

FOUNDATION FOR INTELLIGENT PHYSICAL AGENTS

FIPA Failure Communicative Act Specification

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1 Scope

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

2 Failure

Summary	The action of telling another agent that an action was attempted but the attempt failed.
Content	A tuple, consisting of an action expression and a proposition giving the reason for the failure.
Description	<p>The failure act is an abbreviation for informing that an act was considered feasible by the sender, but was not completed for some given reason.</p> <p>The agent receiving a failure act is entitled to believe that:</p> <ul style="list-style-type: none"> the action has not been done, and, the action is (or, at the time the agent attempted to perform the action, was) feasible <p>The (causal) reason for the refusal is represented by the proposition, which is the third term of the tuple. It may be the constant <i>true</i>. Often it is the case that there is little either agent can do to further the attempt to perform the action.</p>
Formal Model	$\langle i, \text{failure}(j, a, \phi) \rangle \equiv$ $\langle i, \text{inform}(j, (\exists e) \text{Single}(e) \wedge \text{Done}(e, \text{Feasible}(a) \wedge I_i \text{Done}(a)) \wedge \phi \wedge \neg \text{Done}(a) \wedge \neg I_i \text{Done}(a)) \rangle$ $\text{FP: } B_i \alpha \wedge \neg B_i (Bif_j \alpha \vee Uif_j \alpha)$ $\text{RE: } B_j \alpha$ <p>Where:</p> $\alpha = (\exists e) \text{Single}(e) \wedge \text{Done}(e, \text{Feasible}(a) \wedge I_i \text{Done}(a)) \wedge \phi \wedge \neg \text{Done}(a) \wedge \neg I_i \text{Done}(a)$ <p>Agent <i>i</i> informs agent <i>j</i> that, in the past, <i>i</i> had the intention to do action <i>a</i> and <i>a</i> was feasible. <i>i</i> performed the action of attempting to do <i>a</i>, that is, the action/event <i>e</i> is the attempt to do <i>a</i>, but now <i>a</i> has not been done and <i>i</i> no longer has the intention to do <i>a</i>, and ϕ is true.</p> <p>The informal implication is that ϕ is the reason that the action failed, though this causality is not expressed formally in the semantic model.</p>
Example	<p>Agent <i>j</i> informs <i>i</i> that it has failed to open a file.</p> <pre>(failure :sender j :receiver i :content ((action j "open(\"foo.txt\")") (error-message "No such file: foo.txt")) :language FIPA-SL)</pre>

3 References

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