm, partnership, governmental body or international organization without restriction. In particular, members are not bound to implement or use specific agent-based standards, recommendations and FIPA specifications by virtue of their participation in FIPA.

The FIPA specifications are developed through direct involvement of the FIPA membership. The status of a specification can be either Preliminary, Experimental, Standard, Deprecated or Obsolete. More detail about the process of specification may be found in the FIPA Procedures for Technical Work. A complete overview of the FIPA specifications and their current status may be found in the FIPA List of Specifications. A list of terms and abbreviations used in the FIPA specifications may be found in the FIPA Glossary.

FIPA is a non-profit association registered in Geneva, Switzerland. As of January 2000, the 56 members of FIPA represented 17 countries worldwide. Further information about FIPA as an organization, membership information, FIPA specifications and upcoming meetings may be found at <http://www.fipa.org/>.

Contents

- 1 FIPA English Auction Interaction Protocol..... 1
- 1.1 Exceptions to Interaction Protocol Flow..... 2
- 2 References..... 3

1 FIPA English Auction Interaction Protocol

In the FIPA English Auction Interaction Protocol (IP), the auctioneer seeks to find the market price of a good by initially proposing a price below that of the supposed market value and then gradually raising the price. Each time the price is announced, the auctioneer waits to see if any buyers will signal their willingness to pay the proposed price. As soon as one buyer indicates that it will accept the price, the auctioneer issues a new call for bids with an incremented price. The auction continues until no buyers are prepared to pay the proposed price, at which point the auction ends. If the last price that was accepted by a buyer exceeds the auctioneer's (privately known) reservation price, the good is sold to that buyer for the agreed price. If the last accepted price is less than the reservation price, the good is not sold.

In *Figure 1*, the auctioneer's calls, expressed as the general *cfp* act (see [FIPA00037]), are multicast to all participants in the auction. For simplicity, only one instance of the message is portrayed. Note also that in a physical auction, the presence of the auction participants in one room effectively means that each acceptance of a bid is simultaneously broadcast to all participants and not just the auctioneer. This may not be true in an agent marketplace, in which case it is possible for more than one agent to attempt to bid for the suggested price. Even though the auction will continue for as long as there is at least one bidder, the agents will need to know whether their bid (represented by the *propose* act - see [FIPA00037]) has been accepted. Hence the appearance in the IP of the *accept-proposal* (see [FIPA00037]) and *reject-proposal* acts (see [FIPA00037]), despite this being implicit in the English Auction process that is being modelled.

Note that the proposals that are submitted by the bidders primarily concern the bidding process. In response to a *cfp* to submit bids to purchase a good X, a proposal would be something of the order: "I propose that the bidding level be raised to purchase price Z and I assert that I am able to pay Z for X." This allows the auctioneer to be confident that the bidder can indeed pay the price without committing to actually paying it until the auctioneer specifically requests X (at price Z) from the winning bidder.

At the end of the IP, the auctioneer will typically enter a *request* IP (see [FIPA00026]) with the winning bidder to complete the auction transaction.

The representation of this IP is given in *Figure 1*.

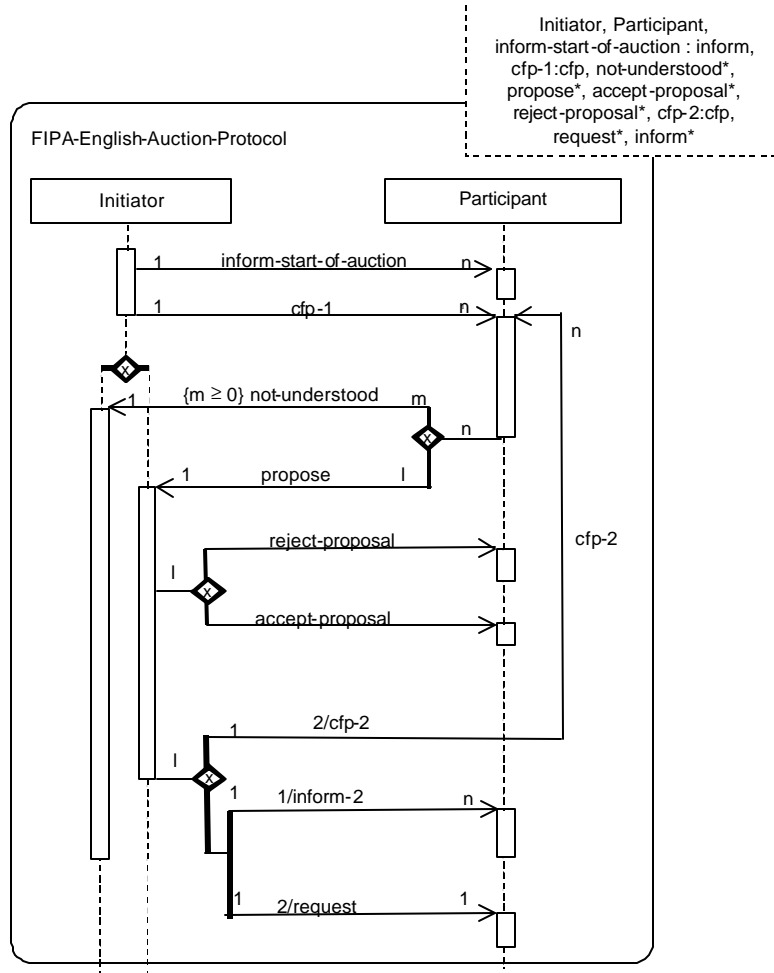


Figure 1: FIPA English Auction Interaction Protocol

1.1 Exceptions to Interaction Protocol Flow

This IP is a pattern for a simple interaction type. Elaboration on this pattern will almost certainly be necessary in order to specify all cases that might occur in an actual agent interaction. Real world issues of cancelling actions, asynchrony, abnormal or unexpected IP termination, nested IPs, and the like, are explicitly not addressed here.

2 References

- [FIPA00026] FIPA Request Interaction Protocol Specification. Foundation for Intelligent Physical Agents, 2000.
<http://www.fipa.org/specs/fipa00026/>
- [FIPA00037] FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000.
<http://www.fipa.org/specs/fipa00037/>