Introduction to Identity

Christian Wüthrich

http://philosophy.ucsd.edu/faculty/wuthrich/

205A Metaphysics
Winter 2013

Identity and Leibniz's Law

The triviality of identity: everything is identical with itself and with no other thing.

Law (Indiscernibility of Identicals ('Leibniz's Law'))

For any two objects x and y in a given domain of discourse, if x and y are identical, then they share all the same properties:

$$\forall x \forall y [x = y \rightarrow \forall P(Px \leftrightarrow Py)].$$

This is generally considered a law of logic. The same is not true of its converse:

Thesis (Identity of Indiscernibles)

For any two objects x and y in a given domain, if x and y share all the same properties, then they are identical:

$$\forall x \forall y [\forall P(Px \leftrightarrow Py) \rightarrow x = y].$$

Identity as an equivalence relation

Law

Identity is an equivalence relation, i.e. it is reflexive, symmetric and transitive.

Examples: ‘is equal to’ on set of numbers, ‘has the same birthday as’ on the set of people

Suppose R is a binary relation on a set X (its 'domain').

Definition (Reflexive)

R is reflexive just in case $\forall x \in X, Rxx$. (Ex: 'is equal to' on set of numbers, 'is a subset of' on the set of sets, 'is related to' on set of people)

Definition (Symmetric)

R is symmetric just in case $\forall x, y \in X, Rxy \rightarrow Ryx$. (Ex: two of the three examples in previous definition; 'is a sibling of' on set of people)

Definition (Transitive)

R is transitive just in case $\forall x, y, z \in X, (Rxy \& Ryz) \rightarrow Rxz$. (Ex: all the previous examples; 'is an ancestor of' on set of people)

Numerical and qualitative identity

Question

How can one and the same thing be coherently different at different times?

⇒ distinguish between numerical and qualitative identity

- An object remains numerically one and the same, while it becomes qualitatively different.

⇒ Do we have two distinct kinds of identity?

- No, there is only one identity really: numerical identity.

⇒ Reduction: A numerically identical object has numerically different properties at numerically different times.

The ship of Theseus

The ship wherein Theseus and the youth of Athens returned [from Crete] had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and stronger timber in their place, insomuch that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same. (Plutarch, Theseus, *http://classics.mit.edu/Plutarch/theseus.html)*

Limiting the amount of change an object can suffer

Thesis (Mereological essentialism)

"[A] composite object, cannot, strictly speaking, ever undergo a change of parts." (26n)

- Seems too radical; surely, an object can undergo some qualitative change. But how much? 5%?
- Suppose ship *a* is changed by 4% to become ship *b*, which is changed by 4% to become ship *c*.
- This leads to a contradiction:
  - Ships *a* and *c* are not identical, as the difference between them (up to 8%) exceeds the threshold).
  - Ships *a* and *c* are identical, by the transitivity of identity.
- Unless we want to deny the transitivity of identity or accept mereological essentialism, "we must allow a complete change of parts." (26)

The augmented puzzle: renovation and reconstruction

Thomas Hobbes, *De Corpore*

*If the ship of Theseus were continually repaired by the replacing of all the old planks with new, then—according to the Athenian philosophers—the later ship would be numerically identical with the original. But if some man had kept the old planks as they were taken out and were to assemble a ship of them, then this ship [containing all the original parts of the earlier ship] would, also, without doubt be numerically identical with that original. And so there would be two ships, existing at the same time, [in different places,] both of which would be numerically identical with the original. But this latter verdict is absurd. (*De Corpore*, Part II, Ch. 11, §7, after Norman Swartz,* Beyond Experience: Metaphysical Theories and Philosophical Constraints*, Second Edition,* `http://www.sfu.ca/~swartz/beyond_experience/`*, p. 347)*

Discussion of augmented puzzle

⇒ transitivity of identity forces a kind of duplication, i.e. the ship now (post-reconstruction and -renovation) exists 'doubly', in distinct and separate locations

- Curiously, even though reconstructed ship may thus not in fact be identical to the original ship, it would have been had the renovation not also occurred!
- "But how can it make sense to say that a certain thing *a*, which is not in fact identical with a certain other thing *b*, would have been identical with *b* if a certain thing *c* (in this case, the renovated ship) had not existed?" (28)

Two radical solutions:
Reconsidering our commonsense conception of objecthood

Principle (No non-locality)

The same object cannot be in two different places at the same time.

Principle (No co-location)

Different objects (of the same kind) cannot be in the same place at the same time.

- Giving up either of these principles permits a solution to the puzzle...

The first solution

Solution A: denying 'No non-locality'

"One solution would be to say that both the renovated ship and the reconstructed ship are identical with the original ship, accepting that this implies that, at the later, one and the same ship is in two different places at once, that is, both in the harbour and in the warehouse." (29)

- Problem: we can't know whether we have two ships or one before us without knowledge of the prior history of the object(s)

The second solution

Solution B: denying 'No co-location'

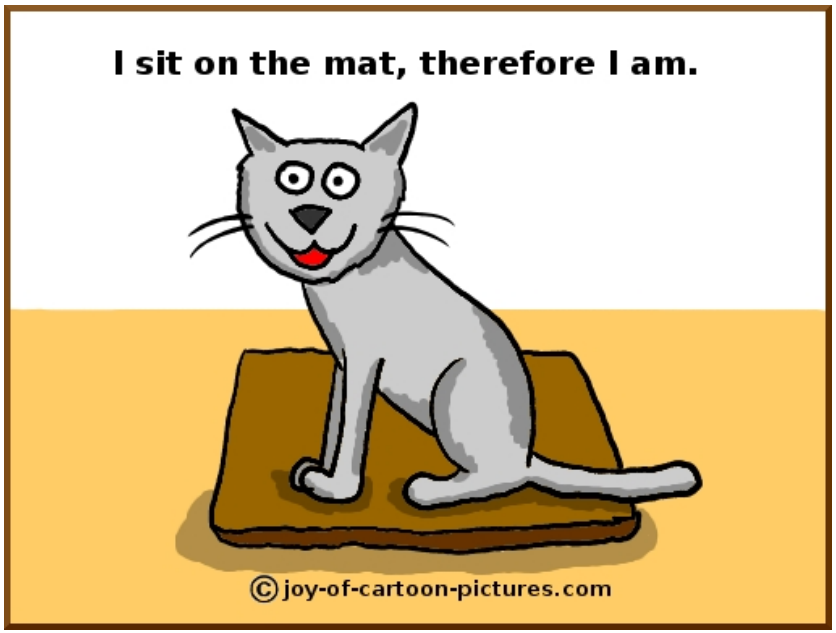
"Another solution would be to say, whiule accepting that the renovated ship and the reconstructed ship are two quite distinct ships, that both of these ships were originally in the harbour, so that, in fact, it was misleading to speak of the ship of Theseus: according to this solution, the two later ships exactly coincided with one another until the process of renovation and removal began, whereupon they gradually became separated." (29)

- Problem: we can't know whether we have just one or more ships before us without knowledge of the future history of the object(s)

Intermittent existence, fission and fusion

- Q of whether it's metaphysically possible for an object "to enjoy an intermittent existence" (34)
- Lowe: depends on what sort of thing object is, e.g., whether it's the sort of thing which can be dissembles and reassembled
- puzzle about ship of Theseus is one of large class of problems regarding the fusion and fission of persisting objects
- Lowe: "to say that one object 'becomes' two can, it seems, only mean either that one object ceases to exist and two new objects are created from its parts, or else that one object continues to exist but another new object is created from some of the old object's former parts." (35)
- asymmetrical vs. symmetrical fission: in asymmetric case, fission products "are differently related to the original object" (ibid.)

The paradox of the thousand and one cats



- Introducing Tibbles, a cat with 1,000 loose hairs in its coat, "neither definitely separated from Tibbles nor definitely not separated from Tibbles." (37)

$\Rightarrow$ Are there strictly speaking 1,001 largely overlapping cats on the mat, or just one?

- Lowe: "many slightly different collections of cat parts present on the mat" (38) compose but one single cat