



UML

Communication Diagrams

André Restivo

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Introduction

Types of Diagrams

In UML, there are two basic categories of diagrams:

- Structure diagrams show the static structure of the system being modeled: *class*, *component*, *deployment*, *object* diagrams, ...
- Behavioral diagrams show the dynamic behavior between the objects in the system: *activity*, *use case*, *communication*, *state machine*, *sequence* diagrams, ...

Communication Diagrams

Communication diagrams are a simplified version of a sequence diagrams.

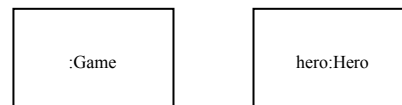
The main difference is that sequence diagrams are good at showing sequential logic but not that good at giving you a big picture view.

Objects

Objects

Objects are named elements which represent a **individual participants** in the interaction.

An object is represented by a rectangle that identifies the participant element.



The element can be an **anonymous** representative of a certain class, or a **named** one.

Actors

An Actor is always something (a system or person) that is **outside** the scope of the system.

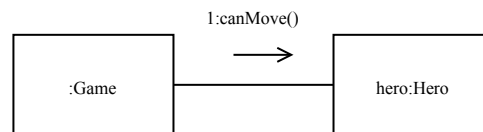


Actors are drawn as **stickman** figures (although they may not be users), and can be participants in communication diagrams.

Messages

Messages

Messages are represented by a line with an arrow above that indicates the direction of the message (and a sequence expression).



Sequence Expressions

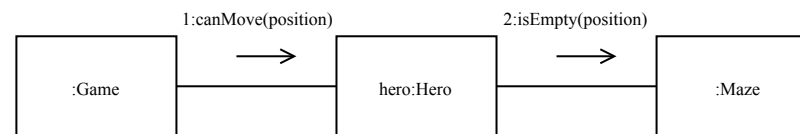
Sequence Expressions

The sequence expression is a dot (".") separated list of sequence terms followed by a colon (":") and message name after that:

```
term1.term2.term3:message
```

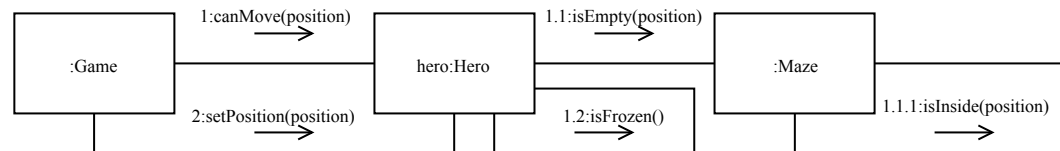
Each sequence term represents a level of procedural nesting within the overall interaction. Each sequence-term has the following syntax:

```
integer [ name ] [ recurrence ]
```



Sequence Order

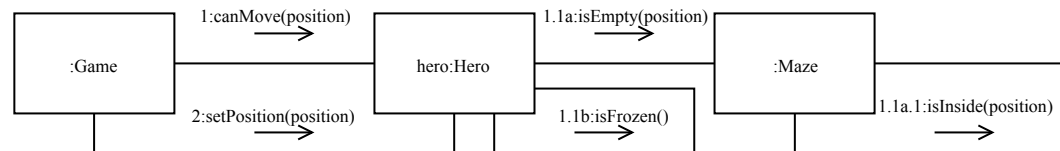
The integer represents the sequential order of the message within the next higher level of procedural calling (activation).



Messages that differ in one integer term are **sequential** at that level of nesting.

Sequence Name

The name represents a concurrent thread of control. Messages that differ in the final name are concurrent at that level of nesting.



The hero instance send **both** requests (1.1a and 1.1b) to the Maze object concurrently.

Sequence Recurrence

The recurrence of a sequence term can be a **guard** (a condition inside square brackets) or a **loop** (an asterisk followed by a condition inside square brackets).

