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SO-CALLED 'DOUBLE OBJECTS' AND GRAMMATICAL RELATIONS

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In a 'double-object' construction, which of the NPs after the verb is the real object? Contrary to standard assumptions, I shall show that it is the second NP, so the first is the (traditional) 'indirect object'. This finding is important because it challenges the hypothesis that grammatical relations can be shown configurationally and supports the competing claim that grammatical relations are basic. The paper also suggests why judgments on some constructions are so divided; the reason is that three different grammars are all compatible with the same basic data, and differ only on the relatively rare patterns where the variation appears.*

1. INTRODUCTION. This paper is about the so-called 'double-object' construction in English, as found in sentences like 1a–c.

(1) a. Ann gave [Fred]$_1$ [a book]$_2$.
    b. They spared [the widow]$_1$ [a trial]$_2$.
    c. He built [his children]$_1$ [a tree-house]$_2$.

For simplicity I shall refer to the relevant parts as O1 and O2, meaning the first and second objects. This simple terminology will work well in virtually every case because of one of the properties which requires an explanation, the fixity of their surface order.

This construction is of great interest to theoretical linguists for a number of reasons. One is that it challenges the claim that all functional categories can be defined configurationally, if by this is meant a definition in terms of just the category of the phrase concerned and of its mother. The problem is that, on the simplest analysis (in which O1 and O2 are both sisters of the verb), both O1 and O2 are NPs that are daughters of the same mother—V' or VP—so they cannot be distinguished. We shall review below the reasons why they must be distinguished, and some reasons why a purely configurational definition may not work.

The reverse problem is that of showing the similarities between each of these objects and some element found in other constructions. First, which of them is more similar to the single object found in monotransitive examples, which I shall call OO (for 'ordinary object'—or for 'object which is neither first nor second')? I shall suggest that, contrary to many recent analyses, it is O2 that has the most similarities to OO, and that O2 and OO should therefore be treated as a single grammatical function.

Secondly, we must face the fact that in some sentences the O1 is more like an adjunct than a complement. For example, there are similarities between *his children* and *for his children* in 2.

(2) a. He built [his children]$_1$ [a tree-house]$_2$.
    b. He built [a tree-house]$_O$ for his children.

251

But *for his children* is clearly an adjunct, so how do we explain the apparently complement-like behavior of *his children* in 2a? Once again I shall advocate a nonconfigurational approach.

One of the clearest facts about the construction is that native speakers are divided over matters of grammaticality, without any obvious geographical or social biases in the answers. This apparently random pattern needs an explanation, and I shall offer some speculations on how it might arise, in terms of the ways in which learners build grammars on the basis of commonplace examples.

2. O1 AND O2 COMPARED WITH OO. The question is how the O1 and O2 of examples like 3a relate (if at all) to the OO of 3b, and furthermore how O1 in 3a relates to the prepositional phrase (PP) in 3c.

(3) a. Ann gave $[Fred]_1$ $[a\ book]_2$.
    b. Ann met $[Fred]_O$.
    c. Ann gave $[a\ book]_O$ $[to\ Fred]_{PP}$.

We can distinguish four traditions in the history of syntax:

(a) Until the advent of transformational grammar the answer was that O2 = OO. This is reflected in the traditional term 'indirect object', which was applied to O1 but never to OO (or O2), whereas 'direct object' could be applied to either OO or O2, though OO was more often called just 'object'. Unfortunately, 'indirect object' was used as a semantic category, which meant it could also be applied to prepositional phrases like *to Fred* in 4.

(4) Ann gave $[a\ book]_O$ $[to\ Fred]$.

As Faltz 1978 rightly pointed out, this led to a great deal of confusion, and it would have been much better to use a term like 'beneficiary' for the semantic role, reserving 'indirect object' for purely syntactic purposes. This would allow one to compare the surface realizations of beneficiaries in different languages and distinguish structures like those in 3a and 4 as distinct realizations of the same semantic role. In this tradition, then, the alignments were as follows:

(5) a. O2 = OO = (direct) object
    b. O1 = PP = indirect object

This tradition can still be found in Matthews (1981:129).

(b) The tradition just described has been continued by some modern linguists, but without the link between O1 and PP. That is, O2 and OO are still merged as the "(direct) object', in contrast with the indirect object O1, but this is also contrasted with its synonymous PP counterpart (where such exists); in other words, 'indirect object' is a strictly syntactic category, not a semantic one. These are the alignments:

(6) a. O2 = OO = (direct) object
    b. O1
    c. PP

This analysis seems to be particularly attractive to British linguists, e.g. Hud-

dleston (1984:196), Quirk et al. (1985:54, 59) and myself (Hudson 1990:234), though it is also defended by Ziv & Sheintuch (1979).

(c) The transformational tradition has produced two kinds of analysis. In the early days there was a transformation called 'Dative Movement' which converted PP into O1. The resulting structure contained two NPs as sisters of V, so it didn't distinguish their functions, and it also didn't make explicit whether either of them had the same function as OO. It did, however, link O1 to the underlying PP, and O2 to the underlying OO:

(7) a. OO = [NP, VP]
    b. O1 = [NP, VP] < PP
    c. O2 = [NP, VP] < OO
    d. PP

This tradition is found in works such as Akmajian & Heny (1975:183ff.), but it also underlies the important analysis of Dowty 1982.[1]

(d) The early 1970s saw the rise of interest in whether transformations changed grammatical relations, and the beginnings of Relational Grammar, a theory specifically concerned with relation-changing transformations (Blake 1990). Its originators, David Perlmutter and Paul Postal, argued that it was essential to take grammatical relations as primitives, and they suggested a small universal set of relations: subject, direct object, and indirect object (labelled 1, 2, and 3, respectively). Building on the Dative Movement transformation, they claimed that in the underlying structure our PP was a 3, but that its relation (i.e., in our terms, its grammatical function) changed to a 2 in surface structure. This '3 to 2 advancement' meant that the original 2 (i.e. our O2) was 'demoted' to the relation 'chômeur' (an 'unemployed' 1, 2, or 3)—that is, it fell outside the scheme of basic complement relations.

(8) a. OO = 2
    b. O1 = 2 < 3
    c. O2 = chômeur < 2
    d. PP = 3

The important step here is the explicit decision that O1, rather than O2, is the same as OO at surface structure.

As Dryer 1986 points out, this analysis replaces the distinction between direct and indirect objects by a completely different one between 'primary' and 'sec-

[1] According to Dowty, a direct object can be defined (universally) as a term (i.e. NP) that combines with a transitive verb to make it into an intransitive one, while an indirect object is defined as a term that combines with a ditransitive verb to make it into a transitive one. Although this implies that the indirect object is more closely related to the verb than the direct object is, the obligatory application of 'Right Wrap' to all direct objects means that the basic indirect object is our PP. A verb that will allow OO + PP can then be converted by a lexical rule—actually, a pair of lexical rules—into one that allows O1 + O2. This is the sense in which O1 is derived from PP in Dowty's theory. However, it is important to note that O1 is also treated in other respects exactly like OO: it is the term which combines with a transitive verb to give an intransitive one, and which is located just after the verb by Right Wrap. It therefore shares the weaknesses of both our third and fourth analyses.

ondary' objects (a terminology adopted in Chomsky 1981:94). The primary object of a transitive verb is of course its only object, but the primary object of a ditransitive is the one nearest to it. According to Chomsky, this means that O1 receives Case from the verb in the usual way, on the assumption that this kind of Case is assigned only to adjacent phrases, but that O2 receives 'a secondary Case' (1981:94).

An interesting precursor of Chomsky's analysis can be found in Emonds (1976:80), which derives V–O1–O2 from V–O2–PP, but which argues that if the transformation is structure-preserving it must simply swap the positions of the two NPs; this means that O2 is actually inside PP (with a null preposition) at surface structure. This accentuates the difference in status between O2 and OO. Much more recently Larson (1988, 1990) has suggested an even more radical analysis in which O2 is treated as an adjunct of V′, which again distinguishes it sharply from OO; but paradoxically, the analysis uses a latter-day version of Dative Movement without at any stage identifying O2 with OO.[2] What all these analyses have in common, then, is that they associate O1 with OO and dissociate O2 from OO.

This tradition stemming from Relational Grammar is particularly important because it has set the pattern for virtually all subsequent work even in non-transformational theories. In Lexical-Functional Grammar it is explicit in the distinction between 'OBJ' (= OO or O1) and 'OBJ2' (= O2) (Bresnan 1982:287), and in Head-driven Phrase-Structure Grammar (Pollard & Sag 1987:174) by the ordering of complements in the verb's list of potential complements, where both OO and O1 occupy the same position (penultimate, just before the subject) and O2 is different (antepenultimate in the list).[3]

The important question, of course, is: who is right? It is true that the differences in analysis cannot be divorced from differences among the theories in terms of which the analyses are couched; for example, if a theory does not provide the apparatus needed for identifying O2 with OO, then either this option is wrong or the theory is wrong. This is precisely why the debate is important. Equally, it could, in principle, turn out that the only way to choose among the alternative analyses is by invoking theory-internal principles; this conclusion will be forced on us if we can't find any relevant facts. However, I think there are enough facts to make the choice on empirical grounds, which will allow us to draw appropriate theoretical conclusions afterwards.

I think we can probably drop the third analysis (summarized in 7) from con-

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[2] It is worth noting that Larson's analysis makes it impossible to define grammatical functions in terms of configurations; for example, an ordinary OO might be [NP, V′], as in *I saw Mary*, but the addition of an adjunct as in *I saw Mary yesterday* forces the OO into a completely different place in the structure, [NP, VP]. See Jackendoff 1990a for a discussion of this and other aspects of Larson's ideas.

[3] The idea of listing complements in order of decreasing obliqueness, which is so important in HPSG, derives from Dowty's theory mentioned earlier. However, there is a crucial difference in the way the idea is applied to ditransitives, because in HPSG our O1 is identified with OO, whereas in Dowty's original it is identified with PP. Confusingly, Pollard & Sag refer to our O1 as the 'direct object' (1987:175).

sideration, as it doesn't seem to be taken seriously nowadays by anyone. This leaves us with just three candidates.

3. WHAT ARE FUNCTIONAL CATEGORIES FOR? Before we can evaluate the remaining analyses we have to be clear about what our aims are. It is all too easy to fall into the taxonomic trap of discussing analyses without considering the grammars that would generate them. We have to remember that any choice among alternative analyses for the same sentence implies a choice among alternative grammars for the language concerned—which may in turn imply a choice among alternative general theories of grammar. The question, then, is which of our four analyses is produced by the best grammar.

The choice before us involves the functional categorization of the various kinds of objects. We are not concerned with whether they are NPs or PPs, for example,[4] but with their relations to the rest of the sentence. This is what is generally called their 'grammatical function' (or 'grammatical relation'). The theoretical status of grammatical functions is an important matter for debate, and I shall discuss it below, but what is beyond debate is that grammatical functions need to be shown. And of course if they need to be shown, then they also need to be correct; so it is just as important to decide whether two phrases have the same grammatical function as it is to decide whether they belong to the same nonfunctional category (e.g. NP). And, as we have seen, this requires us to consider the consequences of alternative analyses for the grammar. What we most emphatically cannot do is to rely on traditional analyses just because they are traditional.

Bearing these rather obvious principles in mind, we can now eliminate the first of our four analyses, the one in which O1 and PP are identified.[5] The only motivation for this, as far as I can see, is that traditional grammar applies the term 'indirect object' to both O1 and PP. I doubt if any linguist would want to defend this analysis nowadays, but perhaps I should make the case against it explicit. A more detailed critique can be found in Faltz 1978.

The reason for identifying O1 and PP is that with some verbs they have the same semantic role. For example, 9a and 9b are synonymous.

  (9) a. Anne gave [Bill]$_1$ [a present]$_2$.
      b. Anne gave [a present]$_O$ [to Bill]$_{PP}$.

One problem is that we can't use this semantic role as a defining criterion for

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[4] The question of nonfunctional labels comes up very indirectly for a few analyses. Emonds 1976 treats O2 as a PP with a hidden P; and of course in theories that recognize Case for English it is possible to assign different Cases to O1 and O2. I should also note that in GPSG our PP is given the type NP (Gazdar et al. 1985:205).

[5] Linguists used to Phrase Structure Grammar may wonder why I am taking the first analysis at all seriously, as O1 and PP could not have the same grammatical function in any case; the definition of a grammatical function (according to Chomsky) takes account of the category of both the daughter and the mother, so [NP, V'] must be distinct from [PP, V']. The issue does, however, arise in the approach advocated by Dowty 1982, because there the only thing that counts is the position of the element concerned in the list of complements. Therefore, if PP and O1 both occupy the same place in the list, they must (by definition) have the same grammatical function.

'indirect object' if we want this category to include all of our O1s as well as some PPs. Suppose we call the role 'receiver', and define it as follows:

(10) If R is the receiver of X at time T, then before time T R does not have X but after time T R does have X.

The trouble is that each of the following sentences contains an O1 that lacks one of the defining properties of a receiver:

(11) a. John showed [Mary]$_1$ [his etchings]$_2$.
    b. John envied [Mary]$_1$ [her brains]$_2$.
    c. John denied [Mary]$_1$ [her rights]$_2$.

In 11a Mary never 'has' the etchings in any sense; in 11b she has her brains, but she already has them; and in 11c she doesn't have her rights now but neither will she have them in the future. Worse still, by this criterion *Mary* and *upon Mary* would have to be recognized as indirect objects in 12.

(12) a. John presented [Mary]$_1$ with his etchings.
    b. John bestowed his etchings [upon Mary]$_{PP}$.

If all the supposed 'indirect objects' had some other properties in common, then we could easily accommodate these semantic idiosyncrasies; for example, *Mary* in 11a would have enough other properties in common with both *Bill* and *to Bill* in 9 to justify lumping them all together as indirect objects. But in virtually every respect other than their semantic roles O1 and PP follow quite different rules; the semantic role is the ONLY thing that they have in common. Where O1 is a noun phrase, PP is a prepositional phrase; where O1 has to precede O2, PP normally follows it; and where O1 is passivizable, PP is not. The facts are all familiar, and can easily be illustrated by the following examples.

(13) a.   Anne gave [Bill]$_1$ [a present]$_2$.
    b.   Anne gave [a present]$_O$ [to Bill]$_{PP}$.
(14) a. *Anne gave [a present]$_2$ [the person she liked most of all]$_1$.
    b.   Anne gave [to Bill]$_{PP}$ [a present she had bought him]$_O$.
(15) a.   [Bill]$_1$ was given [a present]$_2$.
    b. *[To Bill]$_{PP}$ was given [a present]$_2$.

Our conclusion must, therefore, be that the first of our four approaches is also wrong. The reason it is wrong is very simple: its distinguishing characteristic is that it recognizes a functional category 'indirect object' that includes both O1 and PP, but this category does no work in the grammar. There are no generalizations to be made about all indirect objects because there are no characteristics that are common to them all. This isn't just an example of a 'family resemblances' type of category, in which every example shares several properties with a central prototype but no property is shared by every single member. O1 and PP are quite different syntactically, so all the weight falls on the similarities of semantic role; but, as we have seen, not all O1s do in fact have the same semantic role.

4. SIMILARITIES BETWEEN DOUBLE AND SINGLE OBJECTS. We are left with two candidates to choose from: the second one, in which O2 = OO, and the fourth one, where O1 = OO. This choice is a simple question of which one, O1 or

O2, is the more similar to OO. Both analyses imply that at least one of the 'double' objects has enough similarity to OO to justify a shared category; and they presumably both imply that these similarities are unequally shared between O1 and O2, allowing a choice between them. We shall in fact see that this choice is easy to make.

What, then, are the facts? The following is a list of eleven characteristics that OO shares with only one of the double objects. It may not be complete, but it is at least long enough to draw some fairly clear conclusions.

(i) O1 passivizes almost as easily as OO, and more easily than O2.

(16) a.   Fred met [Mary]$_O$.
     b.   [Mary]$_O$ was met by Fred.
(17) a.   Anne gave [the children]$_1$ [those sweets]$_2$.
     b.   [The children]$_1$ were given [those sweets]$_2$ by Anne.
     c. %[Those sweets]$_2$ were given [the children]$_1$ by Anne.

I have flagged 17c with % rather than * because some people accept such sentences quite happily. Exx. 18a–b come from Jaeggli (1986:596) and Anderson (1988:300), respectively, and Dryer (1986:833) also recognizes that some speakers accept such sentences.

(18) a.   [A book]$_2$ was given [John]$_1$.
     b.   [A gold watch]$_2$ was given [Jones]$_2$ by the railway when he retired.

I also find both 19a and 19b in a very traditional grammar with nothing one could remotely call a theoretical axe to grind, Nesfield (1916:46). And although 19c comes from a linguistics article (Arbib & Hill 1988:63) it is from the text and not one of the examples quoted.

(19) a.   [The fault]$_2$ was forgiven [him]$_1$ by me.
     b.   [Two pounds]$_2$ were allowed [him]$_1$ by us.
     c.   [No information]$_2$ is given [the model]$_1$ about word classes.

Nevertheless, the fact remains that a large number of English speakers, perhaps a majority, find sentences like these much worse than those where the passive subject is O1.

However, not all O1s are equally passivizable. Once again opinion seems to be divided, but Emonds (1976:78) quotes Fillmore 1965 as rejecting all passives that are based on O1s which are synonymous with a *for* phrase. Emonds' own starred examples are the following:

(20) a. %The visitors must have been found some food.
     b. %His parents were carved a statue.
     c. %Mary is being built a table by John.
     d. %The guests have just been roasted a duck.

I have marked these with % because I find them all quite acceptable, but Emonds' judgments show that O1s are not quite like OOs even as far as passivization is concerned. Dowty 1991 also comments on the difficulty of passivizing benefactive O1s such as these. It seems fair, then, to conclude that O1 is almost as easy to passivize as OO, but that passivizing O2 is much harder and for some speakers may even be impossible under all circumstances.

(ii) OO and O2 both extract easily, but O1 doesn't.[6]

(21) a.   Fred met [someone]$_O$.
     b.   [Who]$_O$ did Fred meet #?
(22) a.   We give [children]$_1$ [sweets]$_2$.
     b.   [Which sweets]$_2$ do you give [children]$_1$ #?
     c. %[Which children]$_1$ do you give # [sweets]$_2$?

Here the similarities are reversed, with O1 less similar to OO than O2 is. The
data are less than clear, but many speakers find sentences like 22c much worse
than those like 22b; for example, when I collected judgments on 23a at a meeting
of the Linguistics Association of Great Britain, before presenting an earlier
version of the present paper, thirteen native speakers rejected it and only one
person was sure it was fine. (I am among the rejecters.)

(23) a. %[Which authors]$_1$ did they give # [a prize]$_2$?
     b. %The girl [who]$_1$ I gave # [flowers]$_2$ is Mary.
     c. %Nobody [who]$_1$ I send # [an email message]$_2$ ever replies.
     d. %[Which worker]$_1$ did you deny # [his paycheck]$_2$?
     e. %[Who]$_1$ did you give # [a book]$_2$?

Extraction of O1 also seems to be rejected by Ziv & Sheintuch (1979), who
classify sentences like 23b–c as ungrammatical. Larson takes it for granted
that extraction of O1 is impossible (1988:355), quoting not only Ziv & Sheintuch
but also Kayne 1983 and Whitney 1983. Fodor 1978 agrees that many speakers
think such sentences are ungrammatical, while the remainder find them less
than fully acceptable. On the other hand, Barss & Lasnik (1986:348) quote
23d–e without querying their acceptability at all, and Jackendoff repeats these
judgments without comment (1990a:428).

In short, opinion is divided over the possibility of extracting O1, but O2
seems as easy to extract as OO. Somewhat unexpectedly, however, I find that
extraction OUT OF O1—i.e., in dependency terms, extraction across O1—is
acceptable to everyone I have asked, including those who reject extraction of
O1 itself. A relevant range of examples is given in 24.

(24) a.   Which book shall we give [the author of]$_1$ [a prize]$_2$?
     b.   Which authors do you think # will get prizes?
     c. *Which books do you think [the authors of #] will get prizes?
     d.   When did you fall asleep #?
     e. ?Which lectures did you fall asleep [during #?]

Of these examples, 24a illustrates extraction out of O1; the contrast between
24a and 23a–e shows how much easier partial extraction is than extraction of
the whole O1. This is unexpected because extraction of the whole is usually
easier than extraction of a part. For instance, both subjects and adjuncts can
extract in toto, as in 24b and 24d, but they constitute more or less inescapable
islands for partial extraction (24c, 24e).

     [6] Where an element is extracted, '#' marks the place where it would have occurred if it had not
been extracted. I think readers may find it helpful, but they should not draw any conclusions about
the theoretical status of #. In particular, # is NOT an empty category or trace, such things being
excluded in principle from the theory I shall assume later in this article, Word Grammar.

(iii) O2, but not O1, can follow a particle as easily as OO can.

(25) a.　The secretary sent out [a schedule]$_O$.
　　　b.　The secretary sent [the stockholders]$_1$ out [a schedule]$_2$.
　　　c. %The secretary sent out [the stockholders]$_1$ [a schedule]$_2$.

Once again we find variation among speakers. The most thorough study of this variation that I know is by Emonds (1976:82–3), who finds that 25b is impeccable for everyone, but some people reject 25c. These examples are repeated by Jacobson (1987), who finds 25c fine; for me, however, 25c is awful.[7]

(iv) O2 can be moved by Heavy NP Shift as easily as OO can, but this is quite impossible for O1.

(26) a.　Fred met [Ann]$_O$ on Sunday.
　　　b.　Fred met on Sunday [someone he hadn't seen since he was in college]$_O$.

(27) a.　Fred gave [Ann]$_1$ [some flowers]$_2$ on Sunday.
　　　b.　Fred gave [Ann]$_1$ on Sunday [some lovely flowers that he'd bought in the market the day before]$_2$.
　　　c. *Fred gave [some flowers]$_2$ [the girl he had met at the party the night before]$_1$.
　　　d. *Fred gave on Sunday [the girl he had met at the party the night before]$_1$ [some lovely flowers that he'd bought in the market the day before]$_2$.

So far as I know there is absolutely no disagreement over these judgments; indeed, the badness of examples like 27c has been the starting point for most discussions of double objects. This example shows that O1 must precede O2, but 27d shows more generally that it must also precede every other dependent of the same verb (with the exception, for some speakers, of particles, as in 25c). Unlike every other dependent of a verb, then, O1 cannot be delayed by

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[7] A separate question is whether a particle can follow O2. Both Emonds and Jacobson think this is not in general possible, though Emonds recognizes that it depends on the particle, with *back* sometimes being possible in this position. My own judgment on examples like (i) is that they are impeccable.

　　　(i) I gave [John]$_1$ [his money]$_2$ back.

I have the impression that most other native speakers share this judgment. This means that we must at least make sure that our general theory allows this pattern in principle (contra Jacobson). We are left, of course, with the problem of explaining why so many people reject sentences like (ii):

　　　(ii) *The secretary sent [the stockholders]$_1$ [a schedule]$_2$ out.

The obvious avenue to explore is an explanation in terms of the complexity and 'weight' of the combined object phrases. We already know that particles tend not to follow a single complex OO, as in (iii).

　　　(iii) a.　The secretary sent out [a schedule that contained the company's business plans for the coming year]$_O$.
　　　　　b. ??The secretary sent [a schedule that contained the company's business plans for the coming year]$_O$ out.

It would not be at all surprising if a pair of separate phrases counted as more complex than a single phrase containing the same number of words.

Heavy NP Shift. However long and complex it may be, it has to be next to the verb.

(v) In closely-related languages such as German, which have overt case–marking, O2 is typically accusative, just like a typical OO, whereas O1 is dative.

(28) a. *Ich kaufte* [*ein   Buch*]$_O$.
        I   bought   a.ACC book.
     b. *Ich gab* [*dem   Jungen*]$_1$ [*ein   Buch*]$_1$.
        I   gave   the.DAT boy.DAT   a.ACC book
     c. *Ich gab* [*ein Buch*]$_2$ [*dem Jungen*]$_1$.
     d. *Ich gab* [*ein Buch*]$_O$.

It is true that facts from other languages are not directly relevant to the analysis of English, but they are at least suggestive.

(vi) O2, like OO, is always lexically specified in the verb's valency (alias subcategorization), but O1 often isn't. As has often been pointed out, the possibility of an O1 that means 'for ...' can be predicted on the basis of general rules. Here, for instance, is Jackendoff's formulation of these rules (1990a:447): 'The conditions on the double object are (1) that the verb must be a transitive verb of creation or preparation, and (2) that the created or prepared entity be intended to benefit the Beneficiary NP.' Jackendoff's examples are the following (with my annotations):

(29) a. *Harriet jumped [the coach]$_1$ up and down. ('... jumped up and down for the coach')
     b. *Susan ate [the audience]$_1$ [an apple]$_2$.
     c. *Enrico sang [Luisa]$_1$.
     d. Enrico sang [Luisa]$_1$ [an aria]$_2$.
     e. Beulah peeled [Mae]$_1$ [a grape]$_2$.

Exx. 29a–b are bad because they don't contain verbs of 'creation or preparation', and 29c is bad because it has no object denoting something intended to benefit Luisa. The general point is that it is extremely implausible that a verb such as PEEL is subcategorized as taking an O1, whereas it would be widely agreed that it does need to be subcategorized for an O2/OO.

Indeed, one could go further than this (as Jackendoff does) and claim that it would in fact be wrong to mention O1 in the subcategorization for these verbs, because even the semantic role of the O1 is optional: 'There is nothing in the inherent meaning of singing an aria, peeling a grape, or fixing a sandwich that requires an intended Beneficiary—one could just be doing these things for the hell of it' (1990a:448).[8] In this respect the 'beneficiary' O1 contrasts very sharply with both O2 and OO, which always express a semantic role that is

[8] Larson notes the same set of facts, though he uses them as evidence for a transformational relation between PP and O1. He quotes Marantz 1984 as pointing out that beneficiary O1 can be used even with a neologism such as the verb SHIN (meaning 'kick with one's shin'), as in (i):

    (i) Elmer shinned [me]$_1$ [the ball]$_2$ during soccer practice.

He doesn't mention the important fact that the PP from which this must supposedly be derived can't be mentioned in the verb's subcategorization frame either, and for precisely the same reasons, which means that it must be an adjunct.

inalienable from the action; for instance, you can't just 'sing' without singing something, even though the object that normally identifies this something can be left unexpressed. In short, O1 with verbs like SING and PEEL is more like an adjunct than an OO.

(vii) Closely related to this difference is the fact that it is typically O2, not O1, that has the same semantic role as OO in those cases—the majority, in fact—where the same verb can occur with either one or two objects. This alternation is possible not only where O1 means 'for ...' but also when it means 'to ...', as with GIVE:

(30) a.   We gave [the children]$_1$ [sweets]$_2$.
     b.   We gave [sweets]$_O$.
     c.   *We gave [the children]$_O$.

(The asterisk against 30c means that it can't be interpreted as 'We gave the children something'.) It is true that there are a handful of verbs, including TEACH, TELL, and SHOW, which allow OO to have the semantic role of either O1 or O2:

(31) a.   We told [the children]$_1$ [fairy stories]$_2$.
     b.   We told [the children]$_O$.
     c.   We told [fairy stories]$_O$.

But such verbs seem to be only a small minority, and so far as I know there are no verbs in which the main generalization is reversed, i.e. for which OO can have the same semantic role as O1 but NOT that of O2.

Apart from a handful of verbs like ASK, SPARE, ENVY, and SAVE, a very simple generalization is possible: any verb that allows O1 + O2 also allows OO + PP, and assigns one semantic role (e.g. 'theme') to OO or to O2 and another one ('receiver' or 'beneficiary') either to PP or to O1. This was, of course, the motivation for the old 'Dative Movement' transformation, which gave the same status in deep structure to O1 and PP and to O2 and OO. It has become relevant once again since the widespread acceptance of the Uniformity of Theta Assignment Hypothesis (UTAH) of Baker 1988:

(32) The Uniformity of Theta Assignment Hypothesis:
           Identical thematic relationships are represented by identical struc-
           tural relations between the items at the level of D-structure.

Larson's 1988 analysis of double-object constructions is an attempt to reconcile the UTAH with these apparently recalcitrant data (though in Larson 1990 he agrees with Jackendoff that the UTAH is hard to take seriously for other reasons).

It is interesting to note that these facts about O1 make it quite fundamentally different from O2 in the light of the distinction made in Bresnan (1982:287) between 'semantically restricted' and 'semantically unrestricted' grammatical functions. If O1 allows (in general) only two semantic roles, receiver and beneficiary, then it cannot be semantically unrestricted, as Bresnan claims. (But she is quite right to classify O2, OO, and subject as semantically unrestricted.) In contrast, of course, more recent LFG analyses correctly classify O1 as semantically restricted (Bresnan & Kanerva 1989).

(viii) Another closely-related difference between O1 and O2 is that O1 is typically a human, whereas O2, like OO, is typically nonhuman. This is perhaps understandable where O1 is a beneficiary or a receiver, if we assume that people are more likely to do things for other people than for nonhumans, and people are more likely to be 'owners', and therefore potential receivers, than non-humans. It is not surprising that O1 denotes a human if it has one of these semantic roles, so we might consider this fact to be nothing but an automatic consequence of the facts about semantic roles that we have already noted.

However, it is interesting that the same is also true of those cases where O1's semantic role is less plausibly defined as 'beneficiary' or 'receiver', as with verbs like ASK, DENY, SPARE, and ENVY. With all these verbs too the natural O1 is a human, with a nonhuman O2:

(33) a. We asked [her / ?it]$_1$ [a question]$_2$.
     b. We denied [him / ??it]$_1$ [a place]$_2$.
     c. We spared [her / ??it]$_1$ [any trouble]$_2$.
     d. We envied [him / ??it]$_1$ [that success]$_2$.

It has often been pointed out that if a verb has two arguments, one of which is typically a human and the other a nonhuman, then the human tends to be denoted by the subject and the nonhuman by the object (e.g. Keenan 1976). In this respect, then, O1 shares characteristics with subjects, whereas O2 is a very typical object.

(ix) Both O2 and OO are frequently part of an idiom that also involves the verb, but O1 rarely, if ever, is. For example, there are plenty of idioms like GIVE/LEND O1 A HAND and GIVE O1 THE BIRD/THE COLD SHOULDER/A TASTE OF ONE'S MIND, where O1 is free to be any noun phrase, just as there are idioms like KICK THE BUCKET that consist of V + OO; but there are no idioms of the form V O1 O2 where O1 is fixed and O2 is free.[9] This is part of the evidence that Tomlin (1986) gives for his universal principle of 'Verb Object Bonding'—the principle that a verb is linked semantically to its object more closely than to any of its other dependents. Similarly, Jespersen (1927:279) is quoted by Anderson (1988:295) as saying that O2 is 'more closely connected' with the verb than O1 is. What is odd about O1, of course, is that the word order suggests that a verb is more closely linked to its O1 than to its O2, but facts such as idiom-formation suggest the reverse.

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[9] Larson notes (1988:340, quoting Emonds 1972) that there are idioms whose fixed elements are the verb and a prepositional phrase:

(i) a. Lasorda SENT [his starting pitcher]$_O$ TO THE SHOWERS.
    b. Mary TOOK [Felix]$_O$ TO THE CLEANERS/TO TASK/INTO CONSIDERATION.
    c. Felix THREW [Oscar]$_O$ TO THE WOLVES.
    d. Max CARRIES [such behavior]$_O$ TO EXTREMES.

However, these examples are clearly irrelevant to double-object constructions, as none of the prepositional phrases alternates with O1. These examples are puzzling, it is true, since they suggest a surprising close semantic link between a verb and a directional adjunct. The same puzzle presumably arises with the many verb + particle or verb + preposition idioms that English boasts, many of which seem to relate to directional and locative phrases (e.g. RING UP, LOOK INTO, DEPEND ON).

(x) In relation to infinitival adjuncts, O2 and OO can provide an extracted object, but O1 can't (a fact noted in Bach 1982). For example, consider 34a–c:

(34) a.   I bought [it]$_O$ [to put # on the table].
     b.   He gave [her]$_1$ [it]$_2$ [to put # on the table].
     c. *He gave [her]$_1$ [it]$_2$ [to cheer # up].

In the first two examples the object missing from the infinitive (indicated by '#') is supplied by the OO or O2. But in the third example we find that it can't be supplied by O1; that is, 34c can't mean 'He gave her it in order to cheer her up'. Once again O2 patterns like OO, but O1 doesn't.[10]

(xi) Finally, OO can control a depictive predicate, as in 35.

(35) a. I ate [the meat]$_O$ raw.
     b. John married [Mary]$_O$ pregnant.

Jackendoff (1990b:203) claims that O1 can't control a depictive predicate; he quotes the following examples from Rothstein (1983), who says that *John* can't control *drunk* or *sick*:

(36) a. Mary gave [John]$_1$ [the book]$_2$ drunk.
     b. The nurse gave [John]$_1$ [the medicine]$_2$ sick.

By contrast, it is easy to find examples where O2 controls a depictive predicate:

(37) John gave [Mary]$_1$ [the meat]$_2$ raw.

If we trust these judgments, we have further evidence for a similarity between O2 and OO which is not shared by O1.

This completes my comparison of O1, O2, and OO. The findings are summarized in Table 1. What is striking about this table is that passivization is the ONLY property that groups O1 with OO. There is no other evidence in favor of our fourth analysis, the one in which O1 = OO and which is the most widely accepted at present. On all the other properties it is O2 rather than O1 that patterns with OO, as in the second analysis. On balance, then, it seems clear that the second analysis wins.

5. SOME THEORETICAL CONSEQUENCES. Merely listing eleven properties is, of course, only a first step towards an analysis, and we shall take another step later in the paper. But before we do so it is worth considering some theoretical consequences of what we have found so far, namely that it is O2, not O1, that is like OO.

The conclusions concern the claim that grammatical relations can be defined configurationally, by a simple formula such as [NP, VP] as the definition for

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[10] Dowty (1982:102) says that Bach 1982 says that an infinitival purpose clause with a nonsubject gap must be added to a transitive verb—i.e. must co-occur with an object. I have to admit that I can't find the relevant passage in Bach's article, though there is an interesting discussion of examples like (i) (which appear to refute the claim that Dowty attributes to Bach).

    (i) a. This book is to read # to the class.
        b. Here's *Bambi* to read # to your children.

These examples show that my generalization isn't the end of the matter, because the nonsubject gap isn't controlled by an object.

	PROPERTY	O1	O2	OO
(i)	X passivizes easily	+	−	+
(ii)	X extracts easily	−	+	+
(iii)	X can follow a particle	−	+	+
(iv)	X can be moved by Heavy-NP Shift	−	+	+
(v)	X is accusative in a true case system	−	+	+
(vi)	X must be subcategorized for	−	+	+
(vii)	X has same semantic role as OO	−	+	+
(viii)	X is normally nonhuman	−	+	+
(ix)	V + X may constitute an idiom	−	+	+
(x)	X = extractee of infinitival	−	+	+
(xi)	X controls a depictive predicate	−	+	+

TABLE 1. Comparison among O1, O2, and OO.

'object' (our OO). If O1 and O2 are both daughters of VP or V', as in more traditional analyses, how can they be distinguished at all, let alone distinguished in such a way as to align only one of them with OO? This eliminates 38a, so what about 38b as an alternative? (For the sake of continuity in the argument I replace the usual category label 'NP' with my ad hoc functional labels 'O1' and 'O2'.)

(38) a. b.
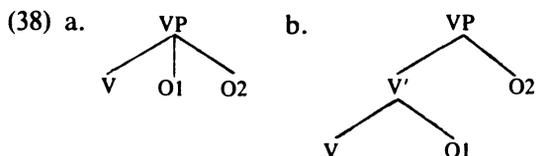
The structure in 38b, suggested by Chomsky (1981:171), does indeed distinguish O1 from O2, since they are [NP, V'] and [NP, VP] respectively. But this analysis faces a number of serious problems. First, it wrongly aligns O1 with OO, which would also be [NP, V']. Moreover, Chomsky underscores this alignment by insisting that O1 'receives structural Case ... in the normal way [from V]'.

Second, the dominance relations between O1 and O2 are inverted. (This problem is discussed at length in Larson 1988.) According to 38b, O2 c-commands O1, but not vice versa, so O1 should be in the domain of O2 for various relations, such as reflexive pronouns. It ought to be possible, then, for O1 to be a reflexive with O2 as its antecedent, but the truth is in fact just the reverse of this:

(39) a. *We showed [herself]₁ [Mary]₂ in the mirror.
     b. We showed [Mary]₁ [herself]₂ in the mirror.

The third problem with 38b is that it breaks the link between subcategorization and sisterhood which was one of the most impressive and enduring insights of Chomsky 1965. This explained why verbs choose (lexically) how many complements, and what types of complement, they may have, and why they don't choose their subjects or their adjuncts in this way. According to

38b, the O2 is not a sister of V, but an 'aunt', so it ought not to be involved in subcategorization; but of course it is. For example, GIVE is distinct from LIKE, but the only difference between them according to 38b is in whether or not they allow an 'aunt' NP.

And lastly, 38b presents O2 as a 'specifier' of VP according to the definition of this term in Chomsky (1986:3). This conflicts with two claims of the latter work: that in English specifiers precede their heads, and that the specifier of VP is in fact the subject. In other words, the analysis of double objects offered by Chomsky in 1981 is incompatible with the analyses that he gives to other constructions in 1986.

The conclusion must be, then, that 38b is also a failure. These two structures are the obvious candidates; some much less obvious ones are surveyed in Larson 1988, and Larson adds an interesting (and influential) one to the range of possibilities. Maybe one of these abstract configurational analyses, or some as yet unimagined one, will prove entirely satisfactory, but for the time being this is just an act of faith. It would be fair to conclude that we can't yet be sure that it will ever be possible to distinguish O1 and O2 configurationally; but until this question has been settled, we also can't be sure that it is possible in principle to define grammatical functions configurationally.

If we cannot use a configurational definition in order to distinguish O1 from O2, and to identify O2 with OO, how else can we do it? One possibility is that we can use thematic relations, and indeed this may strike many readers as the most plausible route to follow. What is needed to make this approach workable is a thematic (i.e. semantic) analysis in which there is no overlap between the roles available to O1s on the one hand and to O2s and OOs on the other; more precisely, there should be a single role that is shared by all O1s, but by neither O2 nor OO, because otherwise we shall need to list a disjunction of roles every time we refer to O1s. It may prove possible in the future to develop such an analysis, but I know of none that is already available.

It is true that most O1s name the person who is in some sense 'owner' or 'haver' of the thing named by O2, and that this is true even of verbs like DENY, DEPRIVE, and SAVE, but there is at least one counterexample: SHOW. If I show you a picture, there is no sense at all in which you then 'have' the picture. One counterexample is sufficient to undermine this whole approach, because the O1 after SHOW is in every other respect like that after any other verb, so every rule that mentions O1 would contain the same disjunction: 'either the owner of the object or the person to whom the object is shown'.

Furthermore, as we saw in connection with the examples in 12, verbs like PRESENT and BESTOW raise the converse of this problem: if I present you with something, or bestow something upon you, why doesn't *you* count as an O1 if O1s are defined in terms of the 'owner' or 'recipient' role?

In the absence of clear evidence that we can define O1 either in configurational terms or in terms of its thematic role, it is hard to avoid the traditional conclusion that O1, and more generally all grammatical relations, may after all be basic analytical categories. This solution is of course allowed by various theories, notably Lexical-Functional Grammar (LFG), Relational Grammar

(RG), Functional Grammar (Dik 1989, Siewierska 1991), and Word Grammar (Hudson 1984, 1990). However, we have to recognize that in at least RG the existing analyses are tied explicitly to the assumption that O1 = OO, and it is unclear how easy it would be to untie them without serious ramifications for the rest of the theory.

6. THE GRAMMATICAL FUNCTION HIERARCHY. We have shown so far that O1 must be distinguished from both O2 and OO, and that it may not be possible to do so without allowing such grammatical functions to be mentioned explicitly in rules. What we have not yet established is that O1 is itself a coherent category. This is a serious question because we have seen that O1 covers a wide variety of patterns, ranging from those that are linked to the verb (e.g. GIVE, DENY) by subcategorization to the more adjunct-like ones found after verbs like PEEL:

(40) a. I gave [Mary]$_1$ [a grape]$_2$.
    b. I denied [Mary]$_1$ [a grape]$_2$.
    c. I peeled [Mary]$_1$ [a grape]$_2$.

Should our 'indirect' cover all these cases?

The answer must be yes, because there are at least four important generalizations that apply to all types of O1: they can only occur in the presence of an overt object; they are confined more or less rigidly to the same position, between the verb and the object; they typically refer to humans; and even when the verb's meaning is favorable, no more than one of these types of O1 is possible. For example, 41a is ambiguous according to whether *Mary* names the receiver ('to Mary') or the beneficiary ('for Mary'); and both these roles can be combined in one sentence using at least one prepositional phrase, as in 41b–c. But they can't each be expressed by a distinct O1, as in 41d:

(41) a. I wrote [Mary]$_1$ [a letter]$_2$.
    b. I wrote [Bill]$_1$ [a letter to Mary]$_2$.
    c. I wrote [Mary]$_1$ [a letter]$_2$ for Bill.
    d. *I wrote [Mary]$_1$ [Bill]$_1$ [a letter]$_2$.

Only one conclusion is possible: for all their variety, these O1s all represent the same function.

I shall now move towards an analysis of double objects in terms of Word Grammar, one of whose characteristics is the use of default inheritance, applied to 'isa' hierarchies. One of these hierarchies contains all the various types of word, from the most general one, 'word', through general classes such as 'verb', to individual lexical items like WRITE. Another is the one that concerns us here: the hierarchy of grammatical functions. As with word-types, there are functions of different degrees of generality, ranging from the most general ones, which are 'head' and 'dependent' (Word Grammar being a version of dependency grammar), through general subtypes of dependent like 'complement' and 'adjunct', to particular functions like 'object', a type of 'complement'.

Returning to our O1, how does it relate to 'complement'? In many respects it is a very typical complement. It is an NP. It can become the subject under passivization. It is limited to only one occurrence per verb (see 41 above). In
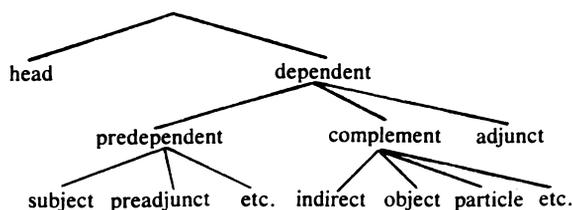
FIGURE 1. Partial hierarchy of English grammatical functions.

some cases it is required by the verb's lexical subcategorization. Its semantic relation to the verb is sometimes fixed by the verb, and varies arbitrarily from verb to verb (e.g. GIVE, DENY, FORGIVE). And it occurs very close to the verb. These complement-like characteristics will automatically be inherited by O1 if we classify it as a kind of complement in an 'isa' hierarchy.

At the same time, we have to recognize that O1 differs from other complements in not always being sanctioned by lexical subcategorization. The exceptions are the beneficiary cases after verbs like PEEL, which must be allowed by a rule that applies freely to any verb that has an object and the right kind of meaning. The formulation of this rule is a challenge for any theory, but however it works it counts as evidence against the widely held belief that complements are by definition elements referred to in lexical subcategorization.
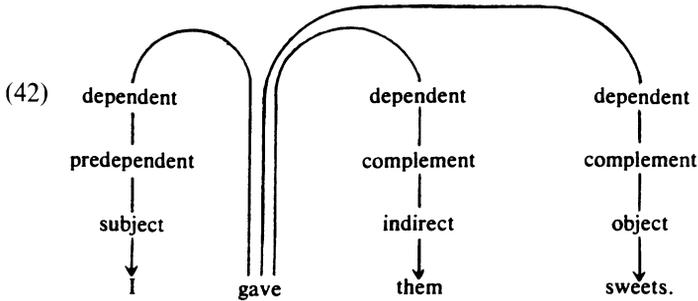
This conclusion confirms the tentative conclusion that we reached earlier—that grammatical functions are basic categories, and not derivative. If 'complement' had been demonstrably definable in terms of subcategorization, then perhaps we might have made a case for treating it as derivative. But we have just seen that this is probably not possible. We therefore may have to accept that there are basic grammatical functions. Furthermore, we must also recognize that they are organized hierarchically, with relatively general functions like 'complement' subsuming relatively particular ones. Not many theories of grammar other than Word Grammar (WG) allow such a hierarchy of functions.[11]

The hierarchy that we shall assume from now on is shown (in part) in Figure 1, where I have replaced the temporary names O1 and O2 by 'object' and 'indirect'.[12] These functions are all basic, but there is no assumption that they are all universal ('head' and 'dependent' are putatively universal; 'subject', 'complement', and 'object' are at least very widespread; the rest may be specific to languages typologically similar to English, or even to English itself).

[11] The hierarchy of functions in Relational Grammar, which has been adopted in the Obliqueness Hierarchy of HPSG, is an ordered set, which is hierarchical in a very different sense from the one intended here. The only theory that does allow a hierarchy in the sense I intend is LFG (Bresnan 1982:287), though this may no longer be true of more recent versions of the theory, in which grammatical relations are decomposed into features (e.g. Bresnan & Kanerva 1988).

[12] The term 'indirect' is better than 'indirect object', which implies (like 'O1') a kind of object. In earlier work I did in fact claim that O1 was a kind of object (1990:233). Another more substantive difference from earlier WG analyses is the absence in Fig. 1 of a category 'postdependent', including all ordinary dependents other than predependents. The main reason for omitting it here is to simplify the presentation; it remains to be seen whether this analysis can be justified empirically.

This hierarchy allows statements about grammatical functions to be for-mulated at different degrees of generality, a facility that we shall exploit below. Thus, if some word is an indirect of a verb, it is also ipso facto a complement and a dependent of that verb; so any rules that mention these higher-level functions must automatically apply to it. This kind of analysis can be shown by a diagram like 42.

(42)   dependent   dependent   dependent

       predependent   complement   complement

        subject   indirect   object

         I   gave   them   sweets.

This hierarchy of functions allows word-order generalizations to be very simple indeed. English is basically a head-first language, so the most typical dependents follow their heads and the basic word-order rule is 43a:

    (43) a. Any dependent of a word follows it.
         b. position of dependent of word = after it

(43b uses the 'official' WG notation.) This rule covers the majority of depen-dencies (about 70% in running texts). However, a significant minority of de-pendents precede their head: subjects, attributive adjectives or nouns, adverbs modifying other adverbs or adjectives, certain adverbs modifying verbs, and extractees. These are the 'predependents', to which a more specific rule, 44, applies:

    (44) Any predependent of a word precedes it.

This rule overrides the more general one, according to the principles of default inheritance (as explained in more detail in Fraser & Hudson 1992). I should explain that the category of 'predependent' is not an ad hoc device for reducing the number of word-order rules; it is also relevant to other matters, such as extraction (which basically does not involve predependents).

The aim of this section has been to introduce a framework of functional categories to which we can refer in the rules for indirects. We shall now explore some of these rules, starting with the rules for word order.

7. THE POSITION OF O1. The most obvious word-order fact about indirects (alias O1s) is that they typically occur between the verb and its object. The only exceptions[13] are provided by extraction and passivization, but we have

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[13] Another kind of exception arises when both O1 and O2 are personal pronouns. Some speakers allow, or even prefer, O2 to precede O1 in sentences like (i).

    (i) Give it me.

seen that the data regarding these constructions are rather messy. I shall try
to explain in this section and the next why this is so.

I start with a summary of the facts about word order (excluding those having
to do with passives) that we found in §4.

> (45) a.   O1s cannot be delayed by Heavy-NP Shift.
>   b. %O1s cannot follow a particle.
>   c. %O1s cannot extract.
>   d.   O1s do allow their dependents to be extracted across them.

These are illustrated respectively by the following examples:

> (46) a.   *We gave [sweets]$_2$ [every child who came to the party]$_1$.
>   b. %The secretary sent out [the stockholders]$_1$ [a schedule]$_2$.
>   c. %[Which authors]$_1$ shall we give # [a prize]$_2$?
>   d.   Which books shall we give [the authors of #]$_1$ [a prize]$_2$?

I shall assume that where judgments are divided, as indicated by '%', this is
simply because different speakers have worked out different grammars on the
basis of roughly the same input, and not because there are dialects, in the usual
sense of the word (i.e. varieties each spoken by a coherent community).

The vast majority of examples containing indirects are presumably straight-
forward ones like 47.

> (47) a.   We gave [the children]$_1$ [sweets]$_2$.
>   b.   I'll make [you]$_1$ [a daisy-chain]$_2$.

We may assume that a child hearing 48a can identify *sweets* as the object,
perhaps on the basis of commonplace utterances like 48b in which the analysis
is more obvious.

> (48) a.   We gave [sweets]$_O$ to the children.
>   b.   I'll make [a daisy-chain]$_O$.

We can then suppose that the child postulates a grammatical function distinct
from 'object' for the O1s; this is our 'indirect'.

The child now has to work out how to use indirects—i.e., what are the
constraints that apply to them? Just a single example is enough to show that
indirects, unlike subjects, follow the verb, so they are ordinary dependents;
and since they precede the object, they are probably complements. By clas-
sifying them as ordinary dependents and complements the learner immediately
explains the postverbal position, but what about the relation to other comple-
ments? The same single example suggests that indirects precede objects, a
hypothesis that proves to be compatible with every other example encountered

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I shall have nothing else to say about these cases, for lack of grammatical data, grammatical ideas,
and also reliable sociolinguistic data. This is a variable of which ordinary speakers are often aware,
at least in Britain, and it tends to be ascribed to a regional difference, with 'northerners' more
likely than southerners to use (i). If this is so, then it is quite different from the other variables
that I discuss in this paper. However, according to Upton et al. (1987:88), the Survey of English
Dialects shows that the popular view is quite mistaken. Speakers of (i) are found in parts of the
West Midlands and a few pockets along the south coast. One wonders whether the differences
among speakers really have any geographical basis at all.

(apart from passives, which raise other issues). The easiest assumption, then, is that indirects have to precede objects. (We can then assume that the notion 'indirect' can be generalized from observed examples along the lines suggested rather persuasively by Gropen et al. 1989.)

At this point, however, the learner faces a choice, because there are a number of different ways to locate indirects before objects. In the absence of quite unusual data, the choice must be arbitrary, hence the rather random differences among judgments by mature speakers. What they all agree on, however, is that there is a special rule for indirects, requiring them to precede the object. There is also a general rule, applying to all ordinary dependents, that allows them to be delayed if they are long (by so-called Heavy-NP Shift); but the more specific rule for indirects overrides this, so Heavy-NP Shift cannot apply to indirects and examples like 46a are universally rejected. This resolution of the conflict between a more general and a more specific rule is due to the general principles of default inheritance, which is fundamental to Word Grammar.[14] What, then, is the specific rule that puts indirects before objects?

First, suppose the answer is 49.

    (49) Indirects must precede objects.

This correctly prevents Heavy-NP shift of indirects but otherwise allows all the sentences in 46, including those with indirects extracted and following a particle. It belongs to the most liberal dialect.

Now suppose we replace 49 by 50.

    (50) Indirects must precede all other ordinary dependents.

Here 'dependent' includes all complements and also all adjuncts which normally follow the verb (Hudson 1990:189ff.). This has much the same effect as 49, since an indirect always occurs with an object, and objects have to precede almost all other ordinary dependents. The 'almost' here acknowledges the fact that an object may be preceded by a particle. Rule 49 allows indirects to follow a particle (on the assumption that particles are allowed to precede objects), but rule 50 makes indirects precede them, along with all the other ordinary dependents. Therefore, 50 rules out sentences like 46b, %*The secretary sent out* [*the stockholders*]₁ [*a schedule*]₂.

A third possibility is rule 51.

    (51) Indirects must be immediately after the verb.

This would again have the same effect as 49 and 50 in the majority of cases, and like 50 it stops an indirect from following a particle; but it adds the extra restriction that an indirect cannot be extracted, because it would then precede the verb. This rules out example 46c, %[*Which authors*]₁ *shall we give* # [*a prize*]₂? But of course it still allows extraction out of indirects, as in 46d, because the indirect itself (i.e. the root of the phrase *the authors of which books*) is in its normal position: *Which books shall we give* [*the authors of* #]₁ [*a*

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[14] For detailed discussions of default inheritance in Word Grammar, see Hudson (1990:30–52) and, more recently, Fraser & Hudson 1992.

prize]₂? Rule 51 therefore defines the most restrictive dialect, in which neither extraction nor a preceding particle is permitted.

Are there any other possible rules for putting indirects before objects? It depends of course on what theoretical assumptions we make about the form of rules, but, as far as Word Grammar is concerned, no other rules seem possible. If this is so, we have an interesting and testable hypothesis: there is no imaginable rule that bans extraction without also banning a particle before indirects. In other words, anyone who rejects 46c must also reject 46b. It remains to be seen whether this is true.

The point of this speculative section is to show that almost the same results can be achieved by different grammatical means. Two English speakers with different rules for indirects might live together for a very long time without noticing the difference.

8. PASSIVES. The judgments on passives reported in §4 were also divided, and I assume that here too the reason is that different speakers have in fact internalized different grammars, each drawing the line at a different point. The facts that we noted in §4 are as follows.

    (52) a.   'Receiver' indirects can be passivized.

       b. %'Beneficiary' indirects can be passivized.

       c. %Objects cannot passivize when accompanied by an indirect.

And here are some relevant examples:

    (53) a.   [The children]₁ were given [those sweets]₂ by the teachers.

       b. %[The visitors]₁ must have been found [some food]₂.

       c. %[Those sweets]₂ were given [the children]₁ by the teachers.

Linguists have used the goodness of sentences like 53a as evidence that indirects are objects, but we have seen that there is no independent support for this conclusion, and in fact strong evidence to the contrary. Let's assume, therefore, that language learners know that the object in 53a is *sweets*, not *the children*. What conclusion must they reach, on hearing such a sentence, about the conditions on passivization? They already know that the object can passivize in ordinary monotransitive examples, so they need a generalization that will apply equally to objects and to indirects. The obvious answer, given our hierarchical view of grammatical functions, is that passivization applies to complements, the category that covers both indirects and objects.

It is true that there are a great many other kinds of complement, such as prepositional complements—a dummy preposition plus its phrase, e.g. the ON found after RELY—and predicative adjectives; these are counterexamples to the hypothesis that complements passivize, because they don't passivize:

    (54) a.   Mary relies [on hard work].

       b. *On hard work is relied.

But this is easy to explain, because subjects (in general) have to be nouns, not prepositions. In the WG analysis of passives (Hudson 1990:336–53), the 'promoted' complement retains its complement relation to the passive verb in ad-

dition to its additional subject relation, so it has to satisfy the demands of both; if one requires it to be a preposition, and the other asks for a noun, the structure is guaranteed incoherent and ungrammatical. Similar explanations can be offered for the nonpassivizability of other kinds of complement.

Moreover, there is a further kind of complement which can be passivized, and which is neither an object nor an indirect, namely a finite clausal complement:

> (55) a. They proved [that John was lying].
>   b. [That John was lying] was proved.

There is no other reason for believing that these complements are objects; on the contrary, there are good reasons for thinking that at least some of them are not objects, because they co-occur with genuine objects:

> (56) They persuaded John [that he should resign].

(Admittedly, the subordinate clause cannot itself be passivized in such cases, but this is because of the rule that objects must precede all other complements; if the subordinate clause were passivized, it would precede the object *John*.) That they generally passivize is no surprise, because such clauses can be ordinary subjects (as in the present sentence). However, this fact supports the idea that passivization is possible, in principle, for any complement, provided that it is also able to be a subject.[15]

Let us suppose, then, that a learner has realized that passive promotion is possible, in principle, for any complement. This explains why indirects can passivize as easily as ordinary objects, but it doesn't explain why they are so much easier to passivize than the objects that occur with them. Why should 53a above be so much better, at least for some judges, than 53c? The answer is closely linked to the explanation I gave earlier for the word-order restrictions on indirects. I suggested that there are three kinds of grammar, probably distributed fairly randomly throughout the English-speaking world, according to which of the following three rules keep the indirect before the object:

> (57) a. Indirects must precede objects.
>   b. Indirects must precede all other ordinary dependents.
>   c. Indirects must be immediately after the verb.

The facts about passivization result from the interaction among these grammars.

The first two grammars both lead to the same conclusion: passivization of an object should never be possible if there is also an indirect, because the object (*those sweets*) would have to occur before the indirect (*the children*).

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[15] This analysis of passives is different from the one in Hudson 1990, which rests on the standard assumption that passivization is tied particularly to the function 'object'. While solving a number of problems, the new one creates a few others, notably the problem of explaining why some noun complements cannot passivize—e.g. after SUIT and RESEMBLE. In my 1990 book I suggested that this was because these verbs took nouns which were complements, but not objects; but even if this explanation was sound then (which I doubt), it certainly is not now.

Prepositional passives, i.e. passives with a stranded preposition, raise different problems, and nothing I say here affects the analysis I offer in my book (346–53).

The fact that this order results from promotion to subject is irrelevant, because it still violates the word-order constraint in 57a–b. By contrast, passivization of an indirect is fine, because the relative order of indirect and object is maintained. If the three grammars were more or less equally distributed, then we might expect about two out of three speakers to reject passivized objects with indirects. If linguists are representative, it certainly looks as though this may be so.

But the third kind of grammar leads to different results. Given rule 57c, an indirect should never be passivizable, because this grammar requires it to stand immediately after the verb, a requirement which conflicts in obvious ways with those for subjects (passive or other). However, these speakers are surrounded by speakers with the other grammars, who passivize indirects freely; so they decide that the normal word-order rule is suspended in passives. In WG, a rule which is suspended in a particular context is simply recorded as 'NOT' in that context; so (informally) alongside the original 58a these speakers now have 58b.

(58) a. Indirects must be immediately after the verb.
     b. NOT: An indirect which is also the subject of a passive verb must be immediately after it.

This relaxation allows indirects to be passivized, but of course it says nothing about their relation to objects. Consequently, these speakers should allow objects as well as indirects to passivize, thus allowing sentences like our 53c. They in turn provide data for the people with the other grammars, who may or may not make some kind of provision for such sentences in their own grammars (depending on how often such sentences occur).

9. CONCLUSION. This explanation is both speculative and partial. It is speculative because it is based on untested (but not untestable) hypotheses about how various combinations of judgments are distributed among the population; we can call it an exercise in speculative sociolinguistics.

Secondly, it is partial because it has said nothing at all about the very important matter of semantic, cognitive, and discourse properties of indirects—notably the fact that they refer to humans. I could, for example, have explained the badness of passivized O2s (e.g. *the sweets*) by referring to the animacy hierarchy which prefers to order human arguments before nonhuman ones; and indeed I could also have referred to this as part of the reason why we put indirects before objects in active sentences. Similarly, I have not tried to explain why benefactive indirects are harder to passivize than receivers (see sentence 53b), though no doubt there are interesting cognitive reasons why this is so.

All these things are relevant to a complete account, but I think it is important to push a purely syntactic account as far as possible, which is what I have tried to do in this paper. To summarize, then, I have made the following proposals. The object of a so-called double-object construction is not the first NP, but the second. It has not yet been shown that it is possible to distinguish the functions of these two NPs except by means of explicit functional categories. Functional

	GRAMMAR A	GRAMMAR B	GRAMMAR C
Position of O1:	before object	before ordinary dependents	just after verb
O1 ok after particle?	yes	no	no
Extraction ok?	yes	yes	no
Passivized O1 ok?	yes	yes	allowed as exception; learned from A, B speakers?
Passivized O2 ok?	no	no	yes

TABLE 2. Three grammars for double-object constructions.

categories are organized hierarchically; for instance, the categories that distinguish these NPs are also subsumed under the more general category 'complement'. The rule for passive promotion refers to 'complement', not to 'object', so the possibility of passivizing the first does not prove that it is the object. Most of the data on double-object constructions available to a learner make it possible to construct any one of three different grammars, summarized in Table 2. And finally, I have speculated that these grammars are randomly distributed among the population and therefore influence each other.

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