FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA Recruiting Interaction Protocol Specification

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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/.

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The concept of an information brokerage has been widely used in mediated systems and in multi-agent systems in particular (for example, see [Finin97]). The FIPA Recruiting Interaction Protocol (IP) is designed to support these brokerage interactions in multi-agent systems.

Generally speaking, a broker is an agent which offers a set of communication facilitation services to other agents using some knowledge about the requirements and capabilities of those agents. A typical example of brokering is one in which an agent can request a broker to find one or more agents who can answer a query. The broker then determines a set of appropriate agents to which to forward the query, sends the query to those agents and relays their answers back to the original requestor.

In the case of recruiting, the answers from the selected target agents go directly back to the original requestor or some designated receivers. The use of brokerage agents can significantly simplify the task of interaction with agents in a multi-agent system. Brokering agents also enable a system to be adaptable and robust in dynamic situations, supporting scalability and security control at the brokering agent.

The FIPA Recruiting IP is a macro IP, because the *proxy* communicative act (see [FIPA00052]) for brokerage embeds a communicative act as its argument and so the IP for the embedded communicative act is also embedded in this IP. When the embedded communicative act includes some actions that would be done by the agents determined by broker agents, then this IP would be extended for notifying the result of the actions.

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

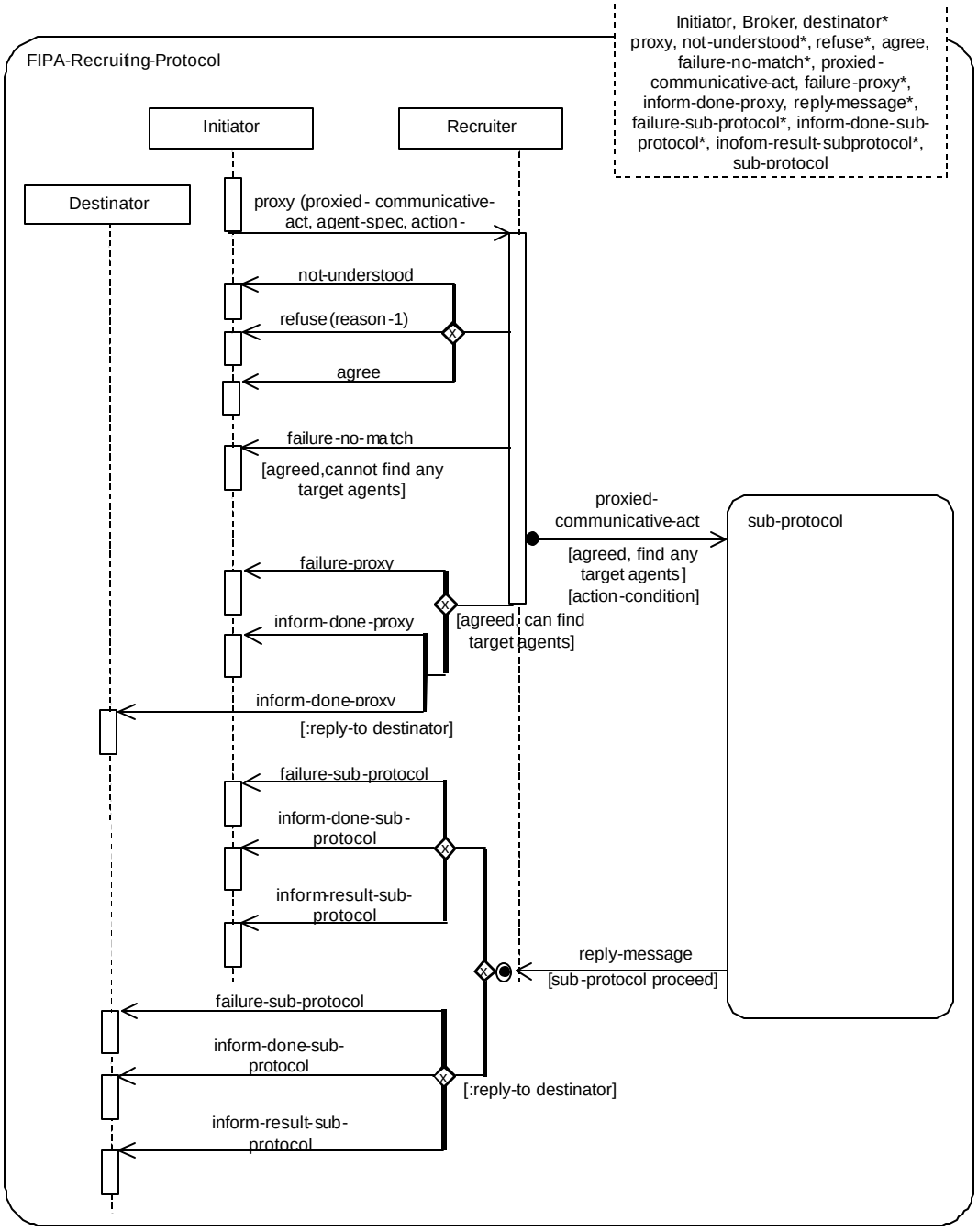

Figure 1: FIPA Recruiting Interaction Protocol

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

[Finin97] Finin, T. Labrou, Y. and Mayfield, J., KQML as an Agent Communication Language. In: Software Agents, Bradshaw, J. (editor), MIT Press, 1997.

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