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Identity Facts (2002)

I

The history of philosophy is a story of agreements and of disagreements, often thoughtful disagreements among reasonable people. No doubt these agreements have reflected genuine convergence of opinion on matters of philosophical substance, and the disagreements genuinely clashing points of view. Often they have not. Too often an apparent disagreement is based on a serious misunderstanding of the very language in which the disagreement is couched, reflecting linguistic deviance more than a genuine difference of opinion, with any substantial conflict of viewpoint camouflaged by terminology and usage. Even more misleading, misunderstanding has concealed fundamental divergences in viewpoint behind a veil of apparent agreement. Through misunderstanding and misuse, apparent agreement masks underlying disagreement and *vice versa*. Sometimes the misunderstanding is explicit. Sometimes it is implicit. But too often it is simply unclear what view is actually being held. The phenomenalists spoke of 'tables' and 'chairs,' but such talk, they maintained, concerned the occurrence of *sensibilia*, both actual and would-be, rather than a strictly external world. Before them Bishop Berkeley believed in the real existence of tables and chairs, he said, but claimed they were made of ideas rather than matter. Did he believe in tables and chairs while holding an incorrect view as to their constitution? Or did he disbelieve in them, while deceptively mislabeling the ideas of tables 'tables' and the ideas of chairs 'chairs'?[1] That he sincerely denied doing the latter is, of course, no proof. For if he did mislabel ideas of tables 'tables', he likewise misused the phrase 'idea of tables' as a term for ideas of ideas of tables. His clarifications of his own meanings are subject to the same problem: if he misunderstands terms like 'table' and 'idea of a table', then his use of these terms in the metalanguage produces a mis-statement regarding his own usage. No one will explain his or her own usage by saying 'I use the word "table" for something other than tables'—including those who do so misuse the term. Given his pronouncements that 'tables and chairs are not material,' Berkeley's clarifications of his own

I am grateful to the participants in the Santa Barbarians discussion group and in my University of California, Santa Barbara seminar during winter 2002 for acting as the initial sounding board for the material presented here.

[1] This interpretation of Berkeley was proposed in a seminar by Saul Kripke at Princeton University around 1980. Though I prefer a slightly different interpretation of Berkeley, the present discussion is heavily indebted to Kripke's insights.

linguistic usage do not constitute evidence one way or the other. Perhaps (as I am inclined to think) he misidentified tables with perceptions or images of tables and used the word 'table' indiscriminantly, covering both tables and table perceptions. (Again, his protest that he did not do so, however sincerely made, is in itself no evidence one way or another.) Nor would this problem have been avoided if Berkeley had symbolized his pronouncements in *Principia Mathematica* notation. For we would still be left wondering about his non-logical propositional-function constants.

The problem of linguistic misuse in philosophy is not restricted to the controversy over the nature of tables and chairs. Wherever there is sharp disagreement, there is a serious potential for misuse and a resulting cloud of misunderstanding: theories of right and wrong, epistemologies (skepticism *vs*. anti-skepticism), theories of mind, theories of freedom, theories of the contents of proper names, theories of truth (correspondence *vs*. coherence *vs*. pragmatic), theories of essence, theories of reality (mind- or theory-dependent *vs*. mind-independent)—the list is as long as the history of philosophy. In all cases, attempts at clarification of one's terminology does not automatically solve the problem. For any such attempt is itself verbal, and hence subject to the very same misuse and misunderstanding, or to a related one (e.g., a corresponding metalinguistic misunderstanding). The potential for misuse and misunderstanding does not mean that we can never know whether we disagree on matters of substance. On the contrary, we surely *do* often know exactly that. What the problem of misusage does mean is that what passes superficially as an agreement on substance or as a disagreement is not always what it appears.

II

One recent controversy that has been clouded in misuse and misunderstanding concerns the question of whether there can be a pair of objects for which there is no fact of the matter as to whether they are identically the same thing or instead distinct things. Fruitful discussion of this controversy calls for agreement at the outset concerning just what the issue of contention is about. Identity, in the relevant sense, is simply the relation of being one and the very same thing. This is sometimes called *numerical identity*, as opposed to *qualitative identity* or indiscernibility, i.e., the relation of being exactly alike. Numerical identity is the binary relation that obtains between x and y when they are not two things but one, when y just *is* x and not another thing. Identity is the smallest equivalence relation, the relation that each thing bears to itself and to nothing else, no matter how similar. I am identical with myself and nothing else. You are identical with yourself and nothing else. For each thing x, x is identical with x and with nothing else. The logical symbol for this relation is the equality sign, '$=$'. Numerically distinct things are not identical, not one thing but two.

Could there be a pair of objects for which there is simply no fact of the matter whether they are one and the very same? Philosophical puzzles about the identity of certain objects (e.g., questions of personal identity or of the persistence of an artifact over time) strongly invite the view that there is sometimes no fact as to identity or distinctness. Some years ago I discovered a simple proof that there is always a fact of identity or distinctness.[2] The following year there appeared a similar proof in a cryptic note by Gareth Evans.[3] Although there are significant difficulties in interpreting Evans's language—which can seem seriously confused and even inconsistent—his discussion is usually interpreted in such a way as to depict his proof and mine as near notational variants. Although many are persuaded by these disproofs of indeterminate identity, many others are not. The main idea underlying the proof is disarmingly simple: What would y have to be like in order for there to be no fact of the matter whether it just *is* x? One thing is clear: it would not be exactly like x in every respect. But in that case it must be something else, so that there is a fact of the matter after all.

Proof (Formulation I): (1) Suppose a pair, $\langle x, y\rangle$, for which there is no fact of identity or distinctness. (2) By contrast, there is a fact of identity for the reflexive pair $\langle x, x\rangle$. (3) It follows that $\langle x, y\rangle$ is distinct from $\langle x, x\rangle$. (4) Therefore, by standard set theory, $x \neq y$. (5) Consequently, there is a fact of the matter.

The preceding derivation proceeds along the lines of what Hans Reichenbach called the *context of justification*. The *context of discovery* may be somewhat more instructive.[4] The disproof of indeterminate identity occurred to me while considering how a semantics for indeterminacy should be engineered. Starting with the most basic sort of case, suppose there is a man of thinning hair, Harold, for whom there is no fact of the matter whether he is genuinely bald—or to put it alternatively, it is indeterminate whether, or neither true nor false that, Harold is bald. How is this reflected in the semantic structure of the sentence 'Harold is bald'? Nothing is amiss with the name 'Harold'; it simply designates the man in question. Any funny business is confined to the predicate 'is bald'. The predicate *applies to* those things of which it is true, i.e., to anything x for which there is a fact that x is bald. The predicate's choice predicate-negation 'is non-bald' (or 'isn't bald') applies to anything y for which there is a fact that y is not bald.[5] Let us say that a monadic predicate Π *applies against* (or *anti-applies to*) something when, and only when, its choice

[2] I discovered my proof in 1977 while working on my doctoral dissertation, later published as *Reference and Essence* (Princeton, N.J.: Princeton University Press, 1981). The proof appears at pp. 243–246. The proof does not entail, and was not taken to show, that every identity statement has truth value. On the contrary, arguably if either α or β fails to refer, then $\ulcorner \alpha = \beta \urcorner$ is neither true nor false.

[3] 'Can There Be Vague Objects?' *Analysis*, 38 (1978), p. 208. See note 9 below.

[4] Reichenbach, *The Rise of Scientific Philosophy* (Berkeley and Los Angeles: University of California Press, 1951), at 231.

[5] The *choice sentential negation* of φ is true when φ itself is false, false when φ is true, and neither true nor false whenever φ is. Choice predicate-negation is the analogue for predicates. I indicate this operation by means of the prefix 'non-'. Choice negation contrasts with exclusion negation, which is like choice negation except that the exclusion negation of φ is true when φ is neither true nor false. The operation is captured in English by the phrase 'it is not true that'. Exclusion predicate-negation is the analogue for predicates. (An example might be the prefix 'un-' in 'undead', as the latter is used in vampire folklore.)

predicate-negation, *non*-Π, applies to that thing.[6] That is, a monadic predicate applies against those things of which it is false. The extension of a monadic predicate is the set (or class) of things to which the predicate applies. A predicate's *anti-extension* is the set of things against which the predicate applies, i.e., the set of things of which the predicate is false. The predicate 'is bald' is a witness to the fact that some predicates may be *partially defined*, in the sense that they are neither true nor false of some objects. Let us say that a monadic predicate is *inapplicable with respect to* something if and only if the predicate applies neither to nor against that thing (something of which the predicate is neither true nor false), and let us call the set of things with respect to which a monadic predicate is inapplicable the predicate's *syn-extension*. A predicate's extension, anti-extension, and syn-extension form a triad of disjoint sets which (barring a more radical kind of partial definition) together partition the relevant universe of discourse. Poly-adic predicates (dyadic, triadic, etc.) are then handled in the obvious way by taking ordered *n*-tuples. Now we may semantically characterize the English predicate 'is bald' *vis-à-vis* Harold: the words are inapplicable with respect to Harold. Harold is an element of the English syn-extension of 'is bald'.

This is not a fully developed semantic theory of non-bivalence. It is a plausible framework for a more detailed semantic development of non-bivalence, at least to the extent that any such development that enjoys significant intuitive force will accommodate analogues to the relevant notions (e.g., inapplicability). It is important to note that although the framework is non-classical, insofar as it includes a 'middle' that Aristotle's law excludes, the meta-theory is set out (or can be) in a completely classical metalanguage, one that is bivalent and fully extensional.[7] Of course, if one attempts to fix the English extension of 'is bald' by incorporating that very predicate into the metalanguage ('The predicate 'is bald' applies to something in English iff that thing *is bald*'), the resulting metalanguage will be non-bivalent. But there is no pressure to do so. On the contrary, it is advisable to invoke predicates in the metalanguage for *determinate* baldness and non-baldness, as in 'The predicate "is bald" applies against something in English iff that thing is determinately-non-bald.' In theory (ignoring here the prospect of higher-order indeterminacy), one could fix the extension, the anti-extension, and the syn-extension of 'is bald' by specifying precise proportions of hair on the head (e.g., 25 percent or less hair: *bald*; 30 percent or more: *non-bald*). The meta-theoretic notions of application to, application against, and inapplicability are like determinate baldness and determinate non-baldness: bivalent one and all. Although 'Harold is bald' is neither true nor false, the meta-English sentence 'The English predicate "is bald" applies to Harold' is simply false.

Let us now apply the framework to indeterminacy of identity. The relevant predicate is the dyadic logical symbol '$=$', or the English 'is identical with' in the sense of *being numerically one and the very same object*. Classically, this predicate applies to

[6] A semantic notion of *dissatisfaction* may be defined in terms of application-to and application-against, for sufficiently well-behaved languages, with the result that an assignment of values to variables dissatisfies an open sentence φ iff it satisfies the sentential choice negation $\ulcorner{\sim}\varphi\urcorner$.

[7] A language is *extensional* if it generates no contexts that violate the principle of extensionality, according to which the extension of a compound expression (the reference of a compound singular term, the truth value of a sentence, etc.) is a function of the customary extensions of its meaningful components and their mode of composition.

the reflexive pairing of any object *x* in the relevant universe of discourse with itself, and applies against any other pairs of objects in the discourse universe. But we are in a non-classical framework which makes room for inapplicability and non-bivalence. Suppose we have a pair of objects, <*x, y*>, for which there is no fact of their identity or distinctness. This pair is then an element of the identity predicate's syn-extension; the predicate is inapplicable with respect to <*x, y*>, and hence applies neither to nor against the pair. Still, the predicate *does* apply to the pair <*x, x*>. This latter pair is an element of the predicate's extension. The two pairs, <*x, y*> and <*x, x*>, are thus different in this respect: '=' applies to latter and not the former. Hence, they are different pairs. They *have to be* different pairs. One is an element of the syn-extension of '=' and the other is not. (It is instead an element of the extension.) But then *x* and *y* must be distinct after all, and <*x, y*> is an element of the identity predicate's anti-extension rather than the syn-extension. The syn-extension is empty.

Once I saw that the very idea of indeterminate identity is semantically incoherent in this way, it was a simple matter to convert the observation into a disproof. And it was none too surprising to find that the disproof, or one very much like it, would be discovered independently. What has been very surprising, and disheartening, is the subsequent skepticism. Though the reasoning is, to my mind, beyond reproach, the disproof of indeterminate identity has proved controversial. While I remain hopeful that future generations will find the argument conclusive, as I take it to be, the current state of play leaves little cause for optimism. Orthodoxy is supported less by reason than by inertia. Cherished doctrine dies hard even in the face of disproof. The structurally identical refutation of contingent identity initially met with skepticism.[8] I long for the day when the determinacy of identity gains the same universal acceptance that the necessity of identity enjoys today.

The disproof I offered can be reformulated entirely in what Rudolf Carnap called 'the formal mode' through semantic ascent. I shall call the following derivation 'Formulation II':

(0′)	'=' is inapplicable with respect to <*x, y*>	assumption for *reductio ad absurdum*
(1′)	'=' does not apply to <*x, y*>	(0′), definition of 'inapplicable'
(2′)	'=' applies to <*x, x*>	semantic rule for '='
(3′)	<*x, y*> is determinately-distinct from <*x, x*>	(1′), (2′), *the deteminate-distinctness of determinately-discernibles*
(4′)	*x* is determinately-distinct from *y*	(3′), set theory, logic
(5′)	'=' applies against <*x, y*>	(4′), semantic rule for '='
(6′)	'=' is not inapplicable with respect to <*x, y*>	(5′), definition of 'inapplicable', logic
(7′)	'=' is not inapplicable with respect to <*x, y*>	(0′), (0′), (6′), *reductio ad absurdum*

[8] A number of provocative theses about identity (e.g., that personal identity is grounded in, or reducible to, some more complex relation between the identified persons, such as psychological

Both formulations proceed by distinguishing the putatively indeterminately identical pair <*x, y*> from the determinately identical pair <*x, x*>, then inferring the distinctness of *x* from *y*. A more direct procedure distinguishes *x* from *y* directly in virtue of the different ways in which each is related to *x*. The former is such that it is determinate whether it is *x*; on the initial assumption, the latter is not. Since they differ from each other in this way, they are distinct after all. (The disproof offered by Evans appears to proceed along these lines.) This third formulation can be symbolized by introducing a truth-functional connective, '∇', for indeterminacy. Its truth table is the following:

φ	$\nabla\varphi$
T	F
F	F
U	T

We may also introduce a connective for determinacy (the dual of '∇'):

φ	$\Delta\varphi$
T	T
F	T
U	F

These truth tables provide the logic of 'Δ' and '∇'. Formulation III proceeds as follows. We first prove a lemma: that *x* is not something for which it is indeterminate whether it is *x*.

1. $x = x$ logical truth
2. $\Delta(x = x)$ 1, logic of 'Δ'
3. $\sim\nabla(x = x)$ 2, logic of '∇'

The main proof is then straightforward:

4. $\nabla(x = y)$ assumption for *reductio ad absurdum*
5. $x \neq y$ 3, 4, logic (including Leibniz's Law)
6. $\Delta(x \neq y)$ 5, logic of 'Δ'
7. $\sim\nabla(x = y)$ 6, logic of '∇'[contradicting line 4]
8. $\sim\nabla(x = y)$ 4, 4, 7, *reductio ad absurdum*, logic of '∇'[9]

congruence and continuity) are refutable by means of arguments of the same structure. *Cf.* my 'Modal Paradox,' in *Midwest Studies in Philosophy XI: Studies in Essentialism*, ed. P. French, T. Uehling, and H. Wettstein (Minneapolis: University of Minnesota Press, 1986), pp. 75–120, at 110–114.The conclusion follows from two auxiliary observations: (*i*) the fact that $x = x$ lacks the provocative property attributed to the fact that $x = y$ (e.g., contingency, indeterminacy, reducibility to psychological congruence and continuity, obtaining in virtue of a 'criterion' of identity, etc.); whereas (*ii*) the fact that $x = y$ (assuming there is such a fact) just *is* the fact that $x = x$.

[9] This is not the proof Evans intended. Indeed, he might have rejected its conclusion. Evans evidently believed that there are pairs of proper names, α and β, such that the equation $\ulcorner\alpha = \beta\urcorner$ lacks truth value, but he also believed that this is invariably due to some ambiguity, imprecision, or incompleteness in the notation—i.e., in one or both of the names or perhaps in the identity predicate. (*Cf.* David Lewis, 'Vague Identity: Evans Misunderstood,' *Analysis*, 48 [1988], pp. 128–130. Lewis construes vagueness as a kind of semantic *indecision* among various precise potential

A word about *reductio ad absurdum*: The classical form is not valid in a non-bivalent logic. A valid derivation of a contradiction from an assumption φ shows that φ is untrue, not that it is false. The proper inference to draw from the demonstration that φ is inconsistent is to something disjunctive: $\sim\varphi\vee\nabla\varphi$. However, $\ulcorner\sim\nabla\nabla\Psi\urcorner$ is a logical truth. Hence when the *reductio* assumption φ has the particular form $\ulcorner\nabla\Psi\urcorner$ (as with line 4 above), a further application of *modus tollendo ponens* yields the classical conclusion. (This is the object-theoretic analogue to the feature of Formulation II that it is derived in a classical, bivalent metalanguage.)

contents—'precisifications'—perhaps whereby the task of fixing a particular extension for a lexical item remains unfinished. He reports that this was also Evans's construal.) Evans's concern in his cryptic note is to demonstrate that vagueness is a feature of our conceptual and/or notational apparatus for representing the world and not of the world represented thereby, that there cannot be a 'vague world' composed of 'vague objects.' He mistakenly equated this with the thesis that any imprecision or indeterminacy in questions of identity is a feature of our conceptual and/or notational apparatus rather than of the very objects in question. (Evans identifies the opposing thesis that there are 'vague objects' for which questions of identity have no answers with the thesis that there are objects 'about which it is a *fact* that they have fuzzy boundaries.' This appears to be a separate confusion, depending on the meaning of 'fuzzy boundary'.)

Unlike Formulations I–III above, Evans's argument does not invoke (objectual) variables ranging over objects. Instead his argument is entirely meta-theoretic, and concerns a particular object-theoretic proof. He proceeds by assuming for a *reductio* that we have a pair of objects at least one of which is a vague object (whatever that means), and completely precise names α and β (Evans's uses '*a*' and '*b*') for these objects, so that the lack of truth value of the equation $\ulcorner\alpha=\beta\urcorner$ is entirely due to the vague object(s) named rather than to any imprecision or indeterminacy in the notation itself, which is assumed to be completely precise and non-defective. His first step, then, is the assumption that $\ulcorner\nabla\ (\alpha=\beta)\urcorner$ is true solely in virtue of some defect in the objects named, not in the notation. Since $\ulcorner\sim\nabla(\alpha=\alpha)\urcorner$ is also precisely true (albeit perhaps concerning a 'vague object'), it follows that $\ulcorner\alpha\neq\beta\urcorner$ is also true. (Lewis reports that Evans believed this inference requires the assumption that there is no vagueness in the notation involved, since it does not go through where $\ulcorner\nabla(\alpha=\beta)\urcorner$ is true because one of the names involved is itself imprecise.) This contradicts the initial assumption that $\ulcorner\alpha=\beta\urcorner$ lacks truth value solely in virtue of the objects named. Instead, Evans believes, if it lacks truth value, this must be traceable to vagueness or imprecision in the very notation itself, perhaps in one of the names. Converting the object-theoretic derivation into a classic *reductio* proof, Evans jumps through a technical hoop (committing a further confusion along the way) in order to validate the deduction of $\ulcorner\Delta(\alpha\neq\beta)\urcorner$ from $\ulcorner\alpha\neq\beta\urcorner$, together with $\ulcorner\sim\Delta(\alpha\neq\beta)\urcorner$ from the *reductio* hypothesis. (This even by itself constitutes compelling evidence that Evans did not construe the operators 'Δ' and '∇' to be the truth-functional connectives occurring in Formulation III, whereby the validity of lines 5–7 is completely trivial.)

My own view is that precisely because identity is totally defined (as I claim to prove), there cannot be referring proper names α and β such that $\ulcorner\alpha=\beta\urcorner$ lacks truth value. Of course, one could attempt to fix the reference of a name by means of a vague definite description. One may say, 'Let "Mary" name whoever happens to be the most beautiful woman in this room.' If there is exactly one woman whose pulchritude, by the operative standard, determinately exceeds that of every other woman in the room, the attempt succeeds and the name unambiguously refers to her. If there are two Women present whose pulchritude determinately exceeds all others in the room but it is untrue that one is the more beautiful—either because it is false or because there is no fact of the matter—the attempt fails. The name is not indeterminate with respect to reference; it does not 'indeterminately refer.' Nor is the name imprecise or semantically unfinished. It simply fails to refer. (*Cf.* note 2 above.) I agree with Evans that the name does not refer to a vague woman—whatever such a thing might be. However, I believe the treatment of vagueness as akin to indecision among potential 'precisifications' is misleading at best.

Ironically, Evans's willingness to suppose that $\ulcorner\alpha=\beta\urcorner$ lacks truth value in virtue of indeterminacy in the very notation raises the prospect (which I claim to refute) that in some cases the culprit is the identity predicate. His paper gives no clear indication that he thought this impossible.

III

The resistance to these disproofs is widespread. The details vary. However, nearly every reply objects to the use of Leibniz's Law—in the inference that $<x, y> \neq <x, x>$ in Formulations I and II and/or in the move from lines 3 and 4 to 5 in Formulation III. The most extensively developed reply is that of Terence Parsons.[10] I provided in my original presentation what I took to be a decisive response to this general objection.[11] I here apply and extend that response to Parsons's specific objections.[12] I shall argue that the problem of linguistic misuse, as described in section 1 above, manifests itself in a manner leading to an ironic collapse in Parsons's theory of identity.

Commenting on my inference in Formulation I from (1) '$\nabla(x=y)$' and (2) '$\sim\nabla(x=x)$' to (3) '$<x, y> \neq <x, x>$', Parsons complains, 'This is fallacious; if it is indeterminate whether $x=y$ then it is indeterminate whether the pair $<x, y>$ is identical with the pair $<x, x>$. No principle of bivalent logic or bivalent set theory (or ordered-pair theory) should be taken to validate the inference to (3), since the inference crucially involves non-bivalency' (*Indeterminate Identity*, p. 61). '. . . to assume the validity of the [contrapositive of Leibniz's Law] is to beg the question' (p. 38). He speculates that 'a natural way to think of' attempting to justify the inference to (3) is by means of an illegitimate use of *reductio ad absurdum* reasoning, fallaciously inferring (3) from the fact that its negation is inconsistent with the initial hypothesis (1). 'There is no way to derive (3) from (1) and (2). . . . Instead, we can show, using comprehension, that it is indeterminate whether [$<x, y> = <x, x>$]' (p. 185). In response to Formulation III Parsons objects, 'The argument does not

[10] Parsons, 'Entities without Identity,' in *Philosophical Perspectives I: Metaphysics*, ed. J. Tomberlin (Atascadero, Calif.: Ridgeview, 1987), pp. 1–19; Parsons and P. Woodruff, 'Worldly Indeterminacy of Identity,' *Proceedings of the Aristotelian Society*, 95 (Winter 1995), pp. 171–191; Parsons and Woodruff, 'Indeterminacy of Identity of Objects and Sets,' in *Philosophical Perspectives XI: Mind, Causation, and the World*, ed. J. Tomberlin (Atascadero, Calif.: Ridgeview, 1997), pp. 321–48; and Parsons, *Indeterminate Identity: Metaphysics and Semantics* (New York: Oxford University Press, 2000). Parsons credits Peter Woodruff in *Indeterminate Identity* for much of his defense of the notion.

[11] 'I have encountered a number of objections to the argument, but none that are convincing. Perhaps the most frequent objection is the idea that if we take vagueness and indeterminacy seriously, it is fallacious to infer that $<x, y> \neq <x, x>$ from the assumption that it is indeterminate or vague whether the first pair of objects stand in the identity relation, whereas it is fully determinate and settled that the second pair of objects so stand. The objection is usually based on the notion that where a term is applied to objects for which the term's applicability may be vague or indeterminate, classically valid inference patterns are no longer legitimate. But the inference drawn here is from a conjunction consisting of an *assumption*—something we are taking to be determinately the case for the sake of argument—together with something that is quite definitely the case. The inference pattern need only be valid, i.e., truth-preserving. There is nothing more to require of it.' (*Reference and Essence*, p. 244*n*).

[12] My presentation here has benefited from correspondence with Parsons from April 1985 to January 1986, in which I offered a more detailed version of the same response. His reply in *Indeterminate Identity* differs in a variety of respects from that in his earlier 'Entities without Identity,' as well as that in his and Woodruff's papers cited above in note 10. I here concentrate almost exclusively on Parsons's more recent reply.

use Leibniz's Law at all, but rather its contrapositive. This is the principle [I] discussed and rejected . . . . The argument thus begs the question' (*ibid.*, p. 47). Parsons summarizes his primary complaint against the disproofs as follows:

> . . . it is coherent to hold that identity statements might be indeterminate . . . all of the a priori proofs to the contrary are clearly question-begging. (*ibid.*, p. vii)
>
> In my opinion the major cause of ongoing controversy regarding . . . indeterminacy of identity . . . is our tendency to take for granted contrapositive reasoning when using propositions that may lack truth-value. This type of reasoning is so natural to us when dealing with truth-valued claims that we instinctively pursue it when dealing with meaningful claims that may lack truth-value, where it is straightforwardly fallacious. (*ibid.*, p. 27)

Parsons develops a metaphysico-semantic theory for indeterminate identity within the framework of a non-bivalent object language that is otherwise antiseptic—i.e., fully extensional and in which all singular terms refer. His theory correctly blocks classical 'contrapositive reasoning'—whereby a correct derivation of Ψ from φ is taken to validate the further inference of $\ulcorner {\sim}\varphi \urcorner$ from $\ulcorner {\sim}\Psi \urcorner$—and *reductio ad absurdum* reasoning. In a non-bivalent logic, only weaker conclusions are derivable from $\ulcorner {\sim}\Psi \urcorner$, e.g., $\ulcorner {\sim}\varphi \vee \varphi \urcorner$. (*Reductio ad absurdum* is the special case of contrapositive reasoning where φ is the *reductio* assumption and Ψ is $\ulcorner \chi \wedge {\sim}\chi \urcorner$.)

IV

Leibniz's Law is typically given as a schema of classical logic:

$$\alpha = \beta \supset (\varphi_\alpha \equiv \varphi_\beta)$$

where φ_β is the same formula as φ_α except for having free occurrences of the singular term β where φ_α has free occurrences of the singular term α.[13] As with any schema of classical logic, this one has restricted application in a non-bivalent framework: Every instance *in which all atomic formulas have truth value* expresses a logical truth. The classical schema as well as the corresponding classical-logical inference rule of Substitution of Equality (derived from the schema using *modus ponens*) are based upon Leibniz's principle of *the indiscernibility of identicals*, i.e., if *x* and *y* are one and the very same thing, then they are exactly alike in every respect. One might suppose that Leibniz's notion of indiscernibility—being exactly alike in every respect—might be defined as follows:

> *x* and *y* are *indiscernible* $=_{def}$ every property is a property of *x* iff it is also a property of *y*.

[13] The conditional involved here is true whenever the antecedent is false or the consequent true, false only when the antecedent is true and the consequent false, and neither true nor false in the remaining three cases. The biconditional (formed from either '$\equiv$' or 'iff') is true when both sides have the same truth value, false when they have opposite truth value, and neither true nor false whenever either side is. Disjunction and conjunction are defined in the customary manner in terms of '$\supset$' and choice-negation. A disjunction is true when one or both of its disjuncts is, false when both disjuncts are, and neither true nor false in the remaining cases. A conjunction is true when both conjuncts are, false when one or both of its conjuncts is, and neither true nor false in the remaining cases.

But if some properties are indeterminate with respect to some objects, this definition does not capture the relevant notion of indiscernibility. If it is indeterminate whether Harold is bald, it is equally indeterminate whether Harold is bald iff Harold is bald. But Harold is still Harold nonetheless, and exactly like himself in every respect. The following weakening of the classical schema better captures the intended *indiscernibility of identicals*. It is intuitively universally valid in any language that is extensional and in which all singular terms refer—even including instances where one or both of φ_α and φ_β lacks truth value:

$$LL : \alpha = \beta \supset [(\varphi_\alpha \equiv \varphi_\beta) \vee (\nabla\varphi_\alpha \Lambda \nabla\varphi_\beta)].$$

I shall use 'Leibniz's Law' in the following as an alternate name for this more cautious schema.

Parsons says he endorses Leibniz's Law (pp. 35–36), but the terminology is misleading. He in fact explicitly rejects *LL*, favoring instead a significantly weakened variant (pp. 92–94).[14] As well he may if he is prepared to pay the price for avoiding the disproofs of indeterminate identity. Appropriate instances of *LL*, taken in conjunction with logical laws and rules that are valid in non-bivalent logic, provide exactly what is needed to validate both of the disproofs, without any reliance on the non-bivalent fallacy of contrapositive reasoning. The intuitive validity of *LL*, and its nearly unanimous acceptance as a logically valid schema (within a fully extensional framework in which all singular terms refer), therefore render Parsons's diagnosis of the ongoing controversy over indeterminate identity extremely unlikely. Parsons prefers to reserve the name 'Leibniz's Law' for Substitution of Equality. It is only a name, and I defend to the death Parsons's right to use it for the inference rule instead of an axiom schema as his preference might be. (The name is frequently so used.) But then his complaint that the disproof 'does not use Leibniz's Law at all' is deceptive at best. His further complaint that since the disproof involves what is tantamount to the contrapositive of Substitution of Equality, which he explicitly

[14] He is not alone. As mentioned, most respondents have replied to the disproofs by rejecting *LL* in an extensional language in which all singular terms refer, or by undertaking a commitment to do so. A position similar to Parsons's was first defended by John Broome, 'Indefiniteness in Identity,' *Analysis*, 44 (1984), pp. 6–12. Both Broome and Parsons claim to embrace 'Leibniz's Law,' even while rejecting *LL*. Neither contends that *LL* has false instances (in such a language), but both believe some instances are neither true nor false.

In lieu of the standard conditional $\ulcorner\varphi \supset \Psi\urcorner$ (as defined in note 13 above), Parsons generally prefers a weaker conditional $\ulcorner\varphi \Rightarrow \Psi\urcorner$—the so-called Łukasiewicz conditional—equivalent to $\ulcorner(\varphi \supset \Psi) \vee (\nabla\varphi \wedge \nabla\Psi)\urcorner$. The Łukasiewicz conditional is sufficiently weak to accommodate such things as 'The present king of France is bald $\Rightarrow$ the present king of France is not bald' as well as its converse. Even the Łukasiewicz conditional, however, is sufficiently strong to validate *modus tollens*. For this reason, Parsons rejects not only *LL* but also the result of replacing '$\supset$' by '$\Rightarrow$' (pp. 92–94). One weaker variant of *LL* that Parsons does accept (for the appropriate language) is $\ulcorner\Delta(\alpha = \beta) \supset LL\urcorner$, i.e.:

$$\Delta(\alpha = \beta) \supset [\alpha = \beta \supset (\varphi_\alpha \equiv \varphi_\beta) \vee (\nabla\varphi_\alpha \Lambda \nabla\varphi_\beta)].$$

But as I shall argue, Parsons's endorsement of even this variation of *LL* is unjustified. (See note 29 below.) It should also be noted that not all theorems of classical bivalent logic must be weakened in the move to a non-bivalent logic by affixing antecedents of the form $\ulcorner\Delta\varphi\urcorner$, or disjuncts of the form $\ulcorner\nabla\varphi\urcorner$, for each atomic component φ. The clasical theorem '$(p \supset q) \vee (q \supset r)$', for example, goes simply into '$\Delta q \supset [(p \supset q) \vee (q \supset r)]$', or alternatively, into '$(p \supset q) \vee (q \supset r) \vee \nabla q$'.

rejects, it is thus 'clearly question-begging' is completely unjustified—lest any valid argument begs the question against the opponent merely by virtue of relying on a package of premise that the opponent is committed to rejecting.[15] Nor did Achilles beg the question against the Tortoise by relying on *modus ponens*.[16] Like *modus ponens, LL* is nearly universally accepted as intuitively valid (within an extensional framework). The burden of proof lies squarely on the side of those who wish to reject the validity of either. And a large burden it is. It is not enough to demonstrate that weakening *LL* is sufficient to make room for indeterminate identity. One would need to *expose a fallacy* in the unrestricted form. One would need to show not only that the restriction blocks the disproofs, but also that it is independently intuitive, and that its historical omission was a logical oversight, akin to the Aristotelian logician's inadvertently overlooking the fact that the inference from ⌜All *S* are *P*⌝ to ⌜Some *S* are *P*⌝ is invalid without the tacitly assumed premise ⌜Some things are *S*⌝.

Although he endorses full Substitution of Equality in an extensional non-bivalent setting (calling it 'Leibniz's Law'; but see note 29 below), Parsons points out that this in itself does not license the contrapositive inference from substitution failure to non-identity. What, then, is his alternative logical introduction rule for '$\neq$'? Parsons endorses a principle (which, following Woodruff, he calls 'DDiff') of *the determinate distinctness of determinately discernibles*. This licenses a restricted variant of the contrapositive of Substitution of Equality, tantamount to:

$$\begin{array}{ll} & \Pi(\alpha) \\ & \sim\Pi(\beta) \\ \therefore & \alpha \neq \beta, \end{array}$$

where Π is a monadic predicate—or rather, where Π is a special sort of monadic predicate, one guaranteed to express ('stand for') a property.[17] The idea here is that, assuming the terms α and β are referring, if there is a property that the referent of the former determinately has and the referent of the latter determinately lacks, then the referents are determinately distinct.

[15] The most common mode of objection to a philosophical theory consists in exposing an implausible consequence. In broad outline, the objection takes the form of a *modus tollens* argument: $T \supset C$. $\sim C$ $\therefore$ $\sim T$. In his work, both on identity and on unrelated matters, Parsons sometimes turns this form of objection on its head, arguing for a controversial or otherwise implausible hypothesis *C* on the very ground that the theory *T* (which he is defending) is committed to it. In effect, the objector's *modus tollens* becomes Parsons's *modus ponens*. He sometimes couples this with the charge that the objection begs the question against *T* by asserting the denial of the consequence *C*. This involves a misunderstanding of the function of a philosophical argument, which is not to force the opponent to concede but to persuade an idealized, intelligent, philosophically educated, but unbiased third party who is otherwise agnostic. An argument *begs the question* not merely by employing a premise the opponent may doubt, but by employing one or more premise the idealized unbiased agnostic cannot reasonably be expected to accept because their rational justification is based precisely on the argument's conclusion (or on something even stronger).

[16] Lewis Carrol, 'What the Tortoise Said to Achilles,' *Mind* NS, IV, 14 (April 1895), pp. 278–280.

[17] Parsons might distinguish syntactically between those simple predicates within the scope of this contrapositive of Substitution from those outside its scope by using a two-sorted stock of simple predicates. It is to be understood that a compound monadic predicate legitimately formed by λ-abstraction on an open formula qualifies as expressing a property.

Some such restriction must be imposed on Substitution of Equality itself, as well as its contrapositive and *LL*, the moment one enters a nonextensional framework. Failures of unrestricted Substitution are commonplace even in a bivalent setting whenever non-extensional operators are present. Quotation marks notoriously play havoc with Substitution. And although it is necessary that the US President is president of the US, and George W. Bush is the US President, it does not follow that it is necessary that George W. Bush is president of the US Furthermore, although it is necessary that the US President is president of the US and unnecessary that George W. Bush is, it does not follow that George W. Bush is not the US President. The legitimacy of the restriction to subject-predicate sentences (and their negations) in the present setting, however, is dubious. As Parsons recognizes (pp. 30, 50), the sentential indeterminacy operator and its dual are truth-functional, hence completely extensional. Here again, the restriction to subject–predicate is *ad hoc*, at least unless and until a persuasive, independent justification is provided, exposing the alleged fallacy in the unrestricted form as a logical oversight (within an extensional framework in which all singular terms refer).

In any event, the restriction is idle unless it is accompanied by an additional restriction on the formation of compound monadic predicates from open formulas. Unrestricted λ-conversion would simply welcome the contrapositive of unrestricted substitution in the back door. Formulation III, for example, is easily resurrected by the insertion of four additional lines to obtain Formulation IV:

0*a*.	$(\lambda z)[\nabla(x=z)](x)$	assumption for *reductio ad absurdum*
0*b*.	$\nabla(x=x)$	0*a*, λ-concretion
1.	$x=x$	logical truth
2.	$\Delta(x=x)$	1, logic of 'Δ'
3.	$\sim\nabla(x=x)$ [contradicting line 0*b*]	2, logic of '∇'
3*a*.	$\sim(\lambda z)[\nabla(x=z)](x)$	0*a*, 0*b*, 3, *reductio ad absurdum*, logic of '∇'[18]
4.	$\nabla\ (x=y)$	assumption for *reductio ad absurdum*
4*a*.	$(\lambda z)[(x=z)](y)$	4, λ-abstraction
5.	$x\neq y$	3*a*, 4*a*, logic (with restricted Leibniz's Law)
6.	$\Delta(x\ \neq\ y)$	5, logic of 'Δ'
7.	$\sim\nabla\ (x=y)$ [contradicting line 4]	6, logic of '∇'
8.	$\sim\nabla\ \ (x=y)$	4, 4, 7, *reductio ad absurdum*, logic of '∇'

The previous disagreements concerning contrapositive reasoning, Leibniz's Law, and the rest, would thus seem to be only so many red herrings. Parsons attempts to block this new derivation by imposing an additional restriction, this time on classical λ-abstraction (pp. 48–49, 54). The principal bone of contention between Parsons and myself thus apparently comes down to the question of validity of classical

[18] Any sentence of the form $\ulcorner\sim\nabla(\lambda\alpha)[\nabla\varphi_\alpha](\beta)\urcorner$ is a logical truth (assuming all singular terms refer), rendering the inference at line 3*a* legitimate.

λ-abstraction within a non-bivalent but extensional framework in which all singular terms refer.[19] Officially, in Parsons's theory one is barred from abstracting any compound predicate that would otherwise apply to an object y and apply against an object x indeterminately identical with y (as with lines $3a$, 4, and $4a$). Parsons would thus limit λ-abstraction to the formation of predicates that satisfy *the determinate distinctness of determinately discernibles*.

Parsons's restriction has the undesirable feature that it would make syntax—not only proof theory, but evidently even well-formedness—dependent upon semantics, if not indeed upon metaphysics. Worse, it does not cut any ice. The controversy over whether identity can be indeterminate must be settled in advance in Parsons's favor for the 'restriction' to amount to any limitation at all. In Formulation IV, one would first have to know whether line 4 is satisfied by any pair of objects in order to know whether line $4a$ may be legitimately inferred from it. On one view (my own), line 4 is unsatisfiable, making the inference to $4a$ valid even on the supposed restriction. A purely syntactic restriction would be clearly preferable for Parsons's purposes. He might, for example, decree that λ-abstraction is applicable only to formulas not containing the identity predicate, or its cognates. Alternatively, he might restrict λ-abstraction to formulas not containing either '∇' or its dual, or any cognates. Parsons's remarks (at pp. 50–51) are unsympathetic to the latter, but strongly suggest that he would favor some version or variant of the former.[20] Either restriction would block Formulation IV. But again, that it blocks the proof is no justification for either restriction. An overlooked fallacy must be exposed in the unrestricted form. Simply declaring the disproof invalid by fiat will not do.

[19] Both classical λ-abstraction and *LL* fail in the presence of non-referring terms. Consider for example 'It is indeterminate whether the present king of France is bald; therefore, the present king of France is someone such that it is indeterminate whether he is bald'; or 'If the present king of France is Nathan Salmon, then it is determinate whether the present king of France is bald iff it is determinate whether Nathan Salmon is'. The failures should not be blamed on the determinacy operator, since the same failures occur even without any such device, as in 'The present king of France does not exist; therefore, the present king of France is something that does not exist' and 'If the present king of France is Nathan Salmon, then either the present king of France exists iff Salmon does, or else it is indeterminate whether the present king of France exists and also indeterminate whether Nathan Salmon does'. *Cf.* note 2 above. The inferences maybe validated by the inclusion of appropriate existential premises. The modification is avoided here in the customary way, engineering the object language so that all singular terms refer.

[20] In 'Entities without Identity,' Parsons explicitly proposes the latter restriction.

> In the present case the problem arises from applying a version of property abstraction to a formula containing an indeterminacy operator. If this is prohibited, then [Formulation III] fails . . . [Formulation III] does not force us to give up either the use of an indeterminacy operator or the use of property abstraction that is restricted to classical constructions. It does show us that we cannot extend property abstraction to formulas containing indeterminacy operators. (p. 14)

Yet in *Indeterminate Identity*, some fifteen years later, Parsons says of operators like '∇' and its dual that they 'do not create non-extensional contexts; one may freely existentially generalize on terms within their scopes . . . ' (p. 50). Insofar as '∇*Bald(Harold)*' yields '$(\exists x)\nabla$*Bald*(x)' by Existential Generalization, it must also yield '$(\lambda x)[\nabla$*Bald*$(x)]$(*Harold*)' by λ-abstraction (or at least it *should* also do so). Here Parsons attempts to turn the proofs that identity is determinate into an argument that (in effect) applying λ-abstraction to formulas containing identity is a form of impredicative definition and therefore suspect (*ibid.*, pp. 50–51). The argument is unpersuasive. See below.

Restricting λ-abstraction to formulas not containing '$=$' is clearly excessive (and indeed Parsons explicitly allows λ-abstraction on equations, at p. 54). Insofar as it is a metaphysically necessary truth that Hesperus is Phosphorus, Hesperus has at least one metaphysically essential characteristic: that of being identical with Phosphorus. And insofar as King George IV wished to know who wrote *Waverley*, correctly speculating that it might be Sir Walter Scott, that very feature of Scott—his being identical with the author of *Waverley*—was one that piqued the curiosity of King George IV, an accomplishment of the poet about which the monarch wondered. Worse, merely restricting λ-abstraction to formulas not containing '$=$' or its cognates is inadequate for Parsons's purposes. Even a restriction to formulas not simultaneously containing both '$=$' and 'Δ' (implausible though such a restriction may be) is inadequate without any further ado. Parsons holds that whenever it is indeterminate whether $x = y$, there is some property P that is determinate with respect to one of the pair but not determinate with respect to the other, i.e., P is either determinately a property of x or determinately not a property of x but is neither determinately a property, nor determinately not a property, of y, or vice versa (p. 31). This in itself yields a determinate difference between x and y. For suppose (without loss of generality) there is a property P that is determinate with respect to x but indeterminate with respect to y. Let α refer to x and β refer to y, and let Π be a predicate that expresses P. Then both $\ulcorner \Delta\Pi(\alpha) \urcorner$ and $\ulcorner \nabla\Pi(\beta) \urcorner$ are true. Hence, so are $\ulcorner {\sim}(\lambda z)[\nabla\Pi(z)](\alpha) \urcorner$ and $\ulcorner (\lambda z)[\nabla\Pi(z)](\beta) \urcorner$. (See note 18.) The property expressed by $\ulcorner (\lambda z)[\nabla\Pi(z)] \urcorner$—the property of being something with respect to which P is indeterminate—is thus determinately a property of y and determinately not a property of x. But then x and y are distinct even according to the weaker version of the contrapositive of Substitution of Equality that Parsons accepts, contradicting the hypothesis that it is indeterminate whether $x = y$. To block this disproof Parsons needs to block the formation of $\ulcorner (\lambda z)\ [\Delta\Pi(z)] \urcorner$ from Π. Unless he has some further syntactic restriction to impose on the predicates that express properties P of the sort described, Parsons thus needs to restrict λ-abstraction further to formulas containing neither 'Δ', '∇', nor their cognates.

Such a restriction is every bit as excessive as the previous restriction to formulas not containing '$=$'. (*Cf.* note 20.) It is indeterminate whether Harold is bald. In light of this, one cannot correctly attribute either baldness or non-baldness to Harold. But there is another property that can be correctly inferred—the property of being indeterminate with respect to baldness. What is one to make of the claim that although it is indeterminate whether Harold is bald, this fact about Harold does not generate, or yield, or point to (etc.), any particular feature of Harold? Surely Harold's indeterminacy with respect to baldness is a noteworthy feature of him—especially so in the present context.

The situation is worse. As Parsons recognizes, the restrictions on λ-abstraction that he needs do not stop with formulas involving either '∇' or '$=$' or their cognates. Even if a subtle fallacy is plausibly and intuitively exposed in the application of λ-abstraction in Formulation IV (an enormous 'if'), there can be no similar fallacy in the formal-mode Formulation II. Insofar as '$=$' applies to $<x, x>$ and not to $<x, y>$, there is a property of the former pair that is not a property of the latter: that of being applied to by '$=$'. The relevant property in this case is not formed by abstracting on a metalinguistic formula involving both the identity predicate and the indeterminacy operator simultaneously, nor by abstracting on a formula involving identity, nor by abstracting into the indeterminacy operator. The abstraction is on a simple sentence of semantics proper. Formulation II proceeds entirely within a classical, bivalent, extensional metalanguage. This particular respect in which $<x, x>$ differs from $<x, y>$—that '$=$' applies to the former and not the latter—is no more airy fairy than the property of being named 'John Jacob Jingleheimer Smith'. (If anything, it is less so.) Parsons explicitly argues that the phrase ⌜is referred to by α⌝, mentioning a singular term α, is 'a paradigm case of predicate that does not stand for a property' (p. 152). He would undoubtedly argue the same for 'is applied to by "$=$".' But exactly the opposite is true: Being named such-and-such is a paradigm case of a property. Being named 'Adolf', for example, is one property that most of us are relieved at having been spared.

Parsons rules against all of these properties at once, on the ground that they are incompatible (*via* his preferred version of the contrapositive of Substitution of Equality) with indeterminate identity. In effect, Parsons attempts to prohibit by decree any disproof of indeterminate identity via Leibniz's Law. One is barred in his system from forming any predicate by λ-abstraction that would discriminate between objects for which there is no fact concerning their identity by applying to one while simultaneously applying against the other. The attempt fails, as it must. Logical proof has a special force that cannot be countered by simple fiat. Consider an analogy to the standard proof of the necessity of identity.

Suppose for a *reductio* that it is contingent whether $x = y$. Then y is unlike x, in that x is necessarily, and hence non-contingently, x; hence by Leibniz's Law $x \neq y$, contradicting the *reductio* assumption.

Parsons's proposed restriction on λ-abstraction is analogous to—and no more legitimate than—a proposal to save contingent identity by restricting Leibniz's Law to those properties that do not discriminate between contingently identical objects. Suppose a believer in contingent identity replies to the above proof by rejecting the application of Leibniz's Law to the property of being non-contingently identical with x. And suppose the rejection is not on the ground that this application of Leibniz's Law is intuitively fallacious (since it is not), nor on the ground that, like the property of being a property that is not a property of itself, the crucial property of necessarily being x can be proved not to exist (since it cannot be). Suppose the objection is merely on the ground that, given Leibniz's Law, such properties as necessarily being x and non-contingently being x would preclude contingent identity. Which party begs the question and carries the burden of proof? Is it the theorem prover who employs intuitively valid and (nearly) universally accepted reasoning to establish a metaphysically significant result? Or is it the gainsayer who objects to the crucial logical step in the proof, not on the ground that nothing can be necessarily identical with x (since, as the gainsayer concedes, x is thus) nor on the ground that the inference is intuitively invalid (since it is not), but because the crucial step is incompatible with contingent identity? (See note 15.)

Parsons's objection to the property of determinate identity with x is not on the ground that nothing can be determinately x. On the contrary, he concedes that x itself is exactly that. Nor does he object to the property on the ground that it can be proved not to exist. For it cannot be. His objection is just that such a property would mark out a difference between x and anything indeterminately identical with x, thus precluding indeterminate identity altogether. This is not a rebuttal as much as it is a refusal to concede, exactly analogous to the contingent-identity theorist's refusal to acknowledge that his position has been refuted.

Parsons announces in an early chapter of *Indeterminate Identity* that if it is indeterminate whether $a = b$, then he will prove that the predicate 'is something such that it is indeterminate whether it is b' fails to express a property (p. 15*n*). After providing the proof, Parsons remarks, 'In the discussion above it became clear that some abstracts, such as the one employed in [Formulation IV], cannot stand for one of the properties in terms of which we define identity' (p. 54). But what Parsons actually proves is something conditional: if $\nabla(a = b)$, then '(λx) $[\nabla(x = b)]$' fails to express a property. His proof is a simple variation on Formulation IV of the disproof of indeterminate identity: If there were such a property, a and b would be distinguishable by means of it, and hence distinct rather than indeterminately identical (pp. 48–51). (The proof here employs the contrapositive of Substitution of Equality, but in the form Parsons accepts.) Contrary to Parsons's spin on his theorem, it does not yield the result that the predicate in question expresses no property ('in terms of which we define identity'). One can likewise prove using Leibniz's Law that if x is contingently identical with y, then there is no property of necessarily being x. Properly understood, this weaker theorem casts no doubt on the necessity of identity. For it is a trivial corollary. One need only observe that the predicate '(λx) $[\nabla(x = b)]$' expresses the property (unpossessed, as it turns out) of being a thing such that it is indeterminate whether it is b to draw the proper conclusion from Parsons's theorem.[21]

The disproofs of indeterminate identity are remarkably resilient. Like the disproofs of contingent identity, they enjoy a force irresistible by anyone who is prepared to accept the deliverances of logic.

V

Parsons writes:

> . . . given that the language contains no non-extensional contexts, Leibniz's Law holds. Indeed, if Leibniz's Law were not to hold for such an extensional language, this would cast serious

[21] Parsons believes there are pairs of objects, a and b, such that $\nabla(a = b)$. Given his theorem, it follows that the predicate 'is indeterminately identical with b' fails to express a property. But this is no proof of the latter thesis. Here again, Parsons's *modus ponens* is another's *modus tollens*. (See note 15.) Nor does the assertion that the predicate in question expresses the property of indeterminately being b beg the question against Parsons. By contrast, Parsons's argument that the predicate fails to express any property *does* beg the question, since it relies on the premise that for some a and b, $\nabla(a = b)$, and this is the very question at issue.

doubt on whether our sign of identity were actually expressing identity, as opposed to some weaker relation." (*ibid.*, p. 36)[22]

Parsons is referring by 'Leibniz's Law' to Substitution of Equality. Ironically, however, even when the name is taken instead as referring to *LL* (contrary to Parsons's intent), his words retain a great deal of their force, if not indeed all of it. Might it be that Parsons uses '$=$' and its cognates (e.g., 'identical', 'distinct', etc.) in some non-standard way—perhaps also the word 'property' and its cognates (e.g., 'differ')? Might he mean by these words something different than their English meanings? He categorically denies doing so:

I mean by 'identical' exactly what others mean by it; this is the only way I know to guarantee that we are discussing the same issue. . . . I use 'distinct' for 'not identical' (p. 32).
I intend my terminology to be completely normal. When I speak of identity, and when I use the sign '$=$', or use 'is' in the sense of identity, I mean exactly what everyone else means. . . . The same is true of my use of the words . . . 'property', 'object', 'refer', . . . (p. 108)

However, as with the protests of Berkeley and his heirs that they mean by 'table' and by 'chair' exactly what these words mean in English, Parsons's own explanations of his usage, taken by themselves, provide no evidence one way or another. By contrast, some crucial remarks provide compelling evidence that he uses words like 'identical' and 'property' non-standardly.

Parsons endorses definitions for 'identical' and 'distinct' in terms of indiscernibility and discernibility, respectively, equivalent to the following (pp. 31–32):

x and y are *identical* $=_{def}$ every property is either (*i*) a property of x iff it is a property of y; or else (*ii*) indeterminate with respect to each of x and y;

x and y are *distinct* $=_{def}$ x and y are not identical (as just defined), i.e., there is a property that is both (*i*) either a property of x or a property of y but not a property of both; and (*ii*) determinate with respect to x or y or both.

Without doubting either of Leibniz's principles of *the indiscernibility of identicals* or *the identity of indiscernibles*, many would question whether identity can be defined or analyzed in terms of indiscernibility. We may sidestep this issue for present purposes by supposing that Parsons's 'definitions' are meant to capture a metaphysically necessary and epistemologically *a priori* equivalence, nothing more. The disjunctive nature of Parsons's definition of identity is another red flag. The result of deleting the disjunct (*ii*) altogether expresses a simpler notion of indiscernibility. But as we have seen, the simpler notion is unintended and far less useful. If there is even a single property P that is indeterminate with respect to x, it is indeterminate in that case whether x has P iff x has P. It does not cease to be true merely on this ground,

[22] Similarly in 'Worldly Indeterminacy of Identity,' Parsons and Woodruff write: 'In fact, the notion of identity that we are discussing validates Leibniz's Law: if a and b are identical for us, then their names are interchangeable in all extensional contexts. We agree that if this principle does not hold (for extensional contexts) then true identity is not under discussion. Leibniz's Law holds for the identity we discuss' (p. 174*n*) . . . 'a determinately true identity should sanction interchangeability of its terms (assuming that there are no non-extensional contexts at issue). We agree completely, and we note that the metaphysical account of identity sketched above sanctions this version of Leibniz's Law' (p. 177).

however, that x is indiscernible in the intended sense from itself. The more inclusive, disjunctive notion of indiscernibility applies to anything and itself, regardless of the properties indeterminate with respect to it.

So far, so good. But there is a striking anomaly. Parsons explicitly restricts his use of the word 'property' to include only properties of a special kind—contradicting his assurance that he means by the word 'property' 'what everyone else means' (p. 108)—and he explicitly stipulates that his definitions for 'identical' and 'distinct' are to be understood as employing his restricted use of 'property':

> [I have] talked about properties and relations 'in the world'; this is an ontological notion of property. People sometimes talk about properties in another way, using 'concept' and 'property' interchangeably, sometimes even construing properties as the *meanings* [i.e., the semantic contents] of predicates. Suppose there are two sorts of things that are commonly called properties: real things in the world, on the one hand, and parts of our conceptual apparatus for representing the world, on the other. . . . If the distinction can be made, then it is clear that the theory I am discussing sees real identity in the world as arising with the worldly properties, not the conceptual ones. When people feel that [λ-abstracts] *must* stand for properties, they may be thinking of the other sorts of properties, those that are part of our conceptual apparatus. We can happily admit that [the λ-abstract, $\ulcorner(\lambda z)[\nabla(x = z)]\urcorner$, occurring in Formulation IV] expresses a *conceptual* property. But there is no reason that I know of for assuming that conceptual properties validate the contrapositive of [Substitution of Equality], which involves [only] the worldly sort of properties.
>
> . . . When I say without qualification that a predicate does not stand for a property, it will be the worldly sort of property that I have in mind. (p. 55)

My own view is that Parsons's attempt to draw a distinction between properties that form 'part of our conceptual apparatus for representing the world' and those special properties that are 'real parts of the world' is a determinate non-starter. Concepts are no less real than properties—and, for that matter, no more real. (Parsons concedes that his distinction is a difficult one to make.) But there are various distinctions that might be mis-characterized along such lines as 'worldly' *vs*. 'conceptual.' There is the distinction between natural and nonnatural properties, for example. There is the distinction between empirical and innate concepts. Parsons may have one of these distinctions in mind, or some related one. Whichever distinction he intends, Parsons believes it underlies an ambiguity in the word 'property', and he specifies that his use of the word is restricted to properties of the 'real' or 'worldly' sort, excluding 'conceptual' properties.

It is important to note something that Parsons is not claiming. One might say that some apparent properties are only *pseudo-properties*, in the following sense: that some expressions that function grammatically as monadic predicates do not assert or affirm anything about the referent of the attached singular term, but instead affirm something about some other, related thing. Clear examples are not ready to hand, but artificial examples are easy to construct. If we define the adjective 'pseudonymous', deviously enough, so that a sentence of the form $\ulcorner\alpha$ is pseudonymous$\urcorner$ is true if and only if the term α itself is a pseudonym, then the object of which we affirm something in the true sentence 'Mark Twain is, but Samuel Clemens is not, pseudonymous' is not Twain himself (i.e., Clemens). The word 'pseudonymous' does not express an aspect or feature of the author, but at best a property of his penname.[23] Parsons does not claim that a candidate for which there is no fact of identity or distinctness with Theseus's ship is not itself something such that there is no fact of the matter whether it is *the Ship of Theseus*. On the contrary, he maintains, or at least allows, that the candidate ship is exactly so, and that the predicate 'is something such that it is indeterminate whether it is *the Ship of Theseus*' expresses a concept that the candidate ship itself fits. Parsons's reason for dismissing the concept expressed in making a determination of identity or distinctness is very different. It is that the concept is in some manner part of our conception of the world rather than part of the world itself. This is considerably more vague than the complaint that the concept yields a pseudo-property in the foregoing sense, but it is clear that the alleged defect, whatever it is, is not that the relevant object somehow fails to fall under the concept.

Suppose there is a special subclass of properties that Parsons intends. We should avoid the potentially ambiguous word 'property'. I shall hereby coin the term '*w*-characteristic' for the special 'real worldly' things that Parsons means by 'property'. And let us use the word 'feature' as a general term covering both *w*-characteristics and the 'conceptual' things that Parsons excludes.

Insofar as there is a distinction between two sorts of features—the *w*-characteristics and the non-*w*-characteristics—and insofar as logic is concerned with extremely general features of the world and the things that populate it, logic should be concerned not merely with a thing's *w*-characteristics but with all of its features, from the ridiculous to the sublime. Logic should no more confine itself to a thing's *w*-characteristics than it should restrict its monadic predicates to, for example, natural-kind terms. (Indeed, Parsons acknowledges a need to allow for monadic predicates that express non-*w*-characteristic features, at p. 16.) On the basis of Parsons's description, the distinction between *w*-characteristics and other features would appear to be a distinction in metaphysics, rather than a distinction in pure logic. Yet Parsons's definition of identity is explicitly framed in terms only of *w*-characteristics. This gives rise to a peculiar collapse in Parsons's account of indeterminate identity.

Consider the binary equivalence relation of *sharing exactly the same w-characteristics*, i.e., coincidence in *w*-characteristics. Let us call this '*w*-indiscernibility', to be contrasted with indiscernibility *simpliciter*, i.e., coincidence in *all* features, mundane and other-worldly alike. The natural definitions are the following:

> *x* and *y* are *w-indiscernible* $=_{def}$ every *w*-characteristic is either (*i*) a characteristic of *x* iff it is also a characteristic of *y*, or else (*ii*) indeterminate with respect to each of *x* and *y*;
>
> *x* and *y* are *w-discernible* $=_{def}$ *x* and *y* are not *w*-indiscernible (as just defined).

[23] Or perhaps a relation between the author and his penname. By contrast, the phrase 'is believed by Ralph to be a spy' expresses a genuine property attributed to the object referred to by any attached term. Even W. V. O. Quine's predicate 'was so-called because of his size', when positioned in the appropriate context, arguably expresses a genuine property of Barbarelli: that of being called 'Giorgione' because of his size. *Cf.* Quine, 'Quantifiers and Propositional Attitudes,' in his *The Ways of Paradox* (New York: Random House, 1966), 183–94, at 184–89; and 'Reference and Modality,' in his *From a Logical Point of View* (New York: Harper & Row, 1953, 1961), pp. 139–159, at 139–140.

The definitions are legitimate if the notion of a w-characteristic is. Notice also that insofar as there may be no fact of the matter whether a given object has or lacks a given w-characteristic, the definitions make room for the prospect of a pair of objects, x and y, that are indeterminate with respect to w-discernibility—provided, of course, that x's feature of being determinately w-indiscernible from x (and the like) are not themselves w-characteristics. In essence, this is Parsons's reason for thinking that identity can be indeterminate: Identity is defined as w-indiscernibility, which can be indeterminate.

Using the newly introduced terminology, and taking Parsons literally and at face value, his position may be characterized thus: There can be an object x that determinately has some features determinately not shared by another object y, which in turn determinately has features determinately not shared by x, and although x and y are thus determinately discernible from one another, if x and y are not determinately w-discernible from one another—i.e., unless there is a w-characteristic that is determinately a characteristic of one and determinately not a characteristic of the other—logic does not license the inference that x and y are distinct things. Instead, logic declares that under the circumstances, *despite* their not being exactly alike in every respect, there is no fact of the matter whether x and y are one and the very same thing or instead two distinct things. Moreover, according to Parsons, although *LL* (or an appropriate monadic-predicate version of *LL* together with the classical rule of λ-abstraction) would support the conclusion that x and y cannot be one and the very same thing, this casts not the slightest doubt on the philosophical thesis that there is no fact of the matter. Instead this only shows that classical logic begs the question against the philosophical thesis. In particular, while Parsons is prepared to allow that the λ-abstract $\ulcorner(\lambda z)[\nabla(x=z)]\urcorner$ expresses a feature—one that is determinately not a feature of x itself but is determinately a feature of anything indeterminately identical with x—he maintains that the predicate fails to express ('stand for') a w-characteristic. This on the ground that otherwise indeterminate identity is impossible.

Again I ask: Which position begs the question and carries the burden of proof? The one that relies on intuitively valid axioms and inference rules to refute an exotic, provocative, and peculiarly philosophical thesis? Or the one that relies on the exotic thesis (instead of exposing any fallacy) to support the rejection of the axioms and inference rules?

One might reply that Parsons will understand such expressions as 'alike' and 'unlike' not in terms of features, but more strictly in terms of w-characteristics, and consequently he will understand the phrase 'exactly alike in every respect' to mean w-indiscernibility rather than general indiscernibility *simpliciter*, i.e., coincidence in all features—w-characteristics and non-w-characteristic features alike. But he does not, at least not consistently. For example, he contends that there is an empty set, Ø, with no determinate or indeterminate elements ('the emptiest set'), and that this set Ø is indeterminately identical with various other 'empty sets.' Of these latter sets, he says 'they, unlike Ø, have indeterminate (individual) members' (p. 187). Yet Parsons must hold, on pain of inconsistency, that a set's feature of having indeterminate members is not a *w*-characteristic.[24] And indeed, Parsons evidently uses the word 'other'—normally a synonym of 'distinct'—at least occasionally (as I did three sentences back) for an object with different features (i.e., discernible *simpliciter*) from a given object. Thus, discussing the question of how to count how many ships have left port when only one *determinately* left port and that one is indeterminately *w*-discernible from two ships that did not determinately leave port, he says, 'we point at the ship leaving port and say"one"—because it is determinately leaving port—and we do not count the other ships [i.e., the two with which it is indeterminately identical] because we know that they are not determinately ships that left port' (p. 137). Never mind the question of whether, and how, we are supposed to know that a ship neither determinately left port nor determinately did not. And never mind the question of how indeterminately identicals are to be counted.[25] Parsons's use of the word 'other' cannot be consistently intended in the sense of 'distinct', given his explicit explanation of his use of the latter. The justification for his use of 'other'—which, aside from his philosophical position, is perfectly natural—is closely related to the fact that the ships in question do not share all of their features, and therefore each ship differs from the . . . well, the *other*.[26]

VI

Parsons endorses unrestricted Substitution of Equality as a logically valid rule of inference in an extensional language even while rejecting its contrapositive as invalid. His endorsement of unrestricted Substitution is an acknowledgement of a

[24] Parsons develops a non-bivalent set theory based on the idea that for some sets, there is no fact of the matter whether a given object is an element (pp. 181–92). Suppose some sets are 'fuzzy' in this sense of having indeterminate elements. Suppose there is a pair of sets, K and K', that share exactly the same determinate elements, but some object x is determinately not an element of K whereas it is indeterminate whether x is or is not an element of K'. Parsons thinks it is obvious that it is indeterminate whether K is K'. Quite the contrary, K' is fuzzy with respect to x's membership whereas K is not; hence, they must be different sets. Parsons bases his contrary conclusion on a variant of extensionality according to which sets are indeterminately identical whenever there is an object such that it is determinate whether that object is an element of one but indeterminate whether it is an element of the other, adding 'I assume that any non-bivalent theory of sets will adopt this as a basic axiom' (pp. 181–182). This assumption is unwarranted, especially since the 'axiom' is provably inconsistent, *via LL*, with the idea that a set's membership maybe indeterminate. Considerably more plausible is the alternative axiom that sets (fuzzy and otherwise) are identical when, and *only when*, they coincide in determinate membership as well as in determinate nonmembership. This identity condition flows directly (assuming *LL*) from the idea that a set is extensional (unlike a property) but can have indeterminate membership.

[25] N. Ángel Pinillos criticizes Parsons on this matter in 'Sets, Counting and Parsons' Vague Objects' (forthcoming).

[26] Similarly, in 'Worldly Indeterminacy of Identity,' Parsons and Woodruff say that whenever there is no fact of identity for a pair of objects *a* and *b*, 'there is some property that one of them has or lacks and such that the other is indeterminate with respect to having it' (p. 181). Compare this with a context like the following: 'Samuel Clemens's barber erroneously believed Clemens was not Mark Twain; yet he knew that one shaved the other'. Here the word seems to be used in a kind of *substitutional* sense (as opposed to an *objectual* one).

fundamental fact about identity. This is *the indiscernibility of determinately identicals*.[27] That is, if x and y are determinately one and the very same thing, then they are exactly alike in every respect. This fundamental fact about identity makes no exceptions for any features, including those that are not w-characteristics. For everything is determinately identical with itself and nothing else, and any single thing is exactly like itself in *every* respect—w-characteristics and other features alike. This is why Parsons concedes that if unrestricted Substitution were not validated in an extensional language, 'this would cast serious doubt on whether our sign of identity were actually expressing identity, as opposed to some weaker relation' (p. 36; *Cf.* also note 22 above). It is precisely here that the anomaly rears its head. The definition of identity that Parsons embraces does not automatically accord with his acknowledgment of this fundamental fact about identity. Instead of *the indiscernibility of determinately identicals* the definition directly yields only *the w-indiscernibility of determinately identicals*.[28] Insofar as w-characteristics form a proper subclass of features generally, we so far have no guarantee that w-indiscernibles will be indiscernible *simpliciter*, and hence no guarantee that determinately identicals will be indiscernible. Even determinate w-indiscernibility is by itself no guarantee of indiscernibility *simpliciter*. Ironically, for this reason, contrary to Parsons's intentions, the semantics he provides for his antiseptic language, taken in conjunction with his definition of identity, fail to validate unrestricted Substitution. Instead he validates a weakened variant subject to the very same restrictions (whatever they may be) that he needs to impose on λ-abstraction. Specifically, if the formula $\ulcorner(\lambda x)[\varphi_x]\urcorner$ expresses a feature that is not a w-characteristic, Parsons's semantics does not exclude models in which φ_α and $\ulcorner\alpha = \beta\urcorner$ are both true while φ_β is false, since $\ulcorner\alpha = \beta\urcorner$ is made true by mere w-indiscernibility. But if the inference is invalid even though φ contains no non-extensional operators of any kind, then whatever else $\ulcorner\alpha = \beta\urcorner$ means, it does not affirm genuine identity. By his own standards, Parsons's antiseptic framework strongly supports the charge that he does not mean genuine identity by '$=$', and instead he means the weaker relation of w-indiscernibility. By those standards, it is reasonable to charge his framework with being irrelevant.

Parsons attempts to prove from his semantics for '$=$' that Substitution must automatically be valid within his non-bivalent, extensional semantic framework (pp. 35–36). But given his definition of identity, the proof is fallacious and the 'theorem' false. Nor is it immediately obvious how his semantics is best modified to validate unrestricted Substitution without also validating its contrapositive.[29] Unless

[27] Parsons explicitly endorses this principle at pp. 93–94.

[28] Not to be confused with *the w-indiscernibility of identicals*, which Parsons does not accept (as it is intended here).

[29] Parsons concedes that his proof in some sense begs the question by employing Substitution in the metalanguage. But there is a more egregious error: The reasoning is fallacious. The 'proof' is by induction on the complexity of $\varphi\alpha$. Treating '$=$' as a sign for w-indiscernibility in accordance with Parsons's semantics, the argument concerning the base case where φ_α is an atomic monadic formula, $\ulcorner\Pi(\alpha)\urcorner$, goes through only on the assumption that every simple monadic predicate Π (one not formed by λ-abstraction) expresses a w-characteristic (or else the semantic feature of *being applied to by* Π is itself a w-characteristic). Analogously for the argument concerning the case where φ_α is the negation of an atomic monadic formula, $\ulcorner{\sim}\Pi(\alpha)\urcorner$. But Parsons explicitly stipulates that some simple monadic predicates do not express w-characteristics (p. 16). (He also specifies,

an object's entire résumé of features modally supervenes on its narrower résumé of determinate *w*-characteristics and determinate *w*-non-characteristics,[30] it is metaphysically possible for there to be determinately *w*-indiscernible objects that are not determinately indiscernible—and hence, that are determinately discernible.[31] And even if this is metaphysically impossible, unless an object's résumé of features is not only supervenient on its determinate *w*-résumé, but analytically *reducible* to the latter, it remains *logically* possible for there to be a pair of discernible objects that determinately share all the same *w*-characteristics and all the same *w*-non-characteristics. Parsons's endorsement of unrestricted Substitution of Equality as a logically valid inference rule thus stands in pressing need of justification. Likewise his endorsement of the equivalent *indiscernibility of determinately identicals*. It is no justification of the reducibility hypothesis that Substitution in conjunction with indeterminate identity requires it. (See note 15.) Quite the contrary, this very fact, in the absence of any useful characterization of a *w*-characteristic, raises a serious doubt whether Parsons's theory can plausibly embrace Substitution. Substitution is unjustified on Parsons's account even as an inference rule of metaphysics, let alone as one of pure logic.

Whereas determinate *w*-indiscernibility is no guarantee of indiscernibility *simpliciter, indeterminate w*-indiscernibility is a guarantee of discernibility. If x and y are indeterminately *w*-indiscernible, *ipso facto* they determinately differ in some of their features—e.g., the feature of being indeterminately *w*-indiscernible from x. In the absence of any useful characterization of the class of *w*-characteristics, there is no *a priori* disproof of the possibility of indeterminate *w*-discernibility. What *is* provable, *via* Leibniz's original principle of *the indiscernibility of identicals*, is that if x and y are indeterminately *w*-discernible, then $x \neq y$. If x and y are indeterminately *w*-indiscernible, then there is determinately a feature that is a feature of one and not of the other, and hence there is determinately at least one respect in which they differ.

at 152, that semantic properties like that of being applied to by a particular predicate are not *w*-characteristics.) Given his definition of identity, meta-Substitution thus fails to preserve meta-truth in these very cases. For a similar reason, some of the inductive cases (e.g., the case for negation) fail wherever λ-abstraction is restricted.

The semantics can be modified to validate unrestricted Substitution without also validating its contrapositive, which Parsons deems invalid. But if it is logically possible for determinately *w*-indiscernible objects to differ in some of their non-*w*-characteristic features, any such modification will rely on some thesis or other that is not pure semantics or is philosophically wrong-headed, or both. (Let 'F' express some feature that logically might discriminate between some pair of determinately *w*-indiscernibles, and consider '$F(x) \cdot x = y \;\therefore\; F(y)$'.) Substitution would be derivable from the independent assumption that, as a matter of logic, *w*-indiscernibles have all their features in common. But Parsons cannot accept *the indiscernibility of w-indiscernibles*, since it also validates the contrapositive of unrestricted Substitution. Parsons's derivation of Substitution can be validated instead by banishing all simple monadic predicates from his object language that do not express *w*-characteristics, and imposing obvious related restrictions (e.g., on λ-abstraction; *Cf.* note 17). But this does nothing to allay the worry that '$=$' is misleadingly used as a sign for *w*-indiscernibility instead of genuine identity. On the contrary, the discriminating predicates that would otherwise reveal the deception have been suppressed by decree precisely in order to maintain the facade of indiscernibility.

[30] A *w*-non-characteristic of an object is a *w*-characteristic the object lacks.

[31] Suppose there is a feature P that x determinately has (lacks) but y does not. Then x determinately has, while y determinately lacks, the feature of determinately having (lacking) P.

Parsons rejects this proof, insisting as he does that x and y are indeterminately w-discernible if and only if they are indeterminately identical. He explicitly rejects Leibniz's principle as neither true nor false—unless it is understood in a sense equivalent to the claim that either $x \neq y$ or they are exactly alike *or else there is no fact of the matter whether* $x = y$ *and at the same time no fact of the matter whether they are exactly alike*. He rejects even the putatively weaker principle of *the w-indiscernibility of identicals*, unless it too is understood in a similarly weak sense.

At any rate, he *seems* to. But does he really do so? Taking his words literally, Parsons is committed to holding that even if x and y determinately differ from one another, they cannot be deemed distinct unless they are determinately discernible by means of a special kind of feature, a w-characteristic. Instead he holds that in the absence of determinate w-indiscernibility, the affirmation of x's distinctness from y must be deemed neither true nor false, despite the determinate differences between them. At least Parsons does say that in that case the affirmation of the identity of x and y is untrue. But taking his words at their face value, even this consolation claim stands in need of a theoretical justification. Unless and until a plausible case is presented that an object's entire résumé of features supervenes on its determinate w-résumé, Parsons cannot justifiably rule out the bizarre prospect that x and y are one and the very same thing after all, despite determinately differing from one another. This very notion does not merely defy commonsense. It is scarcely comprehensible.

As we have seen, by his own standards an alternative interpretation is invited. And indeed an alternative interpretation of Parsons's pronouncements does seem appropriate. The obvious hypothesis is that he misunderstands the sign '$=$' and the word 'identity', and their cognates (e.g., 'same thing'), taking them as terms for w-indiscernibility rather than genuine identity. This hypothesis fits perfectly with Parsons's ostensible rejection of *the indiscernibility of identicals*, understood in the relevant stronger sense, as well as his rejection of *LL* and of the unrestricted contrapositive of Substitution of Equality. It even fits with his ostensible rejection of the w-indiscernibility of identicals, understood in the corresponding sense. He will also reject *the w-indiscernibility of w-indiscernibles* as untrue (and that all bald men are bald men, etc.), similarly understood, since he holds that statements of the form $\ulcorner (x)[F(x) \supset F(x)] \urcorner$ lack truth value when 'F' is inapplicable with respect to some object. The hypothesis fits equally nicely with Parsons's insistence that there can be objects for which there is no fact of the matter concerning their 'identity' (read: *their w-indiscernibility*). Coupled with his explicitly restricted use of the word 'property' as a term for w-characteristics, the hypothesis fits equally nicely with his proposed restrictions on λ-abstraction and on the contrapositive of Substitution of Equality, and with his responses to the purported disproofs of indeterminate 'identity.' And of course, the hypothesis turns what is otherwise a scarcely comprehensible anomaly into a piece of trivia.[32]

[32] The very availability of this interpretation of Parsons's use of '$=$' and 'identical' and their cognates demonstrates that, in some sense, Parsons's position is coherent. Insofar as there is a legitimate restriction on features comprised by the alleged w-characteristics, the suggested interpretation, in effect, yields something akin to a *model* that satisfies Parsons's pronouncements, by reinterpreting his use of 'identity' to mean 'w-indiscernibility'. It does not follow, however, that the

An alternative, and perhaps more likely, hermeneutical hypothesis is that Parsons uses such expressions as '$=$', 'identical', 'same thing', etc., indiscriminantly both for w-indiscernibility and for genuine identity. Since he believes the latter is 'defined' by the former, he would have no reason to differentiate between the two relations in his usage. On this alternative hypothesis, Parsons's endorsement of unrestricted Substitution is understandable, perhaps even alongside his proposed restrictions on the contrapositive of Substitution and on λ-abstraction. But on either hypothesis, his endorsement of unrestricted Substitution remains in pressing need of justification. Is there any plausible ground at all (other than confusion resulting from equivocation) to suppose that if x and y are determinately w-indiscernible, then *ipso facto* they are exactly alike in every respect?

VII

Set aside for the moment the question of the proper use of pre-established signs and words. Kripke coined the term 'schmidentity' for the equivalence relation that holds between a thing x and x but nothing else. Let us temporarily usurp Kripke's artificial term, and use it here as a term for the equivalence relation of indiscernibility *simpliciter*.[33] Any object x is schmidentical with x. And given unrestricted feature-abstraction (permitting the abstraction of such features as *being Nathan Salmon*), anything schmidentical with x *ipso facto* has x's feature of *being x*—the feature (whatever it is) expressed by the predicate '__ is x'.[34] As we have seen, Parsons is committed to the thesis that determinately w-indiscernible objects are *ipso facto* schmidentical—though there is no obvious justification for the thesis. He must concede, however, that *in*determinately w-indiscernible objects are *not* schmidentical; they are discernible by means of their determinate features. For if it is indeterminate whether x and y are w-discernible, then y lacks x's feature of determinate w-indiscernibility from x.

The notion of indeterminate schmidentity is provably inconsistent. Objects are either determinately discernible from one another, or else they are determinately indiscernible; and the only thing that x is indiscernible from is x itself. Parsons

position literally (i.e., semantically) expressed in Parsons's pronouncements is logically consistent. For the term 'identical' is a term of logic, alongside the other logical operators and connectives of philosophical English ('not', 'and', 'or', 'iff', 'something', etc.), and as such its meaning remains constant among the logically admissible models. The putative 'model' generated by the interpretation is not logically admissible.

[33] Saul Kripke, *Naming and Necessity* (Cambridge, Mass.: Harvard University Press, 19), p. 108. The present argument is essentially Kripke's. In 'Indeterminacy of Identity of Objects and Sets,' Parsons and Woodruff say that 'how identity behaves *in the world* is . . . characterized in terms of properties and relations, not in terms of concepts or meanings' (p. 330). If Parsons insists that schmidentity, in the present sense, is a 'conceptual' relation rather than a 'worldly' one, then let it be such. It makes no difference. (Still it is worth noting that, intuitively, and *contra* Parsons, insofar as x and y are genuinely the very *same* thing, they are *one* thing rather than two, and hence they fall under the very same concepts and share the very same features—w-characteristics and otherwise.)

[34] We could also say that x is *schmdistinct* from anything that is not x—if only the word 'schmdistinct' were sayable.

must concede *the indiscernibility of schmidenticals*. This Leibnizian principle has no exceptions—no false instances and no neither-true-nor-false instances. Parsons 'happily admits' that although $\ulcorner(\lambda x)[\nabla(a=x)]\urcorner$ does not express a *w*-characteristic, it does express a feature (p. 55). I imagine he will concede the same for 'is indeterminately schmidentical with *the Ship of Theseus*'. He must then concede also that nothing has this feature, and that *nothing can*.

Perhaps Parsons will reply that all this shows only that such expressions as '$=$' and 'identical' are ambiguous between *w*-indiscernibility and indiscernibility *simpliciter*. If so, his theory introduces a bizarre twist on Bishop Joseph Butler's famous distinction.[35] Here we have instead a distinction between *identity in the loose and philosophic sense* and *identity in the strict and popular sense*.

Which one are we typically concerned with—either when doing philosophy or when living life—when we are concerned with a question of *the very same thing*. Do we settle for *w*-indiscernibility as what we really intend, or do we hold out for schmidentity? Consider an unscrupulous but philosophically sophisticated watch repairman who repairs a precious gold timepiece, removing the gold and replenishing the missing matter with cheap material painted a golden hue. He returns the family heirloom to a customer, who eventually notices the modification and returns to the repairman.

'This isn't my watch,' the customer complains.

'That's not a fair and accurate statement, sir,' comes the reply, 'and I resent the implications of your remark. This watch determinately has exactly the same *w*-characteristics that the original watch has, and it determinately lacks exactly the same *w*-characteristics that the other one lacks. In a word, this watch and the original are *w*-indiscernible. Therefore, they're the same watch in the philosophic sense.'

'What are you talking about? This is a very different watch. What are you, some kind of crook?'

'Mind your manners, sir. I admit this watch does not have all the same features that the original one has. I make no warranty that this watch and the original are exactly like in every respect. I guarantee only identity with the original in the philosophic sense, and for that *w*-indiscernibilty is necessary and sufficient.'

'This one's giving me a rash. My wrist is discolored.'

'So there are a few minor differences between this watch and the other one. But the warranty guarantees you only a watch *w*-indiscernible from the original. Good day, sir.'

'The paint is coming off this watch. Look at my wrist. It's green. Look at these welts.'

'I can recommend a reputable dermatologist. He's not so good at philosophy, but . . . '

'Hey, you're wearing my watch!'

'No, I am wearing *my* watch. I grant you, it happens to have many of the features the original watch has. But I assure you my watch also has at least one *w*-characteristic that the original watch does not have. This watch that I have returned to you has exactly the same *w*-characteristics as the original one, and is therefore identical with it in the philosophic sense.'

'Identical, scmidentical! This is a piece of junk.'[36]

[35] Butler, 'Of Personal Identity,' from his *The Analogy of Religion;* reprinted in *Personal Identity*, ed. J. Perry (Berkeley and Los Angeles: University of California Press, 1975), pp. 99–105.

[36] *Cf.* Francis W. Dauer, 'How Not to Reidentify the Parthenon,' *Analysis*, 33, 2 (December 1972), pp. 63–64.

Pace, Parsons, insofar as identity is logically tied to a notion of indiscernibility, the operative notion is indiscernibility *simpliciter*, i.e., coincidence in all features, *w*-characteristics and non-*w*-characteristic features alike. Indiscernibility in terms of a restricted range of features is no substitute for genuine identity. The two are not exactly alike in every respect. There may be no fact of the matter whether *x* and *y* are *w*-indiscernible, as opposed to being identical, and this only when there *is* a fact that *x* and *y* are discernible and hence distinct. The restriction to *w*-indiscernibility may be a rebel with a cause, but it is also an *ad hoc* epicycle, and its cause a theoretical dead end.