Philosophia

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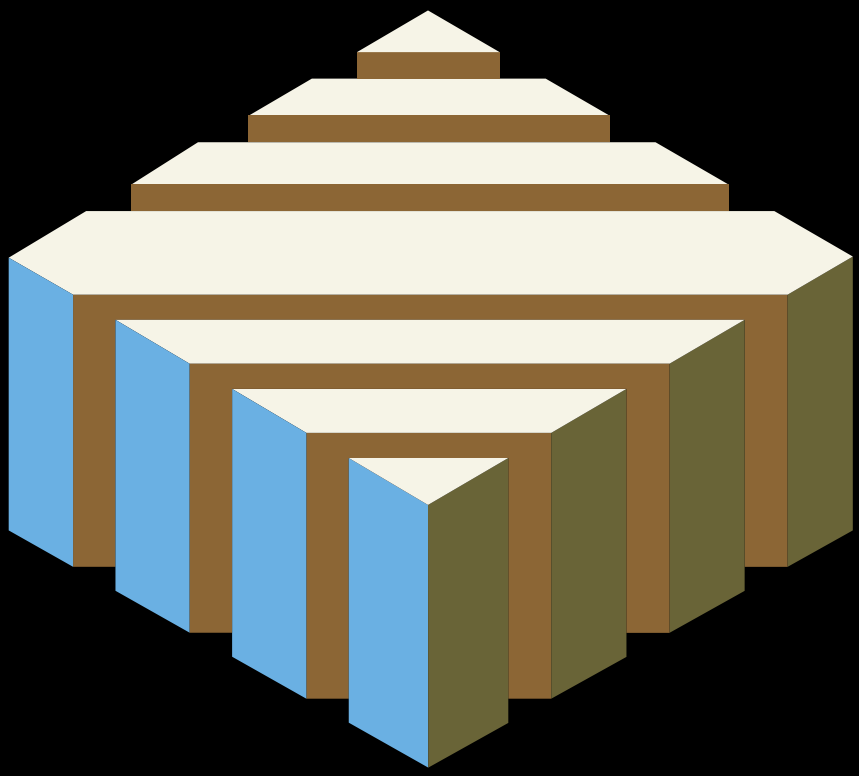
Paraconsistent Logic

Essays on the Inconsistent



Analytica

XX

Verum et Ens Convertuntur
The Identity Between Truth and Existence within the Framework of a Contradictorial Modal Set Theory

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Introduction

> There are always interesting logico-metaphysical alternatives to be formulated in an open-minded and exploratory vein. Each alternative usually has some advantages to offer.
> R. M. Martin, [15], p. 179.

Studying a contradictorial ontology is a task any philosopher ought to undertake. For, either the ontology is true, or else it rests on confusions, which it would be instructive to explain away—heeding, though, how deep that ontology's roots are in customary or everyday ways of thinking and speaking as well as in some side-streams of the philosophical tradition. After all, most interesting philosophical writings (and often the most interesting among them) are wrong. Discussing controversial claims and finding out their underlying motivations—even though one's position leads to rejecting them—is something any self-respecting philosopher is expected to do.

This essay is devoted to backing up a contradictorial ontology embodying, among others, the following claims: to be true is to be—(nonsemantic) truth applies to entities, and is nothing but their existence; any thing's existence is the thing itself, so every entity is a state of affairs; every state of affairs is a set or property, and, consequently, there are no categorial boundaries; there are infinitely many degrees of truth or reality; only what is universally true (i.e. true always and necessarily) does really hold—the real world encompasses all possible-worlds, and so the real world is much larger than the actual one (but what is actually the case is necessarily actually the case); whenever "two" entities do necessarily always possess the same degree of reality, they are one and the same thing; hence there's only one entity absolutely existent—necessarily always wholly existent, that is—which is existence itself (i.e. Reality, or Truth); there's a least degree of existence, and so just one entity which necessarily always exists in that degree; existence is the same as existentiality, which is the set of properties exemplified by existence, so that any fact's truth is nothing else but its being a property exemplified by Reality itself; the truth-conditions of a theory are exhausted by the theory's ontological commitments; so-called fictional

characters do really exist, to some extent or other; any set exists insomuch only as it is exemplified by something or other (so the emptiest set—the set that nothing belongs to but in the least degree only—is the least existing thing); every really real entity exemplifies all properties, if only in the least degree, and so all differences are of degree; a relation is a set such that any ordinary thing's belonging thereto is another set—the set of entities to which the thing bears the relation in question; existence is membership's converseness, i.e. the property of being belonged to.

This ontology takes as its main source the Platonic (and especially the neo-Platonic) tradition from Plato himself to Emerson. It can be, and has been, formalized, by means of the system *Adu*, proposed by the author elsewhere (for details of this and other systems, see [31], sect. 7). System *Adu* is a modal set-theory, whose underlying first-order predicate calculus, *Aj*, is a contradictorial non-Archimedean infinite-valued fuzzy logic. System *Adu* possesses just one predicate (membership) and just one primitive quantifier, while it introduces modality through an individual constant denoting the set of possible-worlds (so dispensing with any primitive modal operator). *Aj* has been shown to be non-trivial, by way of constructing a model, based on non-standard analysis—and it has been shown to be complete through algebraic modelization, viz. through *transitive algebras* (see [36] and [37]). The interested reader is referred to papers cited in this essay's bibliography.

Due to our having set up the system *Adu*, we're entitled to assert that the ontological ideas put forward in this essay are liable to being developed within a recursively axiomatized calculus whose rules of inference are clearly stated. That clears the way to carrying out interesting model-theoretic investigations as well as a large-scale and accurate deduction of theorems. Nonetheless understanding or even accepting the ontological ideas argued for here does not depend on knowing the formal system, still less on mastering or adopting it. The philosophical ideas might perhaps find alternative formalizations. Be that as it may, before going in for formalization, it seems fit to be acquainted with whatever is to be formalized.

Whosoever wants to understand this essay should notice a momentous difference between the meanings of (1) strong negation (overnegation), viz. 'It's not at all (not in the least = by no means = nowise) the case that' (or its synonyms: 'It's altogether (= entirely = wholly = utterly = a hundred percent) false that'), and of (2) weak or simple (natural) negation, viz. 'It's not the case that' (or 'It's false that'). While "It's not at all the case that p" implies "It's not the case that p", the converse entailment—let alone the converse implication—may (and often does) completely fail to hold (that p implies that q iff that-p is at most as true as that-q, while in order for that-p merely to entail (or to yield) that-q all that is required is that either it's wholly false that p or it is, to some extent or other, true that q.

So whenever that-p implies that q, that-p entails that-q, but nowise conversely).

Now, while many formulas of the form "p and not p", contradictory though they are, are more or less true (although, to be sure, at most half true), any formula of the form "p and it's not at all the case that p" is an *over*contradiction, and so absolutely false. Every overcontradiction is trivializing. So, even though my approach countenances contradictions, it nowise lacks any general *reductio-ad-absurdum* procedure: whenever a theory yields, for some "p", both "p" and "nowise p", the theory is to be rejected.

A simply inconsistent theory is any theory such that, for some "p", both "p" and "not-p" are theorems thereof. A theory is said to be contradictorial iff in addition to its being simply inconsistent, it contains the rule of adjunction (viz.: p, q⊢p-and-q). Finally, I regard no functor as a negation unless it satisfies, for conjunction and disjunction (which in turn should satisfy idempotence, commutativity, mutual associativity, and absorption, as well as the rules of addition and simplification), both De Morgan laws, non-contradiction, and excluded middle. Besides, for weak negation, involutivity ought to obtain; while, for strong negation, disjunctive syllogism ought to be sound.

1. Methodological and preliminary remarks

Every reasoning (whether philosophical or not) relies on assumptions. No contention is beyond controversy, or wholly self-evident. This is why no belief is radically justified; every justification is relative to a certain set of assumptions. Whether that contention leads to skepticism I, to be sure, don't want to settle here. Suffice it to say that skepticism does not follow therefrom if we identify knowledge with true belief, which is what I for one do (see [25]). Be that as it may, epistemological foundationalism is not, I gather, a position commonly held. (And, what is more, even foundationalists do in their arguments take for granted highly controversial premisses. Their mistake doesn't lie in their doing so, but in their being unaware of their doing so.) So, I hope many readers will agree with my method of bolstering my conclusions up with debatable premisses. My reasonings are only intended to be convincing for those who admit such assumptions. (Other readers are begged momentarily to grant the premisses for the sake of the argument.) All that I've just pointed out holds whether my arguments proceed through *modus ponens* or through *modus tollens*. My *m.t.* arguments will convince only those who share some of my assumptions concerning positions to be rejected.

Like any other kind of theory, a philosophical theory gets relatively justified (for some intellection-horizon or background) in virtue of its giving

a more or less simple set of principles which entail welcome results (welcome, that is, from the viewpoint of the intellectual background in question), while avoiding many—hopefully most—annoying results (i.e. results which would be a nuisance from the viewpoint under consideration.)

The foregoing methodological claims belong with some kind of coherentism. But I know of no practical alternative to such a course. What anyway seems to behove an honest author is candidly to lay out, at the very outset, at least some among his main philosophical positions. So I'd better bring to the fore some main assumptions my approach relies on.

1. Antiessentialism: Whatever has some property exists. (I thus countenance the Existential Generalization rule without restrictions.)
2. Referentialism: The only factor bearing on the truth or falsity of any sentence or theory is reference, *real* reference.
3. Extensionalism (1): Whenever some equivalence (or identity) really holds, then its holding is necessarily true.
4. Extensionalism (2): Properties are nothing else but sets. What this amounts to is that "two" properties are the same if it's truly the case that everything exemplifying one of them to a certain extent does, to the same extent, exemplify the other.
5. Gradualism: Most properties come in infinitely many degrees. (In fact, all do, except properties like being more-or-less-this or more-or-less-that.)
6. Rule of endorsement: Whatever is to some extent true is true. Accordingly, "It's more or less true that p" entails "p".
7. Alethic determinism: every sentence has a definite alethic determination. In other words: there are no truth-value gaps.
8. Balance between ontological and conceptual economy: Although it's true that entities mustn't be multiplied beyond propriety, they usually ought to be "multiplied" beyond necessity, if by doing so we achieve conceptual economy and theoretical simplicity. (Ontological reduction has to be carried out only within reasonable limits.)

A few comments are in order concerning those eight tenets. Several of them are *ultra*Quinean (Quine himself does only haltingly and half-heartedly hold such tenets as (3) and even (4) or (8). My taking them as assumptions doesn't mean that I'm not prepared to shore them up with arguments. Now, what is to the point here is that any unyielding referentialist (and hence extensionalist) who stands up for alethic determinism and who both acknowledges that there are fuzzy properties and espouses the rule of endorsement is bound to accept a lot of what I'm going to put forward in this paper.

As regards conceptual economy, we ought to keep in mind what follows. Reshaping some person's worldview is justified (relative to his or her persisting main convictions) only by the ensuing theory's offering—within the framework of such convictions—the best account and explanation—among the ones that happen to cross his or her mind—of (most) empirical

data (which are in turn interpreted and assessed in accordance with the aforementioned convictions). Now, the more an explanation meets the requirement of theoretical simplicity, the more it is a good explanation. Ontological economy is a subordinate facet of theoretical simplicity, whereas conceptual economy ranks first. (But why is theoretical simplicity a good criterion? Such a criterion can get a *relative* justification through its very usefulness, which seems not to be explained otherwise than by its fitting objective reality, things in themselves. But so much for epistemological considerations.)

What I cannot skip over at this stage is the relationship between gradualism and the rule of endorsement. Unlike Plato and the Neoplatonists, most *contemporary* gradualists are opposed to the principle of excluded middle. What they are assuming is the principle of maximality, the claim, that is, that whatever is true is wholly true. But then the principle of excluded middle would be equivalent to the principle of exclusion of intermediaries (PEI for short), according to which, for every "p", either it's wholly the case that p, or else it's not at all the case that p. I for one reject the principle of maximality and, while holding the principle of excluded middle, reject PEI.

In fact, the principle of excluded middle follows, through the rule of endorsement, from a weaker claim, the weak principle of excluded middle, to wit: for every "p", either it's at least to some extent, true that p, or else it's wholly false that p. (Given weak excluded middle, the rule of endorsement entails not just excluded middle, but strong excluded middle, to wit: for every "p", either p or else it's wholly false that p. Moreover, given weak excluded middle, the rule of endorsement is equivalent to disjunctive syllogism for strong negation.)

What keeps gradualists from espousing the rule of endorsement (and hence excluded middle) is that gradualism together with that rule obviously results in countenancing contradictions. (If it's to some extent true that Saul is clever while it's also to some extent true that Saul is not clever, then Saul both is and is not clever). Now, as W. Salmon has wittily put it, one man's *modus ponens* is another man's *modus tollens*. Take your choice. If you are for gradualities, then it's up to you either to spurn contradictions (and jettison the rule of endorsement and excluded middle), or else to keep the rule of endorsement, with excluded middle, and put up with mutually contradictory truths. Should the alternative be distasteful to you, you can attempt to dispose of graduality altogether. But that would be hard, wouldn't it?

Before concluding these preliminary remarks, I need to emphasize that, my approach being contradictorial—hence paraconsistent—I hold what I'll be calling 'the fuzziness principle': every true contradiction is ensuant upon some fuzzy situation or other. In other words: whenever two mutually contradictory sentences (or facts) are both true, each of them is true to some extent while at the same time being also false in some degree or other.

Any sentence or fact is true insomuch, and insomuch only, as it's not false, and conversely. And a sentence's (or a fact's) negation is true to the same extent as the sentence (the fact) in question is false and conversely.

All this being so, it rather obviously turns out that in order for a sentence and its negation to be both true, they ought also to be both false, each of them being false to the extent to which the other is true. So, all cases of true contradictions (like set-theoretical contradictions, movement contradictions, time-flow contradictions, identity contradictions, and so on) are cases of fuzziness.

On the other hand, fuzziness is (to some extent) compatible both with the principle of excluded middle and with the principle of non-contradiction. What fuzziness is incompatible with is those principles' being *wholly* true. If there are fuzzy situations, then the two following statements are altogether false:

(1) Principle of absolute non-contradiction: for every "p", it's wholly false that: p and not-p.

(2) Principle of absolutely excluded middle: for every "p", it's wholly true that: p or not-p.

(2) can be shown to be equivalent to what I called above PEI (the principle of exclusion of intermediaries)—since 'wholly' distributes over disjunction, and 'wholly not' is equivalent to 'it's not at all'. Moreover, (1) and (2) can also be shown to be equivalent.

Our fuzzy contradictorial point of view will keep the principles of excluded middle and non-contradiction, while rejecting their whole or absolute truth. (Our rejecting the principle of maximality enables us to do so.) I've elsewhere argued that such a course agrees with the dialectical tradition.

2. Identity truth-existence in ordinary speech

'True' is an equivocal adjective; it can express either a predicate applied to sentences or a predicate applied to states of affairs.

I'm not going here into the details of dealing with sentential truth and finding out its relationship with factual truth (cf. [17], Bk. III, Ch. 8; and also [12], [13] and [44]). My proposal is that "The sentence 'p' is [sententially] true" is a mere abbreviation for "There is some state of affairs, x, such that, x being denoted by the sentence "p", it is the case that x [exists]".

I shall only be concerned here with factual truth. My contention is that truth is nothing but existence. This seems to be recognized by the common man's linguistic conscience.

People seem to mean the same by saying of a fact that it is real and by saying that it is true; likewise they mean the same by saying that a fact is false and by saying that it's unreal.

As ordinarily used, the phrase 'is true' is equivalent to 'is the case', 'is real', 'is a real fact', 'occurs', 'obtains', 'takes place' and so on. To seek the true (or the truth) is to seek what is real. When the truth begins to come out, after remaining concealed for a while, what has been hidden and is just emerging is nothing but the reality in or about some matter. So, for instance, it seems almost obvious that a set of affairs like the fact, e.g., that Tracy is kind is nothing but Tracy's kindness. Now, saying that Tracy's kindness is fairly real is tantamount to saying that it is fairly true that Tracy is kind. And 'Pamela is cleverer than Martin' is equivalent to 'Pamela's cleverness is more real than Martin's'. Hence, 'true' and 'real' (which is synonymous with 'existent') seem to be allomorphs in partially complementary distribution (the distribution being lexically—i.e. morphemically—conditioned.)

Lexicographers have detected this equivalence. The *Shorter OED*, in the entry 'Truth', sets forth an acceptation III.3: 'That which is true (in a general or abstract sense); reality'. And it adds an acceptation III.4: 'The fact or facts; the actual state of the case; the matter or circumstance as it really is'.

Now, as we'll see in sect. 3, a fact's existence is nothing but the fact itself. So if a fact's truth is the same as the fact, which is in turn identical with its existence, we can safely conclude that the fact's truth is the same as its existence.

Let's open the *Heritage Dictionary of the English Language*. At the entry 'True' we find a fourth acceptation: 'Real, genuine'. The phrase 'come true' is explained as 'to become fact'. Within the entry 'Fact', the phrase 'in (point of) fact' is paraphrased as 'In reality, in truth; actually'. At the entry 'Real' we find a second acceptation: 'True and actual; not illusory or fictitious'. Among synonyms of 'Real' given by this Dictionary we find: 'true', 'actual', 'existent', 'veritable'. This last term is explained as 'Unquestionable; actual, true'. 'Verity' is explicated as '1. The condition or quality of being real, accurate or correct'.

It is worth-while to look over the etymology of the old word 'sooth', which according to the *Shorter OED*—means the same as 'true, veritable, real, genuine'. The word 'sooth' derived from a participal form of the Indo-European stem /-s-/, 'to be'.

Let's glance at some other language dictionaries. As for French, the *Petit Robert* gives us as the seventh acceptation of 'Vérité' what follows: 'Le réel (d'une manière générale)'. The phrase 'une vérité' is equated to 'un fait réel'. The entry 'Vrai, I' gives us as its second acceptation 'La réalité'. The entry 'Véritable' sets forth as its third acceptation: 'Qui a lieu, qui existe réellement en dépit de l'apparence'. 'Véritablement' is given as its first acceptation 'D'une manière réele, effective'.

The *Grand Larousse de la langue française* gives 'Vérité' as a synonym of 'Réalité' and conversely.

As for Spanish, Maria Moliner's *Diccionario de uso del español* also

equates 'verdad' and 'realidad'. As for German, Lutz Mackensen's *Deutsches Wörterbuch* equates 'Wahrheit' with 'Wirklichkeit'. Wehrle-Eggers' *Deutscher Worschatz*, at the entry 'Wahrheit', sets out as synonymous thereof: 'Wirklichkeit, Tatsache, Tatsächlichkeit, Realität'.

The *Pequeno Dicionário da Língua Portuguesa* by Cândido de Figueiredo in the entry 'Verdade' sets forth as its second acceptation: 'Realidade; coisa verdadeira'.

As for Latin, Cicero says, e.g.: 'In omni re vincit imitationem veritas'; 'non veritate solum sed etiam fama niti'; 'veritatem imitari'. In all those sentences 'veritas' means the same as 'realitas'.

Gregory Vlastos, (in [43], p. 2), has pointed out that *true* is a fairly common meaning of 'real' in spoken and written Greek. He also says that in many cases 'real' can be substituted for 'true' with little change of sense.

Now, it can be objected that, if, when prefixed to a noun phrase, 'a true' means the same as 'a real', those occurrences of 'true' have nothing to do with the philosophically relevant sense of 'true'—and have nothing in common with 'existence'—; for, 'a true palace' is simply either a non-fictitious one or a house that is—instead of merely being said to be—a palace.

However, I don't think there is any insuperable equivocality here. Being a true pearl is the same as being truly (= really) a pearl. By the same token, being a true thing or a true fact is the same as being really a thing or a fact, which boils down to *being real*, i.e. to existing. When it's said that Atlantis is not a real (or true) country what is meant is that Atlantis, although really a country, is not a real (or true) thing—its degree of existence being very small. So, a phrase of the form 'a real (or true) x' can mean either 'a thing which really is an x' or 'a real thing which is an x'. Usually, though, the first acceptation is the one meant. Anyway, when 'x' is 'thing' or 'fact', or 'entity', or any other synonym of 'being', the difference between those two construals vanishes.

The identity between factual truth and existence was recognized—although inconsequently—by Plato, Augustine, and even (still more inconsequently) by some medieval Aristotelian thinkers, who minted the adage 'Ens et verum convertuntur'. Spinoza, too, had some inkling of the identity we are considering. But I don't propose to trace that philosophical evolution here.

What deserves to be emphasized is that to say of a thing that it is real (a real thing) and to say that it is true (a true thing) are strictly equivalent; now, *being a real thing* is nothing but *existing*. So, to be true is nothing but to exist.

On the other hand, the sense of 'true' wherein this adjective applies to sentences can (and must) be reduced, through the paraphrase put forward at the beginning of this section. So, the words 'true' and 'truth' can be dispensed with. The word 'existence' is sufficient. Now, a purported difference between truth and existence was first advanced by Aristotle in

order to avoid some contradictions concerning inexistent things. Since then, most philosophers have cleaved to that should-be difference, and have contrived categorial frameworks. The ontology to be proposed in this paper is non-categorial. There is no difference between sets, properties, individuals, and states of affairs. So, there is no need either for many-sorted logics or for higher-order predicate calculi.

As for the contradictions ensuing upon the anticategorialist policy advocated here (e.g. that Medea both exists and doesn't exist), I'll in due course accept them, thus concluding that the world is contradictory. Furthermore, our ontology allows us to do away with "intentional" predicates and relations. All that happens takes place in the real world and is real. All relations relate, and what is so related does exist. Since *de re* thought is a triadic relation between the thinker, the entity thought about and the property thought about it, whenever someone thinks of something as having some property, all those three things do perforce exist, even though some of them also fail to exist.

3. The identity between any thing's existence and the thing itself

Throughout the discussion I'm going to set forth in this section, I'll be taking for granted that a thing's existence is nothing but the fact that the thing exists. Likewise, Franco's cruelty is the fact that Franco is cruel; the Earth's roundness is the fact that the Earth is round; France's defeat in the Seven Year War is nothing else but the fact that France is defeated in the Seven Year War. Moreover, I'm unable to see any difference whatsoever between facts, states of affairs and propositions. It has been contended that facts are temporal, whereas states of affairs are timeless; I'll cope with that tenet below. On the other hand, some philosophers claim that, while propositions are either true or false, facts are either existent or non-existent. But, as has been shown in §2, truth and existence are one and the same thing. At most, we could admit a merely stylistic difference between the words 'true' and 'existent', as well as between the words 'proposition' and 'fact'; within each pair, one word is an allomorph—in partially complementary distribution—of the other. However, the allomorphy-distribution is also partially free, rather than complementary. A phrase like "the proposition that p is something real" is perhaps a little odd, but not senseless; and a sentence of the form "the fact that p is true" seems quite in order.

I now address myself to the problem I'm going to tackle in this Section. Is Liberia's existence something different from Liberia herself? My contention is that there is no difference at all between them. My arguments are set forth hereafter.

My first argument is that "two" things are the same iff they are, to the same extent, brought about by the same causes. Now, whatever is a cause of Liberia is, to the *same* extent, a cause of Liberia's existence, and conversely. To say that some U.S. philanthropists were a cause of Liberia is nothing but to say that they were a cause of Liberia's existence, i.e. that they caused Liberia to exist. I can imagine no difference between an entity's bringing about a thing and its bringing about the thing's existence.

My second argument is that "two" things are the same iff they bring about the same results to the same extent, provided they bring about something or other. Now, whatever is brought about by a thing is, to the same extent, brought about by the thing's existence. I can only guess a purported counter-example: the ease of human actions, were indeterministic free-will to be conceded. For, then, what would be, through free-will, brought about, say, by Garibaldi—e.g., Uruguay's independence's lasting—would be nowise brought about by Garibaldi's existence. But I cannot accept that counter-example. For one thing, I reject indeterministic free-will (see [23]). For another, should some human decision be taken with indeterministic free-will, then the man whom that decision would befall wouldn't be a cause of it or of its further results, either. Now, whenever free-will is not to be taken into account, it seems obvious that whatever is caused by a thing is, in the *same* degree, caused by the thing's existence. The earthquake's results are nothing else but the earthquake's existence's results, and conversely.

My third argument is that, if "two" things have, to the *same* extent, the same spatio-temporal location(s), then they are one and the same thing. Now, any entity's existence is so inseparable therefrom that wherever and whenever one of them is present, so is the other—and, what is more, always to the same extent. Wherever and whenever eagerness is present, then and there in the same degree eagerness's existence is present, neither more present nor less present. I myself think that a thing can have different locations, and that several things may fill one same place at the same time; but what is wholly impossible, I submit, is that two different things should share all their spatio-temporal locations in the same degrees—in such a way, that is, that each location should be occupied by one of those two things in the same degree as it's occupied by the other.

My fourth argument is that, should a thing be different from its existence, we'd have an obnoxious multiplication of entities: the thing, the thing's existence, the thing's existence's existence, and so on. That multiplication is obnoxious: (1) in that we lack any identity criterion for such weird entities; (2) in that, as the thing has a nature or *quidditas* (i.e. a set of its properties), so would the (purportedly) other entities do, those further objects also lacking any statable identity-criterion and yet having, each of them, its nature and its existence, and so on and so forth. Withal, there would also be many other queer entities: the thing's having its existence,

the thing's existence having its existence, and so on, each of them having its own existence, and so forth. In case someone would say that, even though some entities are different from their existences, some other entities (existences themselves, perhaps) may he identical with their respective existences, I'd reply that, if that identity is possible in some cases, it seems to be possible in all cases; and, if it's possible, I deem it real, since no theoretical advantage would result from its absolutely failing to be real.

My fifth argument is that, should a thing be different from its existence, the thing itself would be an enigmatic queer entity, since it would be neither its nature nor its existence, but some odd *tertium quid*, which would *have* both a nature and an existence.

In short, while we ought, at least as a rule, to differentiate between a walking entity and its walking, we needn't differentiate between a being [entity] and its being. And, since we needn't do so, we mustn't either. For, by identifying them, we secure valuable theoretical results.

Sundry philosophers (most of them nominalists, I'm afraid) have accepted the claim I'm upholding here (the identity between any entity and its own existence); among them are Ockham, Jean Buridan and, nowadays, Michael Slote ([42], pp. 86–91); Hume had a leaning towards espousing that view, too. I now wish to discuss some objections raised against the tenet I've just argued for. It has been said that facts or states of affairs are non-spatial entities. So Kublai Khan's existence (i.e. the fact that Kublai Khan exists) lies nowhere—regardless of whether or not it's a timeless thing, too. So, Kublai Khan cannot be the same as his existence. I cannot accept that objection, because, to myself, all things have at least one spatial location.

Other objections fail for similar reasons. Some philosophers claim that states of affairs bring about nothing and are brought about by nothing; that they are even timeless entities, and so on. But I deem all those claims nothing but prejudices. So, quibblings notwithstanding, I am without demur quite willing to say that you can take your dog's existence for a walk, that you can read a newspaper's existence and so on.

To be sure, there's a problem about finding out the locations of events, states of affairs, sets and other kinds of entities. I take it that all individuals are sets, and conversely; that all sets are states of affairs, and conversely.

As for knowing whether states of affairs are atemporal entities, or everlasting, or entities existing at some periods of the time only, my answer is that all things exist timelessly and also temporally (saying that a thing exists at a period is tantamount to saying that, timelessly, it belongs to that period—if the thing is an ordinary element; see below, sect. 8). An entity may be everlasting and yet such that its degree of existence or reality is increased or decreased at certain periods. Events are such states of affairs as undergo increasings and/or decreasings in their degrees of existence at some periods. Granted, the reality of degrees of existence entails that some things are both real and unreal—i.e. that they exist and yet don't exist. For, if a thing

is real to some non-full extent, then it's also *un*real to some extent—to that extent to which it isn't real; whence we must conclude (in virtue of the rule of endorsement—cf. sect. 1) that the thing is and yet isn't real, although perhaps more real than unreal or more unreal than real. (This is why Aristotelians were wrong in failing to grant degrees of falsity or unreality, while granting degrees of truth or reality.)

Likewise, any state of affairs is a set. Sets are not purely atemporal or non-spatial entities: they have locations, and may undergo increasings and decreasings in their degrees of reality, too. Among sets there are *singular* and non-singular entities. A singular entity, or *body*, is a set such that any ordinary element belongs to it to the same extent as the element is a *part* thereof. All bodies are states of affairs (since every entity is the fact that it exists). But not all states of affairs (nor all sets, for that matter) are bodies. Verdi's composing "Rigoletto" is not a body.

Now, what entities are members of Verdi's composing "Rigoletto"? I think that there's only one ordinary element which is somewhat belonging to the fact, namely: the fact itself. Likewise, the things that are, non-negligibly, members of the fact that Verdi composes (i.e. of Verdi's composerhood) are "Aida", "Rigoletto", and so on. Put more generally: a transitive fact (one which is denoted by a sentence that can be expanded by being suffixed a direct object) is a set of things each of which is one of those direct objects' referents. An intransitive fact is either a "normal" set (which is the case, e.g., when the state of affairs is an existential one—Sinclair Lewis' existing is the same as Sinclair Lewis himself, who is a body and, so, the set of his corporal parts); or *else*, a set whose only member is the fact itself. This is best seen in so-called internal-accusative phrases (e.g. 'to sleep one's sleep', 'to figbt a fight', 'to laugh a laugh', 'to live one's life').

The foregoing explanations back up our erasing all categorial boundaries. My conclusion is that any entity's existence or reality is the very same thing as the entity itself. This conclusion is supported by cogent arguments, while objections levelled against it fail, because such objections rest upon unjustified categorial prejudices.

Withal, since truth and existence are one and the same thing, every entity is its truth. So, to befriend a pet is nothing but to befriend its truth—to befriend the truth of the proposition that the pet exists, if you like to put it that way. Should you jib at accepting that statement, I'd ask you to notice that many true statements are at first blush perplexing, because, not *needing* to utter them, we don't usually resort to them in order to convey what they refer to, there being other (and simpler) ways of saying the same thing. We don't usually say 'Either the only entity which is identical with the referent of the name 'Ernest Hemingway' wrote "A Farewell to Arms" or else $2+8=1$'; for what is conveyed by that sentence can be plainly expressed by saying: 'Hemingway wrote "A Farewell to Arms"'.

I now wish to point out that, unlike our approach, many philosophical approaches (chief among them Avicenna's and Aquinas') have identified every entity different from Existence Itself with its own nature. According to them, any entity different from Existence is a nature or quiddity which may (and may not) *have* existence. On the other hand, Aristotle and Averroes identified every thing, its existence, and its nature, since nothing can lack its nature and yet exist, or lose it unless it stops existing.

However, there's a weighty rationale for differentiating most things from their respective natures. A thing's nature is the set of its properties. Were the thing identical with its nature, then the thing would belong to a property (at least to any property which is an ordinary element—see below, sect. 8) to the same extent as the property belongs to the thing. But surely that is nowise the case as regards most things: manhood is not a member of Robespierre (i.e.—since Robespierre is a singular entity—a corporal part of Robespierre) to the same extent as Robespierre is a man. So, most things must, anyway, be different from their respective natures. On the other hand, most things' existences are different from those things' natures. For, were, e.g., Cromwell's existence the same as Cromwell's nature, then being a British Head of State would fairly belong to the fact that Cromwell is real, which I deem a totally unwanted result. For, since Charles Stuart, too, has, to a high extent, the property of being a British Head of State, Charles Stuart would greatly belong to something which in turn would, in a high degree, be a member of Cromwell's existence. I myself am confident that is nowise the case.

The question to be answered is, then, whether any thing is identical with its existence or not. For, harking back to the argument just offered, let's take any ordinary entity, say Händel. We ought, at the very least, to differentiate Händel himself from his nature—händelhood, which term is not to be here construed as meaning the property of being Händel, but as meaning the property of being a property possessed by Händel. Manhood, musicianship and the like belong, to a great extent, to händelhood, which is tantamount to its being greatly true that Händel is a man, a musician, etc. The remaining problem is whether, in addition to Händel and to händelhood, there is a further entity different from them both, namely: Händel's existence. I have endeavoured to show that there's no such further entity at all.

I'll bring this section to a close by addressing myself to the question of whether such states of affairs as nowise consist in some singular entity's existence do also have spatio-temporal locations. My answer is an 'aye'. So, e.g., Franco's cruelty has as its spatio-temporal locations the ones occupied by Franco whenever he felt or acted cruelly, although—I submit—the degree of Franco's cruelty's presence in one of these locations may not be the same as the degree of Franco's presence therein; and it may not be the same as the degree of the particular act or feeling's presence therein,

either; for, two different things can be present in the same place at the same time in different degree. Hence, all entities are spatio-temporal.

An objection has been levelled against this opinion, viz.: any fact can—in principle—be thought of at any moment; then it either is a purely atemporal entity or else exists always. But that argument is unconvincing, since a thing needn't exist whenever it's thought of (it may have existed, or be going to exist, or merely enjoy a relative degree of timeless reality). Moreover, many states of affairs do always exist, even though their degrees of existence do change through the time. Furthermore, take a state of affairs like Ghana's reaching independence. Very often, when someone says 'I'm thinking of Ghana's reaching independence', what he is in fact thinking of is Ghana's reaching independence in 1957 (or Ghana's reaching independence at some time or other), which is a quite different state of affairs: it is the fact that Ghana's reaching independence belongs to 1957, since periods, like places, are sets of states of affairs. Now, for any two periods, e and e', its being the case that p at e is the same as its being at e' the case that it's the case that p at e.

4. Existence as a redundance predicate

Is existence a predicate? Everyone is surely familiar with the ongoing discussion on this subject. I obviously don't want, within the scope of this paper, to set forth any thorough account of the debate (see [7] and [41]). What I want to do in this section is point out that existence can easily be conceived of as a property of individuals within the framework of the ontological approach I am putting forth in this paper.

My contention is that existence is a property—or a set—whose characteristic function is such that any ordinary entity is a fixed point for it. In other words: for any ordinary entity, x, what is denoted by 'x exists' is nothing else but what is denoted by 'x'—where 'x' is of course a name for x. So, 'Duvalier' and 'Duvalier exists' are equivalent terms, i.e., equivalent sentences (my proposal erases the boundary between terms and sentences; see below, sect. 7). So, existence's characteristic function is an identity-transformation, mapping any ordinary argument onto itself.

Now, the most obvious difficulty surrounding this conception is that, since values of a characteristic function are said to be truth-values, in order for existence's characteristic function to be an identity-transformation all possible arguments thereof—namely, all things—would need to be truth-values, too.

Two answers are possible. The first one would concede the result, and so admit that every entity is a truth-value—while rejecting the idea that there are only finitely many truth-values as well as the view that truth-values are totally ordered (which rejection can be done by assuming a *tensorial*

infinite-valued logic, instead of a scalar one). I've taken that course elsewhere, but here I'm going to choose the second possible answer (although I think the difference to be a terminological matter), to wit: instead of saying that a characteristic function takes truth-values as its functional values, we'll say that it takes states of affairs. Nevertheless I'll lay down a postulate, which I'll call *the Principle of Identity of Alethical Indiscernible* states of affairs (PIAI, for short), according to which whenever "two" states of affairs are such that, for every point of reference, the former's truth-value is the same as the latter's, then they are one and the same fact.

As I'm going to propose in the next section, a state of affairs is mapped by an alethic function into a function mapping spatio-temporal locations into truth-values; to each possible-world there corresponds an infinite set of alethic functions. So, a respect or point of reference is an ordered pair made up by an alethic function and a location. A fact's truth is nothing but its alethic determination, which in turn is nothing but the fact itself. But more on this below.

Within such a framework we'll regard the verb 'exists' as a predicate such that, for any subject 'u' 'u exists' denotes u's existence, i.e. u itself, u being mapped by every alethic function into a function mapping each spatio-temporal location into a truth-value, in such a way that, if some entity, u', is such that, for every alethic function, ϕ, and for every spatio-temporal location, e, $\phi(u)(e) = \phi(u')(e)$, then $u = u'$. (My reasons for thinking so will emerge in the next section.)

My conception of existence agrees with Hume's, Kant's (in the *Beweisgrund*), and Brentano's. Hume rightly recorded that thinking of an entity and thinking of it as existing (which I take to be nothing else but thinking that it exists) are one and the same thing; that the "idea" of some object's existence is 'the very same with the idea' of the object. He highlighted that, being, as they are, one and the same idea, they don't admit of separation.

Kant's *Beweisgrund* stresses that, by stating that something exists, one simply "puts" or "sets" the thing; I take it that putting or setting a thing through a statement is nothing else but asserting the thing itself. Brentano held that existence-statements are one-term statements, i.e. statements which consist only of one constituent alone, to wit: the subject of the sentence. (According to Brentano, though, there is a difference between stating something's existence and naming that something; but the difference lies in the mental or speech act only, not in the content. See below, sect. 7. For more details about these historical details, see [17], Bk. III, pp. 213ff).

However, Hume, Kant and Brentano erroneously thought that existence is not a real predicate, since it adds nothing. But why shall a predicate "add" something in order for it to be a real one? Existence adds nothing in that, for any entity x, $x = x$ exists. Nevertheless, this nowise debars it from being a predicate, or—to put it more accurately—a property of individuals (see hereafter, in this same section, about the difference between

predicates and properties). Properties are such things as have characteristic functions. And existence does have a characteristic function, namely: an identity transformation.

Moreover, Hume and Kant wrongly believed that, existence not being a real predicate, existence statements are "synthetic". Well, I myself belong to the little bunch of rejecters of the analytic/synthetic dichotomy. But anyway, what seems to follow from existence's being a *redundant* predicate or property is that existence statements are analytic. (This is why many philosophers have thought that existence cannot be such a predicate.) Hume recognized it by saying ([7], I, ii.vi): "There is no impression or idea of any kind, of which we have any consciousness or memory, that is not conceiv'd as existent". Hume concludes that it is impossible to think of any object whatever without thinking that it exists—so much so that even a mere "distinction of reason" between one thing and its existence is utterly impossible. Consequently, existence statements are "analytic" in that—to put it in a Kantian way of speaking—the "predicate" is contained by the subject, since the former adds nothing to the latter.

I think that the most telling argument against existence's being a predicate (or—more accurately—a property) of individuals is Frege's: if existence is a predicate, it shall be truly predicated in some cases and falsely predicated in other cases—i.e. its complement shall be truly predicated in these other cases. Now, if a sentence of the form "x doesn't exist" is true, then there is no entity identical with x; so the sentence is not about x. Consequently, "x exists" hasn't the same logical form as "x eats"; "x exists" ought instead to be read as "the property of being (identical with) x is not empty".

Such argument, though, rests upon confusing a sound rule of inference with a fallacious one. The sound rule is: "The fact that p entails both that q and that it's not at all the case that q" $\vdash$ "p" must be rejected. The fallacious one is: "The fact that p entails that q and not-q" $\vdash$ "p" must be rejected. The former rule is sound because "q and it's not at all the case that q" is an *over*contradiction, a trivializing formula. The latter one is fallacious because "q and not q", contradictory though it always is, may not be an *over*contradiction. So, even if we were to assume that, from existence's being a property of individuals, it should follow that, in some cases, contradictions arise, we'd nowise be forced to conclude that overcontradictions arise, too. So, there is no reason for rejecting that existence is a property of individuals—at least no such reason grounded on Frege's argument. Besides, there is an extremely dubious premiss in Frege's argument, namely the contrast-thesis, i.e. that, if something is a predicate, it must be true of some individuals and false of other individuals. Even though, on quite independent grounds, I admit that some things don't exist, this nowise follows from the bare fact that existence is a property of things. For, from the fact that being-at-least-to-some-extent-real, too, is a property

of individuals, it nowise follows that some things should lack this property. So, the contrast-thesis is wrong.

A variant of Frege's argument is Ayer's: should existence be a property of individuals, every affirmative existential statement would be a tautology, while every negative one would be a contradiction. Well, that's true, And so what? Such is the case as regards many properties. Moreover, a statement's being tautological doesn't necessarily entail that uttering it will convey no information. For, even though for any 'x' which is a proper name, or an individual variable—i.e. a third-person pronoun—or a definite description, "x exists" is tautological (in the sense of being a theorem of reasonably strong systems of logic), its being uttered may still be informative, too, since, when stated in a certain environment, that sentence conveys some information: that x is existent, in relevant respects, in some more or less significant degree (in ordinary communicational situations, no one troubles to utter a sentence that, its truth notwithstanding, is too little true—i.e. too false—to serve most communicational purposes.)

Withal, "the fact that p exists" may not be tautological at all, since "the fact that p" is not a definite description—appearances to the contrary notwithstanding. The definite article that phrase begins with is a mere dummy. Consequently, "the fact that p doesn't exist" may not be contradictory; 'the fact that Botswana is a more populous country than India doesn't exist' is neither a contradiction nor even false at all.

Therefore, existence can—and, I submit, must—be looked upon as a predicate, a redundant predicate. So, *pace* Moore, 'Some tame tiger exists' is equivalent to 'There's some entity, x, such that x is a tame tiger and x exists'. Its truth-value in a given respect (i.e. for some definite alethic function and some definite location) is the l.u.b. of the set comprising any truth-value, u, such that, for some z, u is, in the same respect, the truth-value of z's being an existent tame tiger. Now, being an existent (or existing) tame tiger is different from being a tame tiger; for, if x is a tame tiger, its being a tame tiger may be more (and may be less) true than its being real (existent); but $/x \text{ is an existent tame tiger}/_i = min(/x \text{ exists}/_i/x \text{ is a tame tiger}/_i)$. King Arthur is less existent than king; King Constantine II is less king than existent. So /Some kings exist/ (i.e. /Ex (x is king and x [exists])/) is different from /There are kings/ (i.e. /Ex (x is king)/) (where for any "p", /p/ is the fact that p, while $/p/_i$ is the truth value assigned to /p/ by i, i being the composition of some alethic function with some location).

Although I've sometimes said that existence is a predicate, what I meant is that it is a "predicate" in the traditional sense, not in the modern or accurate sense. For, within the non-categorial (or, if you like, one-categorial) ontological framework I'm arguing for, there are only individuals, i.e. first-order entities—even though every individual is a set, and every set is a state of affairs. On the other hand—and owing to reasons set-forth above, in sect. I—, I want to espouse a policy of ideological parsimony (i.e. to

admit as few predicates—in the modern, technical sense—as possible). Hence, I accept a first-order system, with only first-order quantifiers, and with only one predicate, viz. *membership*. All other "predicates"—in the traditional sense—are thus reduced to properties, i.e. sets (my system being thoroughgoingly extensional, it identifies properties with sets; identity between two sets consists in their having, in all respects, the same members to the same extent; that is to say: $x = y$ iff, for every z, z belongs to x in some respect to the same extent as z belongs to y in the same respect; *classical* extensional systems miss out the phrases 'to the same extent' and 'in the same respect'.)

5. Degrees of reality and the need for an infinite-valued logic

Would it be possible to espouse the identity truth = existence within a classical logic (i.e. within a two-valued truth-functional logic)? Well, in a sense yes. For, within such a framework we could identify the referent of any individual symbol 'u' witb the one of 'u exists', which would be a state of affairs. Each alethic function would map each such state of affairs, for any given spatio-temporal location, into either 1 (the wholly true) or 0 (the wholly false).

Now, we can wonder whether, within such classical framework, we'd be entitled to postulate PIAI (see sect. 4); "two" states of affairs, that p and that q, such that, in every respect i, $/p/_i = /q/_i$ are one and the same. The ground for holding PIAI is that, should it fail, no other identity-criterion would be likely to emerge as regards states of affairs, which would then become an enigmatic kind of entities. Now, if we hold PIAI as well as two-valued-ness, we're bound to conclude that, if Esau ≠ Jacob, necessarily then there's some respect such that, in that respect, eithertwin exists whereas it's *altogether* false that they both exist. However I feel sure that many pairs of things are such that necessarily whenever either thing exists, both exist. One example whereof is: Hadrian and Hadrian's being a human being.

So, PIAI is compatible with regarding existence as a *redundant* predicate only if we waive two-valued-ness. If we choose many-valued-ness, the above riddle can be solved. Necessarily, whenever Hadrian exists Hadrian's humanity exists too, and conversely. But either might be, in some respect, more real than the other.

Nonetheless, by relinquishing two-valued-ness we're thinking of degrees of reality. And once we countenance a plurality of such degrees, I can see no ground for stopping at any finite number thereof. For, there are independent grounds for holding that reality or truth admits of degrees; and several among those grounds make us think that there are undenumerably many degrees. Let's have a more careful look at the doctrine according to which there are degrees of reality.

The contention that there are many degrees of reality or truth is deeply rooted in the Neoplatonic tradition, its chief propounders being Plato himself, Plotinus, Proclus, Dionysius Areopagiticus, St. Jerome, Marius Victorinus Afer, Augustine, Scotus Erigena, Ulrich Engelbert of Strasbourg, Nicholas of Cusa, Campanella, as well as—in a rather deadened way—the Scholastics, like Anselm, Albert the Great, Halensis, Aquinas, Suárez. The main error of Aristotelians is that, while they do sometimes halfheartedly acknowledge degrees of reality or truth, they reject degrees of unreality or falseness.

The rationale for espousing the degrees-of-reality claim encompasses, among others, the following points.

1. Since any state of affairs is a thing or entity, and since its truth is nothing else but its existence, whenever a state of affairs (or, if you like, a "proposition") is truer than another, the former is more real. Now, there are many degrees of sluggishness, sadness, painfulness, poorness, intelligence, goodness, knavishness, wisdom, baldness, healthiness, brightness, tallness, strength, cowardice, greatness, smallness, and what not. But, if, e.g., Mobutu is more wicked than Numeiri, then Mobutu's wickedness is truer (more real or existent) than Numeiri's wickedness. For, 'Mobutu is more wicked than Numeiri' abbreviates 'It's truer that Mobutu is wicked than that Numeiri is wicked'. (Any other account of comparatives I know of seems to me either far-fetched or unwieldy.) There's nothing circular here, since "It's truer that p than that q" abbreviates "The fact that p implies that q, while it's nowise the case that the fact that q implies that p". (/The fact that p implies that $q/_i$ is true iff $/p/_i \leqslant /q/_i$.) (I'm bound to stress that the amazingly huge fruitfulness of fuzzy approaches, not just in the social sciences but in sciences of nature as well, shows that most scientific concepts are fuzzy rather than crisp.)

2. Since we hold the classical principle that everything exists, any acceptance of anything's inexistence entails a contradiction. Now, there are a great many grounds for saying, e.g., that Silas Marner, Captain Ahab, and the like don't exist. So they both exist and don't exist. Now, one of my basic contentions is the principle of fuzziness (viz: any true contradiction is so in virtue of each of its conjuncts' being to some extent true and also to some extent false). So, Silas Marner, or Oliver Twist, are real in some degree or other, while being unreal, too, in some degree.

3. While there are (to be sure debatable) grounds for holding the reality of sets or classes, some classes seem to have a stronger claim on their reality than others. Now, if we deem all of them real, a stronger claim on reality seems to mean nothing else but a claim on greater or truer reality. (What I'm supposing is that whenever it is more natural to speak of some class's reality than of some other's, the former is more existent than the latter.) Other things being equal, a class, x, seems to be more real than another, y, whenever either (i) it's truer that something or other belongs to

x than that something or other belongs to y (which is why the man in the street loathes talk about entirely empty sets; there's a strong rationale for that, since universals—that is, sets—exist in, with, and through their members); or (ii) such entities as are somewhat belonging to x are more alike than the ones somewhat belonging to y. (The class comprising London, Plato, and the mass of nitrogen in Jupiter is far less real than, e.g., the class of towns, or the class of Greek philosophers, etc.)

4. The methodological principle just stated for classes applies to states of affairs, too: whenever it's more natural to speak about some fact or event's reality than about some other's, the former is truer (i.e. more real). Now, there may be a number of reasons for its being more, instead of less, natural to speak about some fact's reality: its longer duration, its greater causal impact, or—perhaps even more important—its normality or typicalness within its immediate environment—a human individual's, or a human collectivity's action's immediate environment being the set of actions done by the same subject. (An occasional prank of St. Francis of Assisi in his youth is much less real than his lasting tenderheartedness.)

5. Since things or "substances" are states of affairs, too, whatever motives there are for considering some facts more real than others will also apply to things. (It's a mistake, I think, to believe that any shanty in any French hamlet is as real as the Bastille; or that an exceptionally beautiful and sparsely inhabited quarter in a third-world town is as real as the town's many squalid slums are—which is why whosoever, while purporting to describe the town, portrays its wealthy quarter is giving a far less true account thereof than he who portrays its wretched heavily populated neighbourhoods).

6. It's a moot question whether there are conflicts of values. The most straightforward answer to the question seems to be 'yes'. However, there being conflicts among opposite values and duties is most easily and naturally explained in virtue of value-fuzziness: there are worthiness-degrees (see [30]). That means that some value-statements are truer than others; hence, some true value-facts are truer (more real) than others. (Causuistics of course vainly tries to eschew duty-contradictions by conditionalizing duty-statements with more and more complicated protases. Unrewarding as such efforts are, taken at their face-value, there may be some point in them, insomuch as what is—or, more accurately, what should be—at issue is to settle on which conditions some duty is to be given precedence over duties opposite thereto, without cancelling them.)

7. As Zeno's paradox of the arrow shows, movement is contradictory. Like any other true or real contradiction, movement's contradictions are ensuant upon fuzziness—through the rule of endorsement. What movement's contradictions prove is that, at any time-interval comprised within the whole movement-duration, the moving body both lies (to some extent or other) in any given stretch included in the whole movement-span, and in some

degree or other, too, doesn't lie therein. Simply admitting the contradiction without admitting infinitely many degrees of reality wouldn't do, since it's quite unbelievable that at every such time-interval the body lies in *all* such stretches to the same extent. (Speed would then become incomprehensible). There must be a difference of degree. And since there are uncountably many such stretches, there are bound to be uncountably many degrees of truth.

8. Evolution furnishes us with a strong reason for accepting fuzziness, and hence truth-degrees. Ichthyostegas, while somewhat exemplifying the property of being a fish, did somewhat exemplify the property of being a quadruped, too. So, an ichthyostega's being a fish is real or true, but surely less true than a herring's being a fish.

The foregoing remarks' outcome is that not only are there grounds for recognizing the existence of many degrees of truth or reality, but moreover we find in ordinary ways of thinking hints about useful, if incomplete, criteria on degrees of truth. (This is extremely important, since a major objection against talk about degrees of truth or reality is the claim that in order for its being the case that there are degrees of truth, we need to have criteria of truth-degree. While such a claim is mistaken, it's still true that only having such criteria gives the theory useful applications, thus allowing it to become integrated within our general theoretical framework.)

What definitely ought to be rejected is the fallacious inference-rule of equiparancy namely: p, q⊢ It's as true that p as that q. Notice that a frequent objection against fuzzy approaches to predicate-modifiers and comparatives is the failure of rules which, according to the fuzzy view, reduce to the rule of equiparancy (the failure, e.g., of the inference: 'Herman's watch is slow' 'Mathilda's watch is slow'⊢'Herman's watch is as slow as Mathilda's'). Such objection is misguided, since it takes for granted the principle of maximality (only wholly true sentences are truly assertable). Were that principle right, the rule of equiparancy would be correct, too, which it's not at all. (In fact, my own approach—particularly the rule of endorsement—leads to regarding as *designated*—i.e., true—truth-values *all* values except zero.)

Without the rule of equiparancy, I see no justification for the philosophical prejudice that reality or truth does nowise come in degrees. The only alternative argument against degrees of truth I know of is that, whenever a sentence (or a proposition) is not true, it's untrue, and so false (unless there are truth-value gaps, which admittedly would be irksome). Well, this I wholeheartedly concede. This is just what my fuzzy *contradictorial* approach contends, by dint of laying down the rule of endorsement. Such a rule would preclude fuzziness (i.e. existence of many degrees) only if, at the same time, the principle of maximality were to be countenanced.

Therefore, we seem to be entitled to conclude: (1) that there are, in (more or less) philosophically naive thought, sufficient grounds for setting up a

philosophical theory countenancing degrees of truth or reality; (2) that those who take exception to such enterprise have thus far put forward no cogent objection.

Let's now come back to our foregoing considerations about the number of truth-values. Our first ground above for countenancing degrees of truth does clearly show that there are *uncountably* many of them: there are undenumerably many degrees of smallness, of greatness, of nearness, farness, of weight, and so forth. So, we can be content with nothing less than uncountably many degrees of truth. Furthermore, our seventh ground also leads us to conclude that there are uncountably many degrees of truth.

Having thus advocated an (undenumerable) infinity of degrees of truth, we now need to elucidate our notion of alethic determination. A fact's truth (or alethic) determination is a function mapping ordered pairs each of which is made up by an alethic function and a location into truth-values. Any fact's alethic determination is nothing else but the fact itself (which is by the way what happens in a standard approach like Montague's—only his approach identifies alethic functions with possible-worlds, contrary to what I'm going to propose right now). To possible worlds there correspond infinite sets of alethic functions. Therefore, we oughtn't to speak about "the" truth-value of some state of affairs in some world at some time; a state of affairs may have many different truth-values, even in the same world at the same time. (The standard approach incorporates the further step of assuming that every world comprises just one alethic function—or, which boils down to the same, that every two alethic functions, ϕ and ψ, encompassed by the same world, are such that for any state of affairs, that p, and any location, e, $\phi(p)(e) = \psi(p)(e)$.)

Instead of speaking of accessibility of some worlds from others, we speak of encompassing: a world encompasses another one iff every alethic function belonging to a sequence corresponding to the latter belongs to a sequence corresponding to the former, too. An alethic function is a legitimate *objective* viewpoint or outlook, an angle, an objective perspective. By a *respect* I mean either (in a larger sense) a world at some spatio-temporal location, or (in a narrower sense) a definite alethic function at a definite spatio-temporal location.

I've identified every state of affairs with its truth-determination. Now, since existence = truth, only true states of affairs are existent, they alone are states of affairs. But 'true' may be applied either to something which, at least to some extent, takes place or exists in some respect, or to what is, in some degree or other, the case in all respects. In the latter sense, 'true' applies only to what is *really* true, i.e. to what can be rightly asseverated (as true). In the former sense, it also applies (although within some respect or other only) to what may be wholly unassertable—because of its being altogether inexistent in some respects. Usually, we use the words 'thing' and 'entity' as applying to really real things only; sometimes, though, they

can apply to states of affairs which are only relatively existent—the words apply to them in so much as they are, in some respect or other, equivalent to some (really real) entities.

But, what about a state of affairs absolutely false, i.e. wholly false in all respects? My reply is that there is none such at all. In fact, that is a symptom indicating that our speaking of alethic *functions* is a makeshift. What we call 'alethic functions' are not functions at all, but partial functions. For, while true or designated truth-values exist, nothing at all is whole falseness, nothing at all is a zero value. So, alethic functions fail to assign any functional values to some arguments: every state of affairs, that p, which is wholly false for some point of reference (e, ϕ) (where e is some location and ϕ some alethic function) is such that ϕ(p)(e) is not defined. In order for a state of affairs, that p, to be one (to exist at least relatively) it needs to be such that, for some alethic function ϕ and some location e, ϕ(p)(e) is defined. While my identification of any fact's alethic determination with the fact itself agrees with the classical standard approach, there are other classical non-standard approaches—e.g. the one set forth in [9]—in accordance with which two different states of affairs may have always the same truth-value in every possible-world. Now, in addition to such approaches' lacking general identity-criteria for facts, they are incompatible with this paper's main motivation, which is securing the identity between truth and existence and between any entity's existence and the entity itself. Since a fact's truth is nothing but its alethic determination (what else might it be?), it follows that it's altogether impossible that two different facts share one same alethic determination. And most prima facie oddities ensuant upon identification of any two facts having the same alethic determination are dispelled once we relinquish two-valued-ness.

A further advantage of my approach is that it provides us with an eliminative definition of identity which is independent of indiscernibility (even if we're prepared—as I am—to accept full-blown indiscernibility): "two" entities are one and the same entity iff they have the same alethic determination (x = y iff, for any alethic function ϕ and any spatio-temporal location e, ϕ(x)(e) = ϕ(y)(e)). That simple solution embodies the right opinion of some 14th century philosophers according to which existence is the principle of individuation—nothing else pertaining so closely to a thing as its existence. Moreover, as sundry authors (e.g. Gale in [6]) have shown, defining identity between two things, x and y, as their having the same properties (to the same extent, we're bound to point out) will not do, since among the properties in question lies the one of being identical with x; and so the definition will be circular. (Leibniz used to think that identity is indiscernibility as regards qualitative properties; but it's hard to deal with that notion in any accurate way.) This is why the medieval problem of finding a principle of individuation of things is not easy to get rid of. Furthermore, Geach's arguments for the relativity of identity have at least

proved that the usual definitions of strict non-relative identity give rise either to semantical difficulties or else to blatant circularity. The latter is the case as regards set-theoretical definitions, since sets are in turn individuated through their extensionality—through their having, to the same extent, the same members. As far as I can see, there is no alternative left but defining identity through existence: /x = y/ will be equivalent to /in all respects: x exists to the same extent as y exists/. Now, since /x exists/ = /x/ and /y exists/ = /y/, /x = y/ = /thus amounts to/ in all respects: x to the same extent as y/. The difference between a thing's existence and another thing's existence can only be a difference of degree: one of them must be *in some respects* more real than the other—although, to be sure, the latter may in turn be, in some (other) respects, as real as, and even more real than, the former thing.

What I have put forward hitherto concerning possible worlds would constitute but a minor departure from prevailing opinions on the subject. What I'm now going to state will probably turn out more startling. Nothing holds—nothing can be rightly asseverated—unless necessarily it does always hold. The grounds for such a—I must admit—bold necessitarian contention are deeply rooted in the referentialist framework outlined above in sect. 1. The main reason for that conclusion is that either possible worlds and spatio-temporal locations exist or else they don't exist at all. In the latter case, there would be no point in speaking about "them"—there would be no "they" or "them" to be spoken about—and nothing could take place in or at them. Now, if we think that "possibly p" and "actually p" (respectively, "sometimes p" and "now p") may mean different states of affairs, then we're bound to think of possible worlds and moments as real entities, and of what takes place at them as in fact taking place (at those worlds and moments, i.e. in those respects). Whence it follows that what takes place actually and now doesn't monopolize reality. What took place, or will take place, or does take place, in non-actual possible worlds, is somehow real, too. Now, obviously we don't want the unrestricted "Depossibilitation Rule": "Possibly at some time or other p" ⊢ "p". Such a rule would entail *over*contradictions (formulas, that is, of the form "p and it's wholly false that p") through the rule of adjunction (p, q ⊢ p-and-q). Now, should we countenance the "Deactualization Rule" ("Actually now p" ⊢ "p"), then we'd be stating that what takes place at some particular world (the actual one) and at some particular moment (now) is *alone* existent or true, unless we did also endorse the Depossibilitation Rule, which we cannot do at all. So, the Deactualization Rule ought to be rejected. This is not to say that we cannot differentiate what actually takes place from what takes place in non-actual possible worlds; it suffices to construe as elliptic every phrase which, while purporting to refer to actuality alone, doesn't contain the appropriate operator 'actually'.

Still, even though unrestricted Depossibilitation and Deactualization rules

do both fail, the following rule (the Qualified Depossibilitation Rule, QDR for short) does hold: "Possibly, at some time or other, p"⊢"It's at least relatively true that p". For, according to our foregoing considerations, only what is necessarily always the case does hold (it alone can rightly be asserted). So we have as valid the *non-systemic* rule: p⊢ Necessarily always p. (An inference-rule is non-systemic iff it applies to any premiss, whether or not the premiss is a theorem of the system the rule belongs to.) Now, what can be rightly asserted (i.e. what is true in all respects) is true. So, by transitivity and instantiation, we'll have: "It can be rightly asserted that it's not at all the case that p"⊢"Necessarily it's never the case that p at all".

Whence it follows (by contraposition—contraposition being valid only for *strong* negation or overnegation): "It's not at all the case that necessarily it's never the case that p at all"⊢"It's not at all the case that it can be rightly asserted that it's not at all the case that p".

Now, the last inference's premiss can be deduced from "Possibly, at some time or other, p". And 'It's not at all the case that it can be rightly asserted that it's not at all the case that' can correctly be abbreviated as 'It's at least relatively true that'.

Notice that introducing the operator 'actually' yields—as has been pointed out by other authors—satisfactory results, such as allowing one to state "It could be the case that whatever happens actually to be yellow should fail to be yellow", without the statement's collapsing into "What follows could be the case: whatever is yellow fails to be yellow". (The differences in truth-conditions between the two statements are obvious.) What we need in order to avoid such collapse is, in addition to the operator 'actually', an axiom-schema saying that, for every "p", it's actually the case that p iff necessarily it's actually the case that p (which postulate will within a S5-like modal logic yield the desired result). The actual is necessarily so. For being actual is nothing but existing in this world. By 'this world' I don't mean the real world, which encompasses *all* possible worlds, and which is nothing else but existence itself; by 'this world' I mean the empirical world, in a rather narrow sense, or what might be called 'the science world'. This world doesn't encompass whatever is the case, but only whatever is actually the case. What happens (exists) in other worlds is also real, at least in some respects (i.e. at least relatively).

Although some of the foregoing considerations sound rather like D. Lewis' approach, and depart from *actualism*, there are two major differences between D. Lewis' viewpoint and mine. For one thing, my approach allows one only to assert what exists in all possible worlds, what is necessarily the case. (Most usual statements ought to be construed as elliptic, and provided with the operator 'actually'.) For another, my approach doesn't preclude a certain precedence of the actual world over unactual ones: the actual world is *relatively* more real than unactualized worlds.

A most outstanding feature of my approach concerning possibility is that

any state of affairs is possible (that is to say, takes place in some possible world or other) iff it is in fact at least relatively true or real (i.e. iff it does take place in the real world, at least to some extent and in some respects). Hence, whatever can be rightly asserted (whatever is real or true in all respects) is a necessary state of affairs, although a fact may he less necessarily true than (just) true. As a result thereof, we're able to solve the modal puzzles brought up by Quine and Rescher. For, in order for *something* to be possible, it needs to be something, which entails its being real at least relatively (in some respects). So, every possible entity is, at least relatively, an entity, an existent or real thing. Since existence = truth, in order for some state of affairs (or "proposition", if you like) to be possibly true, it needs to be, at least relatively, true in the real world. Possible existence (i.e. possible truth) is existence in some "possible-worlds" (in some "layers", or "components", or respects of the real world). Hence, possible existence entails at least relatively real existence (= truth).

Our solution allows us to avoid such obnoxious approaches as *absolute* necessitarianism (à la Spinoza, or à la Leibniz); Rescher's modal conceptualism (according to which possibility is mind-dependent); and Plantinga's "actualism" (which rests on differentiating states-of-affairs' existence from their "obtaining"—a difference which sounds to me like a mere gimmick). All those treatments are very hard to subscribe to, aren't they?

Before concluding, I need to point out that whenever we attach to a statement no modal, temporal or spatial relativization, then we speak worldlessly, timelessly, spacelessly, which means that the statement's truth-determination is the statement's existence, previous to any restriction, modal or spatio-temporal or both. (The statement's existence is the fact meant, i.e. a function mapping each point of reference into some truth-value.)

I'll bring this Section to a close by inquiring whether there is some least degree of truth or reality. My proposal is that there is. For suppose there isn't at all a least degree of truth. Then, our theory would perforce be ω-overinconsistent (which I go on to explain straight away). A theory T is ω-overinconsistent iff there's some matrix "p[x]" such that, for every individual constant 'u', "p[x/u]" is a theorem of T, whereas "It's not at all the case that every entity, x, is such that p" is a theorem of T, too. Now, if there is no least degree of reality at all, then there is no infimum (g.l.b.) at all of the set of degrees of reality or truth (i.e. of designated truth-values). Now, needless to say, for any matrix "p" we want that, in any respect, the truth-value of "All x are such that p" should be the infimum of the set of those truth-values each of which is the degree of some entity's satisfying the matrix "p". Therefore, in accordance with the hypothesis under consideration (namely, that there's no least degree of reality at all), "All entities exist" would be wholly false, and then "It's not at all the case that everything exists" would be true, although, for any individual constant 'u', "u exists" would be, in some degree or other, true.

Such a result would be unacceptable. For "It's not at all the case that everything p" is equivalent to "There's something such that it's not at all the case that p". (Should such equivalence fail, we'd be at a loss as to how to understand quantifiers and/or strong negation.) Now, how on earth could it be the case that, there being something or other that didn't exist *at all*, every entity, taken separately on its own, exists? (For it's not in virtue of its being nameable that an entity exists; just the opposite is true.)

Consequently, there must be some least degree of reality. And so there must be just one thing which does in all respects have that least degree. (Many *other* things may have that least degree in some respect or other, but nowise in *all* respects.)

6. Non-existence statements

Since any thing or fact is the same as its existence, a fact's being unreal or inexistent is the same as that fact's (simple) negation. Within classical logic there is only one negation (strong negation or *over*negation). Hence, within classical logic it's absurd to say that there's something that doesn't exist—since that statement would there boil down to saying that there's something that doesn't exist *at all*. But, within an infinite-valued logic, we can say that many things don't exist, their inexistence being true (real) only to some extent.

Now, we're sure that all things exist, aren't we? For, either it isn't true *at all* that all things exist, or else all things exist (according to the *strong* principle of excluded middle, which I think to be the most valuable logical truth). But its being wholly false that all things exist is tantamount to its being the case that something doesn't exist at all, which is absurd (over-contradictory). So, in virtue of disjunctive syllogism (which is valid for *strong* negation only), we conclude that all things exist. Consequently some things exist and yet don't exist.

The problem of non-existence statements has been widely dealt with within contemporary logic from several viewpoints. The most popular attempts to wrestle with it seem to be free logics and substitutional readings of the particular quantifier. To myself, those would-be solutions are of no avail. They unnecessarily either weaken or blunt some of the worthiest principles and rules of classical logic. Moreover, substitutional-reading theories lay themselves open to many cogent criticisms.

While substitutional-reading theorists reject Quine's criterion of existential commitment, free logicians accept it, but, by dint of dropping several logical truths and rules—chiefly EG—dispose of such existential commitments as they find distasteful. The same is true of those who—unlike Kripke himself—hold on to Kripke's semantics for modal logic—see [10]—, which drops UI and EG.

More promising are the Meinongian accounts, especially the noneist one as embodied in neutral logic. Meinongian approaches carry on the *alethic* essentialist enterprise somehow started by Aristotle (and different from the ontic essentialism started by the Stoics). Essentialism is the opinion according to which being-so is independent of being (existing). (This sense is obviously quite different from the one popularized in analytical philosophy by Quine's considerations on quantified modal logic.) Alethic essentialism is the doctrine according to which there objectively are (in the non-existential sense of being just true) truths whose subjects don't exist *at all*. My main difficulty with alethic essentialism is that I don't believe I understand what being true (inexistentially) is or means. (To myself the doctrine is much like phenomenological value-theory, with its values, which, while being-valuable, are not—at all.)

Other attempts to escape the existential import of classical predicate calculus have endeavoured to keep this calculus in its entirety by differentiating between *de re* and *de dicto* negations (cf. [40]). From 'Adam Bede is a methodist or Adam Bede isn't a methodist', 'Adam Bede exists' would follow. But the premiss wouldn't be an instance of the principle of excluded middle, because 'Adam Bede isn't a methodist' would be a *de re* negation of 'Adam Bede is a methodist', whereas what would indeed be an instance of excluded middle is 'Adam Bede is a methodist or else it isn't the case that Adam Bede is a methodist', whose right disjunct is a *de dicto* negation. Now, the difference in question is, to myself, hard to grasp and it would need the introduction of a non-classical non-truthfunctional operation (negation *de re*), whose formalization and modelization would raise difficulties. What is more, such a differentiation would result in nullifying the principle of excluded middle as regards all its customary applications. In fact, such a purported solution is near to presuppositional approaches (e.g. Strawson's) whose formal treatment by van Fraassen has bestowed logical respectability upon them. However, all presuppositional approaches countenance truth-functional gaps, which I deem most untoward.

I feel bound to point out that, in spite of what I've just said, there's nothing wrong, to myself, in differentiating negations. What I deem hopeless is to contrive a predicate-negation (unless, of course, it is a set-theoretical operation, like complementation) and to hold that EG rule doesn't apply to an atomic formula's sentential (or *de dicto*) negation, which would be a sad impoverishment.

My solution consists in admitting that all things exist. If a language contains a proper name, then there is some entity referred to by that proper name. Maigret, Huckleberry Finn, Sherlock Holmes do exist. They are neither Fregean "senses" nor any other kind of non-spatial, non-physical items. They exist in the real, physical world. They are human beings, flesh and blood. But their degree of existence is lesser than e.g., F. D. Roosevelt's. So-called fictional characters are entities which actually (i.e. in all relevant

respects) are more inexistent than existent. Of course, some of them may be far more real than others, which is surely the case: Maigret should be much more real than Saint Exupéry's *Petit Prince*.

Nevertheless, I want to qualify the foregoing remarks. The formal system *Adu* proposed by this author allows introducing constants, 'Φ', such that premisses like '$x\Phi$' ('x belongs to 'Φ'') or 'Φx' ('Φ belongs to x') don't yield 'Φ exists', i.e. 'Φ', although they do yield 'It's at least relatively true (i.e. true in some respects) that Φ exists'. And the latter sentence does in turn yield 'there's something which, at least in some respects, exists to the same extent as Φ [does]'. Consequently, so far as our formal system is concerned, nothing debars us from treating 'Huck Finn' and the like as constants which aren't assertihle but such that their being prefixed by the functor 'At least relatively' results in assertible sentences—i.e. in sentences which can be rightly asserted. If so, what would be denoted by one such sentence or term would he a non-really real entity, an entity—that is—existing in some respects only.

Now, although there are—or may be—constants denoting facts which are true in some respects only, the sentence "All things exist" is true, true in all respects—and so assertible. For, the bound variables range over really existing things—over things which do, at least to some extent, exist in all and every respect. For every constant 'Φ', it's in every respect true that what is denoted by 'Φ'—supposing 'Φ' to be a denoting constant—either exists—and then is a thing, one of the things—or else doesn't exist at all—and then it nowise is one of the things, whence its completely failing to exist in that respect nowise prevents all things' existing from being true in that same respect.

As truth = existence, falsity = inexistence. Since many things don't exist—even though they exist, too—their existences are false (unreal), even though they are also true (real). The world is that contradictory.

It's within this framework that we can espouse a Frege-style theory of descriptions. According to the conclusions we reached in the foregoing section, each entity has (and is) an alethic determination, a function, that is, mapping points of reference into truth-values. The more an entity exists in some respect, the higher its truth-value in that respect is.

A state of affairs doesn't exist at all in some respect iff its truth-value is, in that respect, zero (although, as we saw in the foregoing section, we ought to dispose of the zero-value, by replacing functions by partial functions). Among really existing things there is—according to our conclusions—just one thing which has the least degree of existence in all and every respect, which thing can be called 'the least existing thing'—as well as 'the infinitesimally real'. It seems natural enough to identify the least existing thing with the descriptum of *any* vacuous definite description (of any definite description, that is, whose matrix is satisfied either by no entity at all or by more than one entity). Shall we, by doing so, reach the unpalatable

conclusions ensuing upon Frege-style classical theories of descriptions—e.g. that King Arthur (which is the same as the entity identical with King Arthur) and Mephistopheles are one and the same thing? No! For, we can—and, to myself, must—say that those entities exist in some degrees perhaps exiguous, but nowise infinitesimal.

But, what about the highly interesting best-seller written by King Arthur, or about the rational square root of 2? Well, these entities may well turn out to be one and the same thing: the infinitesimally real, which is neither a best-seller nor a rational number (it's infinitely—albeit not wholly—false that it exemplifies either of those properties).

We can safely identify the infinitesimally real with the emptiest class, according to the principle that no set exists to a greater extent than the one to which something or other is a member thereof. And every entity is a set. (We have already postulated that, if "two" things happen to be, in all respects, identically real, they indeed are one and the same thing.)

As far as I can see, my approach yields a highly winsome solution to the problem of dealing with so-called characters of fiction, and a suitable treatment of statements of existence *and inexistence*. To say of some x 'x doesn't exist' or 'x is not real' is a contradictory statement—since it yields the antinomy 'x exists and yet doesn't exist'. But it may not be at all an *over*contradiction—i.e. a trivializing remark. It may be informative, too, since, while all things exist, not all things are inexistent—and many things are not inexistent at all in relevant respects. On the other hand, 'x exists' is—as was said above—informative, too; for, usually, we don't bother to utter a statement unless it is rather true (i.e. at least as true as false) in relevant respects; so, when someone says 'x exists', he usually means that x is rather existent in relevant respects, which, to be sure, carries an informative content.

I shall briefly touch on the question of whether our approach entails that all things but one are at least in some respects unreal. Yes, that follows from our premisses, since, should two things be absolutely existent—a hundred per cent existent, that is, in *all* respects—then they would be the same thing. Is that consequence startling? I think not! After all, that conclusion agrees with the neoplatonic claim according to which ordinary things are at least relatively unreal, while the One alone is absolutely real.

Furthermore, any straightforward treatment of comparatives must equate a sentence of the form 'x is less z than y is' with 'It's less true that x is z than that y is z'. So, if some thing, x is, in some respects, less z (whatever z-ness may be) than another thing, y, is, then, in that same respect x is not z (because it is, at least to some extent, false that x is z). The rule which warrants such a conclusion I shall call 'PRC' (Plato's rule for comparatives). From 'Granada is less populous than Jamaica' we can infer 'Granada isn't populous'. Not that the conclusion should be altogether true: in order for a sentence to be assertible, it must be just true (in all respects), not necessarily

wholly true—even as, in order for a broadcast to be interesting, it only needs to have some degree of interest or other.

Whatever is less real than another thing is, at least to some extent, unreal; hence it is unreal. All things are, in some respects, (more or less) unreal except the only thing which is absolutely existent. Which thing is the only absolutely real one? I shall answer this question in sect. 8.

Although I've rejected any difference between *de re* and *de dicto* negations as a means to evade the existential import of excluded middle, I nonetheless agree that there are two senses of weak negation; and, more generally, that, for any functor 'Φ', any surface sentence, "p", containing 'Φ' may have at least two readings: one wherein "p" in deep structure has the same form as in surface structure; and another reading wherein in the surface-structure 'Φ' expresses a deep-structure set-theoretical operator. In accordance with the second kind of reading, for instance, 'Hugh is not eager' means the same as 'Hugh exemplifies uneagerness', uneagerness being—of course—eagerness's complement.

That difference applies to non-existence statements, too. When we say 'Semiramis doesn't exist' we mean either 'It's not the case that Semiramis [exists]' or 'Semiramis exemplifies non-being', which is equivalent to 'Semiramis belongs to the set of inexistent things'.

Accordingly, non-being (inexistence) exists. Some things exemplify non-being in a high degree; among them are the emptiest set (i.e. the infinitesimally real entity), centaurs, unicorns, griffins, rocs, and so on. On the other hand, it can within system *Adu* be proved that non-being is in some respects only infinitesimally real while being, in some other respects, more than infinitesimally real; this is why it is a non-element; hence, it belongs to no set but infinitesimally only.

Non-being is not negation. The negation symbol, 'N', is a functor, a non-denoting symbol, i.e. a syncategorematic one. EG is not applicable to 'N'. We nowise can say either 'N exists' or 'Something is (equivalent to or identical with) N'; such strings of signs are not wffs according to our syntax.

What is a fact's failing to obtain? Is it another fact? We can construe 'non-existence' either syncategorematically (*de dicto*) or categorematically (*de re*). Syncategorematically construed, 'the non-existence of' is equivalent to simple negation, which is a functor. So 'The non-existence of Yemen's being an oil-rich country' can simply mean the same as 'Yemen's failing to be an oil-rich country'. And, to the same extent as it isn't true (real) that Yemen is an oil-rich country, to that very same extent the non-existence of Yemen's being an oil-rich country does exist.

Categorematically construed, 'the non-existence of x' is equivalent to 'the fact that x exemplifies non-existence'. For, we know that a property of an entity is the fact that that entity exemplifies the property in question itself. (Euryale's ugliness is nothing else but Euryale's being ugly, i.e. the fact that Euryale exemplified ugliness.) So, the non-existence or unreality of Yemen's

being an oil-rich country is, categorematically construed, the fact that Yemen's being an oil-rich country exemplifies non-being. The categorematical reading can be asserted only if Yemen happens indeed to be an oil-rich country, at least relatively. (For, otherwise, Yemen's being an oil-rich country would be nothing at all and, so, would be unable to exemplify non-being.) On the other hand, the syncategorematical reading can be asserted only if it's not the case that Yemen is an entirely oil-rich country. It's a mistake to deny that there are negative states of affairs. (I don't mean irreducibly negative ones, i.e. such states of affairs as would purportedly be, solely and alone, negative; for any state of affairs, that p, is negative, is the non-existence (the falsity) of the fact that non-p; and every state of affairs is positive, too.) I deem such a mistake to be very serious, owing to its entailing that letting die is not blameworthy at all, since—purportedly—it's nothing at all, and so it cannot even be a decision's object. So, it's fortunate that, in accordance with our approach, there are (non-irreducibly) negative states of affairs, some of which can be denoted by *de re* construed non-existence phrases—whenever the negation of those states of affairs is somehow or other real too—while others can be denoted by *de dicto* construed non-existence phrases only; and still others can be denoted by both kinds of non-existence phrases.

To sum up: my treatment of non-existence statements can be summarized through the following statements:

(1) The verb 'to exist' is univocal, and is a predicate of individuals: hence, there is only one sense of (non-quantificational) 'exist'.

(2) Whatever exists exists in the real world. All "possible worlds" different from the real world are only parts, respects of the real world.

(3) Accordingly, there is no difference at all between existing and being real (there is no Hartmannian sphere of existent unreal entities).

(4) What differentiates entities like King Alfred from entities like King Arthur—so far as existence is concerned—is their respective degrees of existence or reality.

(5) Vacuous definite descriptions (the ones, that is, whose matrices are satisfied either by several different entities or else by no entity at all) refer to the emptiest set (the infinitesimally real entity).

(6) There is no special kind of language about fictitious entities. Speech about such entities (i.e. about entities which are less than half real) and speech about entities which are at least half real are, both of them, one and the same kind of speech; they are performances of the same language. Nor are there two different ways of referring, the one pertaining to the language or speech of fiction, the other to non-fiction speech or language.

(7) Sentences about entities which are less than half real have a definite alethic determination, which may, in some cases, be highly true at that.

(8) Sentences within fiction stories or about "fictitious" entities may be as

context-free as any other sentences, so that their (sentential) truth will depend solely on the degrees of reality of the facts they denote (if any).
(9) There are infinitely many different less-than-half real entities, each of them possessing every property in some degree or other.
(10) Non-existence exists, but its existence is, in some respects, only infinitesimally real.
(11) There are negative states of affairs, so that 'Its failing to be the case that...' often does—in either of its two possible construals—denote a real fact.

7. Naming and stating

In many natural languages there are verbless sentences. Apparently, some of them can be construed as being existential ones. (Such is the case in classic Arabic.)

My approach agrees with those languages and generalizes such a procedure. In the formal system *Adu*, any individual symbol—whether it be a variable or a constant—standing alone is a wff. So, our approach erases the boundary between names and sentences. Every name standing alone is a sentence; and every sentence can, syntactically, be put in whatever slots can be occupied by a name.

In English surface-structure, putting a sentence in the place of a name—i.e. treating it as a noun phrase—is commonly done either by prefixing '(the fact) that' to the sentence or else through other nominalizing shifts (see [1]).

Now, my contention is that all those changes take place only in surface structure. In deep structure the sentence remains unchanged when inserted in a so-called noun-phrase slot. In other words: I contend that deep structure has a functional grammar, not a categorial one. The difference between noun phrases, verb phrases and sentences is merely a functional one: any wff can fulfil any of those three functions.

Syntax thus becomes much simpler. Syntactically assertible contents do, through combination with other syntactically assertible contents, generate other syntactically assertible contents. So, any string of the form "pq"—where "p" is a wff and so is "q"—is a wff, too. And, of course, if "pq" is a wff, so are both "p" and "q". Accordingly, Struensee's execution is the referent of these phrases: 'Struensee is executed,' '(The fact) that Struensee is executed', 'Struensee's execution', 'Struensee's being executed'. Which phrase is used in a certain context does solely depend on surface-structure selectional restrictions. We don't say 'Struensee is executed startles Danish workers', but 'Struensee's execution startles Danish workers'. But this surface-structure selectional restriction betokens nothing but that the

allomorphy distribution of 'Struensee is executed' and 'Struensee's execution' is complementary, not free. Most surface-structure selectional restrictions are lexically (i.e. morphemically) rather than semantically determined.

On the other hand, such approaches (e.g. Frege's and Montague's—see, [14], p. 160) as claim that the particle 'that' metamorphoses the sentence to which it is prefixed—which sentence denotes a truth-value—into a different kind of phrase—one that denotes an intension—seems to me faulty on three scores. The first one is that in some contexts the sentence both with and without the particle 'that' prefixed thereto can occur without violating any syntactical rule: 'I know that Struensee was beheaded' and 'I know Struensee was beheaded'. Ellipsis has been offered as a means for explaining away those counterexamples; but resorting to ellipsis here is not necessary, since there is a viable alternative. Those approaches' second drawback is their relinquishing Frege's principle, according to which denotations of larger phrases are functions of denotations of their constituents; but, obviously, "p" is a constituent of "that p"; however, the denotation of "that p" is—according to those approaches—nowise a function of the one of "p". The third and last difficulty surrounding those approaches is that anaphoric pronouns are often used in such a way that, to all appearances, the denotations of the sentence with and without the particle 'that' prefixed thereto are one and the same. For instance: 'Struensee was beheaded; it was a fearful blow to all European progressivists'. The 'it' stands for the referent of 'Struensee was beheaded'. And the same message could be conveyed like that: 'That Struensee was beheaded was a fearful blow to all European progressivists'.

There is a more general difficulty surrounding all categorial approaches (including the ones that categorially differentiate the referents of "p" and "that p"), namely: in natural language, even in surface structure, categorial boundaries seem to be flouted (selectional restrictions largely departing from categorial boundaries and being very often morphemically determined, in virtue of pragmatic communicational constraints only). There's rife evidence for that assertion. Many verbs take as subjects or direct objects terms denoting either persons (or other "substances") or facts, or properties, without any apparent equivocality. 'To know' is just one of them. Any useful epistemic logic is bound to lay down some relation between knowing oneself and knowing something or other (i.e., knowing some fact's truth). Examples can be multiplied.

Anyway, by scratching out all categorial borders, including the frontier between names and sentences (or between names' referents and sentences' referents), our own approach opens the door to striking out any difference between two purportedly irreducible kinds of mental acts; acts of naming—or of thinking of—and acts of stating or asserting. This striking out doesn't follow from what we have said hitherto, but, anyhow, it's made possible by our foregoing conclusions. I think that not only *can* it be done, but that

it needs to be done, since our theoretical approach will thus be considerably simplified, and since no argument for the difference between those two purportedly different kinds of acts carries conviction—at least, when a fuzzy contradictorial framework is adopted. (More specifically, arguments offered by Brentano, J. Stuart Mill, Frege, Geach, are all shown to be invalid, once this kind of framework is assumed.)

8. Existence = the absolutely real thing

We have seen that existence is a fuzzy set to which many things belong and yet don't belong. To what extent does existence exist? My contention will be that existence is absolutely existent—it in all respects exists to an extent of a hundred per cent. For, there's a—to my mind plausible—Platonic principle, to wit: any perfection is exemplified by itself at least to the same extent as it's exemplified by anything else. Now, existence is a perfection—a property such that, should any thing possess it to a greater extent than it actually does, that thing would be more real than it actually is. Therefore, the absolutely existing thing is existence itself and nothing else. (I have shown above that there is only one absolutely existent thing.)

Existence is a set, a property of individuals. Lambert's objection against Frege-style theories of descriptions (to wit, that, according to them, existence cannot be a property of individuals) misses the contradictorial approach I'm setting forth, according to which many things exist and yet don't exist.

Now, does everything belong to existence to the same extent as it exists? Before answering that question, we need to point out an important difference. We have thus far treated formulas of the form "x exists" as if they were all structurally alike. We know that /x exists/ = /x/ and that existence is a property whose characteristic function is an identity-transformation. So, we could be tempted to conclude that, for every x, /x possesses existence/ = /x/. But this is not so for all x. It's the case only for ordinary entities, as we're going to show.

The point to be made is that a formula of the form "x exists" can mean either the same as just "x" (in which case 'exists' is a syncategorematic or—if you like—a redundant first-level one-place predicate); or else the same as "x belongs to existence"—i.e. "x possesses existence". Now, as regards ordinary entities, both meanings are one and the same. But for some non-ordinary entities there may be a difference of meaning. For one thing, in the wake of Quine's M.L., our approach will lay down that some entities are non-elements; they belong to no set but infinitesimally. So, even though non-elements are somewhat real (i.e. even though they exist more than infinitesimally, which they in some respects do—as we're going to see), they exemplify existence infinitesimally only.

For another, there are non-ordinary elements to which the principle of separation doesn't apply. Existence itself is a non-ordinary element. For, suppose it is an ordinary element. Obviously, we need some principle like the following: If u, $u', \ldots, u^n$ are ordinary elements, and "p" is a stratified formula whose quantifiers are restricted to ordinary elements and which contains no free occurrence of any free variable outside: x, u, $u', \ldots, u^n$; then the property of being an entity, x, such that p is an element. Now, were existence an ordinary element, we could draw from that principle overcontradictory results (see [29]). Hence, albeit existence surely is an element, it is nowise an ordinary one.

Non-ordinary elements are such elements, y, as may belong to the class of entities, x, such that p[x] in a degree either somewhat greater or somewhat smaller than the one wherein it's the case that p[x/y]. Non-ordinary elements are then, so to say, *logically transcendent*, in that the principle of separation doesn't apply to them.

Is existence itself the only non-ordinary element? No, for in constructing our extensional modal set-theory, we're going to conceive of "possible-worlds" as, basically, sets of states of affairs. (We know that all things are states of affairs.) But we obviously want to have such principles as, e.g., that, for any "possible world" w, the fact that not-p is true in w to the same extent as the fact that p is not true in w. Again, should "possible worlds" be ordinary elements, such principles would yield overcontradictions (because of the existence of non-elements). On the other hand, we don't want to regard possible worlds as non-elements. For one thing, existence itself is a possible world (it is the real world, the set every ordinary element belongs to in the same degree as it is real; it is the possible world of which all possible worlds are respects or components). For another, we think that possible worlds do belong to some sets to a high degree. Should possible worlds be non-elements, we couldn't introduce them in our set-theoretical axiomatic basis through a primitive individual constant, '$\mathscr{W}$', which denotes the class of possible worlds. A much more complicated basis would then be called for. Therefore, possible worlds are non-ordinary elements.

Is there any general truth-condition for determining to which measure existence belongs to any given set? I think there is one: existence belongs to any ordinary element whatever to the same degree that this element exists. My conjecture relies on asserting the identity between existence (i.e. the absolutely real entity) and its quiddity (i.e. existentiality, understood as the set of the properties exemplified by existence.) In doing that, I agree with intuitions of Boethius, Alfarabi, Avicenna, Aquinas and Spinoza, contrary to Plantinga's point of view (see [39]). What prompts me to identify existence with existentiality is that existence cannot be hemmed or fenced in by a quiddity different from existence itself; existence is just *being*, not being-*this* or being-that; it needs perforce to be unbounded, uncircumscribed, whereas every quiddity—whenever it is something different from

the thing whose quiddity or nature it is—constitutes a confining limit or boundary, a barrier encircling the thing and thus restricting its existence.

We can even, still more generally, assert that, for any state of affairs, that p, existence's belonging to the fact that p is the same thing as the fact that p (i.e. as the fact—if there is one—that the fact that p exists or is true). This principle gets justified as any other logical principle does: by its yielding a great deal of intuitively welcome results and its not yielding too many too baffling ones. One interesting result is that, for any formula of our system, we can write before it '$\hat{x}x$'—which is a defined constant denoting existence—without changing its denotation. To exist is to be a property possessed by existence itself.

This result is more or less akin to some holist theories of truth in the Hegelian tradition (e.g. Bradley's). Our approach does indeed entail that asserting a fact is both ascribing it to reality itself as a property thereof, and ascribing reality to the fact. Singapore's being an island is nothing else but reality's having the property of Singapore's being an island.

On the other hand, there is a cogent reason for stating the following general principle (which I shall call the principle of symmetry, PS for short): (PS) For any ordinary element, x, and for any non-ordinary element, y, x's belonging to y is the same as y's belonging to x.

As we have seen, all possible worlds are non-ordinary elements. We want to regard them as sets of states of affairs, so as to identify a fact's being true in some possible world, w, with that fact's belonging to w; and a fact's being false in w with its failing to belong to w, which is the same as the negation of this fact's belonging to w. Now, as regards non-elements such identities would give rise to trouble.

My alternative conjecture is that any fact, that p, being true in a world, w, is w's belonging to the fact that p. Whenever the fact that p happens to be neither a non-element nor a non-ordinary element, w's belonging to the fact that p is the same as this fact's belonging to w. Since—as has been shown above—worlds are non-ordinary elements, we can (and hence, must) for simplicity's sake, state PS without qualifications.

Before bringing this section to a close, I want to take up four further questions. The first question I want to moot is whether we can define 'non-ordinary element' within the set theory we're going to construct. I think we can and we ought to. For, were we unable to do it, we could apply the principle of separation to no entity, not knowing whether any given element is an ordinary one. My conjecture is that non-ordinary elements are the ones that, in all respects, exist infinitely, i.e. the ones that are *equal* with existence itself—*equality* holding between two things iff the difference between their respective degrees of truth or existence is, in all respects, at most infinitesimal. Let's lay down the principle that, if x is a non-ordinary element, then, for all "p", x's failing to belong to the fact that p is the same as x's belonging to the fact that not-p. (This is a mere generalization for *all*

non-ordinary elements of a principle already laid down for some of them, namely for possible worlds.) This principle together with the definition just offered entitles us easily to apply the principle of separation in such a way as to prove Peano's arithmetic within our contradictorial modal set-theory (see [28]).

The second question I shall raise is whether we can define non-elements otherwise than by just saying that they are such entities as don't belong to any set but infinitesimally. My suggestion is that non-elements are such entities as are in some respects somewhat existent (where 'somewhat' abbreviates 'more than infinitesimally'), while being in other respects infinitesimally real only. (Elements are, instead, such entities as are either in all respects only infinitesimally real—the emptiest set—or else somewhat real in all respects; i.e. entities whose degrees of existence are—loosely speaking—well-behaved, regular, not too uneven or motley.) This definition enables us to clear quite a few orderly entities of any suspicion which might elsewise attach to their elementhood; we can, among them, point out the entity which is in all respects as real as unreal; the set of all things which are rather real (i.e. at least as real as unreal); the set of all classes to which just one ordinary element belongs more than infinitesimally; and so on. I've called them 'orderly' because, apparently, their being treated as ordinary elements gives rise to no trouble at all.

My third question is whether the principle of separation applies to ordinary elements without any restriction. First let's state the simple principle of separation (SPS): (SPS) For any ordinary element, y, y belongs to the class of entities, x, that p[x] to the same extent as p[x/y].

What debars me from upholding SPS is my clinging to what I'll be calling the principle of graduality (PG henceforth): every entity (i.e. every really real entity—every entity, that is, which is real in all respects) exemplifies all properties at least infinitesimally (at least in the least degree). Hence, all atomic sentences of the form "x exemplifies y" (provided both "x" and "y" are truly denoting terms—terms denoting really real entities) are, to some extent or other, true. Holding PG amounts to maintaining that all differences are of degree. Hints of PG can be found in Heraclitus' fragments, in Plato's *Sophist*, in the neoplatonic tradition from Plotinus on, in several Renaissance philosophers, like Nicholas of Cusa, in Leibniz' principle of continuity, in Hegel's *Logic* and in Emerson. I've elsewhere ([26], c.IX, Acs.1-3) mustered a number of arguments in support of PG. I'll content myself here with sketching some of them. My first argument is as follows:

(1) For every entity, x, x's unit-class exists.
(2) For every two classes whatever, there is an intersection of them, which is a class, too.
(3) Any class whatever exists only if some element or other belongs to it (i.e. only if the class under consideration is not (entirely) empty).

(4) If the intersection of x's unit-class with some class, y, is not (entirely) empty, then x does belong to y.

The third premiss is dropped by classical set-theorists, but its intuitive appeal catches the man in the street's mind far more strongly than the second premiss' does. Now, let's try accepting the four premisses. (Let 'U' be the universal quantifier prefix 'E', the existential quantifier prefix; 'C', the mere conditional 'only if'; and let concatenation stand for membership). Then we shall have:

/ix/ eq/$\hat{z}$(z = x)/

(1) Ux(ix)	(First prem.)
(2) Uu, y(u ∩ y)	(2d prem.)
(3) Ux, y(ix ∩ y)	(by (1) and (2))
(4) ix ∩ yCEz(z(ix ∩ y))	(by 3rd prem.)
Cxy	(by 4th prem.)
(5) Ux, y(xy)	(by (3) and (4))

My second argument in support of PG is Parmenides' principle, to wit: Nothing exists but what is constituted by being only. I construe such a principle like this: a set, x, cannot encompass as subsets two strongly disjoint sets—that is to say: two sets, z and y, such that there's no entity at all that belongs both to z and to y—unless there is an intersection between x and some set, v, having a sub-set strongly disjoint from x. Now, if we admit—as I assume we should—at least a universal class, we are then faced with the problem of whether it can encompass two strongly disjoint sets. Obviously the answer is negative (otherwise, the universal class in question wouldn't be universal *at all*, which is an overcontradiction). Therefore, if there is a universal class, there are no strongly disjoint sets at all; whence PG follows.

My contention is that Parmenides' principle is right, although Parmenides himself was wrong in not differentiating 'not' from 'not at all' and so concluding that there is only one thing. (What is correct, instead, is that any two things whatever are linked to one another by some "indistinction" relationship, whose definition is the same as identity's *within a classical set-theory*.)

My third argument on behalf of PG rests upon Spinoza's tenet: if two things have any property in common, then they have all their properties in common. This tenet can be buttressed like this: when a property is possessed by a thing, that property is in that thing, as it were, welded with the thing itself (else, the thing would be a mere bundle, an *unum per accidens*), and so with the thing's other properties as well. For such "welding" or "blending" is some kind of "identification" of a certain sort, and must be transitive. Suppose now the thing in question, x, has some property, z, in common with another thing, y: since z is welded with any property of x, y's possessing z seems to entail y's possessing any other property of x, at least to some

extent, however small it may be. For, it seems hard to believe that a thing can exemplify a property without exemplifying every property welded therewith. Now, two things whatever have at least one property in common: existence. Hence, all things have all their properties in common.

My fourth argument rests upon a retrenchment rule: from "x is a z u" (where 'z' stands for an adjectival phrase, and 'u' for a noun phrase), we can conclude 'x is a u'. But of any x and any u, we can say that x is a possibly conceivable u. Hence, every x is a u, at least to some extent.

Those arguments' upshot, PG, doesn't say that any two entities exemplify every property to the same extent. No! Two different entities are discernible, of course, so there's some property that one of them exemplifies in a higher degree than the other. Nevertheless, PG is far from being nugatory. Asserting it would be ludicrous within classical logic, wherein it would entail that all entities are indiscernible. The main philosophical relevance of PG lies in showing: (1) that we share everything with everything (against individualism, particularism, racism, sexism, speciesism; since all differences are of degree, whatever differences there are between man and the other animals are merely of degree—and often far less great than is commonly thought); and (2) that differences of degrees may be extremely important, since all differences are of degree.

Now, we can see that, if PG is true, SPS fails. This is why the principle must instead be formulated as QPS (qualified principle of separation), viz.: (QPS) For any ordinary element, y, y belongs to the class of entities, x, that p[x] to the same extent as it's as good as true that p[x/y]. (where "It's as good as true that q" abbreviates "q+a", 'a' being a name naming the infinitesimally real entity—i.e. the emptiest set; "q+a" must be read: "Either it's the case that q or else the infinitesimally real entity exists".) So, if by 'the principle of separation' we mean QPS, then we can without misgivings vouch for its unrestrictedly applying to all ordinary elements.

My fourth—and last—question is whether our treating 'exists' as a one-place first-order *predicate*—in the modern, technical sense—in some cases (in some occurrences thereof when they follow a term naming an entity which is not an ordinary element) means that we're waiving our policy of ideological parsimony, according to which we ought to countenance just one predicate only—namely, a two-place first-order predicate: membership). I don't think so, since, whenever 'exists' is to be treated as a one-place first-order predicate, it can be reduced through simple elimination, whereas membership is the only uneliminable predicate. Let 'exists' be regarded as a one-place prediate (as opposed to a property or class) in the formula 'x exists'; *tout court*; hence, that occurrence of 'exists' can be erased or excised (deleted), with no change of meaning. (This might not be the case in some natural languages' surface-structure, but that is immaterial for our analysis.)

9. Existence and the existential quantifier

It has been customary, in contemporary analytical philosophy, to reduce "x exists" to "something is identical with x", which is written in symbolic notation as "Ey(y = x)". The trend we can pinpoint there is claiming all existential assertive power for the existential quantifier alone.

Some formulations of Quine's existential-commitment criterion seem to assume that, whenever we assert a formula of the form "Exp[x]", we commit ourselves to holding that there is at least one thing, x, of which it can be rightly asserted that p[x]. I myself admit Quine's criterion. I agree with Quine that any expression whatever, Φ, within a statement, p, denotes something (is categorematic) iff we can draw from "p" the conclusion "Exp[Φ/x]". Still, I cannot accept the just mentioned construal thereof—a construal Quine himself resorts to more than once, at least implicitly. For, in order for "p" to be rightly asserted, "p" needs to be true in all respects, i.e. /p/ ("p"'s alethic determination) can yield no zero truth-value. So, in order for a sentence "p" to be assertable, "Bp" shall also be assertable (where, for any "q", $/Bq/ = /q/$ iff $/q/_i \neq 0$, for every point of reference i; otherwise, $/Bq/_i = 0$ for every i). "Bp" can be read as: "It's really (or truly) the case that p" or "It can be rightly asserted that p".

Now, suppose that "Exp" can be rightly asserted (that in all respects there is something that p's). Then, it can also be rightly asserted that it can be rightly asserted that something p's (i.e. it is also true in all respects that it is true in all respects that something or other p's); in symbolic notation the formula "BExp" can be rightly asserted, too. But does that entail that, for some y, "Bp[x/y]" should be assertable? Not at all! It may even be the case that, for every y, "FBp[x/y]" should be rightly assertable, where 'F' is the *over*negation (*strong* negation) functor meaning 'not at all' (for any formula "q", $/q/_i \neq 0$ iff $/Fq/_i = 0$, and $/Fq/_i = 1$ iff $/q/_i = 0$). A theory wherein this is the case (that "Exp" is assertable while, for every y, "FBp[x/y]" is assertable, too) will be said to be strongly ω-inconsistent. Strong ω-inconsistency is different from ω-overinconsistency, which is a foible of such *Archimedean* infinite-valued logics as admit strong excluded middle (i.e. the validity of the schema "p + Fp") (where '+' is disjunction); ω-overinconsistency consists in that "FUxp" is assertable while, for every y, "p[x/y]" is assertable, too. As shown at the end of sect. 5, ω-overinconsistency is a shortcoming to be avoided, but strong ω-inconsistency is all too natural. Its being in all respects the case that something is such-and-such nowise yields that some entity is in all respects such-and-such. The set theory *Adu* is a strong ω-inconsistent system.

So, a premiss of the form "There is something such that . . ." does not necessarily entitle us to ask: "Which is the entity of which it can be rightly asserted that it is such that . . . ?".

However, my foregoing point nowise means that I am thereby rejecting

the existential commitment we bring upon ourselves by stating any sentence of the form "Exp". But what we commit ourselves to is not assuming the existence of at least one entity, y, such that "p[x/y]" can safely be asserted; we commit ourselves only to assuming that, for every respect of reality, there is, in that respect, at least one entity, x, that p's. Moreover, a sentence of the form "Exp" states that there is at least one entity, x, which p's; but it doesn't ascribe existence to any definite particular individual.

Therefore, although we don't forswear such ontological commitments as we lay ourselves under by stating sentences which begin with existential quantifiers, still the existential quantifier is not the proper linguistic means for stating the existence of any particular individual. But what about "Ey(y = x)"? Does it not say that x exists? No! Stating that x exists (whatever x may be) is quite a different thing from stating that there is something identical with x. Stating that x exists is stating x; however, stating that something is identical with x is not stating x. For any x and any u /x = x/ = /u = u/; so, /Ey(y = x)/ = /x = x/ = /u = u/ = /Ey(y = u)/, for any x and any u. Hence, should /x exists/ be identical with /Ey(y = x)/, then, since x exists/ = /x/, we'd be bound to conclude that, for any x and u, x = u: there only would be but just one entity, which is utterly absurd.

The foregoing reasoning rests upon assuming that, for any x and u, /x = x/ = /u = u/. The rationale for holding that formula's truth is that we want to have as theorems of sentential logic all formulas of the form "pIpI · qIq" (i.e. "That the fact that p is equivalent to the fact that p is equivalent to the fact that the fact that q is equivalent to the fact that q"), as well as its strict counterpart "pIIpII · qIIq" ("rIIs" abbreviating "B(rIs)"; 'II' is the strict equivalence functor). Now, according to the treatment I argued for above, in sect. 5, identity is reduced to *strict* truth-functional equivalence; so, "x = y" is defined as "xIIy". But, should that treatment be rejected, the chosen alternative would probably be either "Uz(zxIIzy)" or "Uz(xzIIyz)"—where concatenation stands for membership. So, we'd get, at least, this result: x = xII · y = y. So, we'd have: Ux,z(Ey(y = x)IIEy(y = z)): every x and z are such that: something is the same entity as x strictly to the same extent as something is the same entity as z. This result is sufficient for proving that "x exists" cannot be equated with "Something or other is the same entity as x", for then we'd have "Ux,y(xIIy)" ("Any two things whatever exist strictly to the same extent the one as the other"), which would wreck our enterprise of acknowledging degrees of existence.

Furthermore, a number of arguments can be mustered in order to bestow plausibility upon the thesis that 'Ux(x = xIIN(x = x))' (in words: Every entity, x, is such that x's being the same as x is strictly equivalent to x's failing to be the same as x) should be a theorem. For, let 'δ' be any extent-functor meaning 'At least to such degree'—for some substituend of 'such' denoting some precise measure. Then, we surely want to have the

Rule of Distinction: $\delta p[x], \delta Np[x/y] \vdash \delta N(x=y)$ (where 'N' stands for weak or simple negation).

Now, if we accept fuzziness, surely then we'll accept that some facts are as true as false. Let 's' stand for 'Pyrrhus won the battle of Asculum' and suppose 's' to be as true as false. Then, we have that /s/ = /Ns/, (where 'N' means: 'It's not the case that'). In virtue of absorption, "p or s, and s" which we shall abbreviate as "r", is equivalent to 's'. Suppose "p" to contain the individual term 'x'. Then we'll have as premisses: 'It is at least half true that r' and 'It is at least half true that not-r' whence, by the Rule of Distinction, we get: 'It is at least half true that x fails to be the same as x'. Since we want any self-identity statement to be as true as possible, we conclude that, for any x, 'x = x' is both at least half true and at least half false, i.e. as true as false. Many other arguments (e.g., Wittgenstein's puzzle—notwithstanding Kripke's cavalier reassurance in [11], p. 350, n. 50.) can buttress the conclusion that 'x = x' should be somehow false, i.e. that everything is distinct (but nowise different) from itself. (I take it that "x is distinct from y" means "x is not the same entity as y" whereas "x is different from y" means "x is not at all the same entity as y"). But infinitely many things are, in many respects, altogether real—even though reality (or truth) alone is, in all respects, altogether real.

This is why reducing "x exists" to "something is identical with x" would be a mistake. True, the following biconditional formula holds (and, what is more, is a theorem of our formal system); '$Ux(x \equiv Ey(yIIx))$', where 'yIIx' means the same as what is usually signified by 'y = x'. That is to say: any entity whatever exists iff there's something identical therewith. What is more: the fact that p is really existent (existent, that is, in all respects) iff there's something identical therewith: "$Bp \equiv Ex(xIIp[x])$" is a theorem schema of our formal system. However, something's being true iff something else exists nowise entails that the former something is identical with the latter one.

Therefore, although there's a biconditional link binding any entity's existence down to the fact that something is identical with that entity, still that link is nowise an equivalence. So, 'x exists' cannot be properly paraphrased as 'Something is identical with x'.

What alternative is then left? Introducing an existence predicate as a primitive symbol (as, for example, neutral and free logicians do)? I deem my own proposal (reducing "x exists" to "x") to be much more appealing, for the reasons I've set forth in sect. 3.

I said above that I accept (at least some version of) Quine's criterion. Nevertheless, some important distinctions are needed. I admit that any expression 'Φ' whatever is such that, from "$p[x/\Phi]$", we're entitled, within a system S, to draw "$Ex(xII\Phi \cdot p[x])$" iff 'Φ' denotes a really real entity—an entity existing, at least to some extent, in all respects. But an expression 'Φ' may denote a fact existing only in some respects—i.e. an only relatively

existent fact or thing. To be sure, calling it a 'fact' or a 'thing' may be done only by stretching those words' primary sense (as was pointed out in sect. 5). All the same, the fact in question happens, in some respects, to be something, and, so, it *is*, relatively, something (a thing, a fact). Now, according to our system, whenever this is the case, we can draw from "p[Φ]" the conclusion "ExJ(xlΦ)", i.e.: there's something which, at least relatively, is equivalent to the fact that Φ.

So, we can have two criteria of ontological commitment: one criterion on committing ourselves to a really real thing's existence; and another criterion on committing ourselves to an at least relatively real thing's existence.

More important than the foregoing point is the following one: our approach does, by dint of identifying truth with existence, forbid such attempts to evade ontological commitment as resort to an EG-free logic (cf. sect. 6, above). It has been rightly contended by many philosophers that it couldn't be true at all that nothing exists (for that discussion, see [6]). It has nonetheless been replied that we understand what is meant by the phrase 'the inexistence of all things'. I think that we do understand what is meant by that phrase's *de re* construal (something which is infinitesimally real, to wit: that all things exemplify non-existence—i.e. non-being). But there's nothing at all to be understood as meant by that phrase's *de dicto* construal (i.e. by 'All things are such that they fail to exist').

Quite the contrary: in agreement with those (e.g. Leibniz) who objected to the hypothesis of some truth's obtaining—being true—in an empty world—in a world, that is, wherein there would be nothing at all—our approach also entails that such an hypothesis is absurd (*over*contradictory, trivializing), since, should there be nothing at all, it would be true—and, so, something real—that there was nothing at all, which is *over*contradictory.

Likewise, there being some contingent entity is shown to be either a necessary truth or else a necessary falsity. According to our treatment, it is both. It is impossible since all existing entities (really existing entities) are necessarily existent—although many entities are less necessary than simply real. It is necessary too, since 'There is no contingent entity'—in symbolic notation 'NEx,w(wNx)'—is, in all respects—and, hence necessarily—*only* infinitesimally true; for 'All things exist' is only infinitesimally true—it is infinitely, though not entirely, false. (As for there being no contingent entity *at all*, that is indeed absolutely impossible.)

10. Why knowing all that exists is being omniscient

An important conclusion to be drawn from our approach is that all that needs to be known is which entities exist, and nothing else (since truth =

existence). So, knowing what entities exist—as well as to which extent each of them is real—is all that can be known. Consequently, two possible-worlds can differ only in that some facts don't exist in one of them to the same extent as they exist in the other one. If, for every "p", the fact that p is as true in a world, w, as it is in a world, w', then w = w'. Indiscernible worlds are identical (*pace* what Montague claims against Carnap, [14], p. 153). Two theories can differ only in that one of them countenances (i.e. commits itself to the existence of) entities which are not countenanced by the other. Since every entity is an individual (from a non-categorial outlook, like the one here propounded), it follows that all we must know is which individuals exist and to what extent each of them is real. (Moreover, to know how real an individual is, is to know the truth—i.e. the existence—of another state of affairs—the fact that the individual in question has a certain degree of reality; since every state of affairs is an individual, that knowledge also boils down to knowing a certain individual's existence; so knowing which individuals exist exhausts all which can possibly be achieved in point of knowledge.)

This conclusion tallies with the principle of indiscernibility of identicals. For, suppose that there are two theories, T and T', which acknowledge the existence of the same individuals but ascribe to some of them different predicates. Suppose now two possible worlds, w and w', which, unlike the ones whose existence I have recognized, are neither reducible to one another nor reducible to a more comprehensive world; suppose, that is, that, for some "p", it's either absolutely true or absolutely false that p, and, while it's absolutely true that the fact that p obtains in w, it's instead absolutely false that the fact that p obtains in w'. Suppose that one of those worlds is a model for T, while the other world is a model for T'. We now can see that not all individuals countenanced by one of those theories can be countenanced by the other, since, otherwise, they would also satisfy the same predicates in both worlds. For we cannot say that it suffices, in order for "two" entities to be the same, that they satisfy the same predicates within the same world, unless we regard the different worlds as "regions" of one more comprehensive world—the real world. Were instead every possible world a closed sphere, standing on its own, apart from the real world and from any other world, then nothing which would exist in two worlds could possibly satisfy in one of them some predicate without satisfying it in the other world, too. For, in accordance with the hypothesis under consideration, possible worlds wouldn't be parts, regions, layers, or something like that, of an all-encompassing reality; each world would be a quite closed whole totality. So, unless worlds were indiscernible—which is to my mind unacceptable—no entity existing in one world could possibly exist in another world.

11. Relations, combinatory approaches, and existence as the relation of being belonged to

One of the most pleasant results of our approach is its providing us with combinatorial (category-less) freedom for getting a new wff by concatenating any two wffs. This allows us to set up a rewarding treatment of relations, as a winsome alternative to treating them as sets of ordered pairs. My treatment of relations (see sect. 3, above) consists in holding that a (dyadic) relation is a set such that something's belonging to it is another set. To put it generally: a set is a one-place relation; a (n+1)-place relation is a set such that any thing's belonging thereto is a n-place relation. (By 'a m-place relation' I mean a relation which is at least m-place.) So, fatherhood is a set such that, if x is an ordinary element, x's exemplifying (i.e. belonging to) fatherhood is x's offspring. So, Solomon's being begotten by David is nothing else but Solomon's exemplifying the fact that David is a father. This is why being a father is nothing else but being an x such that the property of being begotten by x exists. It's interesting to notice that anything whatever is a relation. For, anything is the set of its members; hence, the fact that x belongs to y is the same as the set of that fact's members. But any thing y is the set of entities belonging to y; so (in virtue of the equation truth = existence), y (for any y) is the set of entities, x, such that the fact that x belongs to y exists; and then y is the set of entities x such that the set of entities, u, such that u belongs to x's belonging to y exists (in symbolic notation: $\hat{y}(y \amalg \hat{x}\hat{u}(uxy))$, where membership, expressed by concatenation, is associative to the right). In other words: any entity y is the relation borne by any ordinary element x to any ordinary element insomuch as u exemplifies x's exemplifying y.

Still more interestingly, existence turns out to be the relation of being belonged to; for existence or truth is the set of all entities x such that x; now, x is the set of x's members, hence, existence is the set of entities, x, such that the set of x's members exists (in symbolic notation: $\hat{x}x \amalg \hat{x}\hat{y}(yx)$); i.e. the relation borne by any ordinary element x to any ordinary element y insomuch as y exemplifies x.

Furthermore, we can ascertain that existence is the converse relation of membership. Membership is the relation borne by any ordinary element x to any ordinary element y to the same extent as x belongs to y: $\hat{x}\hat{y}(xy)$. Let us assume that membership is an ordinary element. Let's define converseness like this: /*conv*/ eq /$\hat{x}\hat{u}\hat{v}(uvx)$/, i.e. the relation borne by any ordinary element x to the relation borne by any ordinary element u to any ordinary element v insomuch as u belongs to v's belonging to x. Then we have that existence is membership's converseness (i.e. existence is the same as membership's exemplifying converseness). (Notice, by the way, that love's converseness is the relation of *being beloved by*; so Tristram's loving Iseult, i.e. Iseult's being loved by Tristram, is nothing but Tristram's belonging to Iseult's exemplifying love's converseness.)

This category-less (or combinatorial) treatment of relations turns out most useful: (1) for giving a satisfactory account of natural language's deep structure; (2) for elucidating the ontological status of relations and coping with well-known puzzles about it; (3) for setting up a system of arithmetics as a set of theorems of a fuzzy contradictorial modal set-theory. (I've tackled the last two issues in [26] and [28], respectively.)

The foregoing results highlight the similarity between our own ontological approach (as well as its formal development, system *Adu*) and combinatory logic (e.g. Fitch's systems; see [2] & [3]). In fact, Fitch has successfully shown (in [5]) how his systems of combinatory logic can generate a satisfactory category-less treatment of relations much like the one just sketched. More generally, combinatory logic shares with our own system syntactic category-lessness understood as the fact that the formation rules allow terms to be placed in formula-slots, and conversely. Combinatory logic stretches that syntactic feature, applying it to what, within my own system, are syncategorematic symbols—functors and the quantifier. That constitutes an advantage insomuch as, owing to it, a pleasant nimbleness and interdefinability are reached. Still, while in this paper I've put forward a philosophical rationale for erasing any categorial difference between terms and formulas (between entities and states of affairs), I know no similar argument concerning sentential functors or the quantifier. In fact, some of those symbols cannot be treated as categorematic, since the result of placing one of them before a formula lacking any denotation at all (i.e. an absolutely false formula) may be a true formula (a formula denoting something), while of course there's no function (even no partial function) mapping nothing at all into something. The behaviour of syncategorematic symbols is ensuant upon their linguistic nature, to which nothing corresponds in reality. (Even though a mirror theory of language is to be countenanced, it must allow some limitations, some margin wherein language outstretches reality. Why this is bound to happen deserves a careful inquiry.)

Furthermore, combinatory logics like Fitch's systems wouldn't befit ontological ideas underlying my own approach, such as: the identity truth = existence (since, even though Fitch's systems are not neutral—and so they countenance as a theorem something like 'everything exists'—, still adding to any of them the axiom 'Uxx' would trivialize it); the reality of infinitely many degrees of truth and existence; the reduction of sameness to strict truth-functional equivalence; the treatment of possible worlds as respects of—or within—the real world (which entails that only what is necessarily true can be rightly asserted); the identity between existence and existentiality (the property of being exemplified by existence); the thesis that any property exists insomuch only as it's exemplified by something or other; the principle of graduality.

Let me comment on the first issue. Fitch's own ontological elucidation—as set forth, e.g., in [4]—evinces his own logico-philosophical approach's commitment to differentiating truth from existence. For, according to such

an ontology, the set of facts is a proper subset of the set of propositions, viz: the class of true propositions. Besides Fitch reduces events to such facts as have spatio-temporal locations; bodies and persons to classes of events; and classes of propositions, as well as relations among propositions, to propositions. The procedure pertains to a kind of reduction different in character from the one undertaken in the present paper. For the ontological reduction I've propounded no special type of entities is regarded as *the* ontologically primitive kind of things. My approach immediately identifies any entity, including any singular object (i.e. any body—and human persons are bodies), with a fact or state of affairs, without needing to construct any special sort of facts out of which singular objects would be constituted. Furthermore, my approach identifies every body with a set, the set of its parts, which are bodies too. Sets in general are immediately reduced to states of affairs, too (*not* any special kind of states of affairs previously constructed out of other purportedly "irreducibly such" states of affairs). Finally, facts are individual entities or things as well as sets. Within such a framework, you can take as primitive either sets (= properties) or facts or entities. No one-way eliminative reduction is obtained, whereas the sort of reduction Fitch's approach illustrates is incomprehensible until you've followed all steps up, from bottom to top. According to Fitch's approach, while all things are propositions, not all things (i.e. not all propositions) are sets or properties; nor are all of them individual entities. So, there's no interreducibility among the three major categories, unlike what happens in my own approach.

There's an epistemological point in my foregoing considerations. For, if we think that the more we're acquainted with some entity or fact, the more we're justified in asserting its truth or reality, we shall not ignore some relative prerogative, as regards acquaintance, bodies seem to enjoy, so that we appear to understand what facts and sets are insomuch only as they bear to bodies either the ancestral of the relation of *comprising* or else the ancestral of the relation of *being-about*. While all this is compatible with my own ontology, it runs counter to Fitch's propositional ontology. (Fitch thinks that his system's axioms make clear what propositions are: whatever satisfies those axioms.)

What may look like an epistemological drawback of Fitch's approach originates with his differentiating truth from existence. For, were he to erase such a difference, then the only propositions he would be committed to would be facts, and anything's existence would turn out to be its truth; so, individuals would be shown to be facts, since they exist. Accordingly there would be no need for the commonsensically uninviting (even if Whitehead-wise alluring) identification of bodies with sets of events.

I have dwelt on the contrast between Fitch's seemly approach and mine because his is the only ontology I know of resembling somewhat closely the one put forward in this paper. I hope I have shown the methodological

advantages of my own proposal ensuant on my abiding by the old idea that to be true is to be.

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