WHAT DO REFERENTIAL INDICES REFER TO?

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Let us examine the proposal that in the deep structure, noun phrases are associated with a referential index, say, an integer, as Chomsky originally suggested (Chomsky 1965, p. 145). The purpose of this proposal was not so much to account for the meaning of sentences but to augment the notion of noun phrase identity which was needed for the structural description of certain deletion transformations. This paper attempts to study how and if such markers could be used in semantics. The outcome of that kind of study will ultimately decide what the future of indices will be. If the deep structure indeed is to serve as input to an interpretative semantic component, the consideration of what an adequate semantic description must accomplish naturally bears on the problem of deciding what the input is.[1]

The assignment of indices to noun phrases is usually interpreted to mean simply that two noun phrases with the same referential index denote the same "referent", be this in the real world or in the mind of the speaker (McCawley 1967a, p.9). However, it is clear that the indices alone

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[1] And if it should turn out - as argued by McCawley and others (McCawley 1967c) - that the semantic component is the true base component, one would naturally need no excuses whatsoever for studying semantics.

by no means constitute a complete theory of reference.
There are other notions to be dealt with, such as <u>singular</u>/
<u>plural</u>, <u>generic</u>/<u>non-generic</u>, <u>definite</u>/<u>indefinite</u>, and
<u>specific</u>/<u>non-specific</u>, which generally are considered syn-
tactic or semantic features of noun phrases. But it could
be argued that a more comprehensive theory of reference is
superfluous, as far as the syntactic component of the
grammar is concerned. It might be the case that only the
notion of coreferentiality is necessary in syntax; that is,
we only need know whether two noun phrases have the same
referent, but no more than that. If this were true we
would have no need to bother ourselves by asking what ref-
erence really means, at least as long as we restrict the
business to that of transforming well-formed trees into
well-formed trees. The problem could be pushed aside into
the semantic component - the black box which no one knows
anything about anyway. This kind of view seems to have
been the tacit assumption of most transformationalists
until quite recently. By now there should be enough of
accumulated empirical experience to disprove it.

There is, namely, an intricate and recalcitrant bundle
of problems about noun phrases, which all, one way or
another, involve the idea of reference. Let us list the
following:

     (i)   definite vs. indefinite noun phrases,

    (ii)   generic vs. non-generic noun phrases,

(iii)   specific vs. non-specific noun phrases,

(iv)   anaphoric vs deictic noun phrases and pronouns,
        and

(v)   restrictive vs. appositive relative clauses
        and modifiers.

In spite of the lively discussion of these questions during
the last few years, none of the five above has been solved
to anyone's satisfaction.[1] Rather it has begun to appear
more and more that to solve any of them one has to solve
them all. And especially it has to be clarified what the
referential indices actually do and how they are assigned.
It also seems evident that certain of these problems, i.e.
(i), (iv), and (v), cannot be treated adequately except in
the context of a discourse. The prudent restriction of
the domain of syntax into that of compound sentences does
not seem tenable, if we, nevertheless, wish to maintain
that such topics are a proper part of it. It does not
seem very reasonable, for example, to set up a system for
deriving pronouns within a single sentence, when it is
obvious that, whatever the restrictions on their use are,
they are only a special case of the rules for discourse in
general.

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[1]The following are perhaps the most important papers:
Smith 1964, Baker 1966, Postal 1966, Langacker 1966, Ross
1967a, Ross 1967b, McCawley 1967b, Bach 1967, Gross 1967,
Jackendoff 1968, Annear 1968.

By studying the semantics of reference in a discourse context, we may therefore be able to reveal something about the nature of our present problems in syntax   The first question we will turn to is the following: Does it make sense to conceive of all noun phrases as having a referent of some kind, as the arbitrary assignment of indices in the base component would seem to imply? If this is not the case, the semantic component must be equipped with rules for interpreting some indices as meaningful and disregarding others. An equivalent solution would be to limit the assignment of indices to those cases in which it is semantically relevant. For example, it has been suggested (Bach 1967, p. 21) that indefinite predicate nominals should not have a referential marker, because they do not refer to an individual by themselves.[1]

(1) Bill is a logician.

(1) is obviously a statement about one individual and the set to which he belongs - or alternatively - about an individual and one of his properties. It is not a statement about a logician and Bill.

Since it seems so natural, from a semantic point of view, to regard Chomsky's indices as names of (perhaps hypothetical) individuals, having an index is usually

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[1]There is a problem here, however, if referential indices play a role in the derivation of restrictive relative clauses. There are sentences, e.g. <u>He is a man whom I like</u>, with an indefinite predicate nominal which contains a restrictive relative clause.

understood to imply the existence of some nameable entity.
Whether a noun phrase has an index or not thus becomes a
question of whether there exists an individual to be iden-
tified by it. The answer is not always so obvious as in
the case of indefinite predicate nominals; in fact, it can
in general be given only in the context of a discourse.[1]
We will start by considering non-specific, indefinite noun-
phrases.[2] Let us look at the following two sentence
discourses.

(2.21) It is blue.

(2.1) She has a car.   (2.22) The car is blue.

(2.23) The car which she has is blue.

(3.21) *It is blue.

(3.1) She doesn't have a car.   (3.22) *The car is blue.

(3.23) *The car which she

doesn't have is blue.

It is easy to see that, starting the discourse with
(2.1), any of the three alternatives (2.21)-(2.23), is an
acceptable continuation. In fact, they are completely
synonymous in this particular discourse and should probably
have the same semantic representation. In the second dis-
course there is nothing wrong with (3.21)-(3.23) as such,

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[1]C. LeRoy Baker seems to have been first to point
this out   (Baker 1966).

[2]The terms _specific_ and _non-specific_ are due to Baker.
Carlota S. Smith, who made the same distinction before him,
used the words _specified_ and _unspecified_ (Smith 1964).

except that none of the sentences is an acceptable continuation of (3.1).[1] The explanation is naturally that (2.1) in some yet to be determined sense entails the existence of an individual which can be referred to later in the discourse while (3.1) does not. The alternatives following (3.1) are unacceptable because they presuppose the existence of a referent, something which can be talked about that is not provided in the discourse. This problem has nothing to do with the idiosyncratic properties of have and car, as shown by (4) and (5). It also is not a mere ontological question, since the supposed non-existence of unicorns in no way affects (4).

> (4) I saw a unicorn. It had a gold mane.
>
> I didn't see a unicorn. *It had a gold mane.
>
> (5) He sent her a letter. The letter was an
>
> invitation to a love-in.
>
> He didn't send her a letter.

$$*\left\{ \begin{array}{l} \text{It} \\ \text{The letter} \\ \text{The letter which he didn't send} \end{array} \right\} \quad \text{was an invitation to a love-in.}$$

If having a referential index means having a referent that can be discussed, we will have to say that in (2.1)

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[1] It is important to notice that all indefinite noun phrases in (2)-(15) are intended to be understood non-specifically; that is, not in the sense of 'a certain...' We will soon discuss the distinction between specific and non-specific.

the noun phrase <u>a car</u> has an index but in (3.1) it does
not. The existence of a referent seems to depend on the
absence of negation. But if this were indeed predictable,
then the indices, whether assigned or not, would contribute
nothing to the semantic interpretation of these sentences.
Besides negation, there are also other factors that play
a role here. The following discourses (6)-(9) are all
anomalous in the intended sense, although they do not con-
tain any overt negation.

(6) You must write a letter to your parents.

   *They are expecting the letter.

(7) John doubts that Mary has a car.

   *I have never seen $\begin{Bmatrix} \text{it} \\ \text{the car} \\ \text{the car which John} \\ \text{doubts that she has} \end{Bmatrix}$.

(8) John wants to catch a fish.

   *You can see $\begin{Bmatrix} \text{it} \\ \text{the} \end{Bmatrix}$ fish from here.

(9) I wish she had a car. *I will drive it.

In the above examples the non-specific, indefinite noun
phrase is contained within an embedded clause and commanded
(in the sense of Langacker 1966) by a modal or a certain
kind of verb that marks the embedded proposition as un-
certain or counterfactual. This class of verbs is pre-
sumably a subset of those which have been called 'non-
factive' (Kiparsky & Kiparsky 1968). It is not surprising
that some other verbs, such as <u>know</u>, <u>realize</u>, etc., which

presuppose that the embedded sentence is a true proposition
behave differently:

(10) I know that she has a car, but I have never

seen it.

We notice that in (6)-(9) the clause which contains
the non-specific, indefinite noun phrase is not actually
asserted to be true by itself. This apparently has to do
with the observed lack of referent. The overt negation in
discourses (2)-(5) turns out to be simply a special case
of a more general semantic condition about unasserted
clauses. But the rules will have to be more sophisticated
It would namely be false to claim categorically that new
referents cannot be introduced without assertion. There
is nothing odd about the following discourses

(11) John wants to catch a fish

and eat $\begin{Bmatrix} \text{it} \\ \text{the fish} \end{Bmatrix}$ for supper.

(12) If she had a car, I would have seen it.

(13) I wish she had a car. She would give me a

ride in it. I would drive the car too.

(14) You must write a letter to your parents and

mail it right away. It will be there tomorrow.

The letter would make them happy.

In (11) it seems that the noun phrase a fish has a referent
which can be referred to by a pronoun or a definite descrip-
tion as long as we stay within the scope of the commanding
verb want. This is the only essential difference between

(11) and (8)[1]. The same is true with respect to _if_ in (12).
The last two examples show that it is possible to keep
referring to a thing which actually does not exist provided
that the discourse continues in the same counterfactual
mood. The most illuminating way to describe what is going
on here is perhaps to say that the semantic component of
the grammar must sort out fact from fiction. Fictitious
individuals may be referred to anaphorically as long as
the fictitious mode is sustained, but when the illusion is
broken, they cease to exist.

The examples (2)-(14) all have dealt with non-specific,
indefinite noun phrases. It has turned out that the ques-
tion of the existence of referents has no straightforward
answer. In case of affirmative, asserted clauses the
appearance of such a noun phrase in the discourse seems to
establish a stable entity which can be referred to by a
pronoun in the immediate context or by a definite descrip-
tion at any point in the following discourse.[2] Let us,
for example, assume that a discourse contains the sentence
(15).

(15) John caught a fish.

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[1]These examples are originally from Baker (1966).

[2]By 'definite description' we mean a noun phrase which
uniquely identifies some individual or set in the discourse,
e.g. a definite noun phrase containing a restrictive rela-
tive clause. The term is borrowed from logic (Reichenbach
1947, p. 264).

The new referent introduced in (15) becomes a permanent part of the discourse, and may be revived as 'the fish which John caught' no matter how many sentences have intervened between the first and the second mention. On the other hand, there also are fictitious referents which have a limited life-span and cannot be discussed outside the sequence of unasserted or fictitious clauses in which they are introduced. And finally, non-specific, indefinite noun phrases that fall into the scope of negation seem to be semantically without any referent whatsoever. Although the examples given are all from English, these facts are anything but language specific; for example, the translations of (2)-(15) into Finnish exhibit exactly the same phenomena.

A device for generating or accepting proper discourses obviously must take these facts into account. It has to be able to recognize novel individuals when they appear in the discourse and to store them with their characteristics for future reference. This operation cannot be conceived of as mere accumulation of a stock of referents, since fictitious individuals must eventually be erased.[1] Hence the popular notion of 'previous mention' is a rather misleading oversimplification. The question whether there is a

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[1]There also has to be some degree of ordering. In general, only some of the individuals mentioned in the discourse can be referred to by a third-person pronoun - namely those that were mentioned last.

referential index attached to the deep structure representation of a non-specific, indefinite noun phrase seems rather irrelevant in this context. In any case, the existence of such an index cannot in general be associated with a permanent discourse referent.

The above findings about indefinite noun phrases apply only to those which are understood non-specifically. It now has to be clarified what the distinction between specific and non-specific indefinites actually is. As C. LeRoy Baker pointed out (Baker 1966), there are contexts in which indefinite noun phrases normally receive strikingly different semantic interpretations. For example, the noun phrase a piano in (16) is naturally understood as meaning 'any piano' while the same noun phrase in (17) seems to imply 'a certain piano'.

(16) John tried to find a piano, but he didn't succeed.

(17) John tried to lift a piano, but he didn't succeed.
It is something about the meaning of the verb lift which suggests that a piano describes some specific object If John does not succeed in (17), the piano probably was too heavy. If he fails in (16), maybe there was no piano at all; the sentence is easily understood as informing us only about the kind of object John tried to find. Understood in the above manner, (17) results in the creation of a discourse referent, i.e. 'the piano John tried to lift'; but (16) certainly does not justify a later reference to 'the piano John tried to find'.

That the above examples do not appear particularly ambiguous, even without a context, is due to the nature of the verbs involved. But this is not generally so, as shown by the following examples.

(18.1) I am looking for a book.

(18.21) Here it is.

(18.22) Here is one.

(19) Harvey courts a girl at every convention.

She always comes to the banquet with him. Imagine someone saying (18.1) and then exclaiming either (18.21) or (18.22). If he follows with (18.21) he must have had some specific book in mind while saying (18.1), say, Syntactic Structures. But it is also quite conceivable that one is looking for a book without having any particular one in mind. Anything that is a book will do. In this case, only (18.22) is a proper continuation of (18.1).[1] In (19) there may be a particular girl whom the speaker knows but perhaps does not wish to identify. In this case the girl Harvey courts is the same girl at every convention. But it is also possible that she is a different girl every year, which entails that the speaker cannot mean any particular one. Notice especially that she in the second sentence is equally appropriate whether the

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[1]Barbara Partee has pointed out (personal communication) that (18.22) is appropriate in either case. While looking for a specific book one might very well utter Here is one (but that's not it).

first is interpreted specifically or non-specifically.
The ambiguity could be avoided by replacing a girl by
a certain girl, which can only mean that there is a unique
referent. In many languages there is indeed such a special
word, e g. Finnish eräs, German gewiss, that implies
specificity.

How should the grammar capture the difference between
specific and non-specific meaning? LeRoy Baker, to whom
we owe the terms, considered first the possibility of just
having two forms of the indefinite article, marked as
+specific or -specific, but rejected this for another
proposal (Baker 1966). In Baker's final solution, all
indefinite noun phrases arise from underlying existential
constructions which contain referential indices but no
features such as ±specific. Since he equates non-specific-
ness with the absence of a reference marker, this in fact
means that all indefinite noun phrases start out as
specific in the deep structure. Although he does not work
out any details, Baker suggests that perhaps there are
transformations which erase referential indices and thus
make specific noun phrases non-specific. As he himself
points out, there are a number of reasons why the proposal
is inadequate. The ambiguity of (18.1), for example,
cannot be accounted for. The root of the problem appears
to be that Baker attempts to represent the existence of
discourse referents by the use of referential markers

which also supposedly serve to distinguish between specific
and non-specific meaning. But these are separate questions,
as we tried to demonstrate above. The non-specificness of
an indefinite noun phrase by no means excludes the possi-
bility that it, nevertheless, establishes a permanent dis-
course referent. Considering everything, it appears that
Baker's original proposal of having a special feature is
open to less criticism, although it simply avoids the
problem by creating a new primitive.

Let us now examine more closely what the semantic
difference actually is. Assume that the speaker of (20)
spent some time in the morning talking to his friend
Rudolf Carnap and later refers to this event by uttering
(20).

(20) I talked with a logician.

(21) I talked with Rudolf.

(22) I talked with the author of <u>Meaning and Necessity</u>.

(23) I talked with a famous philosopher.

In the specific sense, i.e. 'a certain logician', the utter-
ance is replacable by (21)-(23), which in this case would
all constitute an equally honest answer to the question
"Who did you talk with this morning?". The speaker has a
certain referent in his mind; and, in his knowledge, there
also are some properties associated with that particular
individual. Any of these properties could presumably be
used to describe the individual; in a sense, the speaker
has a choice of how informative he wants to be. As far as

the speaker is concerned, it is not clear how (20)-(23) could be claimed to be anything but paraphrases of each other.

In the non-specific sense, (20) could be an answer to the question "What <u>kind</u> of person did you talk with this morning?" This version of (20) could not be paraphrased by (21)-(23), since it is not the particular individual that matters but rather the class to which he belongs. The answer could be the same even if the speaker talked with Bar-Hillel instead of Carnap. Because (20), nevertheless, establishes a discourse referent, the noun phrase <u>a logician</u> amounts here to what has been called 'indefinite description' in logic (Reichenbach 1947, p.264).[1] Using the expression '$l(x)$' for 'x is a logician' and Reichenbach's η-operator for indefinite description, we may write the non-specific interpretation of <u>a logician</u> as '$(ηx)l(x)$' which reads something like 'a somebody such that he is a logician'. Provided that '$t(I,x)$' is interpreted as 'I talked with x', we can substitute the indefinite description for x and represent the non-specific sense of (20) by the formula (24).[2]

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[1] An indefinite description asserts existence but does not claim uniqueness.

[2] By the definition of the η-symbol, this has the same meaning as $(\exists x)[t(I,x).l(x)]$.

(24) t(I, (ŋx)1(x))

'I talked with some x such that x is a logician'

In order to picture the specific interpretation of (20) in the same fashion, we have to assume a constant that represents the particular individual which the speaker has in mind, namely Rudolph Carnap. Using 'c' for this constant, the specific interpretation of (20) translates into (25).[1]

(25) t(I,c).1(c)

'I talked with c and c is a logician'

What seems attractive about formulas (24) and (25) is that they reflect in a more perspicuous way one's intuitive feeling about the two senses of (20) than any unanalyzable feature such as [+specific]. For example, (25) appears to capture both the idea of "having a certain individual in mind" and the observation that his being a logician is not really essential but could be replaced by some other property which he has. It also meshes well with McCawley's claim that lexical items may originate outside the proposition in which they are inserted (McCawley 1967b). On the other hand, in (24) the property of being a logician is an essential part of the proposition itself.

At this point it becomes clear that the notion of 'discourse referent' as we have used it, is not at all the

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[1]It is easy to see that (25) implies (24) but not vice versa.

same as 'the individual which the speaker has in mind'.
By discourse referent' we have meant an entity that - once
it has been established - can be referred to by a pronoun
or revived by a definite description. In this sense, (20)
establishes a permanent referent no matter how the speaker
himself intended it to understood. We found, namely, that
even non-specific noun phrases have this effect provided
that they appear in a clause which is understood to be a
true statement, that is, not flagged by a modal or certain
non-factive verbs. In either case it would be perfectly
legitimate for the listener to respond to (20) by asking
(26).

(26)   Was the person you talked with Rudolf Carnap?
But neither can the concept of discourse referent be identi-
fied with 'the thing in the real world'. First, the latter
may not always exist; the speaker perhaps does not know its
true identity, and if he does, the information is not made
available for the listener. Secondly, there are cases,
such as (19), where a discourse referent does not have a
unique counterpart in reality.

Since the distinction between specific and non-
specific has turned out to involve speaker's intentions,
one is tempted to think that perhaps it could be ignored
in syntax. But without it, we definitely could not account
for some interesting facts about discourses. It is, namely,
the case that specific noun phrases always establish a

discourse referent. Some of the discourses that were judged anomalous in the previous section are unquestionably correct provided that the indefinite noun phrase in question is understood as a description of some specific individual which the speaker knows. For example, this is true of (27) and (28).

(27) I didn't see one clever unicorn.

$$\left\{\begin{matrix} \text{It} \\ \text{The unicorn} \\ \text{The unicorn which I didn't see} \end{matrix}\right\} \text{was hiding in the grass.}$$

(28) John wants to catch a fish.

$$\text{You can see} \left\{\begin{matrix} \text{it} \\ \text{the fish} \\ \text{the fish John wants to catch} \end{matrix}\right\} \text{from here.}$$

There are also some interesting facts which favor the proposal that the distinction between specific and non-specific be made in the manner illustrated by formulas (24) and (25). We gain some explanatory insight in the observation that certain sentence types seem to imply that indefinite noun phrases are non-specific. This is the case with (i) interrogative, (ii) imperative, and (iii) existential sentences. It is often quite difficult to understand such sentences as anything but unambiguous in this respect. Consider examples (29)-(31).

(29) Did you write a letter to your parents?

(30) Give me a hot dog, please.

(31) There is a cockroach in my soup.

This should not be surprising since we have defined specificness in terms of the speaker having a certain object in mind. Obviously it would make little sense to request a certain hot dog or ask a question about a certain letter without letting the listener know which one it is.

It has been said for a long time that, for some reason, non-specific noun phrases cannot include appositive relative clauses; if there is one, it is always restrictive.[1] With specific noun phrases the facts are less clear, but it appears that they only take appositive relative clauses. Given these restrictions the following two examples should be quite unambiguous. The first one has an appositive relative clause and must be understood specifically; the second has a restrictive relative clause and admits only non-specific interpretation.

(32) I want to marry a girl, who is a good housekeeper.

(33) I want to marry a girl who is a good housekeeper.

By assuming that the underlying representation of specific indefinites is of the type illustrated in (25), we now have a way to account for these facts in a natural way. It is well known that noun phrases which have a unique referent, such as proper names and anaphoric pronouns,

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[1]This was pointed out by Carlota S. Smith (Smith 1964). She allows for the possibility that specified indefinites have both appositive and restrictive relatives, but gives no examples of the latter type.

can only take appositive relative clauses. In our system
we have associated specificness with the idea of "having
a particular individual in mine" by actually giving the
noun phrase a unique referent; that is, by using a con-
stant in (25). It is, therefore, only to be expected
that the behavior of specific indefinites in some respects
mirrors the behavior of proper names.

There is another interesting question here, namely,
what is it about appositive relative clauses which re-
quires that the noun phrases to which they are joined
must have unique referents. The solution that suggests
itself is that the difference between restrictive and
appositive clauses is exactly the same which we have
postulated between non-specific and specific noun phrases.
That is, appositive relative clauses are adjuncts which
could be changed without changing the meaning of the
whole proposition while restrictive relatives are descrip-
tions just like noun in non-specific noun phrases.
However, this idea must be pursued in full detail in some
other context.

As the final example we take discourse (34). The
noun phrase a rich man in (34.1) could be specific or
non-specific. Either there is a certain man whom the
speaker knows of or then the sentence only describes what
kind of man Mary would marry. In the latter case there
is no man for her yet, and may never be. If (34.1) is

specific, it establishes a permanent discourse referent, thus (34.21) and (34.22) are both acceptable continuations. However, if (34.1) is understood non-specifically, it does not result in a permanent discourse referent since the infinitive complement is commanded by <u>want</u>. Under this interpretation (34.21) is unacceptable as a continuation. (34.22) is still acceptable due to the modal, under which fictitious referents continue to exist.

(34.1) Mary wants to marry a rich man.

(34.21) He is a banker

(34.22) He must be a banker.

It is difficult to see how the peculiarities of discourses such as (34) could be described without assuming something similar to the machinery proposed in this paper.[1]

It is time to stop and review the situation. I started out by suggesting that, in order to get out of the present impasse with noun phrases, we must have another look at referential indices to find out what they are and where they come from. We accepted the naive view of indices as names of individuals and began to look around to see under what circumstances it would make sense to say that

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[1] What remains unexplained here is the fact (pointed out to me by John Olney) that <u>must</u> in (34.22) has two different meanings depending on the specificness of <u>a rich man</u> in (34.1). If (34.1) is specific, (34.22) has the sense 'It is likely that he is rich'; otherwise it means 'It is necessary that he be rich.'

there is an individual associated with a noun phrase. By
looking at indefinite noun phrases in simple discourses
we found soon that there was no straightforward answer,
at least in the case where the proof of the existence of
an individual consists of the fact that one can talk about
it by using a pronoun or a definite noun phrase. It
turned out that sometimes the occurrence of an indefinite
noun phrase in the discourse is enough to establish such
a permanent entity, sometimes it is not, and sometimes the
individual has a very short life expectancy. This led to
setting up the notion of 'discourse referent' and to
postulating a mechanism for detecting, storing, and keep-
ing track of these referents.

The subsequent part tried to clarify the distinction
between specific and non-specific noun phrases. Non-
specific indefinites were found to be semantically similar
to indefinite descriptions in logic. Specific indefinites
were described in terms of the speaker as "having a certain
individual in mind". Borrowing from symbolic logic, I
proposed a solution for making this distinction explicit
and argued that it be made in this way rather than by
using an unanalyzed semantic feature, such as ±specific,
which does not offer the same explanatory insights.

APPENDIX I: <u>About Some Latent Object Complements</u>

There is an interesting class of verbs that seem to constitute an exception to the rule that a non-specific, indefinite noun phrase establishes a discourse referent when it is a part of a clause that is asserted to be a true proposition. Let us look at the following discourses.

(35) I needed a car. *It was black.

(36) Seymour wants a knife. *It is sharp.

(37) John promised Mary a bracelet. *The bracelet was very expensive.

(38) The casting director was looking for an innocent blonde. *She was from Bean Blossom, Indiana.

Provided that the indefinite noun phrases are interpreted non-specifically, (35)-(38) are all anomalous, although they look superficially identical to (39)-(42), which behave as expected.[1]

(39) I owned a car. It was black.

(40) Seymour imagines a knife. It is sharp.

(41) John bought Mary a bracelet. The bracelet was very expensive.

(42) The casting director was looking at an innocent blonde. She was from Bean Blossom, Indiana.

The verbs that appear in (35)-(38) are by no means the only ones that fail to establish a discourse referent

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[1]Notice again that (35)-(38) are perfectly acceptable provided that the speaker is understood to have a specific referent in mind.

for their indefinite object noun phrases. The class of
verbs that behave in this peculiar way include at least
the following: ask for, desire, expect, hope for, look for,
need, promise, request, search for, suggest, wait for,
want, yearn for. There is an obvious similarity between
(35)-(38) and (6)-(9), although the latter cases all con-
tain an unasserted sentential complement. Many of the
verbs listed in fact also accept sentential complements as
objects:

(43) Seymour wanted to have a knife.

(44) John promised to give Mary a bracelet.

(45) Mary expects John to buy her a bracelet.

These sentential complements are unasserted proposi-
tions; as in (6)-(9), an indefinite noun phrase that is
understood non-specifically does not result in a permanent
discourse referent. It appears then that we could account
for the peculiarity of (35)-(38) by assuming that, in
spite of the simplicity of their surface structure, they
also are derived from an underlying representation which
contains a sentential complement as object. This is clearly
one of those cases where semantic problems could be simpli-
fied by assuming a more abstract deep structure. But it
is not entirely clear what kind of embedded construction
should underly the surface object. There seems to be little
evidence in English for deciding this question beyond the
observation that it certainly should be some type of exis-

tential/possessive construction. We have namely many near paraphrases such as (46)-(48).

(46)   John wants a car. -John wants to have a car.

(47)   I suggest an immediate halt in the bombing.
        -I suggest that there be an immediate halt in the bombing.

(48)   I expect no change in the situation. -I expect there to be no change in the situation.

The decision between existential and possessive interpretation is often a moot point. Observe the difference between (46) and (49) and between the two kinds of promising in (50) and (51).

(49)   John wants a revolution. -John wants there to be a revolution.

(50)   John promised Mary a bracelet. -John promised Mary that she will get a bracelet.

(51)   John promised Mary an earthquake. -John promised Mary that there will be an earthquake.

It seems that nothing definite can be said about the nature of the underlying sentential complements without first studying existential and possessive sentences in more detail than has been done thus far.

APPENDIX II: <u>About Mental Images</u>

Let us start a discourse with (52).

(52) The casting director was looking for an innocent blonde.
On the basis of what we have said in this chapter, it would
appear that a sentence such as (52) is ambiguous only in the two
following ways: (i) there is some innocent blonde, say Miss
Cherry Blossom, whom the casting director is looking for; or
(ii) the noun phrase <u>an innocent blonde</u> is only a description of
the kind of person the casting director would like to find, not
a description of any particular person. As we pointed out be-
fore, only the specific interpretation establishes a stable dis-
course referent. That is, (53) is an acceptable continuation
only in the first case; otherwise we would have continued with
(54).

> (53) He found her in Bean Blossom, Indiana.

> (54) He found one in Bean Blossom, Indiana.

What is said above suggests very strongly that whenever
(53) is acceptable as a continuation of (52), the referential
constant which we postulated for the specific interpretation of
(52) is associated with some real individual, e.g. Miss Cherry
Blossom. But this need not be so. Notice that such an inter-
pretation leads to absurdity in case we follow (52) with (55).

> (55) He found her in Emmy Lou Fleaner from Bean Blossom,
>   Indiana.

In (55) we have to say that the speaker, indeed, had a specific
referent in mind, but this was the product of his imagination,

a vivid mental image of some innocent blonde, rather than a reflection of reality. It appears that we simply have to admit two variants of specificity. "Having a certain referent in mind" thus does not necessarily mean that there is some corresponding individual in the real world. The referential constants which we proposed must be thought of as being indices of individuals in the mind of the speaker, his mental images, so to speak. These are very notorious phrases, but it seems that this cannot be helped.

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