TRUTH AND COLLECTIVE TRUTH

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> We, too, still derive <u>our</u> flame from the fire ignited by a
> faith millennia old, the Christian faith, which was also Plato's,
> that God is truth, that truth is <u>divine</u>.--Friedrich Nietzsche,
> <u>On the Genealogy of</u>
> <u>Morals</u>, pt. III, sec. 24.

I mean collective truth as opposed to distributive truth, that is,
truth at times or possibilia taken in groups rather than individually.
I will argue that the notion of collective truth--in a certain new sense--
has applicability. The underlying reasoning is simple, and it seems,
highly intuitive: There are transtemporal and transworld relationships,
e.g., those involving the relations of <u>being a descendant of</u> and <u>thinking</u>
<u>about</u>. Relationships <u>are</u> (one type of) truth-makers. Hence, there are
transtemporal and transworld truth-makers. Therefore, there <u>is</u> trans-
temporal and transworld truth, i.e., collective truth.

A different notion of collective truth than the one I intend might be
said to be employed in contemporary tense logic. It is the idea of
evaluating truth-value bearers, not at durationless moments, but at
extended periods of time ('intervals'), albeit ones which have sub-
intervals (cf. van Benthem 1985, sec. 5). By way of contrast, my notion
of collective truth involves that certain truth-vehicles are true only at
sets of distinct intervals; they are not true at any interval taken
individually.

Otherwise, so far as I can tell, tense and modal (henceforth 'inten-
sional') semantics has exclusively employed the notion of distributive
truth.[1] Yet, the idea of collective truth (in my sense--a qualification

hereafter omitted) seems to be well-motivated. I will attempt to exhibit how its applicability follows basically from a principle which many of us share--although there is a tendency for the agreement to be only 'in principle'. It concerns Nietzsche's complaint. He is complaining about abstraction, and the principle is that we ought to minimize it. We ought to respect the parameters of common sense on the question of entities and functions postulated. We thereby avoid affirming "another world than that of life, nature, and history" (Nietzsche, ibid.). So the attempt will be made to steer clear of what common sense subverts; conversely, there will be no reductions performed on what common sense admits (though in some cases perhaps there ought to be). I don't claim to have any special insight into these parameters; I shall simply use my understanding of them as a guide in determining what to argue for.

The length and breadth of my discussion will be dictated by what is needed for a semantics (formalized in the appendix) which embodies the notion of collective truth, and which thereby (I'll argue) has various advantages over standard intensional semantics. The point is to better understand truth by exploring the idea of collective truth.

Suppose, noticing that Quine nicked himself while shaving, I say to him 'you're bleeding'. What makes what I said true? Well of course it is Quine's bleeding. I mean we immediately and naturally answer by presuming to refer to a particular state of Quine. Subjecting this state to a little analysis, we see that its constituents are an object (Quine) and a property (bleeding). Generalizing from such cases, let us adopt this definition:

a singular state of affairs (SSA) $=_{df.}$ an object(s) and a property (or relation) in a certain structure

The structure is indicated when we say the object <u>has</u> the property, or the objects <u>stand in</u> the relation.

There appear to be two main considerations in favor of postulating SSA's. The first is the correspondence principle that if there are true truth-value bearers, then there are entities in virtue of which they are true. (Needless to say, I'm presuming that there are true truth-value bearers.) It seems that this principle is a priori, analytic. One indication of this is that such a principle seems to be required for any theory of truth to get off the ground, whether it be a theory which takes correspondence to be structural isomorphism, a coherence theory, a pragmatic theory, or etc. (for discussion, see, e.g., Haack 1978, ch. 7; Putnam 1978). But why postulate SSA's in particular? This brings us to the second consideration. It is that SSA's have a close connection to immediate experience. Many have written about this.

> The philosopher staring hard at a picture of two swordsmen <u>en face</u> may be tempted to think that only independent objects are depicted--the two swordsmen, their swords. But whoever observes swordsmen in the real world sees not only them and their swords but also their particular lunges, parries and much else. These are also depicted in fencing manuals, and it is perception of <u>them</u>, not simply of the swordsmen, which forms the basis for our judgments of a swordsman's competence.[2]

Now our basic truth-value bearers can be given a definition which corresponds to that of SSA's with respect to constituency:

<u>an atomic truth-value bearer (ATB)</u> $=_{df.}$ a truth-value bearer of the form $Ft_1 \ldots t_n$

The correspondence is that the referents of the subject $(t_1 \ldots t_n)$ and predicate (F) constituents of a true ATB are identical to the constituents

of an SSA. This permits the following first principle of truth:

(1T) An ATB is true iff it represents an SSA.

Of course if an ATB does not represent, or fails to represent, any SSA, it is not true--and let us take that to mean _false_ (where it is applied to truth-value bearers). Now the evaluation clause for ATB's in ordinary predicate calculus is that an ATB is true iff $\langle$the referent of t_1...the referent of $t_n\rangle$ is a member of the extension of F. The only objection I have to this is that it doesn't hold much promise for illuminating truth. My point is not that it is circular with respect to the notion of truth in that the extension of an F is defined as the set of all the ordered n-tuples of objects of which F may be truthfully predicated. After all, (1T) also suffers from such circularity since its representation relation is merely the converse of the truth-making relation. Such circularity is to be expected in explicating fundamental notions. Rather, my point is that (1T) involves certain notions which the standard evaluation clause lacks--specifically, that of the structure of SSA's and that of properties and relations--and an adequate theory of these would be quite illuminating. I want to try to make some moves in this direction.

But first, a few things should be said about truth-value bearers. What category of entity are they? In terms of deriving the applicability of the idea of collective truth, nothing appears to hang on this; hence I shall usually employ the neutral 'truth-value bearer' and 'ATB'. However, for convenience of exposition and naturalness I will sometimes presume that the basic category of truth-value bearer is that of sentence tokenings. As compared to the alternatives, it seems that sentence tokenings, even including merely possible ones, are minimally abstract. To token an expression is to think it, and if communication is desired, to utter or

write it. A tokening is an act, performed by a certain person at a certain time and place.   So I understand the 'F' and the '$t_1 \ldots t_n$' in the definition of ATB's to be metalinguistic variables ranging over tokenings of predicate expressions and   object-referring expressions, respectively.[3]

David Kaplan has developed a notion of "singular propositions" (1979, 1989a&b). It will prove useful to compare and contrast these to SSA's. Like an SSA, a singular proposition is an object(s) and a property (or relation) in a certain structure. But propositions in general and singular propositions in particular are supposed to bear truth values, unlike SSA's. Now Kaplan holds that sentences-in-contexts also bear truth values (e.g., 1989a, sec. XIII; cf. Perry 1988, p. 7). Doesn't this involve a stunning category mistake? Consider again my 'you're bleeding' directed at Quine. One wants to say that this ATB is true because it represents reality, and the singular proposition (or something like it) is that reality, it doesn't also represent reality. After all, the singular proposition has Quine himself as an element. It seems that if it is held that singular propositions bear truth values, this collapses the distinction between truth-value bearer and truth-maker, a distinction which is the heart of any substantive correspondence theory of truth. This is why I am presuming that truth-vehicle and truth-maker are distinct (except perhaps in degenerate cases). Nevertheless, it again may be that nothing ultimately hangs on maintaining this distinction for establishing the applicability of the notion of collective truth (cf. footnote 10).

Let us turn to structure. The structure of a singular proposition is a mathematical abstraction; it is that of an ordered pair. Yet it seems to me that the only scientifically acceptable view about the structure of a truth-maker such as Quine's bleeding is that it is physical (and all SSA's have a physical structure if there are no abstract objects).

This conforms to the close connection SSA's have to immediate experience.
Macroscopically speaking, the state that is Quine's bleeding has an
obvious, indeed visible, physical structure; it may be specified by a
more detailed description of the state, such as that there is blood
oozing from a nick in the middle of Quine's right cheek. The structure
thus revealed might be further specified, though not necessarily in terms
of direct perception (e.g., 'capillaries'). It may be that the only limits
to further specification are practical ones such as those of ignorance and
interest.[4] In this case, a version of Plato's Third Man argument may
apply,[5] though it would appear harmless since nothing I've said commits me
to absurdly complex sentence tokenings or beliefs. On the other hand,
there may be physical limits to further specification, à la quantum
mechanics and relativity theory. In any case, we know that the structure of
an SSA cannot be that of an ordered pair. Consider an example that
Kaplan gives, "John is suspicious." About the proposition "associated"
with this "sentence," Kaplan says "let us take the proposition to be the
ordered couple...$\langle$John, $\underline{P}\rangle$," where $\underline{P}$ is "the property of being suspicious"
(1979, pp. 387-88; my emphasis). Clearly it is a nonempirical, purely
arbitrary matter that this is taken to be the proposition and not
$\langle\underline{P}$, John$\rangle$, unless it is being assumed that there is a correspondence
between the mathematical order of the members of the proposition and the
temporal or spatial order of tokening the elements of the sentence. But
in that case 'John is suspicious' and 'suspiciousness is manifested in
John' would be "associated" with two different propositions, viz.,
$\langle$John, $\underline{P}\rangle$ and $\langle\underline{P}$, John$\rangle$, although surely, the same singular state of
affairs is represented. And a final point is that an ordered pair may
contain a repetition of the same element; presumably, for example,
$\langle\langle$John, John$\rangle$, $\underline{L}\rangle$ would be "associated" with 'John loves himself'. Yet

there cannot be a repetition of the same object in physical reality.

Are there negative truth-makers? Are there truth-makers other than SSA's? A consideration of these questions brings us to a discussion of properties and relations. My (necessarily brief) remarks here and else-where will be guided by the principle that we ought to minimize abstraction. Now if we are indeed serious about construing truth-makers, as much as we can, as physical entities, then it seems we must hold that there are no negative truth-makers. What in nonlinguistic, physical reality could correspond to negation? Certainly, immediate experience is mute on this. It seems to me that negation belongs entirely to sentence tokenings and their meanings (and such meanings are probably best regarded as construc-tions from rules of use for terms). If this sort of view is correct, negation ($\sim$) may be taken to be wholly defined as a truth-functional operator on truth-value bearers (T's), and we may adopt the standard evaluation clause:

(2T) $\sim$T is true iff T is not true.

As in classical logic, internal negation (e.g., 'this is not triangular') as well as complementarity ('this is nontriangular') may be regarded as reducible to external negation, i.e., to the $\sim$T form ('it is not the case that this is triangular'). Arguments to the contrary seem inconclusive. According to Haack (p. 35), it has been held that, e.g., 'virtue is not triangular' is meaningless, whereas 'it is not the case that virtue is triangular' is true. This subtlety escapes me. And so-called 'double negations' from colloquial speech which do not cancel out are misnomers; they are simply emphatic negations. Etc.

Given this account, there are no negative (first-level) properties or relations. Indeed, no one but a philosopher bent on polemic would maintain

that (e.g.) nontriangularity is a property when it is much more plausible
to hold that it is merely a construction from denials of predications of
triangularity. This means that 'this is nontriangular' (suppose it is
uttered while pointing to a square) is not an ATB, since its truth could
not be a matter of its representing an SSA. Its logical form is $\sim Ft$,
rather than Ft, and by (2T) and (1T) its truth is a matter of 'this is
triangular' (had it been uttered instead) failing to represent an SSA.[6]
So we need to distinguish atomic predicates (F's) from nonatomic predicates,
and correspondingly, genuine properties and relations from ersatz
pretenders. We can at least say that **a predicate is atomic only if its**
logical form contains no logical constant. But it is not always obvious
whether a predicate has as its logical form one which contains the logical
constant of negation, whether it is, let us say, a negative predicate. The
following definition (adapted from Chisholm 1986, p. 105) **seems helpful:**

a predicate P is <u>negative</u> $=_{df.}$ a contrary of P must be or involve a
contradictory of P

By this definition 'is nontriangular' is negative, whereas (e.g.) the
relational predicate 'hates' is not negative. 'Loves' is a contrary of
'hates' since one cannot both love and hate x (at the same time, in the
same respect); but they are not contradictories since one may neither love
nor hate x. This is as it should be since for the same reason (that one
may neither love nor hate x) it is hardly plausible to hold that the
hating relation is just a construction from denials of predications of the
loving relation. It is hardly plausible to hold that hating is an ersatz
relation.

Existence and identity also seem to belong to the ersatz category.
There is of course a long tradition which supports this (as well as one

which opposes it). I'd say the main idea is that logically or meta-physically speaking, the notion of existence belongs to the singular referring and denotative,[7] rather than the predicative, functions of language, and no end of foolishness results from failing to see this. This view is embodied in classical logic by its representing existence via the existential quantifier, not via a simple predicate. This applies to singular as well as general truth-value bearers. 'Quine is bleeding' and 'Quine exists' have different logical forms: Bq and $(\exists x)x = q$, as do 'goats are herbivorous' and 'goats exist': $(\forall x)Gx \rightarrow Hx$ and $(\exists x)Gx$. Now if, indeed, existence is an ersatz property, then there is at least one type of truth-maker other than SSA's. What type? It seems that truth-vehicles of the form $(\exists u)Fu$ are made true by whatever makes any possible instance Ft true. And in the case of (e.g.) 'goats exist' there is no constituent in such a truth-maker which corresponds to the notion of existence. There is only an object and the property of being a goat; the truth-maker is an SSA. Yet this suggests that neither is there any con-stituent which corresponds to the notion of existence in truth-makers for truth-vehicles of the form 't exists'. There is only the object itself which is referred to by t, and an object isn't an SSA. Nothing fancy or mysterious need be postulated. There is a need, however, to deny that identity is a genuine relation, given that the logical form of 't exists' is $(\exists u)u = t$. And indeed, identity is often taken to be a logical constant.

To summarize this discussion of properties and relations: The genuine and the ersatz must be distinguished. None belonging to the ersatz category figure in SSA's, and correspondingly, no nonatomic predicate--such as negatives and those expressing existence and identity--counts as the F in an atomic truth-value bearer (an ATB).

It's time to relativize the truth of ATB's to time and modality.

Where v is a time or world, the straightforward way of relativizing (1T) is:

(3T) An ATB is true at v iff it represents an SSA which exists at v.

In light of the considerations which led to (1T), (3T) should already be plausible insofar as it involves (1T). As for the specific way (3T) effects the relativization, first consider that a principle of truth logically equivalent if not synonymous with (3T) is this:

(4T) An ATB is true at v iff at v it represents an SSA.

If (3T) and (4T) were not equivalent, then the relativization of representation in (4T) would be inexplicable. What could it mean to hold, for instance, that the ATB 'I'm hungry' now represents an SSA if not that it represents an SSA which now exists or 'obtains'? Of course by tokening 'I was hungry' you can now represent an SSA which does not now exist. But this is irrelevant on two counts. One is that it involves tokener's or 'speaker's' representation, not truth-value bearer's or semantic representation (cf. below and Kripke 1979). The other is that 'I was hungry' is not an ATB. The predicate 'was hungry' is nonatomic since its logical form contains a logical constant, namely, the past-tense operator. In intensional semantics temporal and modal expressions are taken to be logical constants. Now (3T) is apt for most purposes since it makes explicit what seems obvious, viz., that what basically matters for temporalized (or modalized) truth is what singular states of affairs exist when (or at which worlds). Still, it will prove useful on occasion to pass from (3T) to (4T). The only difference between them is that (3T) relativizes SSA's and (4T) relativizes representation.

In formulating (3T) I use 'exists' rather than 'obtains'. I purposely eschew the latter, philosophically fashionable term because it is ambiguous as between meaning (a) true or something similar, or (b) exists.

If 'obtains' were used, then on interpretation (a) (3T) would be even more circular with respect to the notion of truth than it already is in virtue of its representation relation being the converse of the truth-making relation. And on (a) the difference between singular states of affairs and singular propositions would be obscured since, supposedly, propositions bear truth values. Moreover, (a) would raise the question of whether there are in existence necessarily nonobtaining SSA's (like necessarily false propositions), whereas (b) rules out such denizens of Platonic Heaven, for the idea of an existent but necessarily nonexistent SSA is self-contradictory. This is not to deny that there are necessary falsities. They exist, e.g., 'the number five is even'.

In Alvin Plantinga's playful terminology, "existentialism" embodies the thesis that "singular propositions are ontologically dependent upon the individuals they involve" (1983, p. 3). He attributes the thesis to Robert Adams, Kit Fine, and Arthur Prior (see also Almog 1986, p. 231). Where as above v is a time or world, the version of "existentialism" which seems minimally abstract is this:

(E) An SSA exists at v only if all its constituents exist at v.

Principle (E) seems to be implied by preceding points about the nature of SSA's, and defending (E) is the final step which leads to the notion of collective truth.

Surely, the identity condition for SSA's is that they are the same iff they have the same constituents in the same structure. (In this respect they are like ordered n-tuples.) Relativizing this, we say that an SSA s_1 existing at v_1 is the same SSA as s_2 existing at v_2 (where v_2 may or may not $= v_1$) iff s_1 has the same constituents and structure as s_2. Now consider the arbitrary SSA s_1 which exists at v_1 along with all its

constituents, including constituent c. And suppose that c does not exist
at v_2 (where $v_2 \neq v_1$). One way to deny (E) would be to hold that the
same SSA, s_1, could exist at v_2 and not have c as a constituent, but this
and all such ways of denying (E) are directly ruled out by the relativized
identity condition for SSA's. So of course there is a second type of
(E)-denial, one which would be exemplified by maintaining that s_1 could
exist at v_2 and still have c as a constituent, even though c does not
exist at v_2. Finally, one might deny (E) by holding that some SSA's have
constituents which don't exist at every v at which the SSA exists.
Negative existentials such as Aristotle's nonexistence would be the
paradigm (if not only) case here. They would be if nonexistence were a
property, but (as above) it isn't, hence, an object's nonexistence isn't
an SSA.

So we are left with the second type of (E)-denial to consider. In
conformity with principles of standard first-order tense logic, Graeme
Forbes maintains that "the two-place relation of being a descendant of
holds at the present time between the author and his father, although the
latter no longer exists; and this relation will continue to hold of these
two persons at later times when neither exists" (1985, pp. 39-40). From
the point of view I've developed here, what is being claimed is that the
SSA of Graeme Forbes being a descendant of his father exists at each and
every individual time (evidently including times before G.F. existed--see
pp. 41-42), regardless of the fact that G.F. and his father only sometimes
exist (and for all I know, they may have never simultaneously existed).
So the claim is that a physical part of the world could exist at times
when one or both of its objectual constituents doesn't exist. This is
incredible. But if it doesn't strike some as incredible, it seems that
the only way that could come about is by confusedly substituting in the

SSA some free-floating, abstract surrogates for G.F. and his father, thereby making the case irrelevant to what is intended in (E) by 'an SSA'.

Moreover, suppose, as is consonant with 'Big Bang' cosmology, that in the distant past there was no life anywhere in the universe. Or suppose that the universe will be lifeless in the future. Then according to the claim we are considering, 'G.F. is a descendant of his father' is true, i.e. (by (3T)), it represents a singular state of affairs which exists, even at times in eons wherein nothing descends from anything else. I should think that this is a contradiction. And in my view it would violate (E) by holding that the SSA exists at times when its relational constituent doesn't exist. In order to minimize abstraction, the platonistic view that by their very nature, properties and relations exist necessarily and/or sempiternally must be denied. How could hunger exist if no one were hungry? Again it seems only by postulating some mysterious, abstract surrogate for hunger itself. So I say just as properties and relations— n-place properties—have a 'divided' mode of existence over space at the same time, they have a divided mode of existence over time and possibility: An n-place property p exists at v iff there exists at least n objects at v which have or are related by p at v.[8]

It seems that if something does not exist at a time or world v, then it could not be a constituent of anything existing at v, and therefore it could not be a constituent of any SSA existing at v. If this is correct, (E) follows (given the relativized identity condition for SSA's). Consider a physical object such as the tree in my frontyard. Suppose I destroy one of its branches. Surely the tree which then exists does not have that branch as a constituent (part), even though it is the same tree as formerly existed; otherwise, it would not make sense to say that it lost a part (the branch). Now consider sets:

If we ask what it is to be a member of a set at a world, in terms of the iterative conception, then the following answer is the most plausible: to be a member of a set at a world is to be one of the objects on which the formation operation was brought to bear when the set was formed, on the relevant level, at that world. Now forming a set is just what it is to bring it into existence, and thus if b has members at a world, it has been formed at that world and so exists at that world ('forming' applies to all members at once, rather than one by one). This means that the truth of 'a $\in$ b' should imply the existence of b. And so far as the members are concerned it would be very strange to hold that an existent might be brought into existence by an operation on non-existents (if this were possible, perhaps a non-existent God could bring himself into existence); so the existence of a seems to be implied as well. [Forbes, p. 106]

What reason could possibly be given for maintaining that what goes for such diverse entities as physical objects and sets, does not go for singular states of affairs?[9]

If the preceding is correct, it follows that Forbes' standard tense-logical claim that "the two-place relation of being a descendant of holds at the present time between the author and his father, although the latter no longer exists" is false. For a relation holding between two individuals is an SSA which includes those individuals themselves as constituents. And by (E) the SSA holds, i.e., exists, in 1985 (let's assume that's when Forbes wrote the sentence) only if all its constituents exist then. In light of the general idea behind (E) that there is an ontological dependence of SSA's upon their constituents, what we should say is that the SSA in question exists at every pair composed of one time from the period of G.F.'s existence and one time from the period of his father's existence (or we could say simply that it exists at the pair composed of these two periods). In no other way does it exist with respect to time.

As for the relational constituent of the SSA, it at least exists in the same way with respect to time as the SSA's objectual constituents exist, since it relates them throughout their existence in time. So suppose G.F.'s father died in 1976. Then by a principle formally analogous to (3T), the ATB 'G.F. is a descendant of his father' is true, e.g., at $\{1985, 1975\}$, since it represents an SSA which exists at $\{1985, 1975\}$. So here we have the notion of collective truth, i.e., the notion of truth at v's taken in groups rather than individually (distributively). And its applicability can be derived basically from (3T) and (E).[10]

Notice I do not say that the ATB is true, or that the SSA exists, at the <u>ordered</u> pair of times $\langle 1985, 1975 \rangle$. To maintain this would be to suppose that there is a correspondence between the conventional order of the singular referring terms in the sentence tokening and the way in which their referents figure in a physical structure. This is silly. It would mean that 'G.F.'s father is an ancestor of G.F.' is true at $\langle 1975, 1985 \rangle$, but false at $\langle 1985, 1975 \rangle$, and therefore doesn't represent the same singular state of affairs as 'G.F. is a descendant of his father' (because obviously, being logically equivalent is a necessary condition for having the same <u>truth-maker</u>). Yet it does represent the same state. This is not to deny that in our semantics it is convenient to construct ordered n-tuples of objects as satisfiers of predicates. $\langle G.F., his father \rangle$, not $\langle his father, G.F. \rangle$, is in the extension of the predicate 'is a descendant of' at $\{1985, 1975\}$ ($= \{1975, 1985\}$). In my view this is simply shorthand for holding that terms referring to G.F. and his father may be plugged into the first and second variable positions of the predicate, respectively, and as a tokened whole, is something (a sentence tokening) which is true at $\{1985, 1975\}$. You can't bump up against an ordered n-tuple of anything.

By supposition, some of the pairs at which 'G.F. is a descendant of his

father' (Dgf) is true are pairs of identical times, e.g., $\{1975, 1975\}$.
This is logically equivalent to saying that the ATB is true at (or in)
certain times taken individually, e.g., 1975. (Presumably however, these
two representations are not synonymous, since although $\{1975, 1975\}$ =
$\{1975\}$, presumably $\{1975\} \neq 1975$.) After all, an SSA exists at v if (and
only if) all its constituents exist at v and they exist in the structure
at v.

Generalizing from our example, we see that some ATB's are true at
individual v's as well as at sets of distinct v's (Dgf), some are true
only at individual v's (e.g., 'I'm hungry'), and the rest, insofar as they
are true with respect to time or modality, are true only at sets of
distinct v's (e.g.,'Lewis White Beck admires Kant'). Note that all monadic
ATB's are true only at individual v's. With respect to ATB's, the only
kind of case which motivates the notion of collective truth is a
relationship between objects which don't exist at all the same v's.
Indeed, a truth-value bearer of the form $Ft_1...t_n$ (i.e., an ATB) is true
at a set of distinct v's $\{v_1...v_n\}$ only if it has n distinct objectual
referents ($n \geq 2$) such that one of the referents exists at v_1...and one
exists at v_n. (An example of a >2-place relation which may go trans-
temporal or transworld is betweeness in adult height.)

As we've seen, maintaining in conformity with ordinary intensional
logic that a truth-value bearer such as Dgf is true even at individual
v's where not all of its referents exist violates the considerations which
lead to the view expressed by (3T) and (E). It also has a number of other
undesirable features, ones which are avoided by the account developed
here. The first is the multiplication of counterexamples to the classical
logical rule of existential generalization (EG). I take it as given that
we want to preserve as much of classical logic as we can. Let t be some

time right after the Big Bang. It would accord with standard tense logic
to hold that Dgf → (∃x)(∃y)Dxy (which is just the corresponding conditional
of two applications of EG to Dgf) has a true antecedent at t. But the
consequent is false at t, on the natural assumption that the quantifiers
are 'presentist' (the temporal analog of 'actualist'), i.e., range only
over those objects which exist at the time of (truth-value) evaluation.
On my account however, the conditional is true at t in virtue of having a
false antecedent and false consequent at t. To take another kind of
counterexample to EG, let w be a possible world in which G.F. is the only
person alive in 1985, and, as before, G.F.'s father dies in 1976. If the
domain is people, then it would be in accord with standard analytic
intensional logic to hold that although (∃x)(∃y)Dxy is false in 1985 at w
(since the D-relation is irreflexive), Dgf is true then, there. On my
view, both are false then, there, though each is true, e.g., at {1985,
1975} in w.

   Second, there is a violation of the relativized version of the strongly
intuitive idea that reference entails existence, an idea which goes back
at least as far as Parmenides. In terms of Forbes' view, because it is
held that Dgf is true in 1985, and that 'an atomic sentence of the form
$Ft_1...t_n$ is true at a time m iff ⟨the referent of t_1 at m...the referent
of t_n at m⟩ is a member of the extension of F at m' (adapted from pp. 29, 34),
one is stuck with the objectionable position that "individual constants
are temporally rigid: they have the same reference at each time regardless
of what exists at that time" (p. 39). In terms of the principles developed
here, to maintain that Dgf is true in 1985 is, by (4T), to maintain that
in 1985 it represents an SSA. And since this representation would
involve the designation of G.F.'s father by the individual constant f,
f would refer to or designate him at a time (1985) when he doesn't exist.

It is no accident that even when a modal semantics otherwise embodies the idea that reference at w entails existence at w, it is "obliged" to deny this idea in the case of incompossible objects (Davies 1978, p. 437; I will discuss such a case later). For the semantics lacks a conception of collective truth. Forbes has a curious position here. He allows that it is "somewhat controversial" whether natural language designators have the sort of rigidity in dispute (p. 29), and even says that "it is merely a technical convenience to be able to speak of an object at a time at which it does not exist, so as to facilitate the evaluation of sentences about it at that time, and the same consideration applies to the modal case" (p. 60). The difficulty is that even if one conceives of the enterprise of intensional logic as the regimentation (not just representation) of natural language, it is problematic whether one can, simply by fiat, make individual constants do what natural language designators cannot do. In particular, if it is impossible for natural language designators to refer to something at a v at which it doesn't exist, then how could this be possible for individual constants?

Kaplan makes a highly plausible point which is supposed to be in favor of the kind of rigidity in dispute. He says "indeed, Aristotle no longer exists, but 'Aristotle' continues to denote (him)" (1973, p. 503). Yet it seems to me that the only sense in which this is true is that tokeners continue to refer to Aristotle by using the name 'Aristotle'. Of course a tokener's referential speech act occurs at the time of tokening. The trouble is, this belongs to the phenomenon of what Kripke (1979) calls "speaker's reference" (Kaplan: "user's reference"), as opposed to "semantic reference," and the rigidity issue concerns the latter.[11] So I say that in the semantic reference sense 'Aristotle' designates him only at the times he exists. (With respect to true ATB's, the dictum that reference at

v entails existence at v is embodied in the combination of (4T), (3T), and (E).) But does it refer to him at <u>all</u> the times he exists? Consider this:

If we reason by analogy with (4T) (an ATB is true at v iff at v it represents an SSA), we get a simple, minimally abstract solution to the problem of negative existentials which have objectual referents, the problem being how to make sense of their being true. This confirms the present account with its notion of collective truth, because the solution arises from it. Given (as above) that 'exists' is a nonatomic predicate, a truth-value bearer of the form 't exists' is not an ATB. Yet (again, as above) a true one does have a truth-maker, viz., the object itself which is referred to by t. So by analogy with (4T) we can say that a truth-value bearer of the form 't exists' is true at v iff at v it represents an object. Now since this representation amounts to reference and nothing else, and since the presence of t means that the reference is objectual, the principle of truth just stated may be restated as:

(5T) A truth-value bearer of the form 't exists' is true at v iff its
     t refers at v.

Now relativizing (2T) we get: ~T is true at v iff T is not true at v (for any truth-value bearer, T). This, together with (5T), means that the truth at v of a truth-vehicle of the form '~(t exists)' (e.g., 'Aristotle doesn't exist') is simply a matter of **its t failing to refer at v.**

In order to appreciate the significance of this solution, it may be necessary to contrast it to some others. Consider the following under-statement: "you may think it a bit peculiar that some conditions-- ~(<u>x</u> <u>exists</u>) for example--could not have been satisfied even though there are worlds at which they are satisfied." This is a consequence of a view which holds that no "object can satisfy a condition or have a property <u>in</u> a world in which it does not exist," though it may do so "at" such a world

(Plantinga 1985, p. 322). In a parallel fashion it has been maintained

that "one should distinguish between two notions of truth for propositions,

the _inner_ and the _outer_ (Fine 1985, p. 163). Most disconcerting, perhaps,

is the denial "that ⌜It is possible that _p_⌝ always implies that the prop-

osition that-_p_ could have been true...To say that I might never have

existed is not to say that the proposition that I never exist could have

been true. There is such a proposition; but if I ever exist it is false,

and if I never existed it would not be true because it would not exist"

(Adams 1981, p. 19).

Let us turn to a direct consideration of modality and collective truth.

The most vivid type of case is that of a relationship between incompossible

objects, the modal analog of objects which never simultaneously exist. It

will prove instructive to review what Nathan Salmon has to say about this

example: 'Nothan would have been taller than I actually am', taken as

uttered by Salmon. Nothan is the individual who would have developed from

the union of the ovum from which Salmon actually developed with a sperm

cell from Salmon's father which never actually fertilized any ovum (1987,

pp. 49-50, 95-96). Surely, if there are any merely possible objects,

Nothan is one. The reason is that his origin lies in actual objects, and

his origin determines many of his properties. (And any skepticism about

the incompossibility here could probably be made irrelevant by constructing

a different kind of case.) Salmon ventures that this sort of example

shows that "there are some impossible objects (certain singular propositions

or states of affairs) that have certain properties (being the case,

obtaining, being asserted or denied, etc.), even though they _cannot_ exist"

(p. 96). Or consider the set {Nothan, Nathan}. "This impossible set has

such properties as its membership, not being empty, being finite, and so

on" (p. 105n55). Thus, "even _possible_ existence seems not to be a pre-

requisite for having properties...The moral:...Predication precedes existence" (p. 97).

I think, as does Salmon himself (personal correspondence), that most would regard such results as disagreeable if not absurd. Yet they follow from the semantics to which most subscribe. And the simple, natural way to avoid them is to adopt the notion of collective truth. Specifically, given that Nothan and Nathan are objects, if modal expressions are treated as quantifiers over possible worlds, situations, partial circumstances, or the like, then it follows that there are impossible entities such as the set {Nothan, Nathan}. And the idea that there are (exist) impossible (necessarily nonexistent) entities (existents) seems to be self-contradiction with a vengeance. The seemingly obvious solution to this reductio is to regard modal expressions not only as quantifiers over worlds (situations, or etc.), but also as quantifiers over sets of distinct worlds. Then {Nothan, Nathan} is a _possible_ entity in that it exists in some pairs of distinct worlds, although Nothan and Nathan are incompossible objects in that there is no world in which they both exist. Ordinary language supports this. We started with 'Nothan would have been taller than I actually am'. If the expression 'would (or 'could') have been...actually' quantifies over or denotes anything, it denotes pairs of distinct worlds (where the actual world is a member of each pair). Compare the temporal case, 'I am _now_ taller than George Washington _was_'. Moreover, consider 'Nothan and Nathan are possible existents'. The way standard modal logic (without an existence predicate) would represent this is:

$$\Diamond(\exists x)x = a \ \& \ \Diamond(\exists y)y = b$$

(with an existence predicate: $\Diamond Ea \ \& \ \Diamond Eb$). It seems that this is a misrepresentation since in it the modal expression occurs twice, yet it occurs only once in the original. The original is unlike (e.g.) 'Nothan and Nathan are human' (Ha & Hb) insofar as 'possible' is a sentential operator,

unlike 'human'. We need a logic which takes the form of the original to be:

$$\lozenge ((\exists x)(\exists y) x = a \ \& \ y = b)$$

So, is 'Nothan is taller than Nathan' an ATB which could be true only at pairs of distinct worlds, not at any individual world? A negative answer might be pressed here, one which has roots which go back at least as far as Leibniz. It is that <u>taller than</u> is not a real or genuine relation, and so, it does not figure in any SSA. Thus, 'Nothan is taller than Nathan' couldn't be an ATB; instead, it is a nonatomic truth-value bearer which would represent two SSA's and perhaps a fact about magnitude. Suppose Nothan would have been 6' tall and Nathan is actually 5' tall. Then the SSA's are Nothan's having the **one nonrelational** property (being 6' tall) and Nathan's having the other; and the magnitude fact is that the first of these properties is greater than the second. Each of the SSA's exists only in individual (albeit different) worlds. And there is no reason to think that the magnitude fact is itself transworld. Thus, there is no transworld SSA represented, and it might be thought that this means the notion of collective truth is inapplicable.

My response to this is no matter how we might reasonably construe the logical form of 'Nothan is taller than Nathan', it still could be true only at pairs of distinct worlds, not at any individual world. For suppose we take our cue from the representation scenario just envisioned and, quantifying over height properties (H's), hold that the form is the complex:

$$(\exists H)(\exists H') a \text{ has } H \ \& \ b \text{ has } H' \ \& \ H > H'$$

This could not be true at any one world, since its first and second conjuncts could not both be true at a single world. And this is so because the SSA's they represent cannot both exist in any one world (by the principle of "existentialism," (E)). On the other hand, we might want to avoid quantifying over properties, and recalling that the "idea of a perfect parallelism of logical and ontological complexity is the misery

of logical atomism" (see footnote 4), insist that the form is simply
Lab ('L' for 'is taller than'), even though two SSA's and perhaps a
magnitude fact would be represented. What I would like to suggest is that
this view is _compatible_ with holding that 'Nothan is taller than Nathan'
represents a single SSA, one which has a genuine relation as a constituent.
It is just that the structure of this SSA (Nothan's being taller than
Nathan) may be specified in terms of two SSA's and perhaps a magnitude
fact. And indeed, further specification is entirely possible. For
example, consider the only superficially hidden, relational aspects of
Nathan's being 5' _tall_. As was argued earlier, structure is in general
just greater physical complexity.

It is important to deal with these matters since there are many
predicates which are similar to 'is taller than' in that they have trans-
world applications and they might be regarded as nonatomic, e.g., 'is
conspecific with' and 'is more intelligent than'. But there are also
predicates which have transworld applications, yet it is not plausible to
regard them as nonatomic, e.g.,'is thinking about' and 'admires' (with
sufficient genetical knowledge, I might come to admire Nothan--this case
is a modal analog of   the Dgf case above in that some of the worlds
where Nothan and I exist are the same).[12]

APPENDIX: S5-C

My purpose here is to formulate the simplest intensional semantics which embodies the notion of collective truth as well as many of the intermediate results arrived at above in arguing for the applicability of this notion. These embodiments are best highlighted in a simple semantics. The following is an extended and somewhat more rigorous version of the simplest standard semantics for quantified S5 that I'm aware of, viz., that of Forbes (ch. 2). (I presume that an analogous tense logic could be given.)

An S5-C model M for a set X of sentences of quantified modal logic has these seven components:

(1) a nonempty set W composed of possible worlds (w's) and sets of
    distinct w's (S's);

(2) a nonempty set D of possible objects (o's);

(3) a nonempty set I of individual constants (t's), composed of both a t
    for each o in D and all the t's occurring in the sentences in X;

(4) a function d which assigns to each member V of W a subset d(V) of D;
    d(V) is the set of o's which exist at V, is the domain of V; for an o
    to exist at a V where V is an S is for o to exist in at least one of
    the w's in S; the function d satisfies the condition that for every o
    in D there is some V in W such that o is in d(V);

(5) a two-argument function Ext which assigns to each n-place atomic
    predicate F occurring in some sentence in X and to each V, a set
    Ext(F, V) of ordered n-tuples of o's drawn and constructed from
    d(V);[13] Ext(F, V) is the extension of F at V; Ext satisfies the con-
    dition that Ext(F, V) is the empty set where V is an S $\{w_1 \ldots w_n\}$ unless
    Ext(F, V) is composed of ordered n-tuples of distinct o's ($n \geq 2$) each

of which is such that one of its members exists at w_1...and one exists at w_n (from which it follows that Ext(F, V) is the empty set where V is an S and F is 1-place);

(6) a function Ref which assigns to each t in I an o Ref(t) in D; Ref(t) is the referent of t;

(7) a selection of a particular V in W to be or contain the actual world; let this V be designated 'V*'.

An M in effect makes sentence tokenings, T's, out of the sentences in X. A T is true in an M iff T is true at the V* of M. Validity is truth in every M in the sense that a sentence is valid iff in every M it is a true T.

Evaluation clauses: In an M,

(8) a T of the form $Ft_1...t_n$ is true at a V iff $\langle Ref(t_1)...Ref(t_n)\rangle$ is a member of Ext(F, V);

(9) a T of the form t = t' is true at a V iff Ref(t) is identical to Ref(t') and is in d(V);

(10) $\sim$T is true at V iff T is not true (T is false) at V;

(11) T & T' is true at V iff T is true at V and T' is true at V;

(12) $\Diamond$T is true at V iff for some V' in W, T is true at V' (such that V is a w iff V' is a w; and V is an n-membered S iff V' is an n-membered S ($n \geq 2$); the same condition applies to (13));

(13) $\Box$T is true at V iff for all V' in W, T is true at V';

(14) A(T) is true at V iff T is true at the actual world identical to or in V*;

(15) for a formula R which includes one or more free occurrences of an object variable u, ($\exists$u)R is true at V iff for some o in d(V), $T[\underline{o}/u/R]$ is true at V ($\underline{o}$ is an individual constant whose referent is o, and we write '$T[\underline{o}/u/R]$' for the result of substituting $\underline{o}$ for each free

occurrence of u in R);

(16) $(\forall u)R$ is true at V iff for all o in d(V), $T\lceil \underline{o}/u/R \rceil$ is true at V.

Some relevant S5-C symbolizations:

(17) 'Nothan and Nathan are possible existents, even though they are incompossible'

$$(\Diamond((\exists x)(\exists y)x = a \text{ \& } y= b)) \text{ \& } \sim A(\Diamond((\exists x)(\exists y)x = a \text{ \& } y = b))$$

(18) 'Nothan would have been taller than Nathan actually is'

$$\Box((\exists x)(\exists y)(x = a \text{ \& } y = b)\rightarrow Lab)$$

(19) 'Nothan could (might) have been taller than Nathan actually is'

$$\Diamond Lab$$

Some remarks are in order. First, that the first clause of (5) ends with 'd(V)' and not, as would be standard, 'D', is a kind of 'actualist' predication. It follows from principles (3T) and (E) (in the main text above) and their collective truth analogs. Since S5-C does have actualist predication, unlike ordinary S5, S5-C validates applying the rule of existential generalization (EG) to atomic T's (i.e., ATB's), e.g.,

$$Lab\rightarrow(\exists x)(\exists y)Lxy.$$

Of course, S5-C does not validate applying EG to nonatomic T's. For example, in some world w it is not the case that I'm made of matter ($\sim Mi$) because I don't exist in w, and for every F, I'm not F in a world where I don't exist (remember, an F is an atomic predicate). But suppose every-thing which does exist in w is made of matter. Then $(\exists x)\sim Mx$ is false at w. Although this means that an unrestricted rule of substitution fails in S5-C, it fails for good reason.

Second, after stating a clause similar to (6), Forbes infers "so the reference of a constant is the same at every world" (p. 28), which violates the idea that reference at w entails existence at w, given that D contains

objects which **exist in only some worlds.** I should like to insist that no
such thing follows; all (6) means is that individual constants are
assigned referents independently of worlds (Ref isn't a two-argument
function, taking worlds as one of the arguments). It seems to me that
<u>this</u> is the heart of the idea of rigidity.

Third, here's why 'and is in d(V)' appears at the end of clause (9):
As we saw, it seems that a true T of the form $(\exists u)u = t$ has as its truth-
maker just the object itself referred to by t, which means that identity
is an ersatz relation. Hence, the object itself referred to by t and by
t' is also the truth-maker of a T of the form $t = t'$ at any V where T is
true. And reasoning by analogy from the logical equivalence of (4T) and
(3T), having an o as truth-maker at V entails that o exists at V, i.e., is
in d(V). (I regard this as a confirming result, since it has always
seemed to me that the necessity of identity is conditional upon existence.[14])

Fourth, the parenthetical condition in (12) is a natural extension of
standard S5. Without it we would (e.g.) rule out the truth at any V of
T's of the form $\Box Ft$, since by (5) T's of the form Ft are all false at S's.
We'd also rule out the truth at any V of (18), since by (5),(18) has a
false consequent at every S of greater than two members, although nothing
bars it from having a true antecedent at such an S.

Fifth, I have not meant to suggest that transworld and transtemporal
relationships have gone unrecognized; there are some discussions, brief
(e.g., Bencivenga 1988, pp. 535-36) as well as detailed (Salmon's excellent
1981, pp. 107-48). But so far as I can tell, the notion of collective
truth has gone **undeveloped.** One discussion is particularly relevant.
Following a suggestion of Christopher Peacocke (1978, pp. 485-87), Forbes
considers "an 'actually' operator which can associate particular objects
with worlds introduced by evaluations of modal operators" (p. 93).

Utilizing this, for the English (19) we get

$$\Diamond_1 A_1^a A^b Lab.$$

This approach evidently would incorporate the notion of collective truth:
"For instance, the extension of 'is the same colour as' at w is given [in
a model for a two-sorted, first-order language with object and world
variables] by the sequences of 4-tuples of the form $\langle x,w,y,w \rangle$ which belong
to the general extension, which itself is a set of 4-tuples of the form
$\langle x,u,y,v \rangle$" (p. 93n). So evidently there would be such a thing as the
extension of F at a <u>pair</u> of distinct worlds. It seems that the system
envisioned would be more expressive than S5-C. For presumably, it would
represent 'Nothan could have been taller than Nathan could have been' as

$$\Diamond_1 \Diamond_2 A_1^a A_2^b Lab,$$

and 'Nothan could have been taller than Nathan' as $\Diamond Lab$. S5-C represents
these two and the English (19) simply as $\Diamond Lab$. On the other hand, the
Forbesian system, assuming it could be worked out, would be much more
complicated than S5-C. For example, it would require "us to find 'sup-
pressed' indexed 'actually' operators when intraworld predication is made,
the indexes being redundant in this case" (p. 93n). Forbes does not state
the "evaluation clauses for doubly indexed operators," though he does for
singly indexed ones (pp. 91-92n28), and they are complicated enough.

Lastly, it is a fact that S5-C treats the object language (the sentences
in X) as involving collective truth analogs of actualist, objectual
quantification and predication. It might be wondered how this can be
reconciled with the fact that the semantics (the metalanguage) as inter-
preted involves quantification over, and predication with respect to,
nonactual, merely possible worlds and objects, as well as sets thereof.
To see that these facts are reconcilable, we first need to consider the
main purpose of modal logic. As I understand it, it is to systematically
represent modal discourse which does <u>not</u> explicitly quantify over possible

worlds (situations, partial circumstances, or the like) or sets thereof in terms of discourse which does. It seems to me that these two types of discourse are equally natural, although the latter is more precise. We speak of ways things might have been, and introduce them, for example, as in the following widely-applicable schema: 'Suppose...What would you have done in that situation?' Quantifying over such nonactual possibilia is in accord with the principle of minimizing abstraction. Similar remarks apply to quantifying over merely possible objects. Salmon seems quite right in arguing "that the quantifiers of English are typically actualist (and presentist...but that the domain of quantification may be, and very often is, adjusted either upward or downward in various ways, at the drop of a hat" (1987, p. 57). Even with the actualist quantification of standard S5, there may be quantification over nonactual objects: $(\forall x)\Diamond(\exists y)\sim x = y$. And the actualist quantification of S5-C permits a further kind of quantification over nonactual objects. For example, suppose $V^* = \{$the actual world, a world in which Nothan (a) exists$\}$. Then $(\exists x)x = a$ is true at V^*, i.e., is true simpliciter. This is another respect in which S5-C better represents English (and similar languages) than standard S5. It better represents the "drop of a hat" aspect.

Does S5-C's semantics violate the actualist predication of the object language? Suppose we are formulating a true (albeit limited) model, and we say Nathan is a member of D, and

(20) Nothan is a member of D.

Could (20) be true at the actual world (w^*)? By (5) and (8) it may seem that it couldn't, insofar as neither Nothan nor D exists in w^* (cf. footnote 9). One kind of response would be that although (20) is not true at w^*, it is true at $V^* = \{w^*$, a world in which Nothan exists$\}$, assuming (e.g.) that

Nothan is the only merely possible object in D. But the response I prefer is that (5) and (8) don't apply to (20) because 'is a member of' is not an atomic predicate. It isn't atomic because in all cases a term for a set, not for an object, plugs into its second place. According to the best conception of sets we have, the iterative conception, a set is not an object ('individual'). Similar remarks apply to difficulties which might be thought to arise over the semantic predicates 'is true' and 'refers'. These are nonatomic, I would say, because they take tokenings as their subjects. And tokenings are events (specifically, acts), not objects.

FOOTNOTES

[1]But see the fifth remark in the appendix.

[2]Mulligan, Simons, and Smith 1984, pp. 304-05. Cf., e.g., Barwise and Perry 1983, p. 58; and Bacon 1988, pp. 91-92: "Now I would ask, have you ever encountered a thing without a property? Have you ever experienced a property without an instance. No, what you have come up against in the world are propertied things, instantiated properties, wholes involving both things and properties."

[3]As Kaplan argues (1989b, pp. 584-90), in order to have a simple logic, we'd have to idealize tokenings. I suggest that we could regard a tokening of an expression as a composite of an initial use plus all its anaphors.

[4]Cf. Mulligan, Simons, and Smith, p. 298: The "idea of a perfect parallelism of logical and ontological complexity is the misery of logical atomism, leading Russell to a metaphysics of sense-data and Wittgenstein to supraexperiential simples."

[5]Cf. Herbert Hochberg (1986, p. 265): "to put it [Plato's Third Man argument

or "Bradley's paradox"] another way, the claim is that one cannot specify the form of a fact, since whatever one takes to be the form will merely be a constituent requiring a further form."

[6]Cf. Mulligan, Simons, and Smith, p. 289: "The glory of logical atomism was that it showed that not every kind of sentence needs its own characteristic kind of truth-maker. Provided we can account for the truth and falsehood of atomic sentences, we can dispense with special truth-makers for, e.g., negative, conjunctive, disjunctive, and identity sentences. As Wittgenstein pregnantly put it:

> My fundamental idea is that the 'logical constants' do not represent; that the logic of facts does not allow of representation. (Tractatus, 4.0312)

This insight is an indispensable prerequisite for modern recursive accounts of truth."

[7]Cf. Hochberg, p. 236: "an existential sentence '$(\exists x)Fx$' may be said to be about any object that has the attribute F, but no constituent sign or sign pattern of such an existential sentence represents any object...we may speak of 'α' [singularly] referring to α but, assuming that '$F\alpha$' is a true sentence, say that '$(\exists x)Fx$' denotes α."

[8]This presumes that n-place properties are universals, which I take to be the mainstream view, and I wish to address the mainstream view. However, it may be that there are no universals, that all n-place properties are particular. On this view principle (E) would probably be easier to defend since it seems that in all cases, a particular property couldn't exist at v without the object which has it also existing at v, and where the property is an essential one, such ontological dependency becomes mutual. The same applies, mutatis mutandis, to relations.

[9] It's worth noting that the following three tenets are incompatible: (i) The foregoing view of sets, according to which a set exists at v only if all its members exist at v (cf., e.g., Peacocke 1978, p. 481; Fine 1985, pp. 157-58). (ii) Principle (E). (iii) The view that a n-place property is a function from possible worlds to sets of ordered n-tuples of objects, i.e., is a set of ordered pairs whose first members are worlds and whose second members are sets of ordered n-tuples of objects. Suppose, for example, the SSA of my being hungry exists in world w. By (E), this SSA exists in w only if hunger exists in w. By (iii) hunger is a certain sort of set. And by successive applications of (i) onto this set (treating (i) as applicable to ordered n-tuples since they may be simulated by sets), we get the absurdity that every world exists in w, and given that some hungry objects don't exist in w, we get the contradiction that objects which don't exist in w exist in w. I regard the incompatibility of (i) and (E) with (iii) as _confirming_ my account, since there are independent reasons for thinking that (iii) is false. For instance, (iii) would have it that all necessarily coexemplified properties, e.g., triangularity and trilaternality, are identical. For further argument against (iii) see, e.g., Plantinga 1976, pt. II.2, and Hochberg, p. 243.

[10] The applicability of the notion of collective truth would also be derivable basically from:

(3T') A singular proposition is true at v iff it exists at v.

(E') A singular proposition exists at v only if all its constituents exist at v.

Here, no separate truth-makers are postulated; truth-value bearer and truth-maker are not distinguished. But for reasons already discussed, singular propositions are _dubia_.

[11]Kaplan writes, "this view [i.e., his] of the reference of proper names is anti-intentional. It says what the <u>name</u> (in use) refers to, not what a <u>user</u> refers to, or intends to refer to, or is most plausibly taken to be talking about, in <u>using</u> the name. The latter (user's reference) is an important, but different, sense of 'refer'" (1973, pp. 502-03).

[12]For comments on the ancestors of this paper, I am grateful to Albert Casullo, Harry Deutsch, Graeme Forbes, Saul Kripke, and especially, Timothy McCarthy.

[13]That is, the ordered n-tuples are constructed on o's which exist at V.

[14]That is, $t = t' \rightarrow \Box((\exists u)u = t' \rightarrow t = t')$.

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