

## *Identity among Objects*

If two objects are identical then there is actually only one object involved (assuming that the object cannot be in two places at the same time). However problems arise when we encounter an object at different times (and perhaps also in different places), or learn of it from two different images or descriptions. We may have a case of identity (i.e. one object), but it can be hard to tell, and philosophers are curious about the criteria involved.

There seem to be three senses of the word 'identity'. If we talk of a person's 'identity crisis', this seems to refer to the essential nature of the person. We might hold an 'identity parade' for suspects many years after a crime, when they no longer look quite the same, where it indicates that this is 'the same' person, despite some changes. In mathematics we talk of equality or identity, meaning that two things are precisely identical. The third (precise) usage differs crucially from the other two in that it is a relation between two things, and the relation is transitive. Formally, this says that if  $x$  is identical to  $y$ , and  $y$  to  $z$ , then  $x$  is identical to  $z$ , for all cases of  $x$ ,  $y$  and  $z$ . Strict identity is preserved in any long (or infinite) chain of identities. It seems best to stick to this strict usage, and talk of an entity's 'character' or 'nature' for the first example, and 'sameness' or 'resemblance' for the second example.

If we are utterly strict about this usage, there will, of course, be no identity between objects over time, because at quantum level tiny changes are continuous, so nothing is ever quite the same, even after a split second. The famous ancient remark that 'you cannot step into the same river twice' will apply to all objects. This would cripple our ability to talk about physical objects, so we are always a little lax about that, even in the strictest sciences. This lax usage means there cannot be perfect transitivity of the identity relation for a physical object, but that is a price worth paying over modest periods of time (and we have to assume stability when we count objects). We might still wonder whether there can be 'partial identity' (for the Adriatic Sea in the Mediterranean). There might be 'vague identity' over time, but that may only be if the vagueness is in our perceptions, or the borderlines of a thing fluctuate (such as the tide in the Mediterranean). For perfect identity and transitivity, we may need to stick to abstract objects, because they don't fluctuate over time.

If I say 'I have the identical phone to you' I probably don't mean there is just one phone, but that we have the identical model. We talk of this case as 'type identity', and a type of phone can have many 'tokens', which are the particular phones. Types are understood to be sets of tokens, or universal concepts, or classifications, or kinds of thing. 'Token identity' is also called 'numerical identity', meaning there is just one object here, and type identity is spoken of as 'qualitative identity'. 'Type identity' may be quite loose, as in the case of two apples, or it may mean that the objects are indistinguishable. If we have a red apple, a green apple, and a red tomato, if I say two of those are identical, we need to know the respect of their identity. A radical proposal is that identity only makes sense if the respect is given; that is, the items must fall under a 'sortal' term, such as 'red things', or 'apples', and this is called 'relative identity'.

The usual response to the claim that all identity is relative is that respects are given for resemblances, not for identity. The two hallmarks of true identity are said to be transitivity, and Leibniz's Law, which says that if  $x$  and  $y$  are really identical, then they will have the same properties, and everything true of one will be true of the other. Hence there is no true identity among our three fruits. If the Law holds, then we can distinguish two objects if one of them has a property, or satisfies a truth, which the other one does not. The Law is also called the Indiscernibility of Identicals, since no differences could possibly be found between identical objects.

More controversial is the Identity of Indiscernibles, which says if no differences can be found, then we have a single entity. The principle is fundamental to identifying suspects in criminal cases, but dubious in the case of simple physical objects. If tomorrow we found a billiard ball which was indistinguishable from one we saw today, we would be unwise to assume that we had thereby proved it was the same ball. It has been claimed that no two objects are perfectly indistinguishable, and that seems to be true at the quantum level, but we could hardly prove such a claim. Indiscernibility gives a good test for identity, but probably not a guarantee (if the criminal suspect is a twin!). In the case of the identity of an object across time the principle is probably the best we can do, if we have failed to track the space-time path of the object. There are obvious problems with following one subatomic particle in physics.

A linguistic test for identity is whether we are willing to make a substitution in a sentence. If we are willing to substitute a personal name for the phrase 'the current President', we presumably think they are one person. But again this only seems to be a test of whether we believe two things to be identical, since a willingness to substitute presupposes that you believe in the identity.

In arithmetic we can write that  $3+4 = 5+2$ , which is an identity. But we can then do the two additions and write  $7 = 7$ , and this had better be true, or arithmetic is in trouble. This is the precise (transitive) concept of identity which we prefer, so we must also be able to say that 'Socrates is identical to Socrates'. We must presumably even say this of non-existent things, such as Pegasus. Hence we say that everything is identical with itself, though only Socrates is identical with Socrates. This seems indisputable, but very uninformative. Some say that self-identity is a vacuous concept, and a notorious difficulty is that if an object described one way ('the morning star') is said to be identical to that object described another way ('the evening star', which also describes the planet Venus), this appears to be vacuous, even though it might be a startling revelation to some people. It is usually agreed that if there is a perfect identity, then this is necessarily so; the morning star is necessarily the evening star, because Venus is (obviously) necessarily Venus.

A possible challenge to this is if two objects were to coincide, and then come apart. A ball of clay might become identical to a statue, and then cease to be the statue when it was squashed, giving us 'contingent identity'. Two roads might be two objects, but be identical if they happen to intersect. On the whole identity is not problematic if it is used very precisely, but is fraught with problems when ordinary talk requires us to relax the concept a little.