### Why

We can give the same object two different names.

### Definition

An object *is* itself. If the object denoted by one name is the same as the object denoted by a second name, then we say that the two names are *equal*. The object associated with a *name* is the *identity* of the name.

Let $A$ denote an object and let $B$ denote an object. Here we are using $A$ and $B$ as placeholders. They are names for objects, but we do not know—or care—which objects. We say "$A$ equals $B$" as a shorthand for "the object denoted by $A$ is the same as the object denoted by $B$". In other words, $A$ and $B$ are two names for the same object.

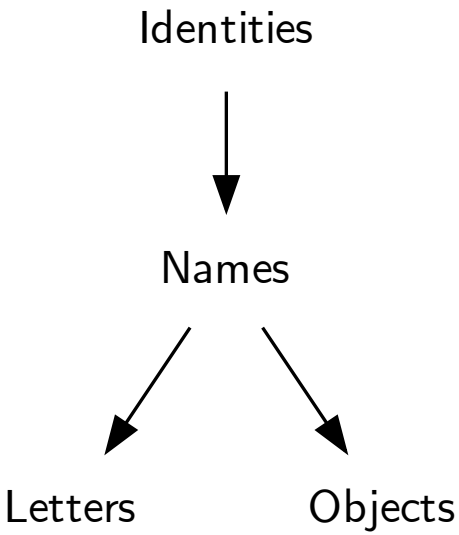
### Symmetry

Let $A$ denote an object and let $B$ denote an object. "$A$ equals $B$" means the same as "$B$ equals $A$". The identity of the names is not dependent on the order in which the names are given. We call this the *symmetry of identity*. It means we can switch the spots of $A$ and $B$ and say the same thing. In other words, there are two ways to make the statement.

### Reflexivity

Let $A$ denote an object. Since every object is the same as itself, the object denoted by $A$ is the same as the object denoted by $A$. We say "$A$ equals $A$". In other words, every name equals itself. This

fact is called the *reflexivity of identity*. A name is equal to itself because an object is itself.


Identities
Names
Letters
Objects