FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA Propagate Communicative Act Specification

Document title	FIPA Propagate Communicative Act Specification		
Document number	DC00050B	**Document source**	FIPA TC C
Document status	Deprecated	**Date of this status**	2001/08/10
Supersedes	None		
Contact	fab@fipa.org		
Change history			
2000/10/16	Deprecated by FIPA00037		
2001/08/10	Line numbering added		

Geneva, Switzerland

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 Scope

This document specifies the Propagate communicative act that is compliant to [FIPA00037] requirements.

2 Propagate

Summary	The sender intends that the receiver treat the embedded message as sent directly to the receiver, and wants the receiver to identify the agents denoted by the given descriptor and send the received *propagate* message to them.
Content	A tuple of a descriptor, that is, a referential expression, denoting an agent or agents to be forwarded the *propagate* message, an embedded ACL communicative act, that is, an ACL message, performed by the sender to the receiver of the *propagate* message and a constraint condition for propagation, for example, timeout.
Description	This is a compound action of the following two actions. First, the sending agent requests the recipient to treat the embedded message in the received *propagate* message as if it is directly sent from the sender that is, as if the sender performed the embedded communicative act directly to the receiver. Second, the sender wants the receiver to identify agents denoted by the given descriptor and to send a modified version of the received *propagate* message to them, as described below. On forwarding, the `:receiver` parameter of the forwarded *propagate* message is set to the denoted agent(s) and the `:sender` parameter is set to the receiver of the received *propagate* message. The sender of the embedded communicative act of the forwarded *propagate* message is also set to the same agent as the *propagate* message's sender. This communicative act is designed for delivering messages through federated agents by creating a chain (or tree) of *propagate* messages. An example of this is instantaneous brokerage requests using a *proxy* message (see [FIPA00052]) or persistent requests by a *request-when* message (see [FIPA00058]) embedding a *proxy* message.
Formal Model	$\langle i,$ propagate$(j,$ *Ref* x $(x), \langle i,$ *cact*$\rangle,$ $)\rangle$ $\langle i,$ *cact*$(j)\rangle$; $\langle i,$ inform$(j,$ $I_i((y)$ $(B_j$ (*Ref* x $(x) = y)$ Done$(\langle j,$ propagate$(y,$ *Ref* x $(x), \langle j,$ *cact*$\rangle,$ $)\rangle, B_j$ $))))\rangle$ FP: FP(*cact*) B_i B_i (Bif$_j$ Uif$_j$) RE: Done(*cact*) B_j Where: = $I_i((y)$ $(B_j$ (*Ref* x $(x) = y)$ Done$(\langle j,$ propagate$(y,$ *Ref* x $(x), \langle j,$ *cact*$\rangle,$ $)\rangle, B_j$ $)))$ Agent *i* performs the embedded communicative act to *j*: $\langle i,$ *cact*$(j)\rangle$ and *i* wants *j* to send the *propagate* message to the denoted agent(s) by *Ref* x (x). Note: $\langle i,$*cact*$\rangle$ in the *propagate* message is the ACL communicative act. that is, the ACL message, without a `:receiver` prarmeter. *Ref* x (x) is one of the referential expressions: x (x), any x (x) or all x (x).

Example

Agent *i* requests agent *j* and its federating other brokerage agents to do brokering a video-on-demand server agent to obtain "SF" programs.

```
(propagate
  :sender i
  :receiver j
  :content
    ((iota ?x
      (registered
        (:agent-description
          (:name ?x)
          (:service-description
            (:service-name agent-brokerage)))))
          (proxy
            :content
              ((iota ?y
                (registered
                  (:agent-description
                    (:name ?y)
                    (:service-description
                      (:service-name video-on-demand)))))
          (request
            :content
              (action
                (send-program
                  (:category "SF")))
                  :ontology vod-server-ontology
                  :protocol fipa-reqest …)
                  true)
                :ontology brokerage-agent-ontology
                :conversation-id vod-brokering-2
                :protocol fipa-brokering …)
                (hop-limit 5))
  :ontology brokerage-agent-ontology
  :hop-count 1 …)
```

3 References

[FIPA00037] FIPA Communicative Act Library Specification. Foundation for Intelligent Physical Agents, 2000. http://www.fipa.org/specs/fipa00037/

[FIPA00052] FIPA Proxy Communicative Act Specification. Foundation for Intelligent Physical Agents, 2000. http://www.fipa.org/specs/fipa00052/

[FIPA00058] FIPA Request When Communicative Act Specification. Foundation for Intelligent Physical Agents, 2000. http://www.fipa.org/specs/fipa00058/