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READING PASSAGES FOR THE COURSE OF SEMANTICS: TESTS FOR STUDENTS

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**READING PASSAGES FOR THE COURSE OF SEMANTICS:
TESTS FOR STUDENTS²**

The objective of this paper is to present and describe a teaching tool for linguistics students who are learning English, a tool which furthers their linguistic education at the same time as it gives them some challenging experience with reading practice with the kinds of tests they will encounter in the main international English language examinations, mainly, IELTS and TOEFL, and with English academic writing. The selected reading material introduces the foundations of formal semantics through a set of extracts from the works of classical semanticists of the 20th century, accompanied by a set of test-type questions for each of the reading passages. The comments after each test outline the characteristic features of test types presented. The importance of advancement in students' reading potential is highlighted as crucial for their academic life in general and for their overall performance in English.

Keywords: SEMANTICS; FORMAL SEMANTICS; MATHEMATICAL LOGIC; READING SKILLS; ENGLISH TESTS.

JEL Classification Code: Z19

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For international students of linguistics, mastery of English has become increasingly important, since so much of the primary research literature is published in English. Reading has always been a vital element of studies at the university level, and doing it in English is not always easy. Every subfield has some specialized terminology, and because terminology is usually theory-dependent, individual authors may introduce new terminology to go with new theories, or may use familiar terms in unfamiliar ways. For the same reason, terminology and ways of describing things often change over time, making things hard enough for students who are native speakers of English, and certainly adding to the difficulty for non-native speakers of English.

In designing this collection of texts, we are proceeding from the belief that, first, it is “intelligent engagement with one’s sources that more than anything else defines the quality of being academically literate” (Moore, Morton & Price, 2013), and, second, it is especially helpful for students to read authentic articles written by well-known scholars; that is why we have chosen extracts from classical works by outstanding scholars who are good writers. All but one of the texts have been extracted from the collection (Portner and Partee, 2002a); the other is a widely anthologized introduction to formal semantics by David Lewis (Lewis, 1970). Works in formal semantics are among the most difficult to read; these extracts give the student an opportunity to practice on shorter passages, with questions that draw attention to some of the subtleties and difficulties in the English text of the passages. If students can read these extracts and answer the questions (and if they are ready to learn a little more logic than they may know already), then they can be confident that they will be able to read and understand works in formal semantics. Hopefully, the complexity of the academic texts selected for this short publication will be compensated for by the interest they present for students specializing in linguistics.

Besides the intention to draw students’ attention to the features of the meaning and the language in the academic texts, the second goal pursued in this booklet is to familiarize students with the formats of reading tests in important Academic English examinations and give them practice in doing what often poses a challenge even for those who have accomplished quite an advanced level in their foreign language acquisition. That was why tests that accompany reading passages were designed in the variety of formats adopted in different international examinations (IELTS and TOEFL are the main among those recognized at the university level), in all of which there has always been a challenging reading component comprising a variety of academic texts.

The significance and specific features of different types of reading tests are commented on after each test.

Passage 1.

Paul Portner and Barbara Partee³

What is formal semantics?

The roots of formal semantics lie in logic and the philosophy of language. Its first appearance as part of a theory extending to natural language semantics was in the form of “Montague grammar”, originally developed by the logician Richard
5 Montague (1930-1971) and subsequently modified and extended by linguists, philosophers, and logicians. It quickly became influential in linguistics, and linguists have played a large role in its evolution into contemporary formal semantics. The most constant features of the theory over time have been the focus on truth-conditional aspects of meaning, a model-theoretic conception of
10 semantics, and the methodological centrality of the Principle of Compositionality: “The meaning of a whole is a function of the meanings of its parts and their mode of syntactic combination.”

Formal semantics contrasts on a number of dimensions with other approaches to meaning within linguistics, psychology, and philosophy. Formal
15 semantics originates within the non-psychologistic tradition of "objective" (though abstract) meanings (Frege, Carnap, Tarski, Montague), which contrasts with the psychologistic view of meanings “in the head” (Fodor, Jackendoff, Lakoff). Do expressions refer to objects or to concepts? Is semantics a branch of mathematics, or is it (as on the Chomskyan view of all of linguistics) a branch of psychology?
20 Classical formal semanticists (Cresswell, Lewis), who took the first disjunct in these choices, distinguished semantics from knowledge of semantics, making semantic competence interestingly different from syntactic competence. Many today seek an integration of these two perspectives by studying mind-internal intuitions of mind-external relations such as reference and truth-conditions (see
25 Chierchia and McConnell-Ginet, 1990).

Formal semantics differs from most previous linguistic theories of semantics on another dimension as well: it is model-theoretic rather than representational. Many linguists have thought of semantics in terms of a "level of representation" of expressions analogous to a syntactic or phonological level, and
30 this was the way semantics was approached in the theories of Katz and Fodor,

³ Portner and Partee, 2002b

Katz and Postal, in *Generative Semantics and Interpretive Semantics*, and in later work positing a level of “Logical Form” within generative grammar (Higginbotham, May). Psychologists, who generally think of semantics as relating expressions to concepts, often regard concepts as something like elements of a “language of thought”. A representational view of semantics is quite congenial to the popular computational theory of mind (Jackendoff). A pure model-theoretic view sees semantic interpretation as relating expressions to elements of models (possibly mental models) defined in terms of constituents such as possible situations, entities, properties, truth-values, etc. Intensional objects may be modeled, for instance, as functions from possible worlds or situations to extensions. The question of the mental representation of such model-theoretic constructs is open; the inclusion of Marrian “2 1/2 -D sketches” in *Conceptual Structure* by Jackendoff suggests the possibility of mixed approaches. And Heim and many other formal semanticists have found it fruitful to work within a Chomskyan syntactic framework that does include a syntactic level of “Logical Form” which is then taken as the input to the kind of model-theoretic compositional semantics characteristic of formal semantics. Many current researchers seek an integration of model-theoretic and representational approaches, and not all contemporary formal semanticists emphasize a model-theoretic perspective in their work.

Formal semantics as a part of linguistic theory was born of two parents: philosophical logic and generative grammar. Like any child, this child inherits some features from each parent, learns others from the parents during life, follows its peers in certain ways, and eventually develops an independent personality and makes its own unique contributions. The most important feature of the early development of the field, from the end of the 1960s to the late 1980s, was that it emphasized the crucial interconnectedness of linguistic, philosophical, and logical perspectives. This approach to the analysis of meaning pursued in formal semantics has its origin in the development of formal logic. The milestones set by Frege, Tarski, Carnap, Davidson, Kripke, Kanger, Hintikka, Montague, Kaplan and others developed the ideas of a truth conditional, model theoretic, and intensional semantics for formal languages. The idea that the techniques developed for artificial formal languages could be applied to natural language was first pursued systematically in the late nineteen sixties and earlier nineteen seventies by Richard Montague, David Lewis, Max Cresswell, and Terence Parsons. The most

influential of these works, Montague's "The Proper Treatment of Quantification in Ordinary English" (PTQ) (Montague, 1973) is a historically important starting point for Montague grammar and hence for formal semantics.

70 At the most basic level, a formal semantic analysis postulates a compositional, functional pairing between syntactically analyzed sentences of a language and their truth-conditional meaning. From the time of these earliest works, including Montague's, it has been usual (though by no means universal) for the expression of truth conditions to be mediated by an intensional logic (such as Montague's typed intensional language IL) with an underlying model structure utilizing the notion of
75 possible worlds.

In its reliance on having an explicit syntactic analysis for each sentence under analysis, a semantic theory requires some sort of syntactic theory to build on. Montague's own work followed the logicians' tradition of stating the syntax in the form of a recursive definition of the set of well-formed expressions of each
80 syntactic category. The "analysis trees" corresponding to the steps of the derivation of particular sentences provided the syntactic structures that were the input to the compositional semantic interpretation. While some linguists followed up on the development of some aspects of Montague's syntax, such as his use of a modified categorial grammar (for example, Bach), other linguists preferred to seek
85 ways to integrate Montague's semantics with the kinds of approaches to syntax that had been developed within linguistics in the 1960s and 1970s.

Montague was doing his work on natural language at the height of the "linguistic wars" between generative and interpretive semantics, though Montague and the semanticists in linguistics had no awareness of one another. (Montague was aware
90 of Chomsky's work and respected its aim for rigor but was skeptical about the fruitfulness of studying syntax in isolation from semantics.) One of the potential attractions of Montague's work for linguistics was that it offered an interestingly different view of the relation between syntax and semantics that might be able to accommodate the best aspects of both of the warring approaches. The PTQ
95 instantiation of Montague's algebraic theory illustrates what Bach christened the "rule-by-rule" approach to syntax-semantics correspondence: syntactic rules put expressions together to form more complex expressions, and corresponding semantic rules interpret the whole as a function of the interpretations of the corresponding parts.

Test 1.

1. What does *Its* in line 2 refer to? _____
2. What does *its* in line 6 refer to? _____
3. What does *its* in line 10 refer to? _____
4. Which two words **can** *their* in line 10 refer to? _____ or _____
_____. Which of them do you think it **does** refer to?

5. Which scientific fields had been studying meaning by the time formal semantics took up the same task? _____
6. Describe “the first disjunct” taken by formal semanticists (lines 19-20).
_____ and _____

7. What is “*defined in terms of constituents such as possible situations, entities, properties, truth-values, etc*” in lines 37-38 an attribute to? _____
8. What does *its* in line 54 refer to? _____
9. What does *it* in line 55 refer to? _____
10. What does *its* in line 58 refer to? _____
11. What does *its* in line 75 refer to? _____
12. What is *one* and what is *another* in line 88? *one* = _____;
another=_____.
13. Describe in brief what is referred to as “warring approaches” in line 93.

14. Find at least 10 verbs or verbal collocations in the text with the meaning close to “утверждать, называть, полагать, предполагать”.
 - 1) 2) 3) 4)
 - 5) 6) 7) 8)
 - 9) 10)

Questions 15-22. Find expressions in the text that match the Russian expressions in the following table:

БЫТЬ СРОДНИ <чему>	15.
В ЕЩЕ ОДНОМ ОТНОШЕНИИ	16.
В САМЫЙ РАЗГАР	17.
ВНОСИТЬ ОСОБЫЙ ВКЛАД	18.
ЗАНИМАТЬСЯ ДАЛЬНЕЙШИМ РАЗВИТИЕМ	19.
ИМЕТЬ СОМНЕНИЯ В ОТНОШЕНИИ ПРОДУКТИВНОСТИ	20.
СОЧЕТАТЬ ЛУЧШЕЕ ИЗ ОБОИХ ПОДХОДОВ	21.
СТРЕМЛЕНИЕ К СТРОГОСТИ	22.

ABOUT THE TEST

Questions in Test 1 focus mainly on vocabulary used by the writers, and completing these tasks is supposed to help students in understanding the details from the text and in identifying the writer's views, attitudes and claims.

Passage 2.

David Lewis

*General Semantics*⁴

I. INTRODUCTION

On the hypothesis that all natural or artificial languages of interest to us can be given transformational grammars of a certain not-very-special sort, it becomes possible to give very simple general answers to the questions

- (1) What sort of thing is a meaning?
- (2) What is the form of the semantic rules whereby meanings of compounds are built up from the meanings of their constituent parts

My plan is to propose a convenient format for semantics general enough to work for a great variety of logically possible languages. This paper therefore belongs not to empirical linguistic theory but to the philosophy thereof. My proposals regarding the nature of meanings will not conform to the expectations of those linguists who conceive of semantic interpretation as the assignment to sentences and their constituents of

⁴ Lewis, 1970

compounds of 'semantic markers' or the like. Semantic markers are symbols: items in the vocabulary of an artificial language we may call Semantic Markerese. Semantic interpretation by means of them amounts merely to a translation algorithm from the object language to the auxiliary language Markerese. But we can know the Markerese translation of an English sentence without knowing the first thing about the meaning of the English sentence: namely, the conditions under which it would be true. Semantics with no treatment of truth conditions is not semantics. Translation into Markerese is at best a substitute for real semantics, relying either on our tacit competence (at some future date) as speakers of Markerese or on our ability to do real semantics at least for the one language Markerese. The Markerese method is attractive in part just because it deals with nothing but symbols: finite combinations of entities of a familiar sort out of a finite set of elements by finitely many applications of finitely many rules. But it is just this pleasing finitude that prevents Markerese semantics from dealing with the relations between symbols and the world of non-symbols - that is, with genuinely semantic relations. Accordingly, we should be prepared to find that in a more adequate method, meanings may turn out to be complicated, infinite entities built up out of elements belonging to various ontological categories.

My proposals will also not conform to the expectations of those who, in analyzing meaning, turn immediately to the psychology and sociology of language users: to intentions, sense-experience, and mental ideas, or to social rules, conventions, and regularities. I distinguish two topics: first, the description of possible languages or grammars as abstract semantic systems whereby symbols are associated with aspects of the world; and second, the description of the psychological and sociological facts whereby a particular one of these abstract semantic systems is the one used by a person or population. Only confusion comes of mixing these two topics. This paper deals almost entirely with the first.

My proposals are in the tradition of referential, or model-theoretic, semantics descended from Frege, Tarski, Carnap (in his later works), and recent work of Kripke and others on semantic foundations of intensional logic. The project of transplanting referential semantics from artificial to natural languages has recently been undertaken, in various ways, by several philosophers and linguists - Davidson, Parsons, Montague, Keenan. I have no quarrel with these efforts; indeed, I have here adapted features from several of them. I hope, however, that the system set forth in this paper offers a simpler way to do essentially the same thing. But simplicity is a matter of taste, and simplicity at one place

trades off against simplicity elsewhere. It is in these trade-offs that my approach differs most from the others.

II. INTENSIONS FOR BASIC CATEGORIES

In order to say what a meaning is, we may first ask what a meaning does, and then find something that does that.

A meaning for a sentence is something that determines the conditions under which the sentence is true or false. It determines the truth-value of the sentence in various possible states of affairs, at various times, at various places, for various speakers, and so on. (I mean this to apply even to non-declarative sentences, but postpone consideration of them.) Similarly, a meaning for a name is something that determines what thing, if any, the name names in various possible states of affairs, at various times, and so on. Among 'things' we include things that do not actually exist, but might exist in states of affairs different from the actual state of affairs. Similarly, a meaning for a common noun is something that determines which (possible or actual) things, if any, that common noun applies to in various possible states of affairs, at various times, and so on.

We call the truth-value of a sentence the extension of that sentence; we call the thing named by a name the extension of that name; we call the set of things to which a common noun applies the extension of that common noun. The extension of something in one of these three categories depends on its meaning and, in general, on other things as well: on facts about the world, on the time of utterance, on the place of utterance, on the speaker, on the surrounding discourse, etc. It is the meaning which determines how the extension depends upon the combination of other relevant factors. What sort of things determine how something depends on something else? Functions, of course; functions in the most general set-theoretic sense, in which the domain of arguments and the range of values may consist of entities of any sort whatever, and in which it is not required that the function be specifiable by any simple rule. We have now found something to do at least part of what a meaning for a sentence, name, or common noun does: a function which yields as output an appropriate extension when given as input a package of the various factors on which the extension may depend. We will call such an input package of relevant factors an index; and we will call any function from indices to appropriate extensions for a sentence, name, or common noun an intension.

Thus an appropriate intension for a sentence is any function from indices to truth-values; an appropriate intension for a name is any function from indices to things; an

appropriate intension for a common noun is any function from indices to sets. The plan to construe intensions as extension-determining functions originated with Carnap. Accordingly, let us call such functions Carnapian intensions. But whereas Carnap's extension-determining functions take as their arguments models or state-descriptions representing possible worlds, I will adopt the suggestion of letting the arguments be packages of miscellaneous factors relevant to determining extensions. We may take indices as n-tuples (finite sequences) of the various items other than meaning that may enter into determining extensions. We call these various items coordinates of the index, and we shall assume that the coordinates are given some arbitrary fixed order.

First, we must have a possible-world coordinate. Contingent sentences depend for their truth value on facts about the world, and so are true at some possible worlds and false at others. A possible world corresponds to a possible totality of facts, determinate in all respects. Common nouns also have different extensions at different possible worlds; and so do some names, at least if we adopt the position that things are related to their counterparts in other worlds by ties of strong similarity rather than identity.

Second, we must have several contextual coordinates corresponding to familiar sorts of dependence on features of context. (The world coordinate itself might be regarded as a feature of context, since different possible utterances of a sentence are located in different possible worlds.) We must have a time coordinate, in view of tensed sentences and such sentences as 'Today is Tuesday'; a place coordinate, in view of such sentences as 'Here there are tigers'; a speaker coordinate in view of such sentences as 'I am Porky'; an audience coordinate in view of such sentences as 'You are Porky'; an indicated-objects coordinate in view of such sentences as 'That pig is Porky' or 'Those men are Communists'; and a previous discourse coordinate in view of such sentences as 'The aforementioned pig is Porky'.

Third, it is convenient to have an assignment coordinate: an infinite sequence of things, regarded as giving the values of any variables that may occur free in such expressions as 'x is tall' or 'son of y'. Each variable employed in the language will accordingly be a name having as its intension, for some number n , the n th variable intension: that function whose value, at any index i , is that thing which is the n th term of the assignment coordinate of i . That thing is the extension, or value, of the variable at i . The extensions of 'x is tall' of 'son of y' depend on the assignment and world coordinates of indices just as the extensions of 'I am tall' of 'son of mine' depend on the speaker and world coordinates. Yet the assignment coordinate cannot naturally be included among features of context. One might claim that variables do not appear in sentences of natural

languages; but even if this is so, it may be useful to employ variables in a categorial base. In any case, I seek sufficient generality to accommodate languages that do employ variables.

Perhaps other coordinates would be useful. But let us stop here, even though the penalty for introducing a superfluous coordinate is mere clutter, while the penalty for omitting a needed one is inadequacy. Thus an index is tentatively any octuple of which the first coordinate is a possible world, the second coordinate is a moment of time, the third coordinate is a place, the fourth coordinate is a person who is a speaker, the fifth coordinate is a set of persons who are an audience, the sixth coordinate is a set (possibly empty) of concrete things capable of being pointed at, the seventh coordinate is a segment of discourse, and the eighth coordinate is an infinite sequence of things.

Intensions, our functions from indices to extensions, are designed to do part of what meanings do. Yet they are not meanings; for there are differences in meaning unaccompanied by differences in intension. It would be absurd to say that all tautologies have the same meaning, but they have the same intension; the constant function having at every index the value truth. Intensions are part of the way to meanings, however, and they are of interest in their own right. We shall consider later what must be added to an intension to obtain something that can do all of what a meaning does.

A name may not denote anything at a given possible world. 'Pegasus', for instance, denotes nothing at our world, so its intension may be taken as undefined at any index having our world as its world coordinate. A sentence that suffers from failure of presupposition is often thought to lack a truth-value. If we adopt this treatment of presupposition, sentences susceptible to lack of truth-value should have intensions that are undefined at some indices. They might even have intensions that are undefined at all indices; a sentence with inconsistent presuppositions should have as its intension the empty function, defined at no index.

Test 2

Complete each sentence 1-5 with one correct ending from A-H.

Write the correct letter, A-H, in the table below each number of the sentence.

1. The writer proposes a method that
2. Meanings of sentences in this research are studied by
3. The main theoretical notion the writer develops for the analysis of meaning is that of
4. The writer sets up eight coordinates
5. If an intension of a sentence is undefined at a certain index,

- A. important for the construction of indices.
- B. the sentence denotes nothing at the world specified in the world coordinate of the index.
- C. enables him to represent meanings as finite combinations of entities.
- D. a function that cannot be defined by simple rules.
- E. its presupposition does not work.
- F. is a theoretical model of semantic foundations of intensional logic.
- G. an intension defined as a function from indices to extensions.
- H. exploring the truth-value of the sentence and circumstances caused by it.

1.	2.	3.	4.	5.

ABOUT THE TEST

Test 2 presents a task that students often find especially difficult. Nevertheless, practice in matching activities becomes particularly important as matching tasks together with multiple choice questions and summarizing points tests have constituted the majority of questions in all existing tests of English (for example, 57% or more in IELTS⁵). Just as in other types of matching tests, information for questions in Test 2 here has to be retrieved from several different places in the passage. Students have to demonstrate their understanding of the relations between parts of texts given by grammatical cohesion devices of reference, comparison, and others.

Passage 3.

Greg N. Carlson

A Unified Analysis of the English Bare Plural⁶

Abstract.

It is argued that the English "bare plural" (an NP with plural head that lacks a determiner), in spite of its apparently diverse possibilities of interpretation, is optimally represented in the grammar as a unified phenomenon. The chief distinction to be dealt with is that between the "generic" use of the bare plural (as in "**Dogs bark**") and its existential, or "indefinite plural," use (as in "**He threw oranges at Alice**"). The difference between these uses is not to be accounted for

⁵ Moore, Morton & Price, 2013

⁶ Carlson, 1977

by an ambiguity in the NP itself, but rather by explicating how the context of the sentence acts on the bare plural to give rise to this distinction. A brief analysis is sketched in which bare plurals are treated in all instances as proper names of kinds of things. A subsidiary argument is that the null determiner is not to be regarded as the plural of the indefinite article *a*.

Test 3.

1. What does *its* in line 2 refer to? _____
2. What does *its* in line 5 refer to? _____
3. What does *this* in line 8 describe? _____
4. Use a different modal in the predicate of the last sentence leaving the meaning the same.

5. Find the expression in the text which means “the most important difference under consideration”.

6. Writers are often advised to avoid the passive voice; but scientific writers are advised to avoid using “I”. Which advice did this writer follow in this Abstract? Rewrite those sentences whose main verb is in the passive into their active form with subject “I”.

7. List 7 more verbs with their patterns (the first one has been done for you) that are used in the **Abstract** to show what a scientist does in his/her work.

- | | | |
|-------------------------|----|----|
| 1) <i>to argue that</i> | 2) | 3) |
| 4) | 5) | 6) |
| 7) | 8) | |

8. List four constructions with the full infinitive in the text and say what syntactic roles those uses of the infinitive play.

- A
- B
- C
- D

ABOUT THE TEST

Test 3 is designed to evaluate students' ability to get the basic comprehension of key information in the passage, on the one hand, and to raise students' awareness of the writing devices applied by the author of the passage, on the other.

Passage 4.

Greg N. Carlson

*A Unified Analysis of the English Bare Plural*⁷

1.5 Anaphoric processes

A sentence such as (49) is ambiguous between transparent and opaque readings.

(49) Kelly is seeking a unicorn.

In the larger context of (50), however, the ambiguity disappears, in spite of the fact that (49) is wholly contained within (50). This lack of ambiguity can be traced to the definite pronominal form found in the second conjunct, here assumed to refer to the object NP of the first conjunct.

(50) Kelly is seeking a unicorn, and Millie is seeking *it*, too.

In (50), Kelly and Millie must both be seeking the same unicorn. There is no reading in which each is looking for different unicorns, nor is there a reading in which both are engaged in some general activity of unicorn-seeking. Such readings are allowed in (51), where the pro-form "one" serves as the pronoun.

(51) Kelly is seeking a unicorn, and Millie is seeking *one*, too.

Neither of the readings of (51) are found in (50).

We would expect that the \emptyset NP (null NP) in this position would not allow any definite pronominalization to take place in a subsequent conjunct, since we have seen that \emptyset NP allows only an opaque reading in such contexts. Since only the transparent reading of (49) is found in the context of (50), not the opaque reading, and since \emptyset rules out a transparent reading, it should be impossible to obtain a reading for the following sentence (with *them* meaning "unicorns").

(52) *Queenie is seeking unicorns, and Phil is seeking them, too.*

⁷ Carlson, 1977

Surprisingly, (52) does have a perfectly legitimate reading, although it is not the reading to be found in (50), but rather one of the readings of (51), the opaque reading. There is no sense in which Phil and Queenie are seeking the same group of unicorns. It seems to mean only that they are both engaged in some general activity of unicorn-seeking, despite the definite pronominalization in the second conjunct. I must hasten to point out that this result is not due to any difference between *them* and *it* beyond plurality; rather it is due to the nature of the antecedent. As the reader may have noticed, mass nouns with \emptyset determiners behave almost identically to \emptyset NP with respect to the phenomena noted. In (53) we find pronominalization resulting in the definite pronoun *it*, but here, in contrast to (50), the opaque reading of the first conjunct remains. Cedrick and Hiram need not be seeking the same articles of furniture.

(53) Cedrick is seeking furniture, and Hiram is seeking *it*, too.

If *it* can have this property in (53) then why not in (50)? The answer is simply that it is the nature of the antecedent, and not the form of the pronoun, which gives rise to this property.

It appears that this particular set of facts does not depend on the presence of an opaque context. In (54), the italicized NP's are not in opaque or intensional contexts, but still Harriet need not catch the same rabbits as Ozzie, nor must I drink the same beer Dad did.

(54) (a) Harriet caught *rabbits* yesterday, and Ozzie caught *them* today.

(b) Dad drank *beer* slowly, and I drank *it* fast.

Compare (54a) and the following.

(55) Harriet caught *a rabbit* today, and Ozzie caught *it* yesterday.

Here again we see \emptyset behaving in a manner quite different from *a*.

Similar sorts of results are obtained when deletion occurs in coordinate structures, rather than pronominalization. First let us consider the case with the indefinite singular *a*.

(56) *A building* will collapse in Berlin tomorrow, and *a building* will burn down in Boston the day after.

Clearly, (56) leaves the impression that two different buildings are being spoken of. However, if the subject of the second conjunct is deleted "on identity with" the subject of the first, a stranger tale is told in which the same building will collapse and burn in two different places. This is the only reading of (57).

(57) A building will collapse in Berlin tomorrow, and _____ will burn down in Boston the day after.

Using the "indefinite plural", we find that (58) means something very close to (56). The difference arises when we remove the subject of the second conjunct, and find that it still means the same as (58). (59) need not denote an extremely unusual state of affairs, and hence it is like (56) rather than (57).

(58) Buildings will collapse in Berlin tomorrow, and buildings will burn in Boston the day after.

(59) Buildings will collapse in Berlin tomorrow, and _____ will burn in Boston the day after.

A somewhat different phenomenon, which has much the same flavor as those just discussed, involves reference to the complement of a set. To illustrate what I mean, let us examine (60).

(60) Jack is hunting for a unicorn, and Frank is looking for another/some more/some others.

NP's like *another* and *some more*, in (60), involve some notion like "one of the unicorns that Jack is not looking for", or "some unicorns beyond those that Jack is already seeking". There is at least an implicit reference to the unicorns that Jack is *not* seeking. We find that in (60), there is no opaque reading for the first conjunct, in spite of the fact that the first conjunct in isolation exhibits the transparent/opaque distinction quite clearly. One apparently cannot refer to the complement set of something that is "down in" an intensional context, a fact which seems to make clear intuitive sense. Since the \emptyset NP has only opaque readings in opaque contexts, we would naturally anticipate that sentences such as (61) would be ill-formed. And indeed, (61) lacks an interpretation where Jack and Frank are seeking different unicorns.

(61) Jack is hunting for unicorns, and Frank is hunting for ??another/??others/??some more/??some others.

This result is expected. What is unexpected is that similar results are obtained with \emptyset NP even when it appears in extensional contexts. The sentences of (62) are all strange in the same way as (61), yet none of the underlined NP's are in opaque or intensional contexts.

(62) (a) ??Max trapped beavers last night, and fed (some) others.

(b) ??Dogs just ran across my lawn, and some more found their way into my kitchen.

- (c) ??George walked down the street with *kittens*, and Henry David walked down the street with (some) others.

Compare (62) with (63), where the NP's differ in their determiners. I vastly prefer the sentences of (63) to those of (62).

(63) (a) Max trapped $\left\{ \begin{matrix} sm \\ a \end{matrix} \right\}$ beaver(s) last night, and fed $\left\{ \begin{matrix} \text{(some) others} \\ \text{some more} \end{matrix} \right\}$.

(b) $\left\{ \begin{matrix} \text{A dog} \\ \text{Sm dogs} \end{matrix} \right\}$ just ran across my lawn, and (some) others round their way into my kitchen.

(c) George walked down the street with $\left\{ \begin{matrix} sm \text{ kittens} \\ a \text{ kitten} \end{matrix} \right\}$, and Henry David walked down the street with $\left\{ \begin{matrix} \text{(some) others} \\ \text{some more} \end{matrix} \right\}$.

None of these facts are predicted by any analysis that assumes \emptyset to be the plural counterpart of the indefinite singular *a*.

Test 4.

Do the following statements agree with the information given in the text?

In the spaces after sentences 1-5, write

YES if the statement agrees with the information

NO if the statement contradicts the information

NOT GIVEN if there is no information on this

1. Contrary to sentences (49) and (51), which both have two meanings, sentence (50) has only one. _____
2. Sentences (50) and (52) are both unambiguous. _____
3. Sentence (52) is similar to sentence (51) in form and to sentence (50) in meaning. _____
4. Sentence (57) makes much less sense than sentence (59). _____
5. Semanticists have always assumed that article *a* is the singular counterpart of a zero plural form. _____

*Complete the sentence below filling the gap with your own words based on your understanding of the main idea in the passage. Choose **NO MORE THAN TWO WORDS** for the answer.*

6. No matter how we interpret the indefinite article, if we assume that article *a* is the singular counterpart of a zero plural form, we are _____ explain the phenomena revealed through the examples in this text.

ABOUT THE TEST

The type of engagement required for the first part of Test 4 - YES/NO/NOT GIVEN tasks – presupposes establishing the semantic relationship between two pieces of information (one in the question, and one located in the passage), and deciding whether they are synonymous or non-synonymous. In other words, the task requires that students establish whether the proposition in the question does in fact occur in some form in the reading passage (taking into consideration the ‘Not-given’ option). The characteristic feature of this task type is that it covers the level of a sentence, implies a strong literal engagement with reading material as well as some interpretative skills on the part of test-takers.

The last question on this test examines the general understanding of the main point stated by the author. It is aimed not at searching a particular place in the passage but rather at developing the ability to summarise the idea in one sentence.

Passage 5.

Robert C. Stalnaker

*Assertion*⁸

Let me begin with some truisms about assertions. First, assertions have content; an act of assertion is, among other things, the expression of a proposition - something that represents the world as being a certain way. Second, assertions are made in a context - a situation that includes a speaker with certain beliefs and intentions, and some people with their own beliefs and intentions to whom the assertion is addressed. Third, sometimes the content of the assertion is dependent on the context in which it is made, for example, on who is speaking or when the act of assertion takes place. Fourth, acts of assertion affect, and are intended to affect, the context, in particular the Attitudes of the participants in the situation; how the assertion affects the context will depend on its content.

My aim in this paper is to sketch some theoretical concepts with which to develop these truisms, and to show how these concepts can be used to explain some linguistic phenomena. I want to suggest how content and context might be represented in a theory of speech, and how the interaction of content and context to which the above mentioned truisms point might be described. I will not propose an analysis of assertion, but I will make some modest claims

⁸ Stalnaker, 1978

about the way assertions act on the contexts in which they are made, and the way contexts constrain the interpretation of assertions. In conclusion, I will look briefly at an example of a phenomenon which I think these modest claims help to explain.

Three notions will play a central role in the theory I will sketch: the notion of a proposition, the notion of a prepositional concept, and the notion of speaker presupposition. Each of these three notions will be defined or explained in terms of the notion of a possible world, or a possible state of the world. In particular inquiries, deliberations, and conversations, alternative states of the subject matter in question are conceived in various different ways depending on the interests and attitudes of the participants in those activities. But one thing that is common to all such activities, and essential to them, is that the participants do seek to distinguish among alternative ways that things might be, or might have been. The decision to treat possible worlds, or possible situations, as primitive elements in a theory of propositions and propositional attitudes does not require an ontological commitment to possible worlds as basic entities of the universe. Rather, it is a decision to theorize at a certain level of abstraction.

The analysis of proposition in terms of possible worlds was first proposed in the context of intuitive semantics for modal logic. The analysis is this: A proposition is a function from possible worlds into truth values (true or false). More roughly and intuitively, a proposition is a rule for determining a truth value as a function of the facts - of the way the world is. Or, a proposition is a way - any way - of picking out a set of possible states of affairs - all those for which the proposition takes the value true.

The intuitive motivation for this analysis is something like the following. A proposition — the content of an assertion or belief - is a representation of the world as being a certain way. But for any given representation of the world as being a certain way, there will be a set of all the possible states of the world which accord with the representation - which are that way. So any proposition determines a set of possible worlds. And, for any given set of possible worlds, to locate the actual world in that set is to represent the world as being a certain way. So every set of possible worlds determines a proposition. Furthermore, any two assertions or beliefs will represent the world as being the same way if and only if they are true in all the same possible worlds. If we assume, as seems reasonable, that representations which represent the world as being the same way have the same content (express the same proposition), then we can conclude that there is a one-one correspondence between sets of possible worlds and propositions. Given this correspondence, it seems reasonable to use sets of possible worlds or (equivalently) functions from possible worlds into truth values, to play the role of propositions

in our theory. The analysis defines propositions in terms of their essential function - to represent the world.

Supposing for convenience of exposition that there is just a small finite number of possible states of the world, we might represent a proposition by enumerating the truth values that it has in the different possible worlds, as in the following matrix:

$$\mathbf{A} \quad \begin{array}{ccc} & i & j & k \\ \begin{array}{c} \boxed{\text{T}} \\ \boxed{\text{F}} \\ \boxed{\text{T}} \end{array} & & & \end{array}$$

i , j , and k are the possible worlds - the different possible sets of facts that determine the truth value of the proposition.

But there is also a second way that the facts enter into the determination of the truth value of what is expressed in an utterance: It is a matter of fact that an utterance has the content which it has. What one says — the proposition he expresses - is itself something that might have been different if the facts had been different; and if one is mistaken about the truth value of an utterance, this is sometimes to be explained as a misunderstanding of what was said rather than as a mistake about the truth value of what was actually said. The difference between the two ways that truth values depend on facts is exploited in the familiar riddle, *If you call a horse's tail a leg how many legs does a horse have?* The answer, of course, is four, since calling a tail a leg does not make it one, but one can see a different way to take the question.

Let me give a simple example: I said *You are a fool* to O'Leary. O'Leary is a fool, so what I said was true, although O'Leary does not think so. Now Daniels, who is no fool and who knows it, was standing nearby, and he thought I was talking to him. So both O'Leary and Daniels thought I said something false: O'Leary understood what I said, but disagrees with me about the facts; Daniels, on the other hand, agrees with me about the fact (he knows that O'Leary is a fool), but misunderstood what I said. Just to fill out the example, let me add that O'Leary believes falsely that Daniels is a fool. Now compare the possible worlds i , j , and k . i is the world as it is, the world we are in; j is the world O'Leary thinks we are in; and k is the world Daniels thinks we are in. If we ignore possible worlds other than i , j , and k , we can use matrix A to represent the proposition I actually expressed. But the following **two-dimensional** matrix also represents the second way that the truth value of my utterance is a function of the facts:

$$\mathbf{B} \quad \begin{array}{ccc} & i & j & k \\ \begin{array}{c} i \\ j \\ k \end{array} & \begin{array}{c} \boxed{\text{T}} \\ \boxed{\text{T}} \\ \boxed{\text{F}} \end{array} & \begin{array}{c} \boxed{\text{F}} \\ \boxed{\text{F}} \\ \boxed{\text{T}} \end{array} & \begin{array}{c} \boxed{\text{T}} \\ \boxed{\text{T}} \\ \boxed{\text{F}} \end{array} \end{array}$$

The vertical axis represents possible worlds in their role as context — as what determines what is said. The horizontal axis represents possible worlds in their role as the arguments of the functions which are the propositions expressed. Thus the different horizontal lines represent what is said in the utterance in various different possible contexts. Notice that the horizontal line following i is the same as the one following j . This represents the fact that O'Leary and I agree about what was said. Notice also that the vertical column under i is the same as the one under k . This represents the fact that Daniels and I agree about the truth values of both the proposition I in fact expressed and the one Daniels thought I expressed.

In a sense, I said something true at i and false at j and k , even though in none of these worlds did I express the proposition that is true in i and false in j and k . Although not expressed in any of the contexts, this proposition is represented in the matrix. I will call it the diagonal proposition since it is the function from possible worlds into truth values whose values are read along the diagonal of the matrix from upper left to lower right. In general, this is the proposition that is true at i for any i if and only if what is expressed in the utterance at i is true at i . I shall say more about diagonal propositions later.

Test 5.

Do the following statements agree with the information in the Passage? In boxes 1-8 on the right of the statements, write

***TRUE** if the statement agrees with the information*

***FALSE** if the statement contradicts with the information*

***NOT GIVEN** if there is no information on this*

When an assertion is made, a proposition is expressed representing the world in a certain way.

1 _____

Sets of possible worlds are defined before the formal structure of assertion acts is set up.

2 _____

The proposition is a first-order logic function from possible worlds into truth values.

3 _____

Every proposition determines a certain world.

4 _____

Any set of possible worlds corresponds to some proposition.

5 _____

A matrix enumerating the truth values of a proposition in different possible worlds is the best way to represent any proposition.

6 _____

The writer tells a joke to demonstrate how the truth values of the proposition

depend on facts.

7 _____

The writer brings in an example to show how the matrix works for representing the influence of the context.

8 _____

ABOUT THE TEST

The type of questions in this test – TRUE/FALSE/NOT GIVEN – is exactly the same as YES/NO/NOT GIVEN tasks – see comments for the previous test.

Passage 6.

Jon Barwise and Robin Cooper

***Generalized Quantifiers and Natural Language*⁹**

1 Generalized Quantifiers and Noun Phrases

1.1 Some examples of generalized quantifiers

Viewed from a modern perspective, the familiar \forall and \exists are extremely atypical quantifiers. They have special properties which are entirely misleading when one is concerned with quantifiers in general. We begin this paper by discussing some simple examples of generalized quantifiers from mathematics to draw out some of the general features of quantifiers. Consider the following examples.

- (1) (a) There are only a finite number of stars.
(b) No one's heart will beat an infinite number of times.
- (2) (a) More than half of John's arrows hit the target,
(b) More than half the people voted for Carter.
- (3) (a) Most of John's arrows hit the target.
(b) Most people voted for Carter.

1.2 Many quantifiers are not definable using first-order \forall and \exists

There is no doubt that in any human language in which modern science can be formulated, sentences like (1) and (2) can be expressed. We suspect that sentences with quantifiers like those in (2) and (3) can be expressed in any human language. But the quantifiers in (1)—(3) cannot be expressed in terms of the first-order quantifiers $\forall x(\dots x\dots)$ and $\exists x(\dots x\dots)$. It is not

⁹ Barwise and Cooper, 1981

just that we do not see how to express them in terms of \forall and \exists ; it simply cannot be done. Thus, a semantic theory for natural language cannot be based on the predicate calculus alone. First, before seeing just what the problems are, let us abstract out the quantifiers at work in (1)–(3) as follows.

- (1') Finitely many things x satisfy $\varphi(x)$, *or, more symbolically*, Finite $x[\varphi(x)]$.
- (2') More than half the x such that $\psi(x)$ satisfy $\varphi(x)$, *or*, (more than $\frac{1}{2}\psi$) $x[\varphi(x)]$.
- (3') Most x such that $\psi(x)$ satisfy $\varphi(x)$, *or* (most ψ) $x[\varphi(x)]$.

Let E be an arbitrary non-empty set of things (individuals, entities, call them what you will) over which our variables range. First-order logic only allows quantification over objects in E , not over arbitrary sets of things, functions from things to things or other sorts of abstract objects not in E . Within this framework, it is easy to prove that none of the quantifiers used in (1)–(3) is definable in terms of the ordinary \forall and \exists .

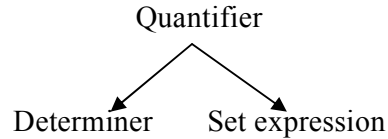
Consider the case of "more than half". It is a routine application of familiar techniques in first-order logic to prove that this cannot be defined from \forall and \exists ; that is, that there is no fixed definition that works even in all finite domains. One has to leave traditional first-order logic in one of two ways. One possibility is to expand the domain E of quantification to a bigger domain $E \cup A$, where A includes numbers and functions from subsets of E to numbers. That is, one might mirror the high-order set-theoretic definition of "more than half" in the semantics by forcing every domain E to contain all of the abstract apparatus of modern set-theory. A different approach, one that model-theorists have found more profitable, is to keep the formal definition as part of the metalanguage, and treat generalized quantifiers without bringing all the problems of set theory into the syntax and semantics of the logic *per se*. We'll see just how this is done in a moment. The point to make here is that, once we make this move, it also gives us a way to treat determiners like "most", "many", "few" and others.

1.3 Quantifiers correspond to noun-phrases, not to determiners

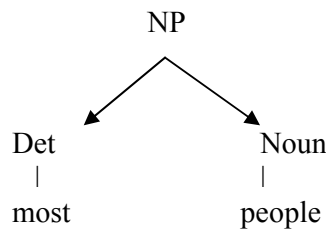
We have been at some pains *not* to call "most" and "more than half" quantifiers. To see why, note for example that there is no way to define "more than half of John's arrows" from "more than half of all things", i.e., it cannot be formalized as something like

"More than half $x(\dots x \dots)$ ".

This is why, in (2'), we symbolized the quantifier with ψ built into the quantifier prefix. What this means, semantically, is that "more than half" is not acting like a quantifier, but like a determiner.² It combines with a set expression to produce a quantifier. On this view, the structure of the quantifier may be represented as below.



If we compare this structure with the syntactically simple sentence (3b) we can see that the structure of the logical quantifier corresponds in a precise way to the structure of the English noun-phrase (NP) as represented in:



For exactly the same reason, "most" must be treated as a determiner, not as quantifier. It is the NP "most people" that is a quantifier. There is no way to paraphrase a sentence like (3b) that begins "most things are such that if they are people then ...". This can be proved, given reasonable assumptions about the meaning of "most", in the same way as for "more than half".

1.6 Proper names and other noun-phrases are natural language quantifiers

We are now in a position to examine the notorious mismatch between the syntax of noun phrases in a natural language like English and their usual representations in traditional predicate logic. To review the mismatch, notice that the sentences in (6) are all to be analyzed as consisting of a noun phrase followed by a verb-phrase as represented by the labelled brackets.

- (6) (a) [Harry]_{NP} [sneezed]_{VP}
- (b) [Some person]_{NP}[sneezed]_{VP}
- (c) [Every man]_{NP}[sneezed]_{VP}
- (d) [Most babies]_{NP} [sneeze]_{VP}

There is strong evidence that the phrases labelled as NP's here belong to a single syntactic category. For example, they may occur not only as the subjects of intransitive verbs (as in (6)) but also as the objects of transitive verbs (7) and of prepositions (8).

- (7) Susan kissed $\left\{ \begin{array}{l} \text{Harry} \\ \text{some person} \\ \text{every man} \\ \text{most babies} \end{array} \right.$
- 8) I saw Susan with $\left\{ \begin{array}{l} \text{Harry} \\ \text{some person} \\ \text{every man} \\ \text{most babies} \end{array} \right.$

This constituent structure is not reflected in the translation of sentences containing NP's into predicate calculus. (6a-c) might be represented, ignoring tense, as (9a-c) respectively.

- (9) (a) **sneeze (h)**
 (b) $\exists x[\text{person}(x) \wedge \text{sneeze}(x)]$
 (c) $\forall x[\text{man}(x) \rightarrow \text{sneeze}(x)]$
 (d) (There is no predicate calculus representation for (6d))

While (9a) contains a representation of the English NP *Harry*, (9b) and (9c) do not contain constituents representing the NP's *some person* and *every man*. Furthermore these two expressions contain open sentences joined by two place connectives which do not correspond to constituents of the English sentences. The correct choice of the connective depends on the quantifier which is to be prefixed to the open sentence.

From our discussion of generalized quantifiers we can see that the mismatch between (6a—d) and (9a—d) is not necessary. (9b) is not really a translation of (6b), but of the logically equivalent, but linguistically quite different, sentence:

(10) Something was a person and sneezed.

What is wanted, to translate (6b—d), is (in our notation):

- (11) (a) **(Some person)** $\lambda x[\text{sneeze}(x)]$
 (c) **(Every man)** $\lambda x[\text{sneeze}(x)]$
 (d) **(Most babies)** $\lambda x[\text{sneeze}(x)]$.
 (c) Or, more simply,

- (12) (b) **(Some person) (sneeze)**
 (e) **(Every man) (sneeze)**
 (f) **(Most babies) (sneeze).**

These sentences will be true just in case the set of sneezers (represented either by λx [sneeze (x)] or by sneeze) contains some person, every man, or most babies, respectively. All that is left to make the treatment of NP's as quantifiers uniform is the observation that even proper names can be treated as quantifiers. In our logic, (13) may be translated as (14), or rather, something like (14) in structure.

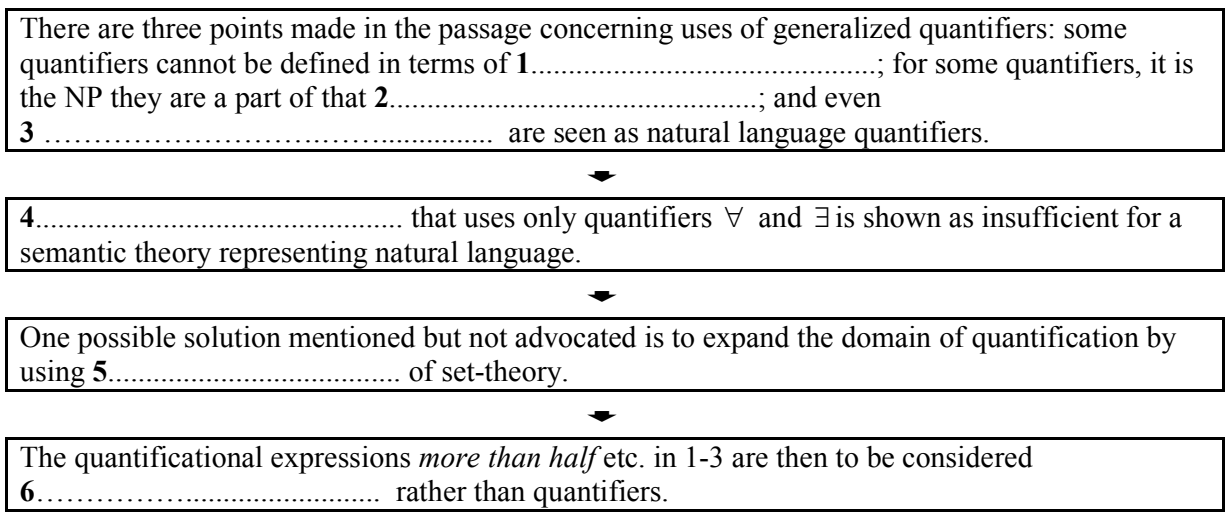
(13) Harry knew he had a cold.

(14) Harry λx [x knew x had a cold].

(15) must be true just in case Harry is a member of the set. Hence the quantifier represented by the NP *Harry* can be taken as denoting the family of sets which contain Harry. To have our cake and eat it too (preserving the intuition that proper names denote individuals, rather than sets of sets), we will let the lexical item or word *Harry* denote an individual. However, the NP containing just this word ([Harry]_{NP}) will denote the family of sets containing Harry.

TEST 6

The flow-chart below outlines some points the writer makes. Complete the flow-chart choosing **NO MORE THAN THREE WORDS** from the text for each answer to questions 1-6. Don't change the word(s) from the text which fit(s) the gap.



ABOUT THE TEST

Test 6 here is a type of tasks and questions involving summarizing or outlining the content of the passage. They require what is traditionally called 'interpretative' reading, or at least more interpretative skills than in the TRUE/FALSE/NOT GIVEN (YES/NO/NOT GIVEN) format discussed for the previous tests. They usually do not involve identifying a one-to-one correspondence between propositions in the questions and in the passage; moreover, the context in the question usually is a paraphrase of that in the passage, but the part that is to fill the gap has to be copied from the passage in exactly the same way it occurred there. As a result, tests of this type require a clear understanding of the ideas. The area that students need to look at for the answer to the question vary in length, ranging from a single paragraph to up to four paragraphs from the original passage. The skills that are tested include scanning the text in order to locate specific points (usually more than one) and understanding the informational functions of sentences with explicit indicators.

Passage 7.

Godehard Link

*The Logical Analysis of Plurals and Mass Terms: A Lattice-theoretical Approach*¹⁰

The weekly *Magazine* of the German newspaper *Frankfurter Allgemeine Zeitung* regularly issues Marcel Proust's famous questionnaire which is answered each time by a different personality of West German public life. One of those recently questioned was Rudolf Augstein, editor of *Der Spiegel*; his reply to the question: "Which property do you appreciate most with your friends?" was

1) "that they are few."

Clearly, this is not a property of any one of Augstein's friends; yet, even apart from the *-esprit* it was designed to display the answer has a straightforward interpretation. The phrase (1) predicates something *collectively* of a *group* of objects, here: Augstein's friends.

As it is well known, collective predication is a rather pervasive phenomenon in natural language, as the following sample of sentences shows:

- (2) The children built the raft.
- (3) The Romans built the bridge.
- (4) Tom, Dick, and Harry carried the piano upstairs.
- (5) The playing cards are scattered all over the floor.

¹⁰ Link, 1983

- (6) The members of the committee will come together today.
- (7) Mary and Sue are room-mates.
- (8) The girls hated each other.

There is a striking similarity between collective predication and predication involving mass nouns.

- (9) (a) The children gather around their teacher.
 - (b) The water gathers in big pools.

Moreover, a characteristic feature of mass terms, their *cumulative reference* can be imitated by plurals.

- (10) (a) If a is water and b is water then the sum of a and b is water.
 - (b) If the animals in this camp are horses, and the animals in that camp are horses, then the animals in both camps are horses.

All this has been observed and discussed in the literature although the noted parallelism has perhaps not been stressed too much. However, there is much disagreement about the proper way of attacking the logical problems posed by plurals and mass terms. From a semantic point of view the basic question is: what do mass terms and plural expressions denote? Some have thought that in order to be able to give a satisfactory answer to this question it is necessary to give up or at last extend the underlying set theory and to define new kinds of objects, for instance *ensembles* (Bunt) or *Kollektionen* (Blau). I think, however, that we can retain the usual set-theoretic metalanguage and simply enrich the structure of our models as to account for properties like cumulative reference. On my view, such properties are also not secured by *defining* some plural or mass term denotations out of others through set-theoretic manipulations; they all should be recognized as simply being there. What we rather should try to discover, then, is the network of the various relations which they enter and through which they are tied together. In the case of group and mass objects this picture naturally leads to the notion of lattice structure. However, its possible use in the present context has perhaps been obscured by reductionist ontological considerations which are, in my opinion, quite alien to the purpose of logically analyzing the inference structures of natural language. Our guide in ontological matters has to be language itself. So if we have, for instance, two expressions a and b that refer to entities occupying the same place at the same time but have different sets of predicates applying to them, then the entities referred to are simply not the same. From this it follows that my ring and the gold making up my ring are different entities; they are, however, connected by what I

shall call the *constitution relation*. There is exactly one portion of matter making up my ring at a time. A "materialization" function h , lies at the heart of my reconstruction of the ontology of plurals and mass terms: individuals are created by linguistic expressions involving different structures even if the portion of matter making them up is the same. Consider the example from Blau (imagine that there is a deck of playing cards on the table):

- (11) (a) the cards
- (b) the deck of cards

While the portions of matter denoted by (11a) and (11b) are the same, I consider the individuals as being distinct. (11a) refers to the pure collection of objects, and in many contexts (11b), too, refers just to this collection. In general, however, the introduction of a collective term like (11b) is indicative of connotations being added enough for it to refer to a different individual; for instance, a committee is not just the collection of its members, etc. Note, by the way, that the transition to an intension function would be of no help here. There might be two different committees which necessarily consist of exactly the same members.

It might be thought, then, that collective predication is just the context in which pairs of expressions like (11a, b) refer to collections and thus are coreferential. This is not so, however, as can be seen from the following example. Imagine that there are several decks of cards, a blue one, a green one, etc., lying on a table. Then the two following sentences do not mean the same although *number consecutively* is a collective predicate (the German word is *durchnumerieren*).

- (12) (a) The cards on the table are numbered consecutively.
- (b) The decks of cards on the table are numbered consecutively.

By contrast, *spatio-temporal* collective predicates do refer to the pure collection, or, as I conceive it, the portion of matter making up the individual in question. Examples are *be-on-the-table*, *occupy*, etc. I call such predicates *invariant*. So the following (a) sentences are indeed equivalent to their corresponding (b) sentences.

- (13) (a) The cards are on the table.
- (b) The decks of cards are on the table.
- (14) (a) The stars that presently make up the Pleiades galactic cluster occupy an area that measures 700 cubic light years.
- (b) The Pleiades galactic cluster occupies an area etc.

In the following I shall distinguish between pure plural individuals involved in (12) and collections in the portions-of-matter sense referred to in (13) and (14). The former I call (individual) *sums or plural objects*; they respect levels of "linguistic comprehension" is shown by (12). By contrast, collections do not, they typically merge those levels. Sums and collections are similar, however, in that they both are just individuals, as concrete as the individuals which serve to define them, and of the same logical type as these. The latter feature is important because there is no systematic type ambiguity inherent in predicates like *carry, build, demolish, defend*, etc. As to the question of concreteness of sums of concrete objects, I agree with the intuitions of those who say that an aggregate of objects like a heap of playing cards which can be shuffled, burned, etc., is simply not an abstract entity like a set. What is more important, however, is the fact that the set approach to plural objects does not carry over to the case of mass terms, thus missing the structural analogy between the two cases. Inherent in the notion of a set is atomicity, which is not present in the linguistic behaviour of mass terms.

Test 7.

Write the correct letter, A, B, C or D, in boxes 1-5 below the task:

1 Examples (2) - (8) show predicates that are used

- A** with subjects in plural form only.
- B** to explain why (1) is a joke.
- C** with the subjects denoting a group or a collection.
- D** in a way that is quite pervasive.

2 In the paragraph after example (10), the writer

- A** follows others in taking into account some ontological criteria.
- B** agrees with others who think that a new type of denotations has to be outlined.
- C** attempts at extending the standard set theory and its metalanguage.
- D** intends to apply a certain structure offered by others for different purposes.

3 In examples 11a-b, if a plural term **a** denotes a collection, and a plural term **b** denotes a plural entity, then

- A** they denote the same entity.
- B** they denote the same collection.
- C** they denote the same portion of matter.

D they are coreferential.

4 The special feature that makes (12a) and (12b) different can be accounted by the fact that

A the predicate in them is a collective predicate.

B the collective predicate in them can be called *invariant*.

C the collective predicate in them applies to the pure collections.

D the collective predicate in them applies to *individual sums*.

5 The writer's main point about plural terms as expressed in the paragraph after (14) is that

A they are sets.

B they are plural individuals.

C they are concrete entities.

D they are collections.

1	2	3	4	5

ABOUT THE TEST

Contrary to the TRUE/FALSE/NOT GIVEN format with its orientation at the sentences, and unlike tasks involving summaries with their span of one or several paragraphs, multiple choice tasks in practically all examinations (Academic IELTS and TOEFL among them) can refer to quite different levels of text. Nor can any generalization be made about the mode of this type of tasks – they can ask for identification of specific information, or require looking for certain citations from the text, or test the student's ability to recognize the best description of some part of the content. Thus, questions in Test 7 differ one from another as much as they do in, say, IELTS.

Passage 8.

David Lewis

*Scorekeeping in a Language Game*¹¹

Example 1: Presupposition

At any stage in a well-run conversation, a certain amount is presupposed. The parties to the conversation take it for granted; or at least they purport to, whether sincerely or just "for the sake of the argument". Presuppositions can be created or destroyed in the course of a conversation. This change is rule-governed, at least up to a point. The presuppositions at time t'

¹¹ Lewis, 1979

depend, in a way about which at least some general principles can be laid down, on the presuppositions at an earlier time t and on the course of the conversation (and nearby events) between t and t' .

Some things that might be said require suitable presuppositions. They are acceptable if the required presuppositions are present; not otherwise. "The king of France is bald" requires the presupposition that France has one king, and one only; "Even George Lakoff could win" requires the presupposition that George is not a leading candidate; and so on.

We need not ask just what sort of unacceptability results when a required presupposition is lacking. Some say falsehood, some say lack of truth value, some just say that it's the kind of unacceptability that results when a required presupposition is lacking, and some say it might vary from case to case.

Be that as it may, it's not as easy as you might think to say something that will be unacceptable for lack of required presuppositions. Say something that requires a missing presupposition, and straightway that presupposition springs into existence, making what you said acceptable after all. (Or at least, that is what happens if your conversational partners tacitly acquiesce - if no one says "But France has *three* kings!" or "Whadda ya mean, '*even* George?") That is why it is peculiar to say, out of the blue, "All Fred's children are asleep, and Fred has children." The first part requires and thereby creates a presupposition that Fred has children; so the second part adds nothing to what is already presupposed when it is said; so the second part has no conversational point. It would not have been peculiar to say instead "Fred has children, and all Fred's children are asleep."

I said that presupposition evolves in a more or less rule-governed way during a conversation. Now we can formulate one important governing rule: call it the *rule of accommodation for presupposition*.

If at time t something is said that requires presupposition P to be acceptable, and if P is not presupposed just before t , then - *ceteris paribus* and within certain limits - presupposition P comes into existence at t .

This rule has not yet been very well stated, nor is it the only rule governing the kinematics of presupposition. But let us bear it in mind nevertheless, and move on to other things.

Scorekeeping in a Baseball Game

At any stage in a well-run baseball game, there is a septuple of numbers (r, r', z, z', s, b, o) which I shall call the *score* of that game at that stage. We recite the score as follows: the

visiting team has r_T runs, the home team has r_H runs, it is the h th half (h being 1 or 2) of the i th inning; there are s strikes, b balls, and o outs. (In another terminology, the score is only the initial pair $\{f, i\}$, but I need a word for the entire septuple.) A possible codification of the rules of baseball would consist of rules of four different sorts.

1 *Specifications of the kinematics of score.* Initially, the score is $(0, 0, 1, 1, 0, 0, 0)$.

Thereafter, if at time t the score is s , and if between time t and time t' the players behave in manner m , then at time t' the score is s' , where s' is determined in a certain way by s and m .

2 *Specifications of correct play.* If at time t the score is s , and if between time t and time t' the players behave in manner m , then the players have behaved incorrectly. (Correctness depends on score: what is correct play after two strikes differs from what is correct play after three.) What is not incorrect play according to these rules is correct.

3 *Directive requiring correct play.* All players are to behave, throughout the game, in such a way that play is correct.

4 *Directives concerning score.* Players are to strive to make the score evolve in certain directions. Members of the visiting team try to make r_v large and r_h small, members of the home team try to do the opposite.

(We could dispense with rules of sorts (2) and (3) by adding an eighth component to the score which, at any stage of the game, measures the amount of incorrect play up to that stage. Specifications of correct play are then included among the specifications of the kinematics of score, and the directive requiring correct play becomes one of the directives concerning score.)

Rules of sorts (1) and (2) are sometimes called *constitutive rules*. They are said to be akin to definitions, though they do not have the form of definitions. Rules of sorts (3) and (4) are called *regulative rules*. They are akin to the straightforward directives "No smoking!" or "Keep left!".

Conversational Score

With any stage in a well-run conversation, or other process of linguistic interaction, there are associated many things analogous to the components of a baseball score. I shall therefore speak of them collectively as the *score* of that conversation at that stage. The points of analogy are as follows.

- 1 Like the components of a baseball score, the components of a conversational score at a given stage are abstract entities. They may not be numbers, but they are other set-theoretic constructs: sets of presupposed propositions, boundaries between permissible and impermissible courses of action, or the like.
- 2 What play is correct depends on the score. Sentences depend for their truth value, or for their acceptability in other respects, on the components of conversational score at the stage of conversation when they are uttered. Not only aspects of acceptability of an uttered sentence may depend on score. So may other semantic properties that play a role in determining aspects of acceptability. For instance, the constituents of an uttered sentence - subsentences, names, predicates, etc. - may depend on the score for their intension or extension.
- 3 Score evolves in a more-or-less rule-governed way. There are rules that specify the kinematics of score:

If at time t the conversational score is s , and if between time t and time t' the course of conversation is c , then at time t' the score is s' , where s' is determined in a certain way by s and c .

Or at least:

... then at time t' the score is some member of the class S of possible scores, where S is determined in a certain way by s and c .

4 The conversationalists may conform to directives, or may simply desire, that they strive to steer certain components of the conversational score in certain directions. Their efforts may be cooperative, as when all participants in a discussion try to increase the amount that all of them willingly presuppose. Or there may be conflict, as when each of two debaters tries to get his opponent to grant him - to join with him in presupposing — parts of his case, and to give away parts of the contrary case.

5 To the extent that conversational score is determined, given the history of the conversation and the rules that specify its kinematics, these rules can be regarded as constitutive rules akin to definitions. Again, constitutive rules could be traded in for explicit definitions: the conversational score function could be defined as that function from conversation-stages to n -tuples of suitable entities that evolves in the specified way.

Example 3: Definite Descriptions

It is not true that a definite description "the F " denotes x if and only if x is the one and only F in existence. Neither is it true that "the F " denotes x if and only if x is the one and only F in some contextually determined domain of discourse. Consider this sentence: "The pig is grunting, but the pig with floppy ears is not grunting" (Lewis). And this: "The dog got in a fight with another dog" (McCawley). They could be true. But for them to be true, "the pig" or "the dog" must denote one of two pigs or dogs, both of which belong to the domain of discourse.

The proper treatment of descriptions must be more like this: "the F " denotes x if and only if x is the most salient F in the domain of discourse, according to some contextually determined salience ranking. The first of our two sentences means that the most salient pig is grunting but the most salient pig with floppy ears is not. The second means that the most salient dog got in a fight with some less salient dog.

There are various ways for something to gain salience. Some have to do with the course of conversation, others do not. Imagine yourself with me as I write these words. In the room is a cat, Bruce, who has been making himself very salient by dashing madly about. He is the only cat in the room, or in sight, or in earshot. I start to speak to you:

The cat is in the carton. The cat will never meet our other cat, because our other cat lives in New Zealand. Our *New Zealand* cat lives with the Cresswells. And there he'll stay, because Miriam would be sad if the cat went away.

At first, "the cat" denotes Bruce, he being the most salient cat for reasons having nothing to do with the course of conversation. If I want to talk about Albert, our New Zealand cat, I have to say "our other cat" or "our *New Zealand* cat". But as I talk more and more about Albert, and not any more about Bruce, I raise Albert's salience by conversational means. Finally, in the last sentence of my monologue, I am in a position to say "the cat" and thereby denote not Bruce but rather the newly-most-salient cat Albert.

Test 8.

The reading passage has four parts. Match each of the statements A-E to the name of the part for which the statement is true. One statement does not correspond to any part.

- A. In the example given in this part the writer uses one specific expression in the course of a conversation to denote two different objects.

- B. In this part the writer decides to give one example which is so strange that it is hardly acceptable.
- C. In this part the writer describes, among others, a situation of conflicting intentions of two parties.
- D. The author gives the set of rules first in natural language, and then in the language of the first-order logic in this part.
- E. The focus in this part is on rules of two sorts, of which one type is similar to definitions.

Example 1: Presupposition	
Scorekeeping in a Baseball Game	
Conversational Score	
Example 3: Definite Descriptions	

ABOUT THE TEST

This is one more type of matching task, this time involving matching parts the passage is divided into to the main ideas expressed in these parts. Completing such tests requires interpretative reading skills, and these tests evaluate students' critical thinking, in particular the ability to recognise the author's presuppositions and assumptions and to understand the hidden messages in texts. A skill that is also critical for success in answering such questions is the ability to distinguish fact from opinion.

CONCLUSIONS

University students are encouraged to be critical readers and thinkers and reflect on the materials they are assigned for their studies. Interpretative skills and strategies in reading are equally critical for L1 and L2 students, and their development has to become a part of general English curriculum. This collection of texts and tests is designed to be of help in this important area of education.

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