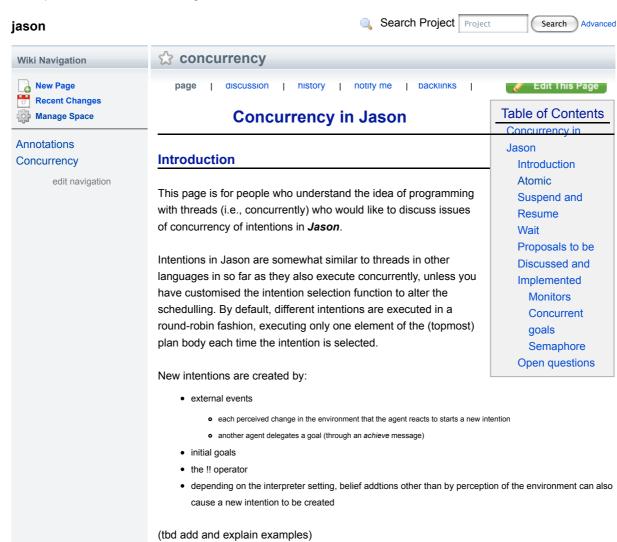
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- · Jump to main content
- · Jump to project navigation
- Jump to downloads for SourceForge.net



Atomic

An atomic intention cannot be stopped in the middle. An intention is atomic if it has a plan with an *atomic* annotation.

(tbd add and explain examples)

Suspend and Resume

Programmers can suspend and resume intentions by means of specific internal actions (.suspend, .resume); an intention can suspend/resume other intentions.

Intentions are automatically put in suspended mode whilst it is waiting for some action to be done in the environment; it resumes when the action feedback from the environment is received.

Intentions are automatically put in suspended mode when an askOne or askAll message is sent; it resumes when the agent receives the answer (or timeout).

(tbd add and explain examples)

Wait

The internal action .wait can also be used to suspend an intention for some time:

```
+!g
<- ...;
.wait(1000); // suspend the intention for 1 second
...
```

and to suspend it until some event:

```
+!g
<- ...;
.wait("+b(4)"); // suspend the intention until the belief-addition event +b(4) takes place
...
```

see more details (e.g., elapsed time and timeout) at wait API...

(tbd add and explain examples)

Proposals to be Discussed and Implemented

Monitors

```
.wait(a(X))
.notify(a(10))
```

Concurrent goals

Creation of a new plan-body operator that allows concurrent execution:

```
al; ( !gl || !g2; a2 || !g3); a3
```

do action a1; concurrently execute <code>!g1</code>, (<code>!g2</code>; a2), and <code>!g3</code>, where (<code>g2</code>; a2) means achieve goal <code>g2</code> then in sequence do action a2; when all three separate subplans are finished, only then do action a3.

Note: the implementation requires that intentions be modelled as trees and no longer as stacks.

Semaphore

Proposal for an internal action:

```
.synchronize( s ) { bla }
```

or .lock

(see how locks are implemented in Java 5)

Open questions

are intentions really like threads? or is there something peculiar about them? (perhaps we should try to come up with a higher level mechanism) how to relate/manage intentions at a higher level: hinder, resume (some intentions always suspend others), cancel (some intentions abort/fail others), incompatible-with (two intentions cannot be executed together) perhaps a simplification of TAEMS relationships?
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