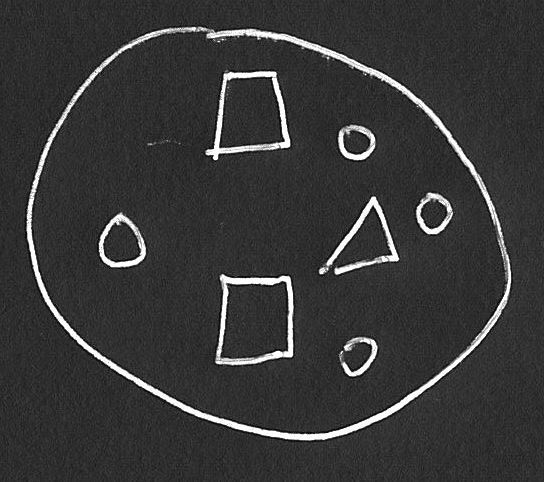
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| Circle Language Spec |

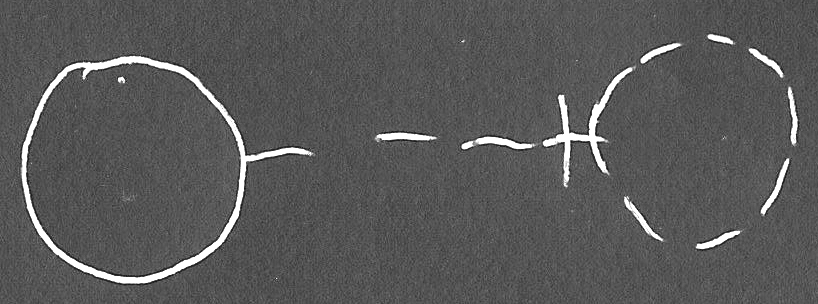
## Classes

### Main Concept

The contents of an object might be arbitrary. Anything might be put inside an object:



But an object might also select another object to serve as its *class* or *prototype:*



The object circle on the left might point at its class circle at the right with a dashed line.

Then the contents of the object might not be that arbitrary:

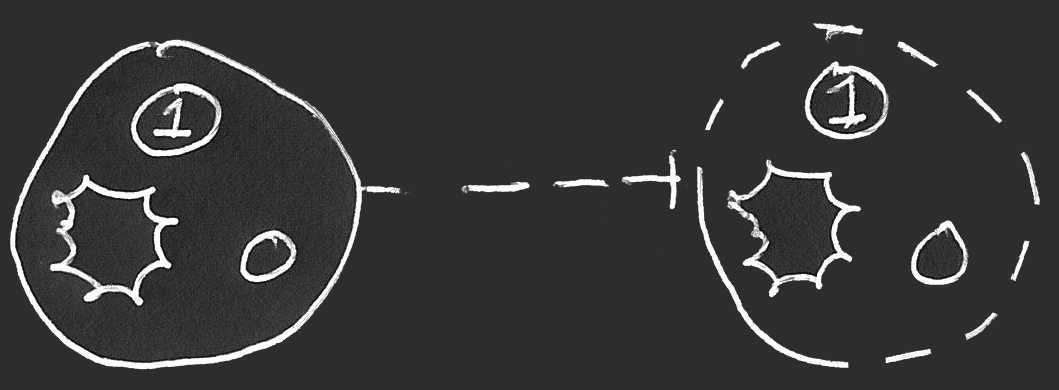


The object circle on the left may have similar contents as its class circle on the right.

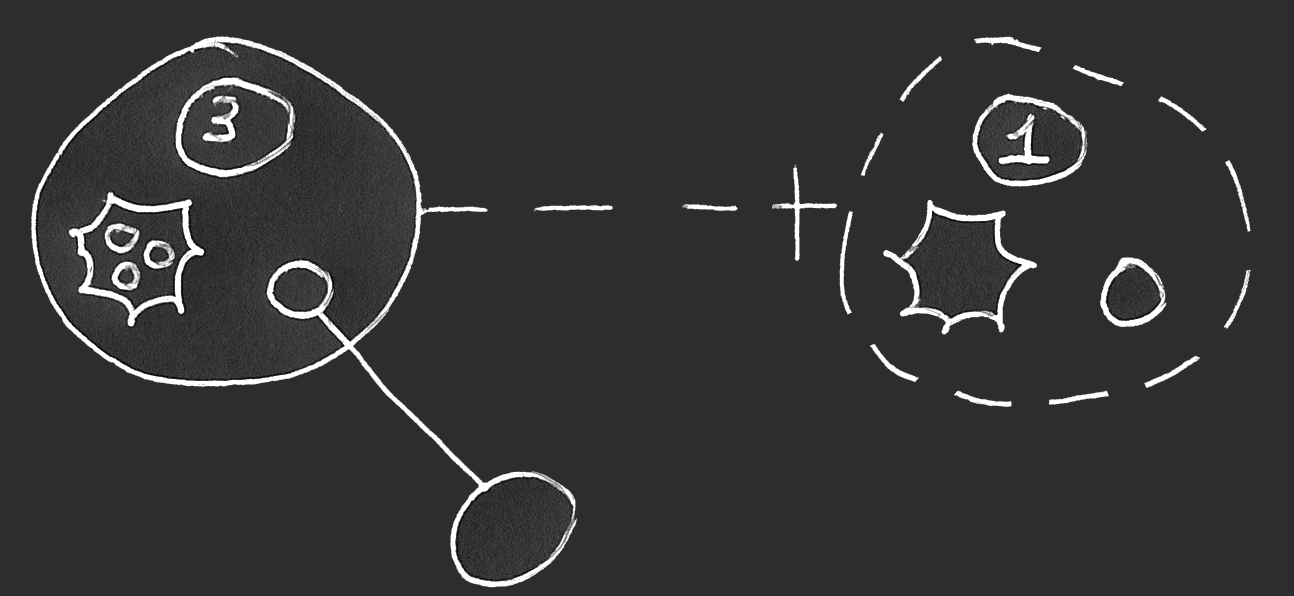
At first an object may contain related items and related lists that roughly corresponds with the class and the object might also have a similar set of commands as the class. The idea is that an object's behavior during its lifetime would also be governed by the rules that might be set by this class.

A class is sort of like a special object, that aims to describe the characteristics and behavior of other objects.

Initially an object may look like a replica of its class. The changeable parts of an object might be set initially to what is defined in the class:



An object might have a similar *structure* as its class, but that object may have *data* that can change freely. Values of an object's attributes and might freely change as well as the related objects:

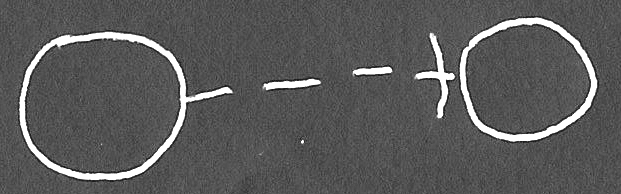


While the structure of the larger object circle at the right might seem somewhat similar to the contents of its class circle on the right, its data seems to have been changed.

### Class Redirection

The Circle notation might allow any object symbol serve as another object’s class or prototype. So in these diagrams any object might be used as a class or prototype for another object.

It may be expressed in a diagram by connecting an object symbol to its class with a dashed line:



The object on the left would have the class on the right.

An object’s pointing out its class, could be called class redirection.

The usage of the dashed line would have a specific meaning here. *Dashed lines* might symbolize the concept of *classes*.

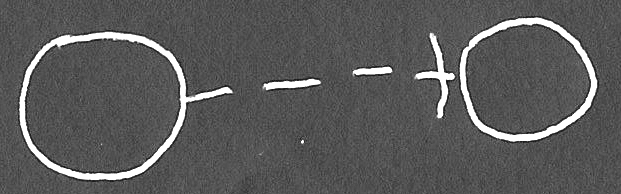
### Using Dashed Shapes

*Dashed shapes* might be used to denote classes:



But the usage of dashed *shapes* might be optional.

Here an object would be used as another object’s class:

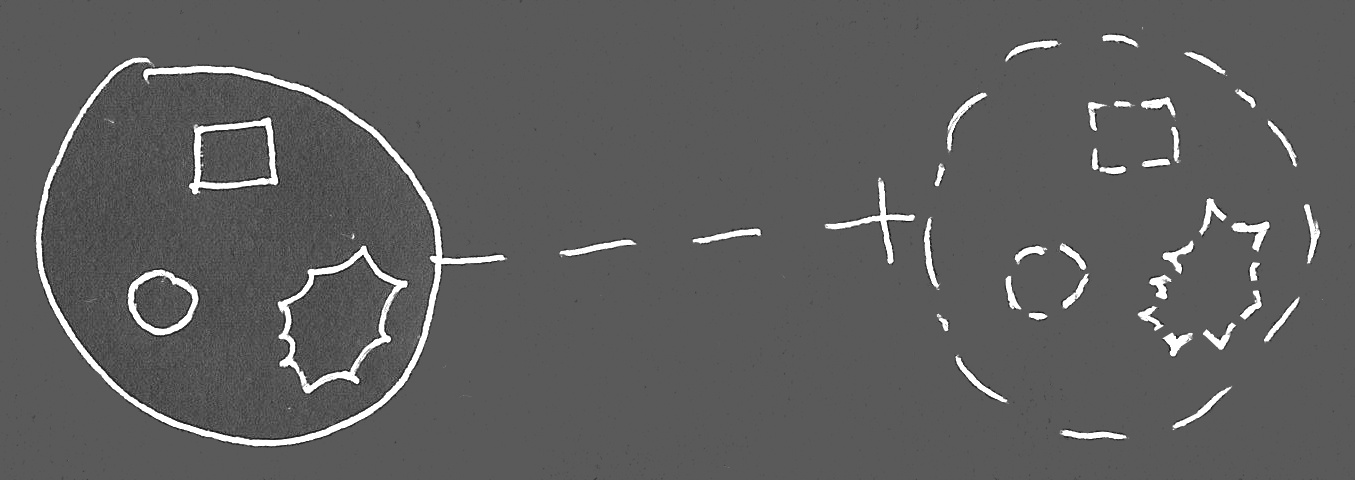


It might be an idea to draw it out with a dashed line:



But it might be optional. This dashed shape notation might be useful and specific in meaning to indicate that it's *only* *usable* as a class or simply that it *is* a class and only a class.

Sometimes other parts of the static (or 'class') structure are drawn with dashed lines too, to keep the static structure and object structure visually distinct.



But the rules do not seem to be that precise yet when it comes to shapes drawn with different line styles. The rules for the pointing lines are a bit stricter: dashed points out the class.

### Using an Object as a Class

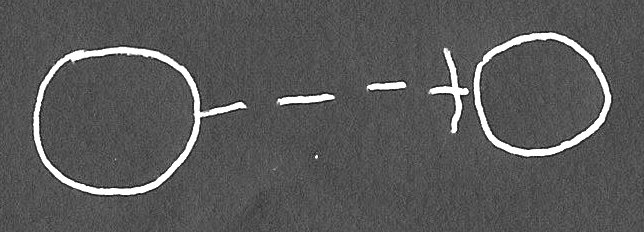
Perhaps it is common that an object would be fixed in its role as a prototype or class. To express an object's (fixed) role as a class, a dashed line might be used to draw the class symbol:



Here one including a class redirection:

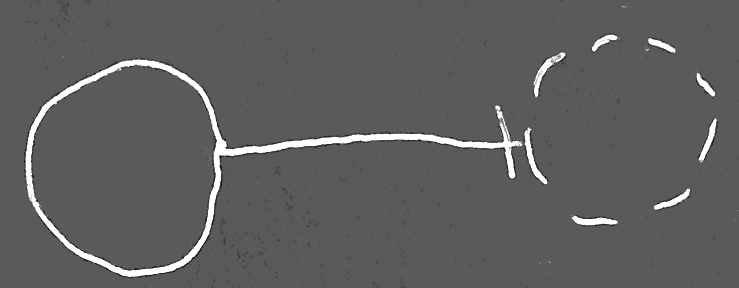


But the Circle notation would allow any object to serve as a class or prototype for another object.



### Using a Class Like an Object

Allowing object references to a class, would make it possible to reference a type like you could an object.

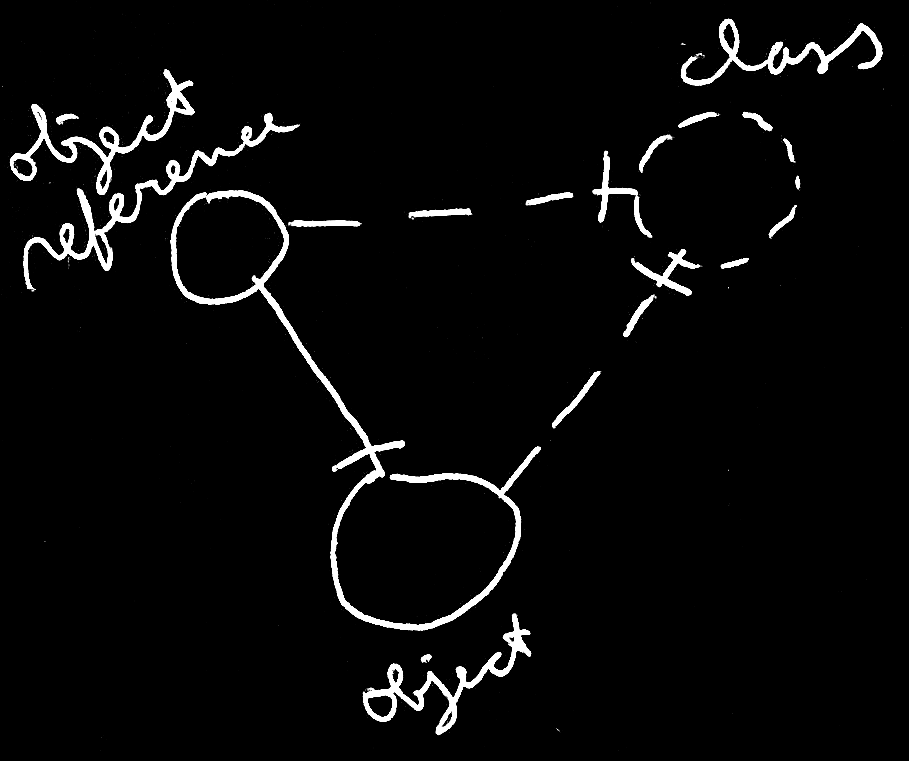


Or possibly like this:



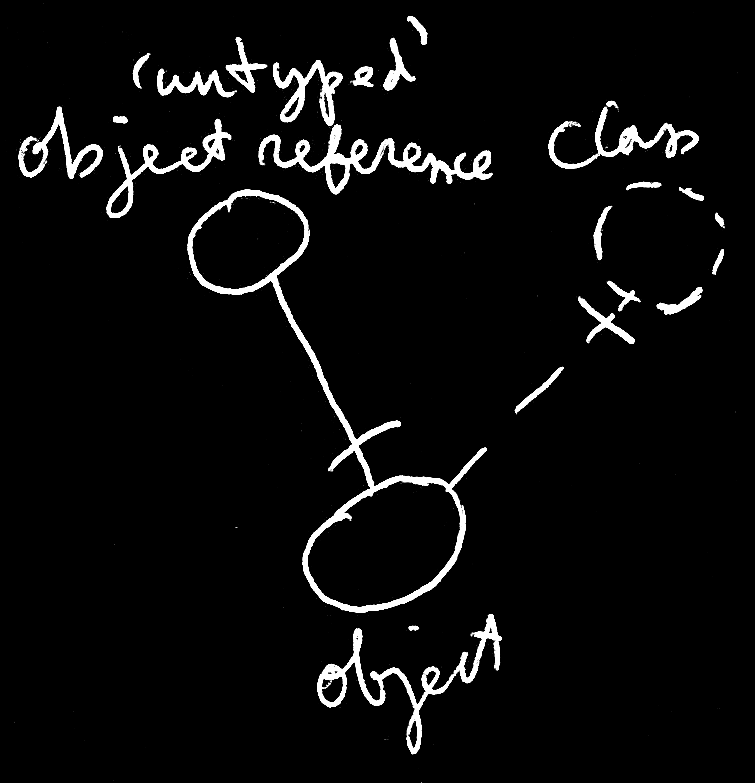
### Object Reference with a Class

Next to an *object* having a class, an *object reference* might also have a class. Then only objects of that class might be assigned to it.



### Object Reference without a Class

When an object reference would not have a class, this might stand for its being able to point to *any* object.



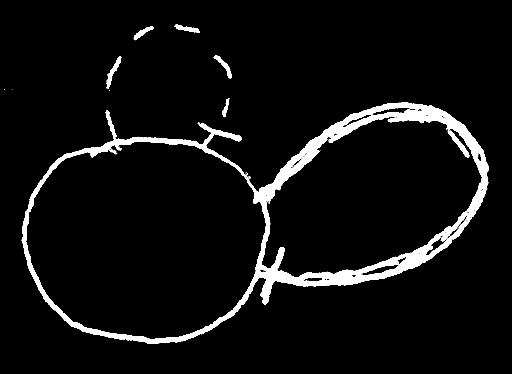
### No Class != Defines its own Class

Something might have been unclear at one point. Objects might all be usable as classes. This might make it tempting to think of an object *without* a class would define *its* *own* class. Instead, it might be handy to not think of it that way, but think of it as object without a class simply not having a class. Having no class might stand for arbitrariness.

There might be examples where it could be more helpful to think about it that way.

### Object Reference would define its Own Class?

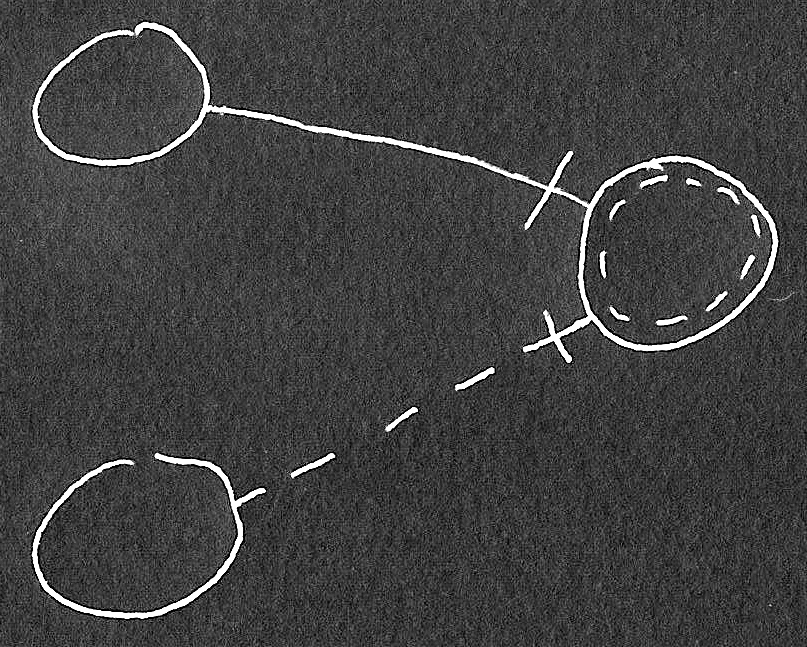
There may be other examples, but it might be unfortunate to think of an *object reference* as defining its own class, because then the object reference could only point to … itself?



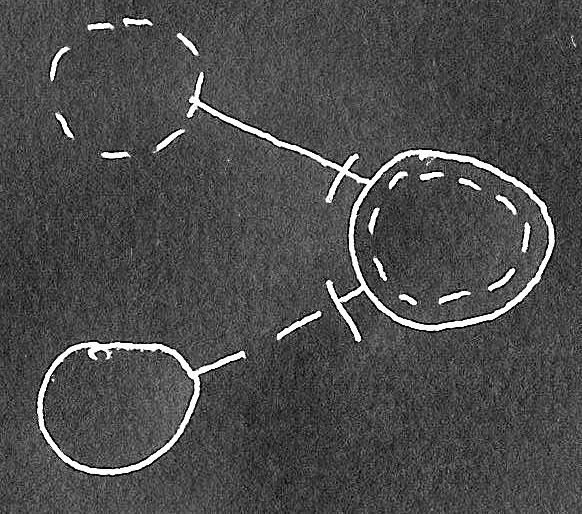
So instead of a 'stuck on itself' situation, it might be seen as an *arbitrariness* situation.

### Shape Both Dashed and Solid

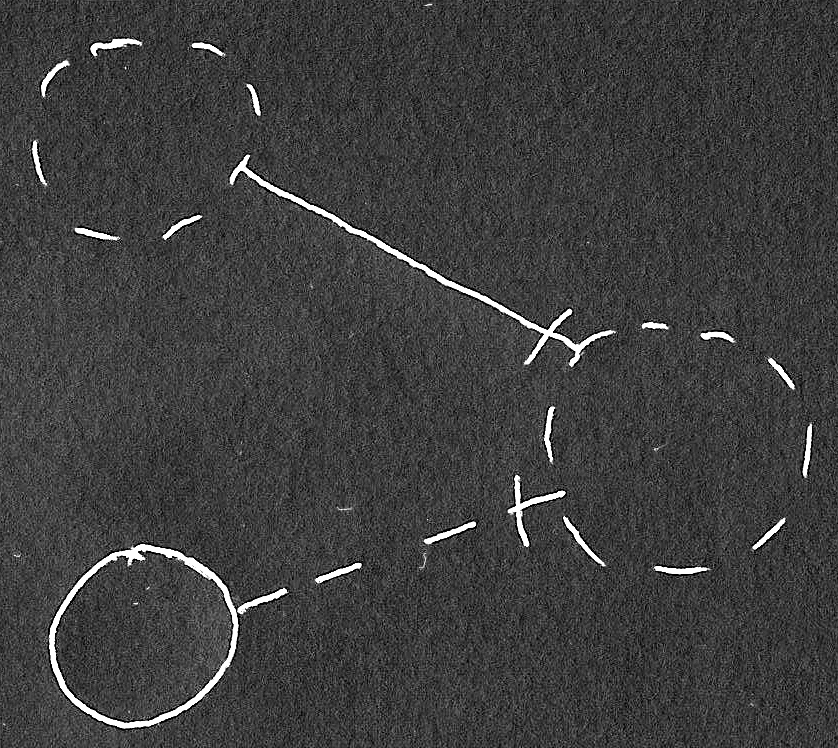
It may be an idea that if a symbol serves as another object’s class, but also is referenced as an object, the symbol would get a double border to maybe indicate its dual role as both an object and a class.



The top reference in the previous picture seems to be a reference to a class, so it might be replaced by a dashed symbol:



But perhaps just a dashed border is more appropriate after all then, since its primary role seems to be a class.



Then it might look like it would make as much sense to draw the double-bordered shape with just a dashed border

The optional nature of the dashed shapes seems to leave things open to discussion.

### Conclusion

Hopefully this gives a basic impression of how class notation might be used in the Circle language.