**Attributives and their Modifiers**

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The following paper is a semantical preliminary to a philosophical theory of the workings of predication in English. The basic project is to get a picture of how fairly ordinary "descriptive" predication operates and whether and why such an operation is optimal from a language-teaching and language-using point of view. We intend to use the results of this paper in giving a semantical account of the phenomenon of vagueness in English and how it can be made coherent with the view that English is a first-order language at some level of analysis. The first step in such a project, which this paper attempts, is to uncover the forms of sentences in which vague words occur.

That attributive adjectives are unusual has long been recognized and ignored. Philosophers from Aristotle on have said things like, "'Tall' implicitly carries reference to a reference-class", without working out in detail what they have in mind or how it fits into a theory of language. That this glancing treatment is a strategic mistake is indicated by the following implicit claims the paper makes in the process of getting a general semantical theory of attributive adjectives:

1) The class of attributives has been taken to include words which, since they create intensional contexts, must be semantically very different in form from standard attributives. Thus, for instance, the special semantical problems of "good", which formally rule out many theories of ethics and value, have been ignored. A surprising example of such an oversight occurs in Donald Davidson's [4].

2) The so-called "property-words", like "red", which have been universally treated as one-place predicates, are shown by a detailed theory of attributives to have the same logical form as paradigm attributives such as "tall". If "tall" is a two-place predicate, so must words like "red" be. This should give pause to people who think that words like "red" are learned by abstraction of instantiated properties.
The explicit claim of this paper is just that there is a large, semantically significant class of predicates in English, sentences using which have the logical form described in the paper, which are modified by words like "very" and "much" in systematic and recursive ways and which are distinguishable primarily by the fact that they have comparatives. As a work in semantics, the paper is a partial vindication of the possibility of a general truth-preserving first-order paraphrase scheme for English.

1. The Problem of Attributives

An attributive is an adjective or adverb which, when paired with a substantive or stuff-predicate or verb, yields sentences which cannot correctly be given a conjunctive account. (The treatment of adverbs as a special case of adjectives (i.e., as predicates of a particular type of thing, events) can be found in Donald Davidson, [2].) The conjunctive account of the logical form of a sentence such as, "That is a woolen coat" is "That is woolen and that is a coat". Attributive constructions, or attributions, are just those cases which have the same surface grammar as "That is a woolen coat" but which cannot have the same logical form. Until we get a theory for detecting cases to which the conjunctive test is insensitive, our method for detecting attributives will be to take a sentence with a suspect adjective or adverb, paraphrase it in the conjunctive way, and then look for another sentence which we know to be compatible which, when similarly paraphrased and taken together with the original paraphrase and an identity claim, yields a contradiction. The adjective or adverb in the contradictory sentence is the attributive adjective or adverb. Paradigm attributives are such adjectives and adverbs.

A short example should make this clear. Taking "John is a big flea" as the sentence with the suspect adjective and "John is not a big animal but John is an animal" as a compatible sentence, the conjunctive analysis yields "John is big and John is a flea" and "John is not big and John is an animal". Since "John" in the original sentences could denote the same thing, the contradictory sentence, "John is big and it is not the case that John is big", follows from the conjunctive analysis. Since an analysis must at least preserve truth-value and since the two sentences together with the identity claim could all three be true, an analysis which makes their truth-conditions logically incompatible cannot be correct.

The test is superfluous, ultimately, since the theory of the
paradigm cases found by it will yield another test which doesn’t depend on searching through the indefinitely large number of sentences of English for a good case. (The preliminary test is further insensitive to homonymy and thus is not sufficient to show that conjunctive failure is to be explained by the theory of attributives. A black balloon is both light and not light, but in different “senses”. One way to distinguish the two kinds of failure is by means of comparatives. A black balloon is both lighter than and not as light as a grey bowling ball, a situation which cannot arise with the flea above.)

In general, substitution of co-extensive general terms preserves truth in sentences using attributives. If John is a tall man, and all and only men are featherless bipeds, then John is a tall featherless biped. Most attributives do not create intensional contexts.

There are some apparent attributives, such as “good” which do seem to create opaque contexts. If Jack is a good nail-hammerer and all and only nail-hammerers are carpenters, we can’t infer that Jack is a good carpenter, since nail-hammering may be the only aspect of carpentry at which he is proficient. When there is failure of truth-preservation under substitution of co-referential general terms in a candidate attributive, a psychological verb is concealed in the logical form of the sentences using that word. In the case of “good carpenter” the analysis runs, “Jack is such that anyone who wants a carpenter ought to want him”. A thorough account of the logical forms of the problematic constructions in this analysis and argument that this analysis is a truth-preserving paraphrase can be found in the first three chapters of [9]. We say that “good” isn’t an attributive, meaning that sentences using “good” have a significantly different logical form from sentences using “Tall”. Our interest isn’t in separating out some pre-analytic notion of “being an attributive” but in discovering and discussing a set of words which make the same contribution to the meanings of sentences in which they occur. Sentences using “good” turn out to have an attributive construction imbedded within a referentially opaque context, so in a sense “good” is an attributive, but not one which we can deal with in a paper of this scope. (The attributive construction in the analysis of sentences using “good” is the predicate “is a want” or “is wanted-true”, which “admits of degree”. “Wants-true” is a two-place relation between a sentence and a class of sentences.)

Our project is to determine the class of words which occur in sentences of the same logical form as sentences using paradigm
attributives such as "tall" and "large", so perhaps a title such as "An Important Construction in English Deep-structures" would be less misleading than our reference to attributives. In any case, even when we cut out the nonattributive attributives, the extent of the attributive construction in English turns out to be surprisingly pervasive.

2. Adequacy Conditions for a Theory of Attributives

A theory of the logical form of sentences with attributive adjectives and adverbs must be a first-order paraphrase scheme, that is, a finite device for translating sentences into a first-order language in a truth-preserving way. It is hoped that such a theory will be a hypothesis about the form and content of the phrase-structure sentences underlying English surface structures. The semantical presuppositions of this idea can be found in Donald Davidson's articles [4] and [5].

The constraint imposed by the demand for a finite paraphrase scheme is that the theory can countenance only a finite number of semantical primitives. The rationality of this constraint is argued for in Donald Davidson's [3]. An implication of this constraint is that the theory cannot treat "Jones is a tall man" as having the form "T(Jones)". Since there is also the sentence "Jones is a tall, red-haired, bespectacled man" and an indefinitely large number of others like it to be analyzed, this theory would need an infinity of semantical primitives just to deal with "tall".

There are at least three constraints imposed by the requirement that the theory must give truth-preserving paraphrase-forms:

1) From "Jones walked slowly to the market" it follows that Jones walked to the market. An adequate theory of attributives must be able to account for an infinity of such inferences. There are two ways such infinities can be accommodated. We are sometimes able to suppose an axiom in which a predicate occurs essentially and treat the inferences as instances of that axiom. Such a device accounts for the infinity of inferences like that from "a is longer than b and b is longer than c" to "a is longer than c". Such a strategy will not work for the above inferences since the theory would need an infinity of such "predicate"-axioms and would thus violate the finiteness constraint. The same argument that shows that "Jones is a tall, red-haired, bespectacled man" cannot have the form "T(Jones)" shows that the inference from that sentence to "Jones
is a red-haired, bespectacled man” cannot be treated as instantiation of a predicate-axiom. Thus an adequate theory of attributives must adopt the other strategy for handling infinite classes of inferences and assign sufficient structure to such sentences to make such inferences formally valid. A truth-preserving paraphrase must preserve logical consequence.

2) “Jones is a tall old man” has two readings, either that Jones is tall as old men go or that Jones is tall as men go and old as men go. Since the sentence has two sets of truth-conditions, a general truth-preserving paraphrase-form must render both readings. If the first-order paraphrases are underlying deep-structures, then the ambiguity of the surface sentence must correspond to two underlying first-order paraphrases.

3) On one reading, “Jones did not walk slowly” is compatible with “Jones did not walk”. On another reading “Jones did not walk slowly” amounts to “Jones’ walking was not slow”, and is incompatible with “Jones did not walk”. An adequate theory must be able to assign negations of attributions narrow or wide scope.

Underlying deep-structures are supposed to be the form in which sentences are “thought”. If a first-order paraphrase form is to be a hypothesis about the form and structure of such deep-structures, the theory can be guided by certain semantical intuitions about how we understand sentences and what parts of sentences play a systematic role in contributing to meaning. There are three of these intuitions we want to accommodate:

4) There seems to be a semantical connection between “tall” in “Joan is a tall girl” and “taller than” in “Joan is taller than Lefkowitz”. Intuitively, it seems that if a person understands “short” and “shorter than” and understands “tall”, he should understand “taller than”. There seems to be a formal construction connecting attributives and their comparative forms. No infinity constraint is violated by ignoring this intuition, but it seems that a theory which ignored it would be likely to be empirically wrong.

5) Intuitively, the “old”'s which occur in “I ate old mud” and in “I ate an old cracker” are making the same contribution to the meanings of those sentences, i.e. are not homonyms. Again, no finiteness constraint is violated if we make these words logically unrelated, but an empirically correct theory of the logical form of attributions should be able to use the same predicate both in application to stuff-predicates and to terms with divided reference.
6) From “John is a very tall man” we can infer “John is a tall man”. From “John is much taller than Fred” we can infer “John is taller than Fred”. Intuitively, there is a formal connection among “tall”, “very tall” and “very, very tall”, and this connection is the same as that among “slowly”, “very slowly” and “very, very slowly”. “Very” and other “modifiers” seem to have a semantic role, to have a systematic effect on the truth-conditions of sentences in which they occur. An adequate theory should accommodate this appearance.

Except for “very”, which seems to be able to be meaningfully iterated, a theory could without violating the finiteness constraint treat all combinations such as “rather tall”, “extremely tall” and “much taller than” as unanalyzed semantical primitives. Given \( m \) attributives and \( n \) modifiers, the theory would have \( m \) times \( n \) minus \( m \) plus \( n \) extra semantical primitives plus twice as many comparatives, but would still be very finite. If a speaker understands “rather short man”, “short man” and “tall man”, though, he should be able to understand “rather tall man”. A novelty of the theory below is that it gives such an account of modifiers.

3. The Theory

We develop two versions of a theory for the paradigm cases of attributives and show that the theory meets adequacy conditions 1)-5). The theory will then be extended to meet condition 6). From considerations developed in meeting conditions 4) and 6), it will become clear that there are far more attributives than might have been thought, that is, cases which aren’t “preanalytic” attributives but which turn out to have the same logical form as paradigm attributives.

Version I.

Attributives have the form of a two-termed relation between an individual and a class of individuals plus a membership sentence saying that the individual belongs to the class to which it is related. Thus, “John is a tall man” becomes: “Tall (John, \( \hat{x}(x \text{ is a man}) \) & John \( \epsilon \hat{x}(x \text{ is a man}) \)”. “John walks slowly” becomes: “(\( \exists x \)) (x is by John & Slow (x, \( \hat{y}(y \text{ is a walking}) \) & \( \forall x \hat{y}(y \text{ is a walking}) \))”. The thought here is that “John is a tall man” means that John is tall for a man and that “John walks slowly” means that some walking by John is slow for a walking. That the first conjunct is a relation to a class makes the truth of “John is a tall man” depend
on the height of the rest of the men and how John measures up to the rest of the men. A seven-foot man wouldn’t be a tall man if he were shorter than most other men.

How is one supposed to read the first conjunct in the analysis? It cannot be read as “John is tall for a man” because that phrasing implies that John is a man, which needs to be left out of the first conjunct to allow varying scope for negations. The idea is that “Tall \((x, \forall(y (Fy)))\)” is a primitive relation behind both “tall” and “taller than”. It is the relation which I, for instance, bear to the class of dwarfs and to the unit class of my little sister. It is not among the truth-conditions of this relation that the individual belong to the class. When we say that John is a tall man we are saying both that this relation obtains and that John is a member of the class of men. The truth-conditions of “Tall \((a, \forall(x (Fx)))\)” in the sense of a definition in terms of quantified “taller than” sentences will be discussed below.

By making membership in the class to which the individual is related an added clause rather than building it into the basic relation in some way, the theory makes the inference from “John is a tall man” to “John is a man” an obvious logically valid one. Further, since the negation of “John is a tall man” has the form “not (Tall (John, \forall(x (x is a man)) & John \epsilon \forall(x (x is a man)))”, we see why it is compatible with John’s being a man, and with John’s being neither tall nor a man. In the case where only his tallness is denied, “\ldots & John \epsilon \forall(x (x is a man))” is in effect added to the denial to yield the consequence, “not (Tall (John, \forall(x (x is a man)))”. By handling the inference pattern and allowing narrow and wide scope to negations, the conjunctive form of the analysis satisfies adequacy conditions 1) and 3).

We might think that the conjunction enables us to handle cases where the inference from, e.g. “That was a partial filling of the pool” to “That was a filling of the pool” can lead from truths to falsehoods. If this strategy could work, a host of what are called “syncategorematic” terms could be treated as relations between individuals and classes, with no added membership conditions. The strategy cannot work, and the proof that it cannot will shed light on exactly what the theory implies.

Consider the sentence, “That was a partial filling of the pool”. We might give this the analysis, “Partial (that, \forall(x (x is a filling)) & that is of the pool)”, saying that “partial” states a relation which holds between this event and the class of fillings. The difficulty arises when we consider the possibility that the class of fillings
might be empty, identical with the null class. If nothing is ever filled, then whenever there is a partial filling there is a partial unicorn and a partial even prime greater than two by substitution of identicals, which the attributive construction must allow. The case is even more clear with fake sea-monsters, where transparency would, in fact, give the result that they were fake unicorns. When a construction does not have the membership clause, it cannot be a relation between an individual and a class when the truth of the sentence does not depend on the class having members and when substitution of other names of the null class would lead from truth falsity. The account I would give of sentences about fictional entities or which use words like "partial", "incomplete", etc., would involve showing how psychological verbs enter into their analysis to account for this breakdown of extensionality.

There may be cases where the truth of \( F(a, x(Gx)) \) doesn't depend on there being any \( G \)'s and which preserves truth-value under substitution for the null class, and these would be interpreted as relating individuals and classes. For instance, suppose "non-" were an adjective. Then "John is a non-bicyclist" will be true when there are no bicyclists. "Non(John, x(x is a bicyclist))" remains true when the class of unicorns and even primes greater than two is substituted for the class of bicyclists. John bears the non-relation to the null class no matter how described. A genuine case of an adjective which occurred in sentences of the form \( F(a, x(Gx)) \), i.e. a genuine relation between a class and an individual which had no membership clause, would have to behave as "non" in the example behaves, if it could be true when there were no \( G \)'s. No such difficulties affect the first conjunct of the analysis of "John is a tall man". Assertions of these relations between individuals and classes are just false when the class has no members. So in the case of "Tall(John, x(x is an elf))" we never get falsehoods from truths by substitution of other names for the null class and no paradox arises. And this is just to say that "Tall" really is a relation between an individual and a class.

There are two types of cases of concatenated adjectives and general terms which do not permit the inference from "\( A \) is an \( FG \)" to "\( A \) is a \( G \)". In both cases they have logical forms other than the logical form of the paradigm cases:

1) The apparent attributive can often be shown to create an intensional context, and so cannot be a relation between an individual and a class, although it may imbed such a relation in the
scope of a psychological verb. This is the case with “fake” and “partial”. Even if all and only the world’s bicycles are possessions of mine, a fake bicycle is not a fake possession of mine.

2) There are some cases where the inference fails because the adjective is a “temporal” adjective which makes reference to times and relations between times. “Harry is a former football coach” has as logical consequences both that Harry was a coach and that he isn’t now. The logical form of “Harry is a former football coach” is “((Et)(Et’)((Harry is a coach at t) & (Harry is not a coach at t’) & (t’ is after t) & (t is now)))”. Cases where there is reference to times “built into” the adjective contrast with cases such as “John was a tall man”, since in the standard case the time relation clause occurs outside of the adjective construction. (I adopt a very simple-minded tense logic which builds time-arguments into predicates, quantifies over times, uses a demonstrative to refer to the present, another demonstrative to refer to past times, and the “after” relation to relate times referred to. I.e. “John is (present tense) a frog” becomes “(Et) (John is (timelessly) a frog at t and t = now)”. This isn’t, strictly speaking, a tense logic, since nothing logically new is needed.)

A satisfying feature of the treatment of “John is a tall man” is that “John is taller than Mike” turns out to use the same relation. The form of “John is taller than Mike” is just “Tall(John, xA(x = Mike))”. The differences between “tall” and “taller than” are just that “taller than” doesn’t have a membership clause and that when “taller than” relates an individual to a unit class, translation from metrical descriptions is always determinate. That is, whether the “tall” relation holds between a nine foot giraffe and a class of elements three feet, three feet, three feet, four feet, 15 feet, 13 feet, and 16 feet is unclear, but between the giraffe and the unit class of a 10 foot elephant, the answer is a determinate “no”. The semantic connection sensed between “tall” and “taller than” is vindicated by the theory, which thus meets adequacy condition (4). Since “taller than” turns out to be a special case of the “tall” relation between individuals and unit classes of other individuals, it is clear why, if a speaker understands “tall”, “taller than” and “short”, he understands “shorter than”.

Some readers may be disappointed in a semantics for attributives which stops at two-place primitive relations. There seem to be two standard ways of going on: giving a definition of “tall” in terms of “taller than” or giving an axiom set for “tall” and the
other attributives which will constitute a "logic of attribution". The first of these procedures seems to me impossible; the second a strategic and theoretical mistake.

The reason there can't be a definition of "tall" in terms of "taller than" is that no such definition can yield a truth-preserving paraphrase scheme, since attributives are vague in their application at the borderlines. That is, the precise answers which would be generated by such a definition would map sentences neither held-true nor held-false by English speakers with total information onto truths or falsehoods. Given that truth in English in a total information situation has a lot to do with assent in English and that an analysis must be a truth-preserving paraphrase scheme, no analysis which replaces the indeterminacy of ascriptions of "tall" with a determinate definition can be correct. Vagueness in attributives must be preserved in analysis.

One method of definition which prima facie seems to preserve vagueness which should be discussed analyzes "John is a tall man" as "John is taller than most men". "Most" can then be taken as a primitive quantifier or defined in terms of conditional probability. My problem with this analysis arises from the following sort of case: The population of acrobats consists of 101 individuals, 51 of which are exactly seven feet tall, and 50 of which are exactly five feet tall. It seems to me that the 51 are tall acrobats, but they are not taller than most acrobats.

The reason that proposing a "logic of attribution" is a strategic and theoretical mistake is that it turns semantics into physics, thus mixing problems which should be kept separate. Semantics, as we see it, is solely concerned with finding out what the forms of sentences in English are. When we have found where the predicates are, semantics is finished. It is certainly a worthwhile project, when semantics is done, to state some truths using the predicates the semantics has arrived at, but this is to do science, not semantics. We are well aware that interesting things can be said about the semantically primitive "tall" relation and about the other attributive predicates, but these truths are not logical truths, not truths which depend on the form of the sentences of English, and thus should not be put into semantics. Thus, for instance, no inferences depending on transivity of "taller than" are handled by our analysis. The tendency we oppose is the tendency to turn high-level truths into analytic truths; to build information into a theory of a language; to treat languages as first-order theories rather than as first-order languages. (This remark applies to deontic, epistemic, tense, modal,
etc., “logics”). Due to the vagueness of attributives, also, no such proposed axiom systems can be complete.

It may still be objected that there has to be some explanation of why the attributive construction, when applied to an individual and a unit class is always transitive. I should give some account of why, if someone invents the word “glof” and says the truths “John is glofer than Mary” and “Mary is glofer than Fred”, we can know that John is glofer than Fred even though we don’t know what “glof” means. What is needed is some explanation of how the truth-conditions of attributive predicates when applied to pairs of individuals and unit classes are related to the truth conditions of the predicates when applied to pairs of individuals and classes in general.

I propose the following schema for determining which predicates the principles are to apply. A two-place relation $F$ is an attributive if and only if it satisfies the schema:

$$(x)(y)(F(x, y) \rightarrow ((\exists z)(x_\varepsilon z) \ & \ F(x, z)) \ & \ (\exists z)(\neg(x_\varepsilon z) \ & \ F(x, z))))$$

We can think of this as the piece of metalinguistic knowledge:

$$(F)(A(F) \leftrightarrow "(x)(y)("^F"(x, y) \rightarrow (\exists z)(x_\varepsilon z) \ & \ "^F"(x, z)) \ & \ (\exists z)(\neg(x_\varepsilon z) \ & \ "^F"(x, z)))) " is true)$$

If a predicate is an attributive, then it holds between an individual and the unit class of another individual just in case there is a class which the first individual bears the relation to and the element of the unit class does not but not vice versa. That is, if $F$ is an attributive, then the following is a truth (donated by Gilbert Harman and John Troyer):

$$(x)(y)(((F(x, (\exists z)(z = y)) \leftrightarrow ((\exists w)(F(x, w) \ & \ \neg F(y, w)) \ & \ \neg (\exists w)(F(y, w) \ & \ \neg F(x, w))))$$

If we transpose the right-hand side of the biconditional into conditionals, i.e.

$$(x)(y)(((F(x, (\exists z)(z = y)) \leftrightarrow (\neg(w)(F(x, w) \rightarrow F(y, w)) \ & \ (w)(F(y, w) \rightarrow F(x, w))))$$

then the transitivity, irreflexivity and antisymmetry of the comparative is given a truth-functional account. We can think of this axiom schema as the metalinguistic knowledge:

$$(F)(A(F) \rightarrow "(x)(y)("^F"(x, (\exists z)(z = y)) \leftrightarrow (\neg(w)("^F"(x, w) \rightarrow "^F"(y, w)) \ & \ (w)("^F"(y, w) \rightarrow "^F"(x, w))))) " is true)$$
The grammatical phenomenon of the "-er" construction, then, serves as a notification that the relation is an attributive (satisfies the schema) and thus that the biconditional about its truth-conditions in relation to unit classes applies. It is thus a kind of metalinguistic flag.

I should caution the reader again that this axiom isn't a matter of semantics or the form of the sentence, but rather a truth using the semantically primitive predicates which occur in the sentence in its fully expanded form. I am strongly tempted to make "\((\exists x)(T(A, x) \& \sim T(B, x)) \& \sim(\exists x)(T(B, x) \& \sim T(A, x))\)" the analysis of "A is taller than B", so that the transitivity, irreflexivity and antisymmetry of comparatives come out to be a matter of logical form. This would have the advantage that the possibility of extending the principles to novel cases would not depend on the obscure notion of a metalinguistic axiom schema and would not require the metalinguistic predicate, "is an attributive". All the formal parts of the paper go through with this analysis. I resist the temptation in order to have some account of the truth-conditions of attributives applied to unit classes. If such sentences mean anything, they must be comparatives. If it turned out that metalinguistic axioms are unintelligible as explanations of certain aspects of linguistic competence, I would adopt the above analysis.

The attributive construction proposed by this theory is obviously iterable and will yield several readings of surface sentences with concatenated attributives. "John is a tall old fat man" on one understanding reads, "Tall(John, \((\exists x)(\text{old}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{x}(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man}))))". Since the construction creates a predicate, the class of things of which the predicate is true can be used as the class to which the individual is related, and so on. The analysis can make explicit shades of meaning which are in ordinary language conveyed by emphasizing "tall", "fat" or "old". That is, given the present order of its attributives, the sentence can be understood in at least two other ways, which we write, "(Tall(John, \((\exists x)(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{x}(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{x}(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man}))))" and "(Tall(John, \((\exists x)(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{x}(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man})))) \& \bar{x}(\text{fat}(x, \bar{y}(\text{fat}(y, \bar{z}(z = \text{a man}))))\)". That a speaker can "mean" any of the above by a single surface sentence-type can only mean that there are these underlying phrase-structure readings. Thus the theory meets adequacy condition (2). A hearer is unlikely to pick the first
reading in understanding another only because we have had little success with that reading in making truth-definitions for people. Given the way the world is and the lack of significant differences in the heights of old fat men and the heights of men, people rarely want to assert such readings, or if they do, they clarify their utterance by using the “$F$ for a $G$” version of the attributive construction.

The extension of the theory to such uses of attributives as “That is a puddle of old mud” and “That is a puddle of old, viscous mud” depends on ideas developed by Goodman in [6]. The world’s mud and all parts of the mud are individuals. The same applies to the cattle, the wine, the dirt, and the perfume. The two-place, reflexive, transitive predicate “belongs to” is true of an ordered pair of individuals iff “whatever overlaps the former also overlaps the latter” ([6], p. 49). A simple sample should suffice to show that the theory can meet adequacy condition (5): “$A$ is a puddle of old mud” is written, “$A$ is a puddle & $A$ belongs to $(\forall y)((x)(\text{old}(x, \exists(z \text{ belongs to the mud})) \iff x \text{ belongs to } y & y \text{ belongs to the mud})$”. The variables range over parts and the classes are classes of individual parts. Cases such as “$A$ is a puddle of old, viscous mud” just get very complex.

**Version II.**

Version II differs from Version I in that Goodmanian individuals replace classes wherever they occur in analyses of attributives. Goodman provides a method of constructing an individual consisting of all and only the things of which any predicate is true. To define the individual consisting of exactly all the men we need the two-place predicate “overlaps”. “Two individuals overlap if they have some common content, whether or not either is wholly contained in the other.” ([6], p. 49). The individual consisting of exactly all the men is, “$(\forall x)((y)(xOy \iff (\exists z)(z \text{ is a man } \& zOy)))$”. (After Goodman, [6], p. 52.) Many uses of the English plural can plausibly be treated as making reference to such sums of individuals which satisfy certain predicates. E.g. “The Etruscans built a great civilization” cannot be rendered as “$(x)(x \text{ is an Etruscan only if } x \text{ built a great civilization})$” since the predicate isn’t true of any particular Etruscan but only true of the Etruscans as a whole. In “The men built the house”, where “built the house” similarly isn’t true of any particular man but isn’t true of the individual consisting of all men either, the “the” in “the man” can be taken to be demonstrative, a description indicated by context (e.g.
“around here”). Thus “The men built the house” could be rendered, “(\(\forall x\))((y)(x0y\leftrightarrow (Ez)(z is a man & Tz [e.g. \(z\) is around the speaker] & xOy)))”.

In attributives with individuals as first arguments, we seem not to need classes with classes as elements, so individuals can replace classes for these cases. (The unusual cases are discussed in the next section.) “Tall” then is treated as a relation between individuals plus a membership condition. “Jones is a tall man” is understood as “Tall(Jones, \((yx)((y)(x0y\leftrightarrow (Ez)(z is a man & zOy)))\) & Jones is a man”. “Jones is taller than Mike” is just “Tall (Jones, Mike)”. Since “Tall(w, \((yx)((y)(x0y\leftrightarrow (Ez)(z is a man & zOy)))\)” is a predicate which can go in place of “is a man” in the analysis of “Jones is a tall man”, this analysis has all the same possibilities of iteration and permutation as the class analysis. In changing analyses, we just systematically replace “Tall”, a predicate true of pairs of individuals and classes, with “Tall”, a predicate true of pairs of individuals, and reconstrue reference to classes as reference to individuals. The same vagueness problems of how to define “Tall(Jones, the men)” in terms of “Tall(Jones, this man)” remain with us also.

Which analysis is correct? The class analysis is slightly more satisfactory, intuitively, in the attributive case; the individual analysis is slightly more satisfactory, intuitively, in the comparative case, since transitivity is easier to state. No real ontological economy is made in any case, since there have to be individuals of the Goodman type for sentences using mass terms to be true and there have to be classes for sentences of mathematics to be true. Parallel to the oddity of applying the class analysis of “old” to “old mud” we have the oddity of applying the individual analysis of “larger than” to “the class of integers is larger than the class of primes less than one hundred”. (As far as I can see, there is nothing wrong with having individuals be sums of abstract entities, although this is contrary to the spirit of Goodman’s motivation for proposing them.)

There seems to be in this case a genuine indeterminacy of reference, an indeterminacy of translation between English and first-order language. On both analyses, all dispositions to verbal behavior are preserved (they are both truth-preserving first-order paraphrase), yet they picture speakers as referring to completely different sorts of things. The only way I can imagine translation becoming determinate in this case would be if it turned out that mathematics could be done with individuals or that mass terms and plurals could be treated as classes. The question of what we are really referring to when we say things like “John is a tall man” can
only be answered relative to a choice of analysis, i.e. relative to a choice of translation-scheme.

Both of these theories have the following advantage over other theories of attributive adjectives, for instance, Romane Clark’s [1]:

1) They require no special logical apparatus.

2) No special ontology is required.

If a semantics is a theory about the deep structure of sentences in our language, then it is false that, “It is that language which the theory formalizes, and not our semantical discourse about it, which houses our ontology”. ([1], p. 335).

An analysis which quantifies over supposed unusual entities and employs unusual apparatus commits itself to those entities (if any of the sentences it analyzes are true) and attributes those pieces of logical apparatus to the users of the language.

A further comment about the relation of this paper to Clark’s work should be made: I don’t claim to give a theory of paired predicates in general, but only to deal with a special construction. It is indeed true that, “A complete and accurate characterization of modifiers [i.e. predicates paired with other predicates] ... must be a somewhat messy and fairly complicated sort of thing”. ([1], p. 335.) There are basically two tactics I use for pairings which are neither attributives nor conjunctions:

1) Some of them contain suppressed psychological verbs. These are the “intensional” cases I have discussed briefly.

2) Some of them are elliptical in an extensional way, as “former” is. There is a huge variety of elliptical constructions of this sort of English. That is, I’m not committed to paraphrasing “That is a stone jug” either as “That is a stone and that is a jug” or as “That is stoney for a jug”. Such a sentence usually has whatever form “That is a jug made of stone” has, although it may be short for “That is a jug for stone-storage”. There seems to be no general way of determining which filling-in is intended. This is a problem of pragmatics, not of syntax or semantics. (The form of the answer to this kind of problem of pragmatics consists of a set of constraints on radical translation to be applied on occasions of utterance. A charity constraint, for instance, might direct that a filling-in maximize truth.)
4. Modifiers of Attributives

There are a very few basic modifiers, which are combinations of iterations and negations of attributives applied to themselves. Non-basic modifiers are conjunctions of either the attributive itself or a basic modifier construction and a sentence with a psychological verb in the scope of which the attributive occurs again. The following approach to the basic modifiers accounts for the following linguistic phenomena:

1) “Very”, alone among the modifiers which apply only to attributives, can be meaningfully iterated. There are very, very tall men but not rather, rather tall men nor horrendously, horrendously tall men.

2) “Much”, which applies only to comparatives, forms a construction on which “very” can operate, since there are pairs of men such that one is very much taller than the other.

3) “Jones is not a very tall man” and “Jones is not much taller than Fred” have readings where the negation has wide and narrow scope.

4) “Very light old painting” cannot be read as “very light and very old painting”. If “very” were some sort of second-order predicate, it could take any predicate as argument, including such conjunctive predicates, and it can’t. “Very” and the other modifiers only apply to single attributives, and the theory shows why.

“Very” is an instruction to iterate the attributive that follows it, taking the first relatum of the attributive as the first relatum of the new attributive and taking the predicate derived by replacing occurrences of the first relatum by a variable as the predicate giving the class which is to be the second term of the derived attribution. (We state and write these attributions with modifiers using an ontology of classes for greater legibility. Exactly the same analyses can be written with individuals replacing classes throughout.) “A is a very F G” is true iff $F(A, \xi(F(x, \tilde{y}(Gy)) \& x\epsilon y(Gy))) \& A\epsilon x(F(x, \tilde{y}(Gy)) \& x\epsilon y(Gy))$. A very tall man is tall for a tall man. The negation of “A is a very F G” is the negation of a conjunction the second conjunct of which is “A is an F G”, itself a conjunction. Thus the negation of “John is a very tall man” is compatible both with “John is a tall man” and “John is a man”,

\[ A \text{ is a very } F \text{ G} \]
but implies neither. The negation of “John is a very tall man”, then has three scopes, as we would hope.

“Very” is unique in that it instructs us to construct a sentence having the logical form of an attribution. Thus “very” can operate on its own products—“very” can be meaningfully iterated in front of an attributive. The theory takes “John is a very very tall man” mechanically and tediously into the formulation:

“Tall (John, \( \hat{x}(Tall(x, \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man)) & x \in \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man))) \) & John \( \hat{x}(Tall(x, \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man)) & x \in \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man))) \) & John \( \hat{x}(Tall(x, \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man)) & x \in \hat{y}(Tall(y, \hat{z}(x is a man)) & y \in \hat{z}(x is a man))) \)”

“Very” turns out to be the only modifier of attributives which does this. The other modifiers produce conjuncts of other than attributive form, or operate on other sentence forms.

A word very much like “very” is “much”, which is a set of instructions for producing “Tall(John, \( \hat{x}(Tall(x, \hat{y}(y = Bill))) \) & John \( \hat{x}(Tall(x, \hat{y}(y = Bill))) \)” out of “Tall(John, \( \hat{x}(x = Bill)) \)”.

“Much” applies to comparatives, i.e. attributives minus the second conjunct, and produces an attributive. This is the reason that “much” only operates on comparatives, and explains why we don’t have “very taller than” but do have “very much taller than”. Once “much” constructs an attributive construction with the membership conjunct, “very” can operate on it.

A good objection to raise at this point is that the above analysis of “much” seems not to allow any formal connection between “much” as it occurs in “John is much taller than Fred” and in “Much rice is brown”. In this discussion, I will also deal with “many” constructions, which are exactly parallel to “much” constructions and are one of the cases mentioned above where reference classes have to have classes as members. Consider the following sequence of pairs of sentences:

1) “Many frogs are green”
   1a) “Much rice is brown”
2) “Few frogs are green”
   2a) “Little rice is brown”
3) “A few frogs are green”
   3a) “A little rice is brown”
4) “More frogs than toads are green”
   4a) “More rice than wheat is brown”
5) “Fewer frogs than toads are green”
   5a) “Less rice than wheat is brown”
6) “Many more frogs than toads are green”
6a) “Much more rice than wheat is brown”
7) “Many fewer frogs than toads are green”
7a) “Much less rice than wheat is brown”
8) “Very many more frogs than toads are green”
8a) “Very much more rice than wheat is brown”.

To begin my reply, I first analyze 4) and 4a); (“L” means “large”):

4) \( L(\forall x (F_x \land G_x), (\forall y (T_y \land G_y))) \)
4a) \( L(\text{the brown rice}, (\forall x (x = \text{the brown wheat}))) \).

Sentences 5) and 5a) differ from 4) and 4a) only by replacement of “L” by “S”, which reads “small”. I now have comparatives to which “much” and “many” can apply. If the first argument is a class, “many” applies. If the first argument of the comparative is an individual, “much” applies. Thus the analyses of 6) and 6a) become:

6) \( L(\forall x (F_x \land G_x), (\forall y (L(y, (\forall z (z = (\forall w(T_w \land G_w))))) \land ((\forall x (F_x \land G_x)) \epsilon (\forall y (L(y, (\forall z (z = (\forall w(T_w \land G_w))))) \))
6a) \( L(\text{the brown rice}, (\forall x (L(x, (\forall y (y = \text{the brown wheat}))) \land (\text{the brown rice} \epsilon (\forall x (L(x, (\forall y (y = \text{the brown wheat})))))) \)).

For “many” and “much” to be the same construction in 1) and 1a) as in 6) and 6a), 1) and 1a) must be attributives formed by application to comparatives. Thus the project amounts to finding a way of phrasing “There are green frogs” as a comparative comparing classes and “Some rice is brown” as a comparative comparing individuals. This isn’t really so plausible, since we think of “some, many, very many” and “some, much, very much” as progressions of degree. (Here I owe much to John Troyer’s advice.)

“Some frogs are green” and “Some rice is brown” are analyzed as follows:

0) \( L((\forall x (F_x \land G_x), (\forall y (y = (\forall z (z \neq z)))) \))
0a) \( L(\text{the brown rice}, (\forall y (y = \text{the null individual}))) \).

Sentence 0) says that the class of green frogs is large relative to typical members of the unit class of the null class, i.e. larger than the null class. Sentence 0a) says that the brown rice is larger than the individual which overlaps nothing.
Sentence 1) then has the analysis:

\[ L((\bar{x})(F \land G), (\bar{x})(L(x, (\bar{z} (z = (\bar{y})(y \neq y)))) \land ((\bar{x})(F \land G) \epsilon (\bar{x})(L(x, (\bar{z} (z = (\bar{y})(y \neq y)))))) \]

Sentence 1a) is analyzed in a parallel way.

Strictly speaking, in order for these analyses to preserve truth in actual speech situations, certain understood restrictions on the membership of the classes relative to which these classes are large have to be taken into account. That is, since not many mosquitoes carry malaria and many frogs are green, and since there are more malaria carrying mosquitoes than green frogs, the classes relative to which the class of green frogs is large and relative to which the class of malaria carrying mosquitoes is not large cannot be the same. I think of these relativizations as inserted into already-formed “much” and “many” sentences. In saying that there are many green frogs we are saying (if we are correct) that the class of green frogs is large for a class of medium sized animal (for instance) classes which are larger than the null class. Given the consideration that there are non-denumerable infinities of classes with infinities of members, it is unlikely that any unrelativized “many” sentence about frogs is true. Taking “A” to be the predicate “has only medium-sized animals as members”, then, “Many frogs are green” with this relativization inserted has the form:

\[ L((\bar{x})(F \land G), (\bar{x})(A \land L(x, (\bar{z} (z = (\bar{y})(y \neq y)))) \land ((\bar{x})(F \land G) \epsilon (\bar{x})(A \land L(x, (\bar{z} (z = (\bar{y})(y \neq y)))))) \]

The reason that classes are essential to the analysis of sentences using “many” and that no mechanical transformation into an analysis along the lines of Version II is apparent is that any set A and the unit set of the set A collapse into the same individual. There are many fleas and fewer dogs than fleas, but since the calculus of individuals can’t distinguish the individual consisting of all the fleas from the set of fleas, and since the individual consisting of all the dogs is larger than the individual consisting of all the fleas, a mechanical transformation into Version II form cannot preserve truth.

The above theory of “much” and “many” and their negatives “few” and “little” (“a few” and “a little” are the conjunction of “few” and “little” and existence clauses) has the following considerations in its favor over theories which treat such words, especially “many” and “few”, as quantifiers:
A) It allows a unified treatment of these words. "Many" and "much" do the same work wherever they occur.

B) It accounts for the fact that we have "very many", "very few", "very much", and "very little" but not "very some" and "very all" sentences. The unification of "many" and "much" yields a unification of the theory of "very".

"Rather" and "fairly" are modifiers which seem to be subject to dialect variation. Some informants claim that a man is a fairly tall man if and only if he is a rather tall man; others say that a rather tall man need not be fairly tall. The analyses that follow are from a central Ohio dialect.

A rather tall man is a man who bears the "tall" relation to men who are not tall but who may or may not be one of the men who are not tall. "Rather", when placed before an attributive, gives instructions which transform "Tall(John, \(\forall x(x \text{ is a man})\) & John \(\exists x(x \text{ is a man})\)" into "Tall(John, \(\forall x(\neg \text{Tall}(x, y(y \text{ is a man})) \& x \exists y(y \text{ is a man}))\)) & John \(\exists x(x \text{ is a man})\)". This does not have the form of an attribution, so "rather" cannot be iterated.

A fairly tall man is a man who is not tall for a tall man but is a tall man. "Fairly" transforms "Tall(John, \(\forall x(x \text{ is a man})\) & John \(\exists x(x \text{ is a man})\)" into a product that can't be operated on by any modifier:

"\(\neg \text{Tall}(John, \forall x(\text{Tall}(x, y(y \text{ is a man})) \& x \exists y(y \text{ is a man}))\) & John \(\exists x(x \text{ is a man})\) & Tall(John, \(\forall x(x \text{ is a man})\) & John \(\exists x(x \text{ is a man})\)."

"So" and "too" are modifiers that form quantified comparatives. "John is so tall that his knees bump the rafters" reads "\((x) \ (\neg \text{Tall}(John, y(y = x)) \& \neg \text{Tall}(x, y(y = John))\) only if \(x\)'s knees bump the rafters". "So", as it were, makes a comment about all men who are as tall as John.

"John is too short for a basketball player" or "John is too short for a guard" can be read either as "John is shorter than any basketball player" (when we are wondering whether he might be a basketball player) or as "John is shorter than any good guard", depending on how the "for" is understood. That is, "for" can either be understood extensionally or relative to purposes. The first order renderings of sentences using "too" should be obvious.

Modifiers such as "horribly", "pleasingly" and "disgustingly" raise special problems. In the first place, it is obvious that many such modifiers create referentially opaque contexts. Suppose there were the predicate "coronary" in English, which was true of an animal and a class if and only if that animal had relatively much...
fatty deposit in his arteries for that class. It might very well turn out that “coronary” was true of exactly the same ordered pairs of individuals and classes as “obese” is. But a man who was disgustingly obese would not be disgustingly coronary, since being coronary is not the sort of thing that would disgust us. It’s not his coronaryness that disgusts us but his obesity.

What does “disgustingly” contribute to the truth-conditions of “Jones is disgustingly obese”, given this capacity? As a first step, we can paraphrase this as “It is disgusting that Jones is as obese as he is”, taking “It is disgusting that” to create an opaque context and to imply the truth of the contained sentence. (A common feature of all of these “quasi-propositional” modifiers is that they have this truth-implication in the predicate, much like “knows that”.) What we now need to do is to analyze “It is disgusting that” in terms of “is disgusted that” a mixed propositional attitude of persons. “Everyone is disgusted that” is much too strong, since some people are insensitive. Even “most people who see Jones are disgusted that” is too strong since people can get used to disgustingly obese people. An analysis which I have found to work for most “impersonal” propositional attitudes takes “Jones is disgustingly obese” into “(x)(x ought to be disgusted that Jones is as obese as he is)”, where “ought” is to be heard as the “ought” in “If you pull out the choke, the car ought to start”. (This “ought” is claimed in [9] to be semantically identical to the prudential and moral “ought”.) I can’t dwell on these impersonal propositional attitudes, but must refer the reader to a long work where “ought” sentences are analyzed in detail, [9].

If “very” and the other modifiers are given the above analysis generally, then “very red apple” will have to be read as “red for a red apple”. There are basically three ways of dealing with the fact that attributive modifiers are used with what are prima facie one-place predicates; two of which involve complicating the semantics with added predicate clauses:

1) Keeping “very” the same, a theory can recognize two predicates “red” and “red’”, one taking individuals for arguments and the other taking ordered pairs of individuals and classes.

2) Keeping a single predicate for “red”, a theory can recognize two “very” constructions, one to apply to one-place predicates and one to apply to two-place relations between individuals and classes.

3) Keeping both “very” and “red” the same in all the constructions in which they occur, a theory can treat “red” as always
being a two-place relation between an individual and a class. This third alternative is, other things being equal, theoretically the best, since it minimizes homonymy. A theory which adopts the third alternative will have fewer predicate clauses and fewer special constructions in the truth-definition it generates for English.

The third alternative was already implied in the treatment given to comparatives. That is, in order to avoid complicating the theory by having two treatments of comparatives, we have to interpret the sentence “A is redder than B” as “Red(A, s(x = B))”. For the sake of theoretical simplicity, any adjective which has a comparative must be a two-place relation.

Modifiers and comparatives turn out to be very important constructions, for their applicability is the mechanically testable sufficient condition of a predicate being two-place. Intuitively, the applicability of comparatives and modifiers determine when a predicate “admits of degrees”. Predicates which are said to “admit of degrees”, we claim, are predicated relative to classes. Thus we have a test of whether an expression using an adjective has the form we have assigned to paradigm attributions, for any predicate which “admits of degrees” can be predicated relative to a class, and in order to avoid treating that predicate as two predicates, it must always be taken relative to a class. Thus most of the words that occur in what grammarians call “attributive position” are really two-place predicates and cannot correctly be given a conjunctive account.

That is, “red” must be an attributive adjective because “That lobster is red” is sometimes true. “That lobster is red” must have the form “That lobster is red for a lobster” to make the sentence come out true, since in absolute terms, (i.e. in relation to the universal class) lobsters are never red but at most a bright pink.

We should justify the adoption of this theoretically simplest solution by some example and by explaining the prevalence of an apparent absolute sense of words like “red”. The thesis is that no genuine one-place predicate can sensibly be modified by “rather”, “very” or “fairly”. When an apparent counter-example to the thesis is proposed, we find a context where the predication can only be true relative to a class. Since a genuine predicate has a determinate number of argument places, the predicate must be taken relative to a class wherever it occurs if it ever must be taken relative to a class.

A likely putative counter-example to the thesis might be “flat”, which would seem to be a one-place predicate with necessary and
sufficient conditions in terms of the ratio of surface area to maximum
distance between lowest part and highest part. The story which
shows that “flat” must sometimes be taken (and therefore must
always be taken) relative to a class is as follows: A farmer has some
flat fields and some hilly fields. One of his fields is a very flat
cornfield. The Mets are driven out of Shea and, since this farmer’s
very flat cornfield is the only place they can find in the area for a
baseball field, are forced to play in a lumpy baseball field, i.e. a not
very flat baseball field.

A counter-intuitive feature of our account is that there seem
to be “absolute” senses of many so-called “property-words”,
especially color words. There are sufficient conditions for a thing
being red no matter what it is, and similarly for many other sup-
posed one-place predicates. Thus the supposition that they are
one-place predicates. Our thesis is that the “absolute” sense of
“red”, as it might occur in “That is red paint”, is a relation
between an individual and everything, i.e. a special case of an
ordinary attribution. “That is red paint”, taken in this sense, reads
“Red(that, x(x = x)) & that ∈ x(x = x) & that belongs to the paint”. This accounts for an ambiguity in expressions like “red face”,
which can be read either as “red for a face” (and probably less red
than some things that are not red) or as “red for anything and a
face”.

There are common truths and well-confirmed beliefs using the
“absolute” construction in the case of “red” and not in the case of
“tall” because, while redness “admits of degrees”, there is an upper
bound or limit. There are things much redder than which nothing
could be but there are no things much taller than which nothing
could be.

The reasons there are no very clear truths of the form “Tall
(a, b(x = x)) & a∈ x(x = x)” are fairly complicated. It could very
well be that a particular mountain on the moon was the tallest
thing anywhere in the universe. If we know this, we would have
certainty in calling it tall for anything, since the tallest element
of a class is tall for that class. But if we know that it is the tallest
thing so far, and thus very probably much taller than the average
thing, we can’t have any confidence that it is a tall thing, i.e. tall
for anything.

Since “tall”, unlike “red” and “flat”, doesn’t have a limit, and
since we are sufficiently unclear about what the relation between
an individual and the elements of a class has to be in order for that
individual to be tall relative to that class, we don’t know whether
a newly discovered mountain which was very much taller than our present champion would show us that the present champion was not tall or not. With flatness, since there's a limit to how flat a thing can be, we can know that the flattest thing we know about is sufficiently close in flatness to anything new that could arise that it is bound to be flat for anything. With "tall", we are aware that there could be the following case:

\[
\begin{align*}
A_1 & \ldots A_n = \text{the other things observed} \\
C & = \text{the current champion} \\
D & = \text{newly observed mountain} \\
\end{align*}
\]

Since we wouldn't know what to say about whether \( C \) was tall for this class (that is, since "tall" is vague in this respect with non-continuous classes) and since there could always be new discoveries of very tall things, there is nothing which we feel confident is tall for anything. It could turn out that our current champion is, in fact, the tallest thing in the world and therefore tall for anything, but in an infinite universe, nothing gives confirmation that it is tall for anything. Very roughly, in language-learning, we learn laws using terms, and the existence or non-existence of limits in the case of a particular term is a matter of the laws we acquire by being taught truths of the form "Red(\( a, \delta(\( x = x )) \))".

**Conclusion**

Our main project has been to show that there is a large class of words in English whose surface grammar gives them the appearance of one-place predicates which are actually two-place relations. The theory of the logical form of sentences using these words and their modifiers shows that vastly more words than would have been taught occur in sentences of this form. Virtually all "adjectives" turn out to have this semantical account.

The formal picture of "descriptive" predication this paper presents, then, is as follows: There are two basic kinds of semantically primitive "descriptive" predicates in English; count nouns and many-place relations. Count nouns provide the basic classes (or individuals) relative to which so-called "property-ascriptions" occur. This difference turns out to be reflected in the ways vagueness occurs in attributives and count nouns. Roughly, vagueness in count nouns seems only to arise in counterfactual contexts whereas vagueness in attributives arises in ordinary non-opaque
contexts. The notion of instantiated properties is not particularly helpful in explaining the truth of or the possibility of learning to make either kind of predication. The supposed occurrence of one-place, primitive noncount-noun predications is one of the mainstays of the plausibility of the "property" account of truth and language-learning. Since most candidates for property-ascription contexts turn out to be two-place relations, there are fewer reasons to suppose that there are properties.

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