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PROPOSITIONS, CIRCUMSTANCES, OBJECTS

I

The last three decades have seen a virtual explosion of research guided by the idea that a proposition, or the semantic content of a declarative sentence, is *the set of circumstances in which the sentence is true*. The circumstantialist conception of propositions leads to remarkably simple and elegant semantical theories closely approximating the logic of an impressive range of extensional and (non-intentional) intensional sentence operators of natural language: including those for necessity and possibility, obligation and permission, counterfactuals, and the tenses. (See for instance Carnap 1947, Hilpinen 1981, Kripke 1963, Lewis 1973, Montague 1974, Scott 1970, Stalnaker 1968, Thomason 1969, 1970, and 1981, and Thomason and Gupta 1980.) This makes quite a strong *prima facie* case that the circumstantialist conception of propositions is generally appropriate for natural language discourse. Stalnaker has attempted to bolster the *prima facie* case. He argues, in effect, that a widely held conception of instrumental rationality and its relation to belief and desire entails that operators for belief and desire, like operators for nonintentional modalities, are operators on circumstantialist propositions. (See Stalnaker 1976, 1978, 1981, and 1984; also Hintikka 1969a,b, and Barwise and Perry 1983.)

In a series of recent papers, Scott Soames has offered a new and powerful argument against the circumstantialist conception of propositions.[1] *One* target of the attack is the familiar conception of propositions as sets of metaphysically possible worlds. But the intended scope of the argument extends to similar yet more liberal conceptions that supposedly skirt the usual objections to possible worlds semantics: those in which a proposition may contain metaphysically impossible, logically incomplete, or even logically inconsistent circumstances. If successful, Soames's argument would

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undermine an entire tradition in philosophical semantics, including some of the most influential work by the researchers I just mentioned.

Soames's argument takes the form of a *reductio ad absurdum*: certain general theoretical assumptions would jointly license some obviously invalid inferences. One of these theoretical assumptions expresses the circumstantialist conception of propositions in its most general form. All the other assumptions are strongly supported by various kinds of linguistic evidence, and the logical problem persists even when some of the other assumptions are replaced by others or weakened in various ways. So the circumstantialist conception of propositions must go. That, in a nutshell, is the reductio argument.[2]

I won't be arguing that Soames has rejected the wrong assumption of the reductio, though one might worry about that. Instead I'll be arguing that *no absurdity results from the general theoretical assumptions Soames cites*. Soames hasn't identified all the relevant assumptions of the reductio argument.

I begin by summarizing Soames's argument in Sections II and III. In Section IV I present a counterexample to argue that the alleged absurdity doesn't really follow from Soames's reductio assumptions. The rest of the paper takes up five objections, briefly summarized in Section V. The first of these rests on a logical mistake; the second and third rest on assumptions not available to anyone arguing against the circumstantialist conception in its most general form; and the fourth ignores certain recent theories of objects and of their relation to circumstances – or so I argue, in Sections VI, VII, and VIII. The fifth objection, taken up in Section IX, is perhaps the most intriguing. This objection rests on an assumption I call the Weak Matching Principle, to the effect that the ontology of the "actual circumstance" must match that of the metalanguage in a certain respect. Yet Weak Matching is controversial and difficult to defend. I conclude by arguing in Section X against Weak Matching, partly on the ground that "theory relative" or "perspectivalist" accounts of truth deserve rigorous semantical treatment, and partly on the ground that rejecting Weak Matching permits a pleasingly symmetrical treatment of ontologically confused attitudes.

II

Soames claims that the conjunction of the following theoretical assumptions licenses intuitively invalid inferences.[3]

Circumstantialist Conception of Propositions. The proposition expressed by a sentence is the set of circumstances in which the sentence is true.

Truth.PA. A propositional attitude sentence of the form ⌜**t v**'s that **p**⌝ is true in a circumstance *w* iff in *w*, the individual denoted by **t** bears relation R_v to the proposition expressed by **p**.[4]

Distribution Principle. Many propositional attitude verbs, including 'say', 'assert', 'believe', 'know', and 'prove' distribute over conjunction.[5]

Direct Reference Principle. Names, indexicals, and variables are directly referential.

Truth.&. A sentence of the form ⌜**p** and **q**⌝ is true in a circumstance *w* iff both **p** and **q** are true in *w*.

Truth.∃x. A sentence of the form ⌜For some **x**: **Fx**⌝ is true in a circumstance *w* iff some object *o* in *w* has in *w* the property expressed by **F**.

Substitutivity. If **S** and **S′** are non-intensional sentences with the same grammatical structure, which differ only in the substitution of constituents with the same semantic contents (with respect to their respective contexts and assignments of values to variables), then the propositions expressed by **S** and **S′** will be the same (with respect to those contexts and assignments).

The Circumstantialist Conception of Propositions (the Circumstantialist Conception, for short) expresses that conception in its most general form. Truth.PA offers a straightforward analysis of propositional attitude ascriptions. Truth.PA says that propositional attitude ascriptions report (extensional) relations to the propositions expressed by their complements. Distribution expresses a familiar logical principle governing attitude ascriptions. Direct Reference reflects a widely held view about the semantics of singular terms, strongly supported by linguistic evidence.[6] According to the Direct Reference principle, the semantic content of a name, indexical, or variable, relative to a context of use and an assignment of objects to variables, is simply *the object it refers to* in that context, relative to that assignment. In conjunction with the Circumstantialist Conception, Truth.&, Truth.∃x, and Truth.PA assign circumstantialist propositions to conjunctions, existentially quantified sentences, and propositional attitude ascriptions, respectively. Substitution follows from a principle of semantic compositionality for extensional contexts. Taken all together, Soames argues, these seven assumptions spell disaster. For according to him, jointly they license the obviously *invalid* inference from sentences (1) and (2) below to (3).[7]

(1) Hesperus is Phosphorus.
(2) The ancients believed that ('Hesperus' referred to Hesperus and 'Phosphorus' referred to Phosphorous).
(3) The ancients believed that (for some x, 'Hesperus' referred to x and 'Phosphorus' referred to x).

Let's suppose that the seven assumptions hold and that (1) and (2) are true, and see how Soames tries to derive (3). From the Direct Reference principle and the truth of (1), it follows that 'Hesperus' and 'Phosphorus' have the same semantic content. So by Substitution (and the assumption that (4) and (5) are purely extensional) it follows that (4) and (5) express the same proposition.

(4) Hesperus' referred to Hesperus and 'Phosphorus' referred to Phosphorus.
(5) 'Hesperus' referred to Hesperus and 'Phosphorus' referred to Hesperus.

By the Circumstantialist Conception, Truth.∃x, and Truth.&, it follows that (5) and (6) also express the same proposition.[8]

(6) 'Hesperus' referred to Hesperus and 'Phosphorus' referred to Hesperus, and for some x, 'Hesperus' referred to x and 'Phosphorus' referred to x.

Since (4) and (5) express the same proposition, and so do (5) and (6), it follows that (4) and (6) express the same proposition. Given that (2) is true and that (4) and (6) express the same proposition, it follows by Truth.PA and Substitutivity that (7) is true.

(7) The ancients believed that ('Hesperus' referred to Hesperus and 'Phosphorus' referred to Hesperus, and for some x, 'Hesperus' referred to x and 'Phosphorus' referred to x).

From Distribution and the truth of (7), it then follows that (3) is true.

(3) The ancients believed that (for some x 'Hesperus' referred to x and 'Phosphorus' referred to x).

Yet the inference from (1) and (2) to (3) is clearly invalid; so something has gone wrong. If Soames's derivation of (3) from (1) and (2) is correct, we must reject at least one of the theoretical assumptions that leads to the problem. Soames suggests that since there are compelling arguments for all the other assumptions, and since similar logical problems persist when various of the other assumptions are weakened or replaced by others, we should reject the Circumstantialist Conception of Propositions.

III

It is important to appreciate the beauty of this argument. The more familiar arguments against the Circumstantialist Conception are targeted only against a specific version of the theory, on which propositions are taken to be sets of metaphysically possible worlds. More precisely, the standard objections show that only that the Circumstantialist Conception of Propositions, together with the Standard Possible Worlds Conception of Circumstances below,

Standard Possible Worlds Conception of Circumstances. Every circumstance is a metaphysically possible world.[9]

yields unpalatable results (when also conjoined with Truth.PA and Distribution above, and with Truth.□, and the definitions of necessary equivalence and necessary consequence, below).

Truth.□ A mathematically, metaphysically, or logically necessary (impossible) sentence is true in every (no) metaphysically possible world.

DEF. A sentence **p** is a *necessary consequence* of a sentence **q** iff **p** is true in every circumstance in which **q** is true.

DEF. Two sentences are *necessarily equivalent* iff they are true in exactly the same circumstances.

The semantical and logical anomalies resulting from these assumptions are well-known. For assume both the Circumstantialist Conception of Propositions *and* the Standard Possible Worlds Conception of Circumstances. Then by Truth.□, all mathematically, metaphysically, or logically necessarily truths (falsehoods) express the same proposition;

and every pair of necessarily equivalent sentences express the same proposition. By Truth.PA and Truth.□ it follows that you can't assert or believe the impossible without believing or asserting every impossibility; and by Truth.PA that you assert or believe all the necessary equivalents of everything you assert or believe. Any logical operator that distributes over conjunction is closed under necessary consequence;[10] so by Truth.PA, it follows that belief and assertion are closed under necessary consequence.

The Standard Possible Worlds Conception of Circumstances offers a specific conception of circumstances, but of course others are possible. It has often been thought that some or all of these anomalies can be avoided by going over to a more liberal conception that allows metaphysically impossible, logically incomplete, or inconsistent circumstances. Indeed, as Soames shows, these logical anomalies *seem* to disappear if we replace the Standard Possible Worlds Conception with a sufficiently liberalized conception of circumstances.

What is so interesting about Soames's reductio argument is that it makes no assumptions whatever about the nature of circumstances, except those required to satisfy Truth.&, Truth.∃x, and Truth.PA. To derive *his* logical anomaly, the Standard Possible Worlds Conception of Circumstances isn't required. So apparently the logical problems associated with the Circumstantialist Conception of Propositions cannot be escaped simply by rejecting the Standard Possible Worlds Conception and going over to a more liberal framework allowing nonstandard, impossible, or incomplete circumstances. Something else must be rejected; and in Soames's view, it is the Circumstantialist Conception itself that must go.

IV

Intriguing as Soames's argument is, I think it rests on a mistake. For the argument is intended to defend the following claim.

The Reductio Claim. Sentences (1) and (2) below will entail sentence (3) on any semantical theory countanancing Direct Reference, Distribution, Substitution, Truth.&, Truth.∃x, Truth.PA, and the Circumstantialist Conception of Propositions.

(1) Hesperus is Phosphorus.

(2) The ancients believed that ('Hesperus' refered to Hesperus and 'Phosphorus' referred to Phosphorus).

(3) The ancients believed that (for some x, 'Hesperus' referred to x and 'Phosphorus' referred to x).

This claim is false.

Let's look at a counterexample. First, we need some way of describing nonstandard circumstances. Soames's own device of using neo-Carnapian C-descriptions will suit that purpose perfectly.[11] Suppose that $\mathscr{L}$ is an interpreted language, that D is the domain of discourse for $\mathscr{L}$, that each n-ary property P^n expressed by a simple n-ary predicate of $\mathscr{L}$ has a unique complement, $-P^n$ (we assume that $Q = -P$ iff $-Q = P$), and that B is the set of all properties expressed by a simple predicate of $\mathscr{L}$, together with all their complements. A *C-description* (for $\mathscr{L}$) is a set of elements each of which has the form $\langle P^n, o_1, \ldots, o_n \rangle$ – where n is a positive integer, P^n is some n-ary property in B, and $o_1, \ldots, o_n$ are elements of D. A C-description X is *logically complete* iff for every n-ary property P^n in B, and every $o_1, \ldots, o_n$ in D, either $\langle P^n, o_1, \ldots, o_n \rangle$ is in X or $\langle -P^n, o_1, \ldots, o_n \rangle$ is in X. A C-description X is *logically consistent* iff for every P^n in B and every $o_1, \ldots, o_n$ in D, either $\langle P^n, o_1, \ldots, o_n \rangle$ is not in X or $\langle -P^n, o_1, \ldots, o_n \rangle$ is not in X. A C-description X is *metaphysically possible* "only if it is metaphysically possible for the objects mentioned in the description to (jointly) instantiate the properties they are paired with in the description."[12]

Intuitively, C-descriptions are to represent circumstances. There are two ways of effecting this representation scheme: either we can identify circumstances for $\mathscr{L}$ with C-descriptions for $\mathscr{L}$, or we can assume that C-descriptions for $\mathscr{L}$ stand in a one-to-one correspondence with circumstances for $\mathscr{L}$. For simplicity I identify circumstances and C-descriptions when presenting the counterexample, though when we come to objections I allow for the other approach. (We extend the terms 'logically complete', 'logically consistent', and 'metaphysically possible' to the circumstance answering to a C-description, when we don't identify the two.)

Second, to make absolutely certain that we are not influenced by any unidentified assumptions or by philosophical preconceptions that have no place here, we formalize the inference from (1) and (2) to (3) as follows, where **a** and **b** are rigid, directly referring singular terms.[13]

(1′) **a = b**
(2′) $\mathbf{B_c}$**(Fa & Gb)**
(3′) $\mathbf{B_c}(\exists \mathbf{x})$**(Fx & Gx)**

Now, suppose that the seven assumptions listed in the Reductio Claim hold. Let o_1 and o_2 be two distinct objects: that is, suppose that 'o_1 is not identical to o_2' is a true statement of the semantic metalanguage $\mathscr{L}$. Let the object language singular term **a** directly refer to object o_1, **b** directly refer to object o_2, and **c** refer to o_c. Finally, let X_1 and X_2 be C-descriptions containing exactly the following constituents:

$X_1 : \langle =, o_1, o_2 \rangle$	$X_2 : \langle \neq, o_1, o_2 \rangle$
$\langle F, o_1 \rangle$	$\langle F, o_1 \rangle$
$\langle G, o_1 \rangle$	$\langle -G, o_1 \rangle$
$\langle F, o_2 \rangle$	$\langle -F, o_2 \rangle$
$\langle G, o_2 \rangle$	$\langle G, o_2 \rangle$
$\langle BEL, o_c, \{X_2\} \rangle$	

Here, *BEL* is a function (and hence a relation) from objects to sets of circumstances (or their C-descriptions). The intuitive idea is that if in a given circumstance *w* you bear *BEL* to a set of circumstances, you believe all and only what is compatible with exactly the circumstances in that set. The idea is a familiar one from possible worlds semantics of belief, generalized here to cover nonstandard circumstances. The truth conditions for belief sentences are given by the following principle:

(*Truth*.**Believes-that**) A sentence of the form $\ulcorner \mathbf{B_t(p)} \urcorner$ is true in a circumstance *w* iff in *w*, function *BEL* assigns a subset of the proposition expressed by **p** to the semantic content of singular term **t**.

In that case, sentences (1′) $\ulcorner \mathbf{a = b} \urcorner$ and (2′) $\ulcorner \mathbf{B_c}$**(Fa & Gb)**$\urcorner$ are true in circumstance X_1, yet sentence (3′) $\ulcorner \mathbf{B_c}(\exists \mathbf{x})$**(Fx & Gx)**$\urcorner$ is clearly false in X_1.[14] Yet none of the seven theoretical assumptions from the Reductio Claim has been violated. So we have a counterexample to the Reductio Claim.

It is easy to detect the step at which Soames's original argument goes wrong here. In the present counterexample, (1′) is true in circumstance X_1, but (4′), (5′), and (6′) do not express the same proposition.

(4′) **Fa & Gb**

(5′) **Fa & Ga**

(6′) **Fa & Ga & (∃x)(Fx & Gx)**

(4′) is true in X_1 and in X_2, but (5′) and (6′) are true only in X_1. This shows that the seven assumptions of the Reductio Claim don't warrant the move from the truth of

(1) Hesperus is Phosphorus

to the claim that

(4) 'Hesperus' referred to Hesperus and 'Phosphorus' referred to Phosphorus

and

(5) 'Hesperus' referred to Hesperus and 'Phosphorus' referred to Hesperus.

express the same proposition. In particular, once we move to non-standard circumstances, the Direct Reference principle no longer warrants the move from the truth of (1) to the claim that (4) and (5) express the same proposition.

To repeat, the Reductio Claim is incorrect. Not all of the relevant theoretical assumptions used in the reductio argument have been identified.

V

In the remainder of the paper I want to take up a number of objections to the counterexample. These all employ one of two possible strategies. One argues that the case described above is not, strictly speaking, a successful counterexample to the Reductio Claim. The other grants that strictly speaking we have a counterexample, but claims this isn't terribly interesting, because the Reductio Claim can be repaired by adding one or more uncontroversial assumptions. These are the only two critical strategies available, and it is essential to be clear on which one a given objection is employing.

I begin with a brief outline of five objections and the stance I take with regard to each. Both the objections and the responses are taken up more fully in later sections, as indicated. This initial survey provides an overview of the discussion to come.

Objection 1. Kripke's principle of the metaphysical necessity of identity has been violated. X_1 contains $\langle =, o_1, o_2 \rangle$ but X_2 contains

$\langle \neq, o_1, o_2 \rangle$. The Reductio Claim can be repaired by adding an eighth assumption entailing the metaphysical necessity of identity.

Response. In fact the argument is entirely independent of assumptions about the metaphysical necessity of identity. The example would violate the necessity of identity only if we assumed that *both* C-descriptions X_1 and X_2 represented metaphysically possible circumstances. But the example doesn't assume that. It assumes only that objects identical in a metaphysically possible circumstance X_1 might be distinct in some metaphysically *im*possible circumstance X_2. In fact even by Soames's lights, there is good reason for allowing this sort of thing within the circumstantialist framework. I take up this issue further in Section VI.

Objection 2. X_1 contains $\langle =, o_1, o_2 \rangle$, but by hypothesis o_1 and o_2 are distinct objects. This is inadmissible. The Reductio Claim can be repaired by adding an uncontroversial assumption that rules this out.

Response. The relevant assumption is far from controversial. In fact, even by Soames's own lights there are strong reasons for permitting circumstances containing $\langle =, o_1, o_2 \rangle$ even when o_1 and o_2 are distinct objects. This issue is taken up in Section VI.

Objection 3. Sentence (1′), $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$, isn't really true in circumstance X_1, because **a** directly refers to o_1, and **b** refers to o_2, and o_1 is not identical to o_2. The Reductio Claim can easily be repaired by adding a semantical clause for identity sentences that assigns falsity to $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ in X_1.

Response. The relevant assumption is far from controversial. Even by Soames's lights, there are strong reasons for rejecting it in the present context. This issue is taken up in Section VI.

Objection 4. The Direct Reference principle fails in the counterexample. For we are told that (1′) $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ is true in X_1. But this is so only if names **a** and **b** refer to the *same* object. Since the semantic values o_1 and o_2 of **a** and **b** are *not* identical in the example, it follows that o_1 and o_2 cannot be the object to which the names **a** and **b** refer. So o_1 and o_2 must be Fregean senses, or something like that. Since Direct Reference fails in the example, it is not a successful counterexample to the Reductio Claim.

Response. The Direct Reference principle does not fail in the counterexample. One can see this most clearly by considering theories that take objects to be spatial, temporal, and modal continuants. In the context of such a theory, it is possible for names $\mathbf{t}_1$ and $\mathbf{t}_2$ to refer directly to objects, even though the truth of $\ulcorner \mathbf{t}_1 = \mathbf{t}_2 \urcorner$ at some place, time, or worldly circumstance does not entail that the objects referred to by $\mathbf{t}_1$ and $\mathbf{t}_2$ are identical. So the truth of $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ in circumstance X_1 does not necessarily entail that **a** and **b** must refer to the same object, and the objection fails. I take up this issue in Sections VII and VIII.

Objection 5. The alleged counterexample isn't really a counterexample to the Reductio Claim. For the example assumes that o_1 is not identical to o_2; therefore o_1 is not identical to o_2 in the *actual* circumstance. Since non-identities are metaphysically necessary, it follows that o_1 is not identical to o_2 in any metaphysically possible situation. In that case, since X_1 contains $\langle =, o_1, o_2 \rangle$, X_1 cannot represent any metaphysically possible circumstance. But X_1 was supposed to represent a circumstance in which (1′) and (2′) were true but (3′) is false. This means that the alleged counterexample doesn't show that there *could really* be a situation in which (1′) and (2′) are true but (3′) is false (when the seven reductio assumptions hold).

Response. This objection purports to use the first of the two strategies mentioned earlier – that the example isn't a genuine counterexample to the Reductio Claim – but in fact it tacitly employs the second one – that the Reductio Claim can be repaired by adding an assumption. The objection relies on a certain assumption I call the Weak Matching Principle, to the effect that the domain of the "actual circumstance" must match the ontology of the metalanguage in a certain respect. Weak Matching could be added to repair the Reductio Claim, but the assumption is highly controversial. It is especially implausible when the circumstances relative to which we are evaluating sentences are spatial or temporal in character – places or times – and from at least one philosophical perspective there are compelling reasons for rejecting it. I take up these issues in Sections IX and X.

VI

Let's begin by considering the first objection, that the counterexample violates the metaphysical necessity of identity, because C-description X_1 contains $\langle =, o_1, o_2 \rangle$ and X_2 contains $\langle \neq, o_1, o_2 \rangle$. This objection is just flatly mistaken. The principle that identities are necessary would be violated only if the counterexample assumed that *both* C-descriptions represent metaphysically possible circumstances. But the counterexample doesn't assume that. At most it assumes that circumstance X_1 represents a metaphysically possible situation, not that circumstance X_2 does.

Yet one might still be bothered by the fact that in the counterexample, X_1 contains $\langle =, o_1, o_2 \rangle$ and X_2 contains $\langle \neq, o_1, o_2 \rangle$. One might think that there is something peculiar about this, and that you could repair the Reductio Claim by adding assumptions to rule this out as inadmissible. For instance, you might add the following two assumptions to the premises of the reductio argument:

Admissibility of Circumstances. The totality of circumstances corresponds to an admissible set of C-descriptions.

Nonbranching Principle. A set S of C-descriptions is *admissible* only if for any objects o and o', *either* no C-description in S contains the element $\langle =, o, o' \rangle$ *or* no C-description in S contains the element $\langle \neq, o, o' \rangle$.

(Nonbranching would be one clause in a definition of the notion of admissibility used in the Admissibility principle.) These two principles jointly would entail that $\{X_1, X_2\}$ is not an admissible set of C-descriptions, and that no set of circumstances corresponds to that set. In that case, the counterexample would break down.

Before responding to this variant of the first objection, I want to set out the second and third objections more clearly, because it is easiest to respond to all three objections in one swoop.

The second objection faults the counterexample because X_1 contains $\langle =, o_1, o_2 \rangle$, but by hypothesis o_1 and o_2 are distinct objects; the Reductio Claim could be easily be repaired by adding the following assumption to rule this out:

Strong Matching Principle. A set S of C-descriptions is *admissible* only if for any distinct objects o and o', no C-description in S contains an element of the form $\langle =, o, o' \rangle$.

(Like Nonbranching, this principle would appear as a clause in the definition of the relevant notion of admissibility; as such, it would state one respect in which the ontologies of individual circumstances must match that of the metalanguage $\mathscr{L}$.) Strong Matching, together with Admissibility, would entail that $\{X_1, X_2\}$ is not an admissible set of C-descriptions, and that no set of circumstances corresponds to that set. Again, the counterexample would break down.

The third objection was that sentence (1′), ⌈**a** = **b**⌉, isn't really true in circumstance X_1, because **a** directly refers to o_1, and **b** refers to o_2, and o_1 is not identical to o_2. The Reductio Claim could be repaired by adding a semantical principle for identity sentences that assigns falsehood to ⌈**a** = **b**⌉ in X_1, for instance:

Invariant-Truth.= A sentence of the form ⌈$\mathbf{t}_1 = \mathbf{t}_2$⌉ is true in a circumstance *w* iff the object referred to by $\mathbf{t}_1$ is identical to the object referred to by $\mathbf{t}_2$.

(I call this an *invariant* truth condition because it entails that the truth values of identity statements are invariant from one circumstance to the next.) Since in the counterexample, the referents o_1 and o_2 of names **a** and **b** are not identical, it would follow from Invariant-Truth.= that (1′) ⌈**a** = **b**⌉ is not true in circumstance X_1. Hence we would not have a case in which (1′) and (2′) are true in some circumstance in which (3′) is false.

I have stated these three objections to the counterexample without trying to respond to each individually, because the response in each case is basically the same. First, in a context in which one means to be arguing against the Circumstantialist Conception, there are extremely strong reasons for rejecting all three assumptions on which these objections essentially depend: Nonbranching, Strong Matching, and Invariant-Truth.=. Second, there is clear evidence that in arguing against the Circumstantialist Conception, Soames himself rejects these three principles for precisely these reasons.

The motivation for rejecting all three principles derives from cases of "ontological confusion" (Camp 1988) – cases in which someone either mistakenly takes several objects to be a single object, or takes a single object to be many. Soames 1985, 1987a, and 1989 discuss many cases of ontological confusion, but we can take as representative his example in which John has mistakenly taken Ruth Marcus and Ruth Barcan's sister to be one and the same person. In such a case, both (8) and (9) would be true; so the two sentences are perfectly consistent.

(8) Ruth Marcus and Ruth Barcan's sister are not identical.

(9) John believes that Ruth Marcus and Ruth Barcan's sister are one and the same person.

This phenomenon causes notorious problems for the Standard Possible Worlds Conception of Circumstances. For suppose that (8) is true in the actual circumstance. Then, assuming identities are metaphysically necessary, there are no metaphysically possible circumstances in which Ruth Marcus and Ruth Barcan's sister are the same person. On the Standard Possible Worlds Conception, the result is that (10) below expresses the empty proposition: the empty set of circumstances.

(10) Ruth Marcus is identical to Ruth Barcan's sister.

In that case, by the Circumstantialist Conception of Propositions, Distribution, Truth.PA, and the definition of necessary equivalence, (9) is true only if John believes everything.[15]

These logical problems can be avoided if we allow impossible circumstances in which Ruth Marcus is identical to Ruth Barcan's sister. But saying this much only gestures at a solution. To deploy this idea rigorously to account for the consistency of (8) and (9), we need to reject Strong Matching and Invariant-Truth.=, and Nonbranching at least for the totality of circumstances.

For suppose we account for the consistency of (8) and (9) by saying that the totality of circumstances contains both a (metaphysically possible) circumstance in which Ruth Marcus is not identical to Ruth Barcan's sister, and at least one (metaphysically impossible) circumstance in which the two people are identical. If the set of all circumstances is to be admissible, then, Nonbranching must be rejected: the C-description for the former circumstance contains ⟨≠, Ruth Marcus, Ruth Barcan's sister⟩, but the C-description for the latter one contains ⟨=, Ruth Marcus, Ruth Barcan's sister⟩. (Still, we might want the set of *metaphysically possible* circumstances to obey Nonbranching in order to validate $\ulcorner(\mathbf{x})(\mathbf{y})(\mathbf{x} = \mathbf{y} \equiv \Box(\mathbf{x} = \mathbf{y})\urcorner$, where $\Box$ is an operator expressing metaphysical necessity.)[16] Moreover, if we assume that Ruth Marcus and Ruth Barcan's sister are distinct objects (as counted by the metalanguage $\mathscr{L}$), it follows that we must abandon Strong Matching, for we will be regarding as admissible a circumstance containing ⟨=, Ruth Marcus, Ruth Barcan's sister⟩. Finally, if we are to account for the consistency of (8) and (9) in these terms, we must reject Invariant-Truth.= in favor of something like the following semantical principle.

Truth.= A sentence of the form $\ulcorner\mathbf{t}_1 = \mathbf{t}_2\urcorner$ is true in a circumstance w iff the object referred to by $\mathbf{t}_1$ is identical-in-w to the object referred to by $\mathbf{t}_2$.

One difference between Truth.= and Invariant-Truth.= deserves emphasis. Each expresses a principle for assigning truth values to object language identity sentences, and both conditions are stated in the metalanguage. But the two conditions are stated in terms of two different relations from the metatheory. Invariant-Truth.= uses a *two*-place metatheoretic relation, numerical identity, where Truth.= uses a *three*-place metatheoretic relation, identity-in-a-circumstance. The virtue of this feature of Truth.= is that it allows the truth value of an identity sentence to vary from one circumstance to another. This is absolutely crucial if we want to account for the consistency of (8) and (9) by allowing impossible circumstances. For we get the desired result only if (8) is true but (10) false in some circumstance *w*, and (10) is true but (8) false in some other circumstance *w′*. Only then will the proposition expressed by (10) be a nonempty set of circumstances (of the appropriate type).

This appeal to a three-place identity relation in the metalanguage is just a special case of what we must do more generally in the case of atomic sentences. The circumstantialist conception is based on the assumption that sentences are assigned truth values only relative to circumstances. This relativity in turn requires that atomic sentences be assigned truth values only relative to circumstances. And *this* relativity in turn requires either (a) that singular terms and predicates be assigned semantic values only relative to circumstances, or (b) that the clause for atomic predications make use of a metatheoretic semantic relation, corresponding to the syntactic one of predication, that is relativized to circumstances. These two methods may be easily compared by considering the simple case of monadic predicates:[17]

(a) A sentence of the form ⌈**Ft**⌉ is true in circumstance *w* iff the denotation-in-*w* of **t** is in the extension-in-*w* of **F**.

(b) A sentence of the form ⌈**Ft**⌉ is true in circumstance *w* iff the object named by **t** has-in-*w* the property expressed by **F**.

The formulation of Truth.= corresponds to method (b): it appeals to a metatheoretic semantic relation, corresponding to the syntactic one of flanking two terms by an identity sign, that is relativized to circumstances.

Just how the three-place relation of identity-in-a-circumstance is understood depends on the details of one's semantic (and metaphysical) treatment. On perhaps the simplest, we identify circumstances with their

C-descriptions, and say that an object o is identical-in-X with o' iff X contains $\langle =, o, o' \rangle$. Notice that in this case – and in fancier treatments of the identity-in-a-circumstance relation like those described in sections VII and VIII – the objection that (1′) $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ is not really true in circumstance X_1 fails.

These considerations show that if the missing hypotheses of the reductio argument were any of the three assumptions listed above, the argument would be far too restricted in scope to serve as a convincing refutation of the Circumstantialist Conception of Propositions. In offering his reductio argument, Soames himself seems to reject all three assumptions, and for the very reasons we have been considering. He explicitly mentions (9) as a counterexample to the standard possible worlds framework; and in describing how a more liberal circumstantialist framework can avoid that problem, Soames says "we allow metaphysically impossible circumstances in which Ruth Marcus is Ruth Barcan's sister ..."[18]

One implication of this discussion is especially worth noting: in some well-motivated versions of circumstantialist semantics, the metalanguage and the object language count objects differently with respect to some circumstances.

VII

Let's turn now to the fourth objection to the counterexample, that the counterexample fails because it violates the Direct Reference principle. The counterexample assumes all of (i), (ii) and (iii) below. But, the objection goes, these are not consistent.

(i) sentence $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ is true in some circumstance.
(ii) o_1 and o_2 are not identical objects, and
(iii) names **a** and **b** *directly refer* to objects o_1 and o_2, respectively.

For suppose (i) that $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ is true in some circumstance. It follows, according to the objection, that **a** and **b** refer to the *same* object (in that circumstance). If we now suppose (ii) that o_1 and o_2 are not identical, it follows that (iii) is false: o_1 and o_2 can't be the *object* to which **a** and **b** *refer*; so *a fortiori* they can't be the object to which the names *directly* refer. If **a** and **b** take o_1 and o_2 as their semantic values, and o_1 and o_2 are not identical objects, and ⌈**a** = **b**⌉ is true in some circumstance, then o_1 and o_2 must be Fregean senses, or something of the kind.

This objection is just mistaken. *Nothing about the counterexample assumes that the names* **a** *and* **b** *have Fregean senses, or anything like Fregean senses.* The fallacy should be evident, in light of our previous discussion. The objection supposes that the truth of ⌈**a** = **b**⌉ in some circumstance entails that **a** and **b** must refer to the same object. This reasoning is plausible only if we are relying on Invariant-Truth.=.

Invariant-Truth.= A sentence of the form ⌈$\mathbf{t}_1$ = $\mathbf{t}_2$⌉ is true in a circumstance *w* iff the object referred to by $\mathbf{t}_1$ is identical to the object referred to by $\mathbf{t}_2$.

Yet we saw in the previous section that if one really means to be arguing against the Circumstantialist Conception of Propositions, one wants Truth.=, not Invariant-Truth.=.

Truth.= A sentence of the form ⌈$\mathbf{t}_1$ = $\mathbf{t}_2$⌉ is true in a circumstance *w* iff the semantic content of $\mathbf{t}_1$ is identical-in-*w* to the semantic content of $\mathbf{t}_2$.

(Remember, this is not the same as rejecting the metaphysical necessity of identity.) As we saw earlier, Soames himself seems unwilling assume Invariant-Truth.= in the reductio argument.

The important point is that once we make the move to Truth.= it becomes perfectly coherent to claim there are cases in which (i) sentence ⌈**a** = **b**⌉ is true in some circumstance, (ii) o_1 and o_2 are distinct objects, and (iii) names **a** and **b** *directly refer to objects* o_1 and o_2, respectively – even though names **a** and **b** lack anything like Fregean senses. This point deserves some careful explanation, so I will pursue this matter at some length.

To appreciate fully the issues involved, it will be useful to consider *spatial* and *temporal* applications of the circumstantialist framework, in addition to the usual worldly or modal applications. In spatial or temporal applications we evaluate sentences relative to places (spatial circumstances) or times (temporal circumstances) rather than possible or impossible or incomplete worlds (worldly circumstances). This represents no departure from the circumstantialist semantical framework. In applications of the circumstantialist framework to tense logic, for instance, the semantic content of a sentence is the set of instants at which it is true. So the objection that (i), (ii), and (iii) above are inconsistent has a spatial, temporal, and modal interpretations, depending on whether we take the circumstances spoken of in (iii) to be places, times, or worlds. I will be arguing that on all three interpretations, (i), (ii), and (iii) are perfectly consistent. (Those familiar with Gibbard 1975, Kaplan 1978, Gupta 1980, and especially Lewis 1976 and 1986 will appreciate the extent to which the remainder of this section relies on their ideas.)

According to most theories of material objects, spatially extended objects are *spatial continuants*: objects that exist at spatial points, though not wholly at any one point. What exists wholly at a point is at best only a punctile part, a spatial slice, of the whole spatial continuant. Similarly, according to many theories, temporally persisting objects are *temporal continuants*: objects that exist at instants of time, though not wholly at any one instant. What exists wholly at an instant is at best only an instantaneous part, a temporal slice, of the whole temporal continuant. Some philosophers have proposed a like treatment of the relation between ordinary objects and possible worlds. Ordinary subjects, on this view, are *modal continuants*: objects that exist in possible worlds, but (typically) not wholly at any such world. What exists at a single possible world is only a worldly part, a modal slice, of the entire modal continuant.

Some versions of the doctrines of continuants allow continuants to *partially overlap*, spatially or temporally or modally – that is, to have some but not all of their spatial or temporal or modal parts in common. Allowing partial overlap of spatial continuants provides a convenient way of understanding spatially overlapping physical objects – interstate highways, for example. Allowing partial overlap of temporal continuants permits a convenient way of understanding cases of fission and fusion of various kinds of objects – amoeba, corporations, nations, and possibly people in conceivable cases. Allowing partial overlap of modal continuants permits a convenient way of understanding cases of contingent identity: this piece of clay and this statue are identical in the actual world, but they wouldn't have been identical under certain other circumstances. (These examples come from Kaplan 1978, Lewis 1976 and 1986, and Gibbard 1975.)

In the context of a theory of overlapping continuants, it is natural and convenient to introduce a relativized identity relation that holds between two continuants at an point or instant or world iff they both have parts existing there and contain exactly the same spatial or temporal or modal parts there:

DEF. Spatial continuants o and o' are *identical-at-a-point-p* iff (a) some spatial parts of o and o' exist wholly at p and (b) anything existing wholly at p is a part of o iff it is a part of o'.

Definitions for *identity-at-an-instant-t* and *identity-at-a-world-w* follow exactly the same pattern. So two highways might be identical at some places and not at others; two corporations might be identical at some times but not at others; a lump of clay and a statue might be identical at some worlds but not in others.

Now, suppose that we are providing a semantic interpretation for an object language, in the context of a theory along these lines. That is, suppose our the metatheory for the object language takes *objects* to be sometimes-overlapping spatial/temporal/modal continuants, and contains a three-place relation for identity at a point/instant/world, defined along the lines just described. Suppose also that object language sentences are to be evaluated relative to a point/instant/world, and that our semantical principle for object language identity is Truth.=.

Truth.=. A sentence of the form $\ulcorner \mathbf{t}_1 = \mathbf{t}_2 \urcorner$ is true in a circumstance w iff the object referred to by $\mathbf{t}_1$ is identical-in-w to the object referred to by $\mathbf{t}_2$.

(Again, we assume that points and instants count as spatial and temporal circumstances, respectively, when we are evaluating relative to them.)

In the context of such a theory, one can easily see that it is perfectly consistent to assert all of

(i) sentence $\ulcorner \mathbf{a} = \mathbf{b} \urcorner$ is true in some circumstance,
(ii) o_1 and o_2 are distinct objects, and
(iii) names **a** and **b** *directly refer to objects* o_1 and o_2, respectively,

even though names **a** and **b** lack Fregean senses or anything similar. Let's consider the spatial case, just to illustrate. NC-15 and NC-501 are numerically distinct highways that partially overlap in Durham, NC. On the theory we are considering, they are non-identical spatial continuants that are identical-at-p for some points p in Durham. Suppose that the semantical component for the object language assigns the two objects, NC-15 and NC-501, respectively, to the two names **Highway a** and **Highway b**. In that case (assuming Truth.=) all of the following are true.

(i) ⌈**Highway a** = **Highway b**⌉ is true at some points in Durham.

(ii) NC-15 and NC-501 are not identical objects.

(iii) The two names **Highway a** and **Highway b** directly refer to objects NC-15 and NC-501, respectively.

Yet no Fregean senses are involved in any way: highways are objects, not senses – even if they overlap in some places. The temporal and modal cases follow the same pattern: amoeba, corporations, lumps of clay, and statues are objects, not senses – even if they split or merge over time or across worlds. (Again, in saying this we are not abandoning the metaphysical necessity of identity. For we allow that splitting and merging across worldly circumstances might occur only when one of the circumstances is metaphysically impossible.) So the claim that the counterexample violates Direct Reference fails.

Incidentally, sentences like those in (11), (12), and (13) below suggest that it is perfectly compatible with linguistic data to take the referents of ordinary English names and demonstratives to be sometimes-overlapping spatial, temporal, and modal continuants.

(11) (a) Route 15 is only two lanes wide here, but it's a four-lane road a mile ahead.

(b) Route 15 and Route 501 are different roadways in the next county, but here they are the same roadway.

(12) (a) Virginia used to have a smaller population than it does now.

(b) Before the Civil War, Virginia and West Virginia were one and the same state, but now they're not.

(13) (a) This lump of glass is polished, but it might not have been.

(b) Virginia and West Virginia are now two different states, but had the Virginia legislature voted not to secede from the Union in April of 1861, they would now still be one and the same state.

(c) This solid crystal glass pyramid and this lump of glass are one and the same glass object. But if I melted it down into a blob and then cooled it, the glass pyramid wouldn't exist anymore, but this lump of glass would still exist.

In fact it is extraordinarily difficult to find linguistic data incompatible with an ontology of sometimes-overlapping continuants. (It is, however, rather easy to violate methodological norms in adducing "evidence" to the contrary. See Hazen 1979 for an excellent discussion of the methodological issues involved.)

VIII

One might still wonder about the formal coherence of this response to the fourth objection. So it is worth spending a moment to show how a formal account along these lines might be developed. The reader not concerned with this question may skip to the next section without losing the thread of the argument.

We begin by sketching a formal theory of continuants. Let an *overlapping continuant structure* S be a sequence $\langle K, k^*, D, E\rangle$ where K and D are non-empty sets, k^* is an element of K, and E is a total function from D to K. Intuitively, K represents a set of points/instants/worlds. D represents a set of objects each of which exists at wholly at an point/instant/world. E represents which such objects exist wholly at which such point/instant/world; and k^* represents the present (actual) point/instant/world. Given such a structure S, we will say that K is the set of *indices* for S, that k^* is the *designated* index for S, that D is the set of *slices* for S, and that E is the *slice-locator* for S. If $E(\delta) = k$ we say that slice δ is (wholly) *located at* k.[19] Standard Leonard–Goodman 1940 mereology theory, which I assume to be coherent, entails that there exists a mereological sum – itself an object – of any arbitrary collection of objects. In the present case, standard mereology theory entails that there is such an object for any arbitrary collection of slices from D.[20] Given an overlapping continuant structure S, let M^* be the set of all such mereological sums of slices from D. Let M be the restriction of M^* to objects containing at most one slice from D located at any k (that is, $M = \{m : m \in M^* \;\&\; (\delta \in D)(\delta' \in D)(k \in K)[(\text{Part}(\delta, m) \;\&\; \text{Part}(\delta', m) \;\&\; E(\delta) = k \;\&\; E(\delta') = k) \rightarrow \delta = \delta']\}$). We say that M is the set of *continuants for S*. If some continuant m in M contains parts located at different indices in K (that is, if for some δ and δ' in D and some k and k' in K, m contains δ and δ', $E(\delta) = k$, $E(\delta') = k'$ and $k \neq k'$), we say that m is a *persisting* continuant. If continuants m and m' in M share some but not all of their parts (that is, if for some δ and δ' in D, m and m' contain δ but only m' contains δ') we say that m and m' *partially overlap*. If m and m' are continuants in M and k is an element of K, we say that m is *identical-at-k* to m' iff m and m' both contain parts located at k, and they both share all their parts located at k.[21]

We now show how to interpret a simple formal language of tense in the context of such a formal theory of objects as continuants. Generalizations to the spatial and modal cases are straightforward. Let $\mathscr{L}$ be a standard first order language extended by adding past and future tense operators **P** and **F**. The formation rules for $\mathscr{L}$ are standard. Given a continuant structure $S = \langle K, k^*, D, E \rangle$, a *model H* (*on S*) for $\mathscr{L}$ is a triple $\langle S, M^P, \prec, \nu \rangle$. The set M^P of *preferred* continuants for H is a subset of the set M of all continuants for $\langle K, D, E, k^* \rangle$. (We don't suppose that every continuant in M is an appropriate referent for the singular terms of $\mathscr{L}$; rather, we allow that only a certain subset M^P of M tracks objects over times in a way corresponding to the sortal concepts we are interested in. In this connection see Gupta 1980.) Binary relation $\prec$ linearly orders K; we assume that K represents a set of instants ordered by $\prec$. Valuation function ν assigns to each primitive singular term of $\mathscr{L}$ a preferred temporal continuant from M^P, and to each n-ary predicate $\mathbf{P}^n$ of $\mathscr{L}$ a function $\nu(\mathbf{P}^n)$ from K into D^n. Given a model H for $\mathscr{L}$, we extend function ν to assign truth values to sentences of $\mathscr{L}$ at circumstance k in K:

$\nu_k[\mathbf{t}_1 = \mathbf{t}_2] = \textit{true}$ iff $\nu(\mathbf{t}_1)$ is identical-at-k to $\nu(\mathbf{t}_2)$.

$\nu_k[\mathbf{P}^n(\mathbf{t}_1, \ldots, \mathbf{t}_n)] = \textit{true}$ iff for some $\delta_1, \ldots, \delta_n$,
δ_i is temporal part of $\nu(\mathbf{t}_i)$ for $1 \leq i \leq n$,
$E(\delta_i) = k$ for $1 \leq i \leq n$, and
$\langle \delta_1, \ldots, \delta_n \rangle \in [\nu(\mathbf{P}^n)](k)$.

$\nu_k[\sim \phi] = \textit{true}$ iff $\nu_k[\phi] = \textit{false}$.

$\nu_k[\phi \mathbin{\&} \psi] = \textit{true}$ iff $\nu_k[\phi] = \nu_k[\psi] = \textit{true}$.

$\nu_k[(\exists \mathbf{x})\phi] = \textit{true}$ iff for some δ such that $E(\delta) = k$, and for some m in M^P such that m contains δ as a part, ${}^{m/\mathbf{x}}\nu_k[\phi] = \textit{true}$, where ${}^{m/\mathbf{x}}\nu_k$ is just like ν except that it assigns m to $\mathbf{x}$.

$\nu_k[\mathbf{P}\phi] = \textit{true}$ iff for some k' such that $k' \prec k$, $\nu_{k'}[\phi] = \textit{true}$.

$\nu_k[\mathbf{F}\phi] = \textit{true}$ iff for some k' such that $k \prec k'$, $\nu_{k'}[\phi] = \textit{true}$.

$\nu_k[\phi] = \textit{false}$ iff $\nu_k[\phi] = \textit{true}$.

In this simple language, temporal analogs of all seven assumptions of the reductio hold: the proposition expressed by a sentence (that is, its semantic content) is the set of instants or temporal circumstances in which it is true; tense operators express relations between instants of time and propositions expressed by their complements; both tense operators distribute over conjunction; variables range directly over objects, and individual constants refer directly to objects (in both cases the objects are temporal continuants); and Truth.∃x and Truth.& are obviously both met. Yet in this theory (1″) and (2″) do not entail (3″).

(1″) **a = b**

(2″) **F(Aa & Bb)**

(3″) **F(∃x)(Ax & Bx)**

So it is formally perfectly coherent to deny the Reductio Claim.[22]

IX

Let us now turn to the fifth objection, that the alleged counterexample isn't really a counterexample to the Reductio Claim. The argument went like this. The example assumes that o_1 is not identical to o_2; therefore o_1 is not identical to o_2 in the *actual* circumstance. Since non-identities are metaphysically necessary, it follows that o_1 is not identical to o_2 in any metaphysically possible situation. But then, since C-description X_1 contains $\langle =, o_1, o_2 \rangle$, X_1 *cannot represent any metaphysically possible circumstance*. So although (1′), (2′) and (3′) are true in C-description X_1, X_1 doesn't represent a *possible* circumstance in which (1′) and (2′) are true but (3′) is false. The example doesn't show that there *really could* be a situation in which (1′) and (2′) are true but (3′) is false (when the seven reductio assumptions hold).

It helps to be clear about just what this argument would show were it successful. It would not show that given the seven assumptions, there are *no* circumstances in which (1) and (2) are true while (3) is false, but only that there are no metaphysically possible ones. So even if this response to the counterexample is sound, it doesn't establish that given the seven assumptions of the Reductio Claim, (1) and (2) would *logically* entail (3), but merely that (1) and (2) have (3) as a metaphysically necessary consequence. Still I assume that even this result would be unpalatable enough to motivate us to reject one of the reductio assumptions.

This fifth objection to the counterexample depends on two assumptions, one concerning the conditions under which a C-description "correctly represents" a circumstance, the other concerning the relationship between identities in the metatheory and those "in the actual circumstance".

Let's begin with the former assumption. The argument assumes that if o_1 and o_2 are not identical in some circumstance, and if X_1 contains $\langle =, o_1, o_2 \rangle$, then X_1 cannot represent that circumstance. What we need here is a general specification of the conditions under which C-descriptions *correctly represent* circumstances. For our present purposes, the relevant clause is the following:

Correct Representation.=. If a C-description X contains an element of the form $\langle =, o, o' \rangle$, then X correctly represents circumstance w only if o is identical-in-w to o'.

Notice that this clause of a definition of correct representation makes use of a *three*-place metatheoretic identity-in-w relation. This is absolutely essential if we are to allow branching on the totality of circumstances, so that $\lceil \mathbf{t}_1 = \mathbf{t}_2 \rceil$ can be true in one circumstance but false in another. (See Section VI.)

Correct Representation.= entails that in the counterexample, X_1 correctly represents a metaphysically possible circumstance w only if o_1 is identical-in-w to o_2. So to get the desired result, that X_1 represents no metaphysically possible circumstance, we need to argue that in the counterexample, o_1, is *not* identical-in-w to o_2, for any metaphysically possible circumstance w. We can do this by the metaphysical necessity of identity, provided we can argue that o_1 is *not* identical-in-@ to o_2, where @ is the actual or present circumstance. (Notice that for the argument of the fifth objection to be deductively valid, we must show that the *three*-place metatheoretic identity-in-a-circumstance relation does not hold between o_1, o_2, and the actual circumstance @. Only then can Correct Representation.= be applied to show that X_1 doesn't correctly represent @ or any other metaphysically possible circumstance.) To show that o_1 is not identical-in-@ to o_2, it seems we need the following assumption.

Weak Matching Principle. Object o is identical-in-@ to object o', only if o and o' are identical.

It is important to remember that Weak Matching is not a statement from the object language, but from the metalanguage. Like the earlier Strong

Matching principle (which we rejected) Weak Matching requires that the ontologies of certain circumstances match those of the metatheory in the respect specified. Strong Matching required that *every* admissible circumstance reflect the nonidentities of the metatheory; Weak Matching requires only that the *actual* circumstance do so. Weak Matching, together with the fact that o_1 is not identical to o_2 in the counterexample, entails that o_1 is not identical-in-@ to o_2; by the metaphysical necessity of identity, it follows that o_1 is not identical-in-w to o_2 in any metaphysically possible circumstance w; by Correct Representation.=, it follows that C-description X_1 does not correctly represent any metaphysically possible circumstance. Properly understood, the force of the fifth objection is that the reductio argument can be repaired by adding Correct Representation.= and Weak Matching (and the metaphysical necessity of identity) to the list of assumptions in the Reductio Claim.

Were Weak Matching uncontroversial, the observation that the reductio argument depends on it would hardly matter. But this is hardly the case. To begin with, spatial, temporal, and modal interpretations of Weak Matching easily fail in theories that take objects to be sometimes-overlapping continuants. Numerically distinct highways might still be identical-at-@, where @ is the present point or spatial circumstance. Numerically distinct corporations or amoeba might still be identical-at-@, where @ is the present instant or temporal circumstance. Numerically distinct objects like a lump of clay and a statue might still be identical-at-@, where @ is the present world. Weak Matching begs the question against theories on which objects are sometimes-overlapping continuants.

Second, it is formally coherent to deny Weak Matching. Weak Matching fails, for instance, in the formal theory described in Section VIII. There, two numerically distinct continuants m and m' could be identical-at-k^*, where k^* is the present or actual circumstance. Indeed, the formal language described at the end of Section VIII demonstrates that it is formally consistent to deny Weak Matching even while asserting the other assumptions of the reductio argument.

Third, it is hard to see how to argue convincingly for Weak Matching. It is crucial to bear in mind that Weak Matching is a statement from a metatheory for English, and in particular that its 'identity-at-a-circumstance' predicate is from that metatheory. So it would be entirely inappropriate to argue against Weak Matching by saying that it directly contradicts our linguistic intuitions – for example by pointing out that 'identical-at-@' doesn't behave the way 'identical' does in English. The linguistic intuitions against which we must test the theory are intuitions about object language expressions: sentences like (1)–(11). (Again, see Hazen 1979 for a discussion of the methodological issues involved here.)

One might try to argue for Weak Matching in the following way. A metatheory is satisfactory only if (according to itself) its entire ontology is contained in the actual world. But this requirement will not be satisfied if according to the metatheory, object o is not identical to object o', yet o is identical-at-@ to o'. The problem with this argument is that it is far from obvious that the ontology of the metatheory must (according to that metatheory) be a subset of the domain of the actual world. That requirement would entail that by the theory's own lights, every circumstance and every element of their domains must be contained in the domain of the actual world. If we accepted that principle, there would be a far more *direct* route indeed than Soames's reductio to the demise of circumstantialist semantics.[23]

X

I want to close by arguing that from one philosophical perspective, there are very good reasons to reject a principle like Weak Matching. There are three main theses of this philosophical perspective. The first is that there are intertheoretic identities among possible competing theories: properties postulated by one theory can be identical with those postulated by another; objects postulated by one theory can be identical with those postulated by another. The second is that one theory may be ontologically confused from the perspective of another theory: what according to one theory are two distinct objects (say, Hesperus and Phosphorus) might be a single object (Venus) according to another theory. The third thesis is that relativistic or perspectivalist theories of truth, according to which truth values are *assigned always relative to a theory*, are interesting enough to deserve a rigorous semantical treatment. These three theses motivate a circumstantialist semantical theory on which the seven crucial assumptions of the Reductio Claim are preserved, on which Weak Matching fails, and on which the inference from (1) and (2) to (3) breaks down.

Here I provide only a sketch of such a theory.[24] We represent a theory by a set of circumstances, called a theory-set. (This allows us to represent the full range of indeterminacies a theory might contain.) We represent the objects countanced or postulated by a theory by means of continuants spanning (at least) the entire theory-set. We represent a family of theories by means of a family of theory-sets, and we represent intertheoretic identities between the objects of two theories in a family by means of "intertheoretic" continuants spanning the union of the two theory-sets. We accommodate the fact that one theory may be ontologically confused from the perspective of another by allowing such intertheoretic continuants to overlap. For instance, a structure containing a pair of theory-sets, one for ancient and one for modern cosmologies, will contain a pair of continuants (Hesperus and Phosphorus) spanning both theory-sets. The two continuants will overlap nowhere in the theory-set for ancient cosmological theory, but will overlap everywhere in the theory-set for current cosmological theory. Truth values are initially assigned relative to circumstances; the method of supervaluations is then applied to assign truth values relative to theory-sets, so as to generate truth-value gaps corresponding to various respects in which a theory is indeterminate.[25]

Obviously, Weak Matching is not preserved in such a framework (if '@' refers to anything in the framework relative to which truth values are assigned, such as the theory-set of the context of evaluation). Numerically distinct continuants can still be identical-at-a-circumstance, and identical-within-a-theory-set. If belief is treated as a matter of having a theory, then this framework can easily be developed so that all of the theoretical assumptions in the Reductio Claim hold, but the inference from (1) and (2) to (3) is invalid: (1) and (2) can be true relative to a theory-set, while (3) is false relative to that same theory-set.

(1) Hesperus is Phosphorus.

(2) The ancients believed that ('Hesperus' referred to Hesperus and 'Phosphorus' referred to Phosphorous).

(3) The ancients believed that (for some x, 'Hesperus' referred to x and 'Phosphorus' referred to x).

One crucial advantage of a semantical theory along these lines is that it yields a *uniform* treatment of both kinds of ontological confusion: both (i) cases in which someone's theory mistakes two (or several) objects for one, and (ii) cases in which someone's theory mistakes a single object for two (or several). In the framework just outlined, *both* cases are construed as instances in which two theories disagree about identity relations: what are two objects from the perspective of a single theory are a single object from the perspective of another. In both kinds of cases, a pair of modal continuants distinct in one theory-set overlap completely in the other theory set. The difference in which of the two ways we characterize the confusion merely reflects which theory we take as our perspective in describing the case.

If we accept Weak Matching, it is no longer possible to provide a straightforward, uniform treatment of the two kinds of ontological confusion within the circumstantialist framework. It is compatible with Weak Matching to represent the *first* kind of ontological confusion by a collection of C-descriptions containing (for example) both a C-description for @ containing ⟨≠, Ruth Marcus, Ruth Barcan's sister⟩, representing the actual world, and other C-descriptions containing ⟨=, Ruth Marcus, Ruth Barcan's sister⟩. (Note the *nonidentity* in the former circumstance, the *identity* in the latter circumstances). Soames raises no problems about this kind of case. But it is inconsistent with Weak Matching to represent the *second* kind of ontological confusion by the inverse method. That is, Weak Matching prohibits a set of C-descriptions in which the C-description for @ contains ⟨=, Hesperus, Phosphorus⟩, while other C-descriptions contain ⟨≠, Hesperus, Phosphorus⟩. (Note the *identity* in the former circumstance, the *nonidentity* in the latter circumstances). Yet a uniform, symmetrical treatment of both kinds of ontological confusion is surely desirable. The perspectivalist theory outlined earlier promises precisely that.

By rejecting Weak Matching, a circumstantialist can both escape the reductio *and* achieve a uniform and symmetric theory of both kinds of ontological confusion. So much more needs to be said in defense of Weak Matching to make the reductio persuasive to those already committed to the circumstantialist tradition.

My agenda has not been to demonstrate that assumption Weak Matching is false. But I hope I have shown that circumstantialist semantics and the semantics of direct reference are not inconsistent – even given the general theoretical assumptions Soames cites. In particular, the Direct Reference principle and the other semantic assumptions Soames states are not sufficient to yield a determinate theory of how singular terms, identity signs, and intensional operators logically interact. A theory of these logical interactions also requires a theory of objects and their relation to circumstances and other key concepts of the metatheory. Yet more than one such theory is possible.[26]

NOTES

[1] Soames first presented the argument in 1985 as an objection to the situation semantics of Barwise and Perry 1983. The argument is developed more fully in Soames 1987a and 1989. For Barwise and Perry's reaction, see their 1985, pp. 151–158. Soames's argument is also discussed in Salmon 1986b and Devitt 1989.

[2] A reductio argument similar to Soames's was first advanced by Mark Richard in 1983, though not as a reductio of circumstantialist semantics. Richard 1983 advocates abandoning another theoretical assumption of the argument. See Salmon 1986b for a comparison of Soames's and Richard's reactions to the reductio, and for further discussion.

[3] The first four principles below correspond to Soames 1987a (A1a), (A2), (A3), and (A4), respectively. Truth.& and Truth.∃x below correspond to Soames's (7a) and (7c). Soames states the Substitutivity Principle in note 5. For convenience I have rephrased Soames's (A1a), (A2), (7a), and (7c), but only in ways that don't affect the argument. Throughout the paper, I suppress all references to contexts in the statement of theoretical assumptions.

[4] A remark about notation. Throughout the paper, syntactic metavariables appear in boldface; semantic and pragmatic metavariables appear in italics; object language expressions appear in roman typeface within single or corner quotes.

[5] An attitude expressed by a verb **v** distributes over conjunction iff the following condition holds: if an individual *i* satisfies ⌜**x** **v**'s that **p** and **q**⌝, then *i* satisfies ⌜**s** **v**'s that **p**⌝ and ⌜**x** **v**'s that **q**⌝.

[6] See for example Donnellan 1972, Kripke 1972, Perry 1979, Salmon 1981 and 1986a, Kripke 1979, Kaplan 1988, and Soames 1987b. For an opposing view, see Devitt 1981 and 1989.

[7] One widely accepted test for a semantical theory for a natural language is whether it correctly captures the logical features of the language. When properly used, this test determines whether the *general semantical principles of the theory* license intuitively correct inferences. As I interpret Soames, his argument is an application of this test. That he takes great pains to state the general semantical principles used in the *reductio* suggests this interpretation is correct; and my exposition of Soames's argument below relies on this interpretation. Soames doesn't *quite* state the argument as it appears here: he doesn't take the trouble to mention (1), no doubt because it's so widely known among philosophers of language. But let's be as rigorous as possible. If I am wrong in thinking that Soames means to be applying the test, then his argument is still interesting, but in my view much less so. In any case, this paper investigates an interesting application of the test that is very strongly

suggested by Soames's papers, whether he actually meant to be deploying the test or not. (The parentheses in (2) and (3) are scope indicators.)

[8] Soames doesn't mention this, but to conclude that (5) and (6) express the same proposition, you actually need a semantic principle for atomic predication, in addition to those for existential quantification and conjunction.

[9] The Standard Possible Worlds Conception of Circumstances above corresponds to (A1b) in Soames 1987a. I have rephrased the principle slightly in ways that don't affect the argument.

[10] See Soames 1987a, pp. 198–199.

[11] See Soames 1987a, pp. 202–203.

[12] Soames 1987a, p. 203.

[13] A remark about notation. The object language is here assumed to be a standard first order language supplemented by a belief operator that combines with a singular term and a sentence to form a sentence. Here, '**a**', '**b**', and '**c**' are syntactic metavariables ranging over individual constants of the object language; '**x**' is a syntactic metavariable ranging over its individual variables; '**t**' is a syntactic metavariable ranging over its singular terms (individual constants and variables); '**G**' and '**F**' are syntactic metavariables ranging over its monadic predicates. Any metavariable may carry numerical subscripts. '**B**' is a syntactic metaconstant denoting its belief operator: ⌈$\mathbf{B_x p}$⌉ formalizes ⌈**x** believes that **p**⌉.

[14] Object o_c is the semantic content of name **c**; and $\{X_2\}$, the proposition *BEL* assigns to o_c in X_1, is a subset of the proposition expressed by ⌈**Fa & Gb**⌉, since ⌈**Fa**⌉ and ⌈**Fb**⌉ are both true in X_2. So by Truth.**Believes-that**, (2′) ⌈$\mathbf{B_c}$**(Fa & Gb)**⌉ is true in X_1.

[15] See Soames 1987a, p. 199.

[16] For dissenting views about this, see Gibbard 1975 and Gupta 1980.

[17] Various combinations of the two methods are possible. For instance one can relativize to circumstances the assignment of semantic values to singular terms, but not to predicates. In that case one would still need a semantic predication relation that is relativized to circumstances.

[18] See the discussion of (5a) on pp. 201–202, and the description of a framework allowing nonstandard circumstances on pp. 202–203, ff., in Soames 1987a.

[19] This terminology is intended merely to remind the reader of what these sets are intended to *represent*. The definition of a continuant overlapping structure utilizes no concepts other than those of set theory and logic. So the definition would be formally coherent even if there were no objects existing wholly at a point/instant/world (and even if the concept of such an object were in other respects incoherent).

[20] Cf. Lewis 1986. Since all we are here concerned with is establishing the *coherence* of a theory of continuants, all we need to assume is that Leonard-Goodman mereology is coherent. Standard mereology theory might be ontologically extravagant, but that is another matter entirely.

[21] Part of the justification for these definitions is that they validate a number of principles that we want our theory of continuants to obey. For instance:

Temporal continuants have parts that exist wholly at a time, but (temporally persisting) continuants do not exist wholly at a time.

A temporal continuant has no more than one temporal part existing wholly at any given instant.

Temporal continuants are identical-at-a-time-t iff they have in common the exactly the same parts existing wholly at time t.

Given reasonable assumptions about extensional properties, these definitions will also entail that

Two temporal continuants are identical-at-time-t iff they have exactly the same extensional properties at time t.

[22] One might wonder about what philosophical foundations can be provided for a formal theory of (preferred) continuants. For lack of space I cannot address this issue here. But Kaplan 1978 and Gupta 1980 both contain extremely useful material in this connection. Kaplan suggests, for instance, that we might take either the slices or the continuants as theoretically primitive. Gupta can be read as arguing that what counts as a continuant for purposes of semantic interpretation is always *relative to a sortal concept*, and (chapter 4) that the objections to theories of modal continuants raised in Chisholm 1967 and Quine 1976 can be avoided by supposing that what counts as a preferred continuant is *relative to a circumstance*. Edelberg 1991 argues that certain logical paradoxes can be avoided if we assume that what counts as a preferred continuant is *relative to an intensional modality*, like necessity or obligation. Such considerations suggest that the notion of an object implicit in ordinary discourse might not be not as simple and unproblemantic as many philosophers suppose. (In reading Gibbard 1975, Gupta 1980, and Edelberg 1991, it is useful to keep in mind that world lines – functions from indices to objects existing wholly at indices – are an especially convenient way of formally representing continuants.)

[23] I have occasionally encountered a sixth objection to the counterexample. This is that the counterexample is ineffectual because there the referents o_1 and o_2 of the names **a** and **b** are distinct objects; but in Soames's argument, the referents Hesperus and Phosphorus of the names 'Hesperus' and 'Phosphorus' are identical.

There is quite a lot wrong with this objection. For instance it is mired in precisely the kind of methodological confusions against which Hazen 1979 warns (pp. 319–325). But I want to focus on one particular point. Certainly Soames's argument begins with the assumption that the English sentence (1) 'Hesperus is Phosphorus' is actually true – *the present discussion never calls that into question.* Yet it doesn't follow from this alone that 'Hesperus' and 'Phosphorus' name the same object, or that their referents are numerically identical. To infer that, one needs a semantical rule for English (object language) statements of the form $\ulcorner \mathbf{t}_1$ is $\mathbf{t}_2 \urcorner$. I argued in Section VI that if Soames's argument is to have the scope he intends, the semantic rule in question must be Truth.=, which allows the truth value of identity statements to vary from one circumstance to another, like other atomic sentences. In that case, whether the actual truth of 'Hesperus is Phosphorus' entails that 'Hesperus' and 'Phosphous' name the same object depends on the background theory of objects and circumstances.

[24] A formal theory along these lines is presented in my "A Perspectivalist Semantics for the Attitudes", unpublished manuscript.

[25] See Van Fraassen 1971 on supervaluations. The virtue of this method is that if the logic founded on circumstance-relative truth is classical, then so is the logic founded on theory-set-relative truth. (See Thomason 1970 for an example of how the method of supervaluations can be applied in the case of indeterminist tense logic.)

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