

# Contingent Identity

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**Abstract.** If an object  $a$  is identical to an object  $b$ , does it follow that  $a$  and  $b$  are necessarily identical? If  $a$  and  $b$  are not identical, does it follow that they are necessarily non-identical? A popular account of *de re* modality, and a famous argument from Leibniz's Law, suggest that the answer to these questions must be 'yes'. On the other hand, there are good – for some interpretations of modality even compelling – reasons to make room for contingent identity. Various alternatives to the standard account of *de re* modality have been put forward to achieve this aim, and to explain what is wrong with the argument from Leibniz's Law.

## 1 Introduction

If an object  $a$  is identical to an object  $b$ , in the sense that  $a$  and  $b$  are one and the same object, does it follow that  $a$  and  $b$  are *necessarily* identical? If  $a$  and  $b$  are not identical, does it follow that they are necessarily non-identical?

It may seem obvious that the answer is 'no'. For example, it is contingent whether all cats are on the mat, and therefore whether the set of cats is identical to the set of cats on the mat. But here's a puzzle. It is not contingent that the set of cats is identical to the set of cats. So the set of cats has a property – being necessarily identical to the set of cats – which the set of cats on the mat lacks. By Leibniz's Law, if an object  $a$  has different properties than an object  $b$ , then  $a$  and  $b$  are not identical. It follows that the set of cats is not identical to the set of cats on the mat. Have we established, by *a priori* reasoning, that not all cats are on the mat?

A plausible diagnosis of what went wrong with this argument is that it rests on an equivocation. Statements like

(\*) it is necessary that the set of cats is identical to the set of cats

are ambiguous. On the *de dicto* reading, (\*) says that the proposition expressed by 'the set of cats is identical to the set of cats' could not have been false. On the *de re* reading, (\*) attributes to the set of cats the property of being necessarily identical to the set of cats. The argument assumes that (\*) is true on its *de re* interpretation. But this is implausible. To see why, suppose there are in fact only two cats, Tibbles and Tabbles.

Then the set of cats is the set  $\{\text{Tibbles}, \text{Tabbles}\}$ . But there could have been another cat, Tubbles. In this case, the set  $\{\text{Tibbles}, \text{Tabbles}\}$  would not have been the set of cats. So it is not necessary of the set of cats, i.e. of  $\{\text{Tibbles}, \text{Tabbles}\}$ , that it is the set of cats.

Intuitively, the reason why the two readings of (\*) come apart is that ‘the set of cats’ picks out different things under different possible circumstances. If Tibbles and Tabbles are the only cats, ‘the set of cats’ denotes  $\{\text{Tibbles}, \text{Tabbles}\}$ ; but under the supposition that there is another cat Tubbles, ‘the set of cats’ picks out  $\{\text{Tibbles}, \text{Tabbles}, \text{Tubbles}\}$ . While the *de dicto* reading of (\*) merely requires that under all possible circumstances, whatever is picked out by ‘the set of cats’ is identical to itself, the *de re* reading requires that whatever set is *actually* picked out by ‘the set of cats’ – say,  $\{\text{Tibbles}, \text{Tabbles}\}$  – is picked out by ‘the set of cats’ under all possible circumstances, which is false.

One might draw the following lessons from these observations. First, contingent identity *de dicto* is common and unproblematic. On the other hand, there can be no contingent identities *de re*: it is never contingent *of a and b* whether the first is identical to the second. If *a* and *b* are one and the same thing, how could it be true of this thing that it is not identical to itself? Relatedly, an identity statement ‘*a* = *b*’ can never be contingent if the reference of ‘*a*’ and ‘*b*’ does not vary across possible circumstances. For then ‘*a*’ and ‘*b*’ can’t denote the same thing under some circumstances and different things under others.

These lessons were prominently defended by Saul Kripke in [Kripke 1971] and [Kripke 1980], and have become widely accepted in recent philosophy. But not everyone has been convinced. A vocal minority still resists the Kripkean orthodoxy. Let us look at some reasons that could motivate such resistance.

## 2 Contingent identities

One motivation to reject the Kripkean orthodoxy are doubts about the very coherence of *de re* modality. Quine [1953] suggested that it makes no sense to say that such-and-such is necessary or possible of an object, independently of how the object is described. What Quine had in mind when he talked about necessity and possibility was logical or semantical necessity. A statement is logically necessary (on the model-theoretic understanding) if it is true in every model, under every interpretation of its non-logical terms. On this account, ‘the capital of England is the capital of England’ may count as logically necessary. But what would it mean to say that it is logically necessary *of* the capital of England, i.e. of London, that it is the capital of England?

Well, we might say that a formula  $\Phi(x)$  is logically necessary of an object *a* iff  $\Phi(x)$  is satisfied by every object in every model – i.e., iff  $\forall x\Phi(x)$  is logically necessary; similarly for formulas with several free variables (see [Fine 1989]). Quine may have regarded this option as uninteresting (as [Burgess 1998] argues), but it does have an interesting

consequence for our present topic. For it follows that  $x=y$  is not necessary of any pair  $\langle a, a \rangle$ , since it is not satisfied by every pair in every model. (On the other hand,  $x=x$  is necessary of any object  $a$ ). In other words, there are logically contingent identities *de re*. Analogous considerations support the possibility of *semantically* contingent identities *de re*.

The most common interpretation of ‘necessary’ and ‘possible’ in ordinary English is not logical or semantical, but epistemic. In this sense, to say that something is possible roughly means that it is compatible with the available evidence, or the relevant subject’s beliefs. Does this reading allow for contingent identities *de re*? Arguably yes. Consider a famous example from [Quine 1956]. Ralph has noticed a suspicious looking man in a brown hat and comes to believe that the man is a spy. In fact, the man is Ortcutt, so Ralph believes *of* Ortcutt (*de re*) that he is a spy. On another occasion, Ralph encounters a grey-haired man on the beach, who he believes to be a pillar of the community. That man is also Ortcutt, so Ralph believes of Ortcutt that he is not a spy. Ralph cannot detect the tension between his two beliefs, because they are based on different ways of identifying Ortcutt. We might say that under the guise of the man in the hat, Ralph believes of Ortcutt that he is a spy, but not under the guise of the man on the beach.

Now it looks like we have a case of contingent identity *de re*. Ralph’s beliefs represent one and the same person, Ortcutt, as two – one spy, one non-spy. Moreover, if we can truly say that Ralph believes of Ortcutt that he is a spy, then it should also be true that Ralph believes of the man in the brown hat and the man on the beach (i.e., of Ortcutt and Ortcutt) that the former is not identical to the latter. Just as Ralph believes different things of Ortcutt relative to different guises, he believes different things of the pair  $\langle \text{Ortcutt}, \text{Ortcutt} \rangle$  relative to different ways of presenting this pair. Under at least one guise, he believes of the pair that its members are not identical.

Examples of epistemically contingent identity typically involve a single object which is known to the subject under different guises, as the occupant of different roles. But there might also be other cases. Suppose Ralph mistakenly believes that the flat next door to his is inhabited by identical twins, while in fact it is inhabited by a single person, Anne. Whenever Ralph sees Anne on the staircase, he thinks it is one of the twins, but he doesn’t associate different roles with the two. It is not entirely clear what Ralph believes of Anne, or of the pair  $\langle \text{Anne}, \text{Anne} \rangle$ , but in some sense Ralph seems to believe of one person that she is two.

The controversy over contingent identity mostly concerns “metaphysical” contingency: can there be *metaphysically* contingent identities *de re*? A well-known candidate is Allan Gibbard’s [1975] case of Lump1 and Goliath. Consider a lump of clay (‘Lump1’) which, during the whole time of its existence, has the shape of a statue. Gibbard suggests that the statue (‘Goliath’) is identical to the lump. But the identity is contingent. For instance, if the creator of the statue had decided to add a copper hat, then Lump1 the lump would

only have been a (proper) part of the statue Goliath. Lewis [1986: 248f.] presents a similar example that does not raise questions about material constitution. Consider a railway network that might have included a certain further line. Lewis suggests that the network is identical – but only contingently identical – to the network minus that line (see also [Cartwright 1975], [van Inwagen 1981]). Chandler [1975] points out that a common answer to the puzzle of Theseus’ ship seems to entail that whether the reconstructed ship is identical to the original ship is contingent on the presence of the renovated ship.

Other motivations concern non-concrete objects such as properties or events. Several philosophers have argued that dispositions are contingently identical to their causal bases (see e.g. [Armstrong et al. 1996]). It is also tempting to say that a walk may be contingently identical to a stroll, an eating of pudding to an eating of dessert, or an occurrence of pain to a biological process in the brain (see e.g. [Smart 1959]).

These cases all involve a single object that is associated with different roles or guises (as statue, as lump of clay), which correspond to different ways of identifying the object under hypothetical circumstances. Other candidates are more like the case of Anne. When a human embryo splits, it sometimes happens that the resulting embryos merge back into one, producing a single person. If the embryos hadn’t fused, they would have become identical twins. Arguably, each of the twins which then would have existed is, in the actual world, identical to the single person produced from the same sperm and egg.

There are also intuitively plausible cases of contingent *non*-identity: two islands might have been a single island, or two tribes a single tribe (see [Karmo 1983]).

An adequate discussion of these examples would go beyond the scope of this survey. In each case, we would have to ask whether the alleged identity (or non-identity) really obtains, whether it obtains contingently, and whether the contingency is *de re* rather than merely *de dicto*. Of course, a friend of contingent identity need not agree with any – let alone all – the candidates I mentioned. On the other hand, she will reject the most common objection to all of them: that the idea of contingent identity (*de re*) is deeply problematic, if not logically inconsistent.

### 3 The case against contingent identity

There are two main reasons for the widespread reservations against contingent identity. The first is the seeming force of the argument from Leibniz’s Law that we met in section 1: if *a* and *b* are contingently identical, then *b* has the property of being contingently identical to *a*, whilst *a* does not have this property; by Leibniz’s Law, it follows that *a* and *b* are not identical after all.

The argument is sometimes put into the language of modal predicate logic:

1.  $\Box a = a$ .
2.  $a = b \supset (\Box a = a \supset \Box a = b)$ .
3.  $\Box a = a \supset (a = b \supset \Box a = b)$ . (From 2 by propositional logic)
4.  $a = b \supset \Box a = b$ . (From 1 and 3 by modus ponens)

Premise 1 is derivable from the reflexivity axiom  $a = a$  by the standard modal rule of necessitation. Premise 2 is an instance of the substitution principle

(Sub)  $a = b \supset (\Phi \supset \Phi[b/a])$ ,

where  $\Phi[b/a]$  is the formula  $\Phi$  with one or more occurrences of  $a$  replaced by  $b$ . Thus each step in 1–4 is licenced by familiar principles of modal and predicate logic. This is a bit of a curiosity, since the conclusion is plainly false if the box is read as logical necessity, or plainly contingent if ‘ $a$ ’ and ‘ $b$ ’ are, respectively, ‘ $\{x : x \text{ is a cat}\}$ ’ and ‘ $\{x : x \text{ is a cat on the mat}\}$ ’. Indeed, until about the 1970s, the argument was usually taken to establish not the necessity of identity, but the need to revise or restrict the relevant principles of modal or predicate logic (see e.g. [Church 1943], [Kanger 1957]).

The most obvious problem with the formal argument is the application of (Sub) in premise 2. Substitution principles often become invalid under extensions of a language. For instance, while (Sub) is valid in quantifier-free predicate logic, in first-order logic it must be restricted to cases where  $b$  is “free for”  $a$  in  $\Phi$ . In a language with the expressive resources of English, (Sub) is invalid for a large variety of further reasons (see e.g. [Fine 1989: 56–70]). In particular, modal contexts are generally not open to substitution of co-referring expressions, as witnessed by the example of the sets of cats.

An adequate formalisation of the argument from Leibniz’ Law requires some means for drawing the *de dicto/de re* distinction. A common device to this end is predicate abstraction (see e.g. [Fitting and Mendelsohn 1998]). Predicate abstracts are expressions of the form  $(\lambda x.\Phi(x))$ , which turns the open formula  $\Phi(x)$  into a syntactical predicate. Thus  $(\lambda x.\Box x = a)$  is a complex predicate expressing the property of being necessarily identical to  $a$ ;  $(\lambda x\lambda y.\Box x = y)$  expresses the two-place property of being necessarily identical. The argument from Leibniz’s Law can now be stated as follows.

- 1'.  $(\lambda x\lambda y.\Box x = y)aa$ .
- 2'.  $a = b \supset ((\lambda x\lambda y.\Box x = y)aa \supset (\lambda x\lambda y.\Box x = y)ab)$ .
- 3'.  $(\lambda x\lambda y.\Box x = y)aa \supset (\lambda x\lambda y.\Box x = y)ab$ . (From 2')
- 4'.  $a = b \supset (\lambda x\lambda y.\Box x = y)ab$ . (From 1' and 3')

In premise 2', (Sub) is only applied to occurrences of  $a$  and  $b$  outside the scope of modal operators. The conclusion 4' is no longer the *de dicto* claim that if  $a = b$  then necessarily,  $a = b$ , but the *de re* claim that if  $a = b$  then  $a$  and  $b$  have the property of being necessarily identical.

It is sometimes objected that things can only be identical if they exist, wherefore premise 1' should be replaced by  $(\lambda x \lambda y. \Box(\exists z(z = x) \supset x = y))aa$ , and the conclusion becomes  $a = b \supset (\lambda x \lambda y. \Box(\exists z(z = x) \supset x = y))ab$ . Alternatively, one could replace the sentential operator  $\Box$  by a predicate modifier, as suggested e.g. in [Wiggins 1974]. I will set aside the question of contingent existence here, since it is orthogonal to the question of contingent identity.

What could a friend of contingent identity say in response to the argument from Leibniz' Law? There are four main options. First, one might question some presupposition of the argument. For instance, one might claim that identity statements must always be relativised to a kind ([Geach 1967]) or a possible world ([Gallois 1998]). Or one might reject *de re* modality as incoherent, which would only leave the clearly invalid *de dicto* version of the argument.

Second, one could criticise the application of (Sub) in premise 2', despite the fact that the substituted terms are outside the scope of modal operators. [Noonan 1991] argues that modal predicates can express different properties when combined with different singular terms. Such predicates he dubs *Aberlarian*. A classic example of an Abelian predicate in English is Quine's '— is so-called because of his size', which expresses different properties depending on whether the blank is filled by 'Giorgione' or 'Barbarelli'. If the predicate  $(\lambda x \lambda y. \Box x = y)$  is similarly sensitive to the attached singular terms, then 2' is not a valid application of Leibniz's Law.

A third possibility is to reject premise 1'. This is where the argument breaks down if the box is read as logical necessity: as we saw in section 2,  $x = y$  is not logically true of  $\langle a, a \rangle$ . Here it is important not to conflate (as e.g. [Kripke 1971] does) the claim that  $a$  and  $a$  are necessarily identical with the claim that  $a$  is necessarily self-identical, which we would formalise as  $(\lambda x. \Box x = x)a$ . (On this point, see also [Lowe 1982] and [Baldwin 1984].)

Finally, a fourth response to the argument is to accept its conclusion. As will see in the next section, not every advocate of contingent identity denies 4'.

I said that there are two main reasons in support of the Kripkean orthodoxy. One is the argument from Leibniz's Law. More important is arguably the second. Many philosophers accept a general picture of modality that appears to leave no room for contingent identity *de re*. According to this picture, modal statements can be understood as quantifying over possible worlds. Each possible world represents a maximally specific way a world might have been. Among other things, a world must settle what is true and false of any given individual, e.g. whether Barack Obama won the 2008 election. The interpretation of *de re* modality is then straightforward. It is true of Barack Obama that he could have lost the 2008 elections iff there is some world that represents Obama as losing. There is never any difficulty or ambiguity when it comes to locating an actual individual at other possible worlds. Moreover, a world can never represent a given object

$a$  as being two:  $\exists x \exists y (x \neq y \wedge x = a \wedge y = a)$  does not express a way things might be.

Some objections to contingent identity are based on this picture. I already mentioned the objection from rigidity. In the picture just outlined, a *rigid designator* is usually defined as a term that denotes the very same individual relative to all possible worlds. As Kripke [1971: 154] argues, it then follows that identity statements involving rigid designators are never contingent. In particular, if ' $a = b$ ' is true, then ' $a$ ' and ' $b$ ' denote the same individual in the actual world; being rigid, they denote this very individual relative to every world; hence there is no world relative to which ' $a$ ' and ' $b$ ' have different referents.

In the context of the standard picture, this argument may be persuasive, but it carries little force against those who reject the picture. To be sure, the distinction between rigid and non-rigid designators is important, but it need not be drawn in precisely the way Kripke draws it. [Gibbard 1975: 195], [Lewis 1986: 256], [Stalnaker 1997: 186] and [Gallois 1998: 72f.], for example, suggest other ways of characterising rigidity that leave room for contingent identity. Even if one accepts that ' $a$ ' and ' $b$ ' are rigid in the sense of denoting the same object relative to every possible world, it does not follow that an identity statement between ' $a$ ' and ' $b$ ' must be non-contingent. If ' $a$ ' denotes the same object at every world, then the referent of ' $a$ ' at any world  $w$  is identical to the actual referent of ' $a$ '. If the same is true of ' $b$ ', and ' $a = b$ ' is true (i.e. true in the actual world), it follows that the referent of ' $a$ ' at  $w$  is identical to the referent of ' $b$ ' at  $w$ , for any world  $w$ . But it does not follow that ' $a = b$ ' is true at  $w$ .

This point has been emphasised by Robert Stalnaker [1987] in response to the related argument from the transitivity of identity. The argument says that if a single object  $a$  is identical to two objects  $c$  and  $d$  at another possible world  $w$ , then it ought to be true that  $a = c$ , and that  $d = a$ , which would entail that  $c = d$  – contradicting the assumption that  $c$  and  $d$  are *two*. Stalnaker objects that  $c$  and  $d$  are meant to be two only in the counterfactual scenario  $w$ . This is perfectly compatible with the assumption that they are *actually* one, i.e. that  $c = d$ .

## 4 Accounts of contingent identity

Most advocates of contingent identity endorse some alternative to the standard picture of *de re* modality. In effect, I have already sketched such an alternative for logical and epistemic modality. On the interpretation of logical necessity from section 2, to say that a formula  $\Phi$  is necessary of a given object is to say that  $\Phi$  is true in all models under all interpretations of the free variables. This is in the spirit of early possible worlds semantics, where the space of worlds was understood as the space of models of the relevant language (see e.g. [Carnap 1946]). Formally, the main difference to contemporary Kripke semantics

is that first-order variables and names are treated as non-rigid: their extension can vary from world to world.

For epistemic modalities, there are two basic options. One is to file contingent identity under “the problem of logical omniscience”. The problem, in general, is to explain how we can know a fact  $A$  and fail to know a fact  $B$ , although  $A$  and  $B$  are logically or metaphysically equivalent. This seems to call for means that go beyond standard possible worlds models of knowledge and belief. A popular idea is to add “impossible worlds” to the space of epistemic possibilities; see [Priest 2005: ch.2] for a discussion of contingent identity in this context. A rather different approach is the one I sketched in section 2. It is motivated by the observation that there is nothing impossible about the way Ralph, for example, sees the world: according to Ralph, there is a man in a brown hat who is a spy and another man on the beach who is not a spy. As it happens, the man in the brown hat is identical to the man on the beach, but Ralph isn’t aware of that. When we say that Ralph believes *of Ortcutt* that he is a spy, we are partly talking about the content of Ralph’s beliefs and partly about the actual object at which his belief is directed. Roughly speaking, to say that a subject  $s$  believes *de re* of  $a$  that it is  $F$  means that  $a$  satisfies a suitable condition  $G$  and  $s$  believes that the unique object satisfying  $G$  is  $F$ . Here  $G$  represents the “guise” under which the subject attributes  $F$  to  $a$ . (See e.g. [Lewis 1986: 32–34], [Cresswell and von Stechow 1982].)

Turning to metaphysical modality, a very different and more radical proposal is defended in [Gallois 1998]. Gallois argues that all predications, including attributions of identity, must be relativised to a possible world (and a time, but let’s ignore that). A complete statement of Leibniz’s Law would therefore say that whenever  $a = b$  *at a world*  $w$  and  $x$  has property  $P$  *at*  $w$ , then  $y$  has  $P$  *at*  $w$  (see [Gallois 1998: 145]). This blocks the argument from Leibniz’s Law. If at the actual world  $@$ ,  $a$  has the property of being necessarily identical to  $a$ , and at  $@$ ,  $a = b$ , then according to Gallois it does follow that at  $@$ ,  $b$  has the property of being necessarily identical to  $a$ . So it is true for all worlds  $w$  that *at*  $@$ , *at*  $w$ ,  $a$  is identical to  $b$ . But it does not follow that  $a$  and  $b$  are identical at all worlds, for the double operator ‘*at*  $@$ , *at*  $w$ ’ is not redundant. According to Gallois [1998: 149], it is governed by the following rule:

$$(E) \quad \text{at } @, \text{at } w, \Phi(a) \Leftrightarrow \exists x(\text{at } @, x = a \wedge \text{at } w, \Phi(x)).$$

In the case where  $a$  is contingently identical to  $b$ , there is (absolutely speaking) an object  $x$  (namely  $b$ ) such that *at*  $@$ ,  $x = a$  and at all worlds  $w$ ,  $x = b$ . Hence *at*  $@$ , *at*  $w$ ,  $a = b$  is true for all worlds  $w$ , although *at*  $w$ ,  $a = b$  is not true for all  $w$ .

Gallois’s proposal has not found many supporters. Most advocates of metaphysically contingent identity accept that statements of the form ‘ $a = b$ ’ express complete propositions. What they reject is the idea that the identification of objects across possible worlds is always unambiguous and unproblematic. Suppose I am looking at parts for a new bicycle.



Which of the possible bikes that I consider building are identical to the actual bike I make? Which of them are identical to one another? Could the bike I actually build have had a different fork? A different frame? The standard picture seems to assume that there is a precise and determinate answer to all such questions: either there is a metaphysically possible world at which this very bike has a different frame, or there isn't. On the alternative view, this determinacy is an illusion. When we ask what could have been true of a given object, the answer depends on which features of the object we happen to hold fixed. *Qua* aggregate of such-and-such parts, the bike could not have had a different frame; *qua* bike that I assembled, it could (see e.g. [Lewis 1986: 251–255]).

How can we model this in something like the Kripkean framework? One option is to take individual possibilities rather than possible worlds as basic (see [Lewis 1986: 230–235]). A (unary) individual possibility is, or represents, a maximally specific way an individual might be – a maximally specific property. To say that being  $\Phi$  is possible of  $a$  is to say that there is a  $\Phi$  possibility accessible from the way  $a$  actually is. The shiftiness and indeterminacy of modal judgments is explained by the shiftiness and indeterminacy of the accessibility relation.

A more traditional approach is to model *de re* modality in terms of possible worlds. Unlike in the standard picture, possible worlds do not directly represent truths about individuals from other worlds. For example, a possible world might be taken to represent a (maximally specific) *qualitative* way a world might be: it settles how many things there are and which qualitative properties and relations they instantiate, but it does not explicitly single out one of these objects as, say, Barack Obama. Roughly speaking, a world represents *de re* of Obama that he lost the 2008 elections by representing that an individual with certain features  $G$  lost the elections, where  $G$  are features which Obama has in the actual world. (Note the similarity to the above account of epistemic *de re*.) The shiftiness of modal judgments comes from the shiftiness of the “identifying” features  $G$ .

Suppose a possible world represents that there is an individual with such-and-such properties. It proves convenient to say that there is a *possible individual* with just those properties. If a possible individual  $b$  at a world  $w$  resembles an actual object  $a$  in the right way, so that  $w$  represents *de re* of  $a$  that it has whatever properties  $b$  has, then  $b$  is called a *counterpart* of  $a$ . The counterpart relation mirrors the accessibility relation between individual possibilities:  $a$  is possibly  $F$  iff  $a$  has a counterpart that is  $F$ . The details of the picture depend to some extent on the metaphysics of possible worlds and possible individuals, see e.g. [Lewis 1986] and [Stalnaker 1987] for different ways of spelling them out.

On the counterpart-theoretic picture, contingent identity can arise in two different ways. First, a single possible world can represent different possibilities for an actual individual  $a$  relative to different choices of the counterpart relation. For instance, at a

world where the statue Goliath was given a copper hat, the whole statue may qualify as counterpart of the actual statue *qua statue*, while only its clay part is a counterpart of the statue *qua lump of clay*. Secondly, a world can represent several possibilities for an individual  $a$  under the very same counterpart relation. This is what arguably happens in the case of the embryos that might not have fused, or – in the epistemic domain – in the case of Ralph’s mistaken beliefs about Anne.

Gibbard [1975] analyses contingent identity in the framework of *individual concept semantics* (see [Hughes and Cresswell 1996: ch.18]). Formally, this can be seen as a species of counterpart semantics, with the following assumptions:

- (i) Counterpart relations are semantically associated with singular terms; e.g. different relations are associated with ‘Lumpl’ and ‘Goliath’.
- (ii) Nothing has multiple counterparts at a single world under the same counterpart relation.
- (iii) Counterpart relations are equivalence relations.

Assumption (i) renders modal predicates Abelardian: whether ‘ $a$  is possibly  $F$ ’ is true depends not just on the reference of ‘ $a$ ’, but also on the associated counterpart relation. The functionality assumption (ii) means that a counterpart relation determines for every possible individual  $a$  a (partial) function  $I_a$  that maps each world  $w$  to  $a$ ’s counterpart at  $w$  (if any). Such functions are known as *individual concepts* or *intensional objects*. Now ‘ $a$  is possibly  $F$ ’ is true iff for some world  $w$ , the possible individual  $I_w(a)$  has property  $F$ . Finally, (iii) ensures that  $I_a = I_{a'}$  whenever  $a' = I_a(w)$  for some world  $w$ , which means that instead of associating terms with referents and counterpart relations, we can simply associate them with individual concepts.

If the semantic value of a singular term includes, besides a referent, a counterpart relation or an individual concept, one should distinguish between *reference* and *semantic value*. It would be problematic for an advocate of contingent identity to say that ‘Lumpl’ and ‘Goliath’ *refer to* intensional objects (or, as Gibbard says, that variables *range over* intensional objects). For this sounds as if Lumpl and Goliath (the referents of ‘Lumpl’ and ‘Goliath’) are really two different objects, whose non-identity is only hidden by a deviant interpretation of the identity predicate. Charitably understood, Gibbard’s proposal is not that Lumpl and Goliath are individual concepts, but that modal constructions are sensitive to more than the reference of singular terms.

Instead of adding counterpart relations to a term’s semantic value, it is often held that the relevant relation is determined (to the extent that it is) by conversational context, although suggestive vocabulary can influence the choice (see e.g. [Lewis 1983: 42ff.]). On this account, *de re* modal predications are referentially transparent. For instance, since it is true of Goliath that he could have been partly made of copper (namely *qua statue*), it is also true of Lumpl that he could have been partly made of copper (*qua statue*). That

it often looks like we can't substitute 'Lumpl' for 'Goliath' in modal contexts is due to the fact that these names pragmatically evoke different counterpart relations.

Is it then true of Lumpl and Goliath that they are possibly non-identical? Relative to any choice of counterpart relation, the counterparts of Lumpl are precisely the counterparts of Goliath. One might conclude that there is no choice under which Lumpl and Goliath satisfy  $(\lambda x \lambda y. \Diamond x \neq y)$ . This leads to the form of contingent identity account that accepts the conclusion of the argument from Leibniz' Law (see [Stalnaker 1987], [Stalnaker 1994], [Gray 2001]). By contrast, Lewis [1983: 44f.], following [Hazen 1979], argues that counterparts of pairs of objects should not be equated with pairs of counterparts of the individual objects. Thus an identity pair  $\langle a, a \rangle$  can have a non-identity pair as a counterpart, even though every counterpart of its first member is also a counterpart of the second. The argument from Leibniz's Law then goes wrong at premise 1'.

Like the orthodox picture, the counterpart-theoretic picture can be developed in different ways, leading to different modal logics. For some recent proposals, see e.g. [Braüner and Ghilardi 2007: 591–616], [Kracht and Kutz 2007: 976f.], [Russell 2012] and [Schwarz 2012].

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