

# FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

## FIPA Subscribe Communicative Act Specification

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## **1 Scope**

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

## 2 Subscribe

<b>Summary</b>	The act of requesting a persistent intention to notify the sender of the value of a reference, and to notify again whenever the object identified by the reference changes.
<b>Content</b>	A descriptor (a referential expression).
<b>Description</b>	The <i>subscribe</i> act is a persistent version of the <i>query-ref</i> act (see [FIPA00054]), such that the agent receiving the <i>subscribe</i> will <i>inform</i> (see [FIPA00046]) the sender of the value of the reference, and will continue to send further <i>informs</i> if the object denoted by the description changes.
<b>Formal Model</b>	$\langle i, \text{subscribe}(j, \text{Ref } x \delta(x)) \rangle \equiv$ $\langle i, \text{request-when-ever}(j, \langle j, \text{inform-ref}(i, \text{Ref } x \delta(x)) \rangle, (\exists y) B_j ((\text{Ref } x \delta(x) = y))) \rangle$ <p>FP: <math>B_i \alpha \wedge \neg B_i (Bif_j \alpha \vee Uif_j \alpha)</math>  RE: <math>B_j \alpha</math></p> <p>Where:</p> $\alpha = I_i \text{ Done}(\langle j, \text{inform-ref}(i, \text{Ref } x \delta(x)) \rangle, (\exists e) \text{ Enables}(e, (\exists y) B_j ((\text{Ref } x \delta(x) = y))))$ <p>Note: <i>Ref x δ(x)</i> is one of the referential expressions: <math>\iota x \delta(x)</math>, <math>\text{any } x \delta(x)</math> or <math>\text{all } x \delta(x)</math>.</p>
<b>Example</b>	<p>Agent i wishes to be updated on the exchange rate of Francs to Dollars, and makes a subscription agreement with j (an exchange rate server).</p> <pre>(subscribe  :sender i  :receiver j  :content  (iota ?x  (= ?x (xch-rate FFr USD))))</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/>
- [FIPA00054] FIPA Query Ref Communicative Act Specification. Foundation for Intelligent Physical Agents, 2000.  
<http://www.fipa.org/specs/fipa00054/>