English Relational Words,
Context Sensitivity
and
Implicit Arguments

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1   Introduction

Linguists have long known that certain words which express binary relations may occur in a sentence without the sentence containing expressions for both of the relation's relata. For example, the verb *to eat*, the noun *friend*, the adjective *faraway* and the preposition *below* each express a binary relation, yet when they do so in a clause, one of the relata may be left unexpressed.

(1.1)   Bill ate (a meal).
(1.2)   Bill is a friend (of mine).
(1.3)   Bill is faraway (from here).
(1.4)   Bill is out (of the office).

Let us call such words *relational words* and let us, following linguistic custom, call the unexpressed relata *implicit arguments*. The phenomenon, under various names, has been the object of study since the inception of generative linguistics. Building on the observations of Charles Fillmore (1986), Barbara Partee (1989), David Dowty (1982), Kent Bach (1994) and others, I shall show that implicit arguments are associated with a large number of words from each of the major lexical classes. Second, I shall establish that these implicit arguments, aside from the ones sometimes known as indefinite implicit arguments, are all context sensitive in the same way in which words acknowledged universally to be context sensitive, such as the demonstrative

adjectives, the personal pronouns, etc., are context sensitive. Third, I shall show that the implicit arguments do not result from the pragmatic enrichment either of the words with which they are associated or of the sentences in which they occur; rather the implicit arguments are part of the lexical specification of the relational words themselves. Finally, I shall show how these implicit arguments can be accounted for within a theory of grammar availing myself only of devices accepted by all generative linguists, regardless of their theoretical differences.

2   Background

Before turning to data, let me try to reduce the risk of misunderstanding by rehearsing some familiar syntactic and semantic facts. The first set of facts pertains to arguments and the second to context sensitivity.

2.1   Arguments and relata

To facilitate the discussion to follow, let me make clear what I mean by the term *relational word* and how I shall use certain terms pertaining to relational words. The terms are intended to be descriptive; the precise theoretical status of the phenomena these terms are used to describe will be set out in the last section of the paper.

As is well-known, English, like other languages, abounds in words which express relations. I shall call such words, as I did above, *relational words*. Paradigmatic examples of relational words are transitive verbs such as the verb *to admire*, as borne out by the judgements given below.

(2.1)   Mary admires Bill.
(2.2)   *Mary admires.

It is also clear that this verb expresses a binary relation: after all, it is impossible for there to be admiration without someone admiring someone or something.

I shall say that an argument to a relational word (in a sentence) is *explicit* just in case the sentence has a phrase which denotes the relatum correspond-

ing to the argument. As we just saw, the verb *to admire* is a binary relational word. So, it takes two arguments. In the sentence in (2.1), both of its arguments are explicit. In fact, as suggested by the unacceptability of the sentence in (2.2), it appears that the verb *to admire* requires that both of its arguments be explicit.

Next, consider a verb like *to read*. It too expresses a binary relation, for one cannot read without reading something. Yet, unlike the verb *to admire*, it does not appear to require that both of its arguments be made explicit, as the pair of sentences below illustrate:

(3.1) Bill read a book.
(3.2) Bill read.

I shall say that an argument to a relational word (in a sentence) is *implicit* just in case the sentence has no phrase which denotes the relatum corresponding to one of its argument. Thus, the verb *to read* takes two arguments; yet, in the sentence in (3.2), one of its arguments is not expressed, though the sentence can be judged true or false, depending on the circumstances of evaluation. Hence, it is said to be an optionally transitive verb.

2.2   Context Sensitivity

Having made clear what arguments are and what it is for an argument to be either implicit or explicit, let us turn to context sensitivity. There are two universally recognized kinds of context sensitivity. One kind I call *endophora* and the other *exophora*. Let us begin with endophora. Consider two sentences:

(4.1) Two is even.
(4.2) It is even.

Both sentences are judged complete by native speakers. Indeed, both are grammatical sentences and syntactically isomorphic. Moreover, the first sentence is true. Yet, in the absence of any context, we are unable to say whether the second is true or false.

Now consider two other sentences, each of which is true:

(5.1) Two is a prime number.
(5.2) Three is a prime number.

Now, conjoin each of the sentences in (5) with the sentence in (4.2).

(6.1) <u>Two</u> is a prime number and <u>it</u> is even.
(6.2) <u>Three</u> is a prime number and <u>it</u> is even.

In the absence of any knowledge of the context of use, the first sentence can be judged true, while the second false.

Clearly the full interpretation of the sentence in (4.2) may depend on its surrounding text, or cotext, for its interpretation. Let us call expressions which require for their full and proper interpretation knowledge of other expressions in their cotext *endophors*. I shall call the smallest relevant expression in the co-text serving to determine the interpretation of the endophor its *antecedent expression*, or its *antecedent* for short. Thus, in the coordinated sentences above, the antecedent of the third person personal pronoun *it* is *two* in the first case and *three* in the second.

Let me now turn to what I term *exophora*. These are expressions whose full and proper interpretation requires knowledge of the the circumstances of their utterance. They are the indexicals of the philosophical literature. The first sentence below contains an example.

(7.1) Marco Polo died here.
(7.2) Marco Polo died in Venice.

The second sentence is true, as anyone with an adequate knowledge of Marco Polo's life can judge, whereas even someone with an adequate knowledge of Marco Polo's life cannot judge whether or not the first sentence is true without knowing the circumstances of its utterance.

It is possible to test for whether or not an expression is exophoric. The expression is placed in a declarative sentence which is liable to be judged as true or false. Then, holding the circumstances of evaluation fixed, one changes the circumstances of utterance and ascertains whether or not one's judgement of its truth has changed. Similarly, one can test for whether or not an expression is endophoric by holding fixed the circumstances of evaluation and changing the cotext to ascertain whether or not one's judgement of the

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truth value has changed. As Quine (1960 §27, pp. 131-132) has emphasized, one should not confuse the change in one's judgement of the truth value of a sentence which contains an exophoric expression — or, for that matter, an endophoric expression — with the change in one's judgement of the truth value of a sentence which contains an ambiguous expression. Ambiguity gives rise to sentences which can be judged both true and false, without any change in the circumstances of evaluation or in the setting or in the cotext. (See Gillon 2004 for detailed discussion on testing for ambiguity and context sensitivity.)[1]

It is important to note that these tests apply to whole clauses. Thus, in the first instance, they indicate only whether or not the clause contains an endophoric or exophoric expression. It is a further step to ascertain precisely which word in the clause is the indexical expression.

While a few expressions have an endophoric usage but no exophoric usage — for example, the third person reflexive pronouns and the reciprocal pronouns — and others have an exophoric usage but no endophoric usage — for example, the first person singular personal pronoun, the adverb *now*, many expressions have both usages. These include, but are not limited to, the third person personal pronouns. Since so many expressions have both endophoric and exophoric usages, it is convenient to coin the term *ambiphoric* to cover those words which have both usages.

3   Words with implicit arguments

As illustrated in (1) above, relational words occur in each major lexical class: adjectives, nouns, prepositions and verbs. Moreover, as we shall see, there are relational words in each major lexical class which permit their second arguments to remain implicit. As we shall also see, the semantic properties of these implicit arguments are familiar from those exhibited by various well studied, endophoric and exophoric expressions. I begin with verbs, since they appear to have the greatest diversity of argument places.

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[1]The two tests just described follow directly from the definitions of exophora and endophora. A few other tests have been proposed. They, however, depend on further assumptions, the empirical adequacy of which has not been discussed, let alone established. (Klein 1980 pp. 15-16; Cappelen and Lepore 2005 ch. 7, passim.) For this reason, I shall not be using them below.

3.1 Verbs with implicit arguments

Although it has proved useful to distinguish transitive verbs from intransitive ones, nonetheless how the distinction applies beyond the set of usual examples has never been made precise. Thus, we know that verbs such as *to die* and *to laugh*, which resist direct objects, are intransitive, while those such as *to buy*, *to lock* and *to vacate*, which require direct objects, are transitive. But what about verbs such as *to eat*? They may occur either with or without a direct object, as shown by the sentences below.

(8.1)   Marie Antoinette ate.
(8.2)   Marie Antoinette ate the cake.

The verb *to eat* is clearly denotes a binary relation, as can be seen by comparing it with the verb *to kick*. Like the verb *to eat*, the verb *to kick* can form a grammatically complete sentence with or without a direct object.

(9.1)   Bill kicked.
(9.2)   Bill kicked the door.

However, unlike eating, there can be kicking without anyone or anything being kicked. Thus, while the second sentence in (10) entails the first, the first does not entail the second.

(10.1)   Bill kicked.
(10.2)   Bill kicked something.

In contrast, the first sentences in (11) entails the second.

(11.1)   Bill ate.
(11.2)   Bill ate something.

In short, one can kick without kicking anything, but one cannot eat without eating something. This difference shows that the verb *to eat* certainly denotes a binary relation, whereas the verb *to kick* need not.

The fact that the verb *to eat* permits its second argument to remain implicit is clearly a linguistic matter. This is shown by comparing the verb *to eat* with the verb *to devour*, its near synonym, for the verb *to devour*

requires its second argument to be explicit.

(12.1)   *Marie Antoinette devoured.
(12.2)   Marie Antoinette devoured the cake.

Verbs such as *to eat*, which permit their second argument to remain implicit and, if expressed, to be expressed as direct object noun phrases are numerous in English. They include: *to drink, to sip, to bake, to carve, to cook, to read, to write, to embroider, to knit, to sew, to weave, to whittle, to plow, to weed, to sweep, to iron, to hunt, to crochet, to file, to type, to win, to lose*, etc. I shall call such verbs *implicit existential object verbs*.

It should be noted that rendering implicit existential objects explicit with such general existentially quantified noun phrases such as *someone* and *something* helps to provide a rough, yet useful and idiomatic, paraphrase, though it is certainly not perfect. On the one hand, while the word *one* and the word *thing* in the words *someone* and *something* impose restrictions on their quantificational range, implicit existential object verbs usually place more narrow restrictions on the range. Thus, for example, as attributed to Mc-Cawley by Fillmore (1986 p. 97), the range of the existentially quantified implicit argument associated with the verb *to bake* includes bread and pastry but excludes potatoes and hams. On the other hand, the noun phrases *someone* and *something* impose grammatical singularity, which is not imposed by implicit existentially quantified object. Thus, as Fillmore (1986 p. 106, fn. 2) noted, the better paraphrase of the first sentence below is not the second sentence but the third.

(13.0)   Bill spent three days cooking.
(13.1)   Bill spent three days cooking something.
(13.2)   Bill spent three days cooking stuff.

Not all verbs which express binary relations and permit the second argument to be implicit and, if expressed, to be expressed by a direct object noun phrase, have the same semantic properties, though. Some, when their direct object noun phrases are omitted, acquire a sense different from that of an existentially quantified argument. As is well known, some verbs acquire a reflexive sense when their direct object noun phrase is omitted, as illustrated below.

(14.1)   Bill washed the dog.
(14.2)   Bill washed.

Observe that the verb *to wash* indeed denotes a binary relation: no one can wash without washing someone or something. Moreover, the sense associated with the second argument is reflexivity, not existential quantification.

(15.0)   Bill washed.
(15.1)   Bill washed himself.
(15.2)   Bill washed someone or something.

Thus, the correct paraphrase of the sentence in (15.0) is the sentence in (15.1), not the sentence in (15.2). This is especially obvious, when one looks at the correct paraphrase of the negation of the sentence in (15.0).

(16.0)   Bill did not wash.
(16.1)   Bill did not wash himself.
(16.2)   Bill did not wash anyone or anything.

I shall call this class of verbs *implicit reflexive object verbs*. Included in this class of verbs are the verbs *to dress*, *to wash*, *to bathe* and *to exercise*.

Another class of verbs permitting the second argument to remain implicit, and if expressed, to be expressed by a direct object noun phrase, are verbs dubbed in the literature as *covert reciprocal* verbs (See Langendoen 1978). For consistency of terminology, I shall call them *implicit reciprocal object verbs*. They include *to meet*, *to kiss*, *to marry* and *to divorce*. When the complements of these verbs are omitted, the sentences containing them become ungrammatical, unless the subject noun phrase is plural, in which case the sentence acquires a reciprocal construal.

(17.1)   Bill met Carol.
(17.2)   *Bill met.
(17.3)   Bill and Carol met.

It is important to stress that the proper paraphrase of the negation of the sentence in (17.3) is the sentence in (18.1), not the sentence in (18.2).

(18.0)   Bill and Carol did not meet.
(18.1)   Bill and Carol did not meet each other.
(18.2)   Bill and Carol did not meet anyone.

Some of these verbs, maybe all of them, are liable to the implicit argument being construed existentially:

(19)   Bill finally married at age fifty.

The fact that the verb *to marry* is ambiguous between its implicit argument being construed reciprocally and its implicit argument being construed existentially is established by the fact that the following sentence is not self-contradictory:

(20)   Eventually, Bill and Carol married, but not each other.

(See Gillon 2004 for details regarding the use of contradiction to test for ambiguity.)

Still another class of verbs are what I shall call *implicit ambiphoric object verbs*. This kind of verb seems to be less well documented; but then they have not been the subject of any systematic investigation. To appreciate how these verbs work, let us consider the pair of verbs *to leave* and *to vacate*. Both verbs express binary relations: it is impossible to leave without leaving some place, just as it is impossible to vacate without vacating some place. As noted by Fillmore (1986, p. 99), although these verbs are near synonyms of one another and both appear to be transitive,

(21.1)   ?Bill left.
(21.2)   Bill left the office.

(22.1)   *Bill vacated.
(22.2)   Bill vacated the office.

in a suitable cotext, the verb *to leave* requires no direct object noun phrase, whereas the verb *to vacate* does.

(23.1)   The protestors stayed in the park all day. They left at sunset.
(23.2)   The protestors stayed in the park all day. *They vacated at sunset.

Moreover, the argument of the verb *to leave*, though implicit, is construed like an endophoric expression, for the value to be associated with the implicit argument is determined by the cotext. Thus, what sentence *they left at sunset* expresses in (23.1) is that the protestors left the park at sunset; but what it expresses in (24) below is that the protestors left the street at sunset.

(24)   The protestors stayed in the street all day. They left at sunset.

Yet, unlike those expressions such as third person personal pronouns, which are the paradigm examples of endophoric expressions, no such endophoric expression appears in the sentence *They left at sunset*; indeed, no word in the sentence refers either to the park or to the street. Noun phrases referring to these places occur in the preceding cotext.

It is possible to provide an accurate paraphrase of the sentence *They left at sunset*, as used in (24), by making the implicit argument explicit, not with some existentially quantified noun phrase, but with an expression which is universally recognized to have an endophoric use, namely, the expression *there*.

(25.1)   The protestors stayed in <u>the park</u> all day. They left <u>there</u> at sunset.
(25.2)   The protestors stayed in the street all day. They left some place at sunset.

The accuracy of the paraphrase in (25.1) is borne out by the fact that, were the second sentence in (24) negated, its proper paraphrase for the same cotext is given in (25.1), not in (25.2).

(26.0)   The protestors stayed in the park all day. They did not leave at sunset.
(26.1)   The protestors stayed in <u>the park</u> all day. They did not leave <u>there</u> at sunset.
(26.2)   The protestors stayed in the park all day. They did not leave any place at sunset.

In short, the verb *to leave* behaves as though its second argument, when left implicit, acquires its semantic value like an endophor.

It can also behave as though it acquires its semantic value like an exophor.

Consider two circumstances of utterance: in one, the speaker is at the office and, in the other, he or she is at a house. If the sentence *Bill left* is uttered in the first circumstance of utterance, what is conveyed is that Bill has left the place of that circumstance of utterance, namely, the office. If it is uttered in the second circumstance of utterance, what is conveyed is that Bill has left the place of the other circumstance of utterance, namely, the house. In this case, the correct paraphrase of *Bill left* is given by the first sentence below, not the second.

(27.1) Bill left here.
(27.2) Bill left somewhere.

Finally, we noted above that the verb *to leave* forms a minimal pair with the transitive verb and near synonym *to vacate*. It also forms a minimal pair with itself. The verb *to leave* has at least two senses: one sense is the same as the verb *to vacate*, the sense relevant above; another is the same as the sense of the verb *to drop off*. The verb *to leave*, in this latter sense, also expresses a binary relation, for one cannot leave, in this sense, without leaving something. Now, as Fillmore (1986 p. 102) noted, *to leave* in the first sense tolerates its second argument remaining implicit, as we have seen above, while *to leave* on the second sense does not permit its second argument to remain implicit. Thus, in spite of the favoring of this sense by the cotext which precedes the second clause of the first sentence below, the verb *to leave* cannot be taken in the sense of to drop off. This is made clear by the second sentence below.

(28.1) Bill took the package to Carol's house and he left.
(28.2) Bill took <u>the package</u> to Carol's house and he left <u>it</u>.

It is consistent with the first sentence that Bill never gave up physical possession of his package at any time; whereas, it is inconsistent with the second sentence that he did.

We have now exhausted all the cases of binary relational verbs whose second arguments may remain implicit, and if expressed, are expressed by direct object noun phrases. But, as we shall now see, there are binary relational verbs whose second arguments may remain implicit, but if expressed, are expressed, not by direct object noun phrases, but by prepositional phrases. I shall call them *implicit PP complement verbs.* Again, I have seen only a

few reported in the literature; but again, they too have not been the subject of any systematic investigation.

To appreciate how these verbs work, let us turn to a minimal pair noted by Kent Bach (1994), namely, the minimal pair comprising the verb *to reach* and its near synonym, the verb *to arrive*. As the reader can easily check, both verbs express binary relations. Both appear to require complements, the former a direct object noun phrase and the latter a prepositional phrase.

(29.1)   ?Hilary arrived.
(29.2)   Hilary arrived at the summit.

(30.1)   *Hilary reached.
(30.2)   Hilary reached the summit.

However, with a suitable cotext, the verb *to arrive* requires no PP complement, whereas the verb *to reach* still requires an NP complement.

(31.1)   Hilary climbed to the summit. He arrived at noon.
(31.2)   Hilary climbed to the summit. *He reached at noon.

In addition, the argument of the verb *to arrive*, though implicit, is construed like an endophoric expression, for the value to be associated with the implicit argument is determined by the cotext. Thus, what sentence *he arrived at noon* expresses in (31.1) is that Hilary arrived at the summit at noon; but what it expresses in (32) below is that he arrived at the office at noon.

(32)   Hilary walked to his office. He arrived at noon.

Again, a paraphrase of the second sentence in (32) can be obtained with an endophoric expression making explicit the second argument of the verb *to arrive*.

(33.1)   Hilary climbed to <u>the summit</u>. He arrived <u>there</u> at noon.
(33.2)   Hilary walked to <u>the office</u>. He arrived <u>there</u> at noon.

Thus, we see that the value of the second argument of the verb *to arrive*, when left implicit, is determined endophorically. It is certainly not assigned the value of an existentially quantified noun phrase.

The value of the second argument of the verb *to arrive* can also be determined exophorically. Consider two circumstances of utterance: in one, the speaker A is at the office and in the other he or she is at a house. If the sentence *Hilary has arrived* is uttered in the first circumstance of utterance, what is conveyed is that Hilary has arrived at the place of the circumstance of utterance, namely, the office. If it is uttered in the second circumstance of utterance, what is conveyed is that Hilary has arrived at the place of the other circustance of utterance, namely, the house. In this case, the correct paraphrase of *Hilary has arrived* is given by the first sentence below, not the second.

(34.1)   Hilary has arrived here.
(34.2)   Hilary has arrived somewhere.

Finally, we noted above that the verb *to arrive* forms a minimal pair with itself. The verb *to arrive* has at least two senses: in one sense what is arrived at is a physical location, in the other sense, what is arrived is a conclusion. The verb *to arrive*, in this latter sense, also expresses a binary relation, for one cannot arrive in this sense without arriving at some answer, solution or conclusion. Again, as Fillmore (1986 p. 101) noted, the verb *to arrive*, in the first sense, permits its second argument to remain implicit, as we have seen above, but the verb *to arrive*, on the second sense, does not permit its second argument to remain implicit. Thus, in spite of the favoring of this sense by the cotext which precedes the second clause of the first sentence below, the verb *to arrive* cannot be taken in the sense in which its complement denotes a solution. This is made clear by the second sentence below.

(35.1)   Though Paris is far away, Bill arrived before dark.
(35.2)   *Though Bill had studied the problem and its solution last week, when asked about the problem today, he could not arrive *(at the solution).

If the implicit argument of the verb *to arrive* behaves both like an endophor and like an exophor, not all binary relational verbs where an argument left implicit would be made explicit by a prepositional phrase receive either an endophoric or exophoric construal. Some receive an existential construal. It is a fact of English that the first argument of any binary relational verb appearing in a finite active form must be made explicit and it must be made

explicit by the subject of the verb's clause. However, when the verb appears in the passive voice, it is the second argument which must be made explicit by the subject of the clause. The first argument may be left implicit. Moreover, when it is left implicit, it is construed existentially.

(36.1)   The cake was devoured.
(36.2)   The cake was devoured by someone.

So far, we have looked at binary relational verbs whose phrasal complements can be omitted. Verbs also take clausal complements. Some do not permit their clausal complements to be omitted, but some do. Thus, the verbs *to consider*, *to maintain* and *to note* do not permit their clausal complements to be omitted.

(37.1)   Carol maintained that Bill was sleeping.
(37.2)   *Carol maintained.

At first sight, it seems as though the verb *to notice* also does not permit its clausal complement to be omitted.

(38.1)   Carol noticed that Bill was sleeping.
(38.2)   *Carol noticed.

But, as David Dowty (1982) has observed, the verb *to notice* tolerates the omission of its complement clause, whereas its near synonym, *to note*, does not.

(39.1)   Bill was sleeping. Carol noticed.
(39.2)   Bill was sleeping. *Carol noted.

I shall call these verbs *implicit clausal complement verbs.*

It might be thought that the implicit clausal complement verbs are just another case of implicit existential object verbs. But this is not so. True, the verb *to eat* and the verb *to notice* both express binary relations and both permit their second argument to remain implicit; but the verb *to eat* does not exhibit any evidence of being either endophoric or exophoric, while *to notice* does.

(40.1)   Carol had prepared a pie and Bill ate.
(40.2)   Carol had prepared a pie and Bill ate it.

(41.1)   Carol was preparing a pie and Bill noticed.
(41.2)   Carol was preparing a pie and Bill noticed that she was.

The sentences in (40) are not paraphrases of one another. While the sentence in (40.2) entails that Bill ate the pie prepared by Carol, the sentence in (40.1) does not. In contrast, the sentences in (41) are paraphrases of one another. And, in particular, they both entail that Bill noticed that Carol was preparing a pie.

The contrast between *to eat* and *to notice* is maintained when the clauses in which they occur are negated. The second clause of the sentence in (42.0) is properly paraphrased by the transitive use of the verb *to eat* followed with an indefinite pronoun in the object position,

(42.0)   Carol had prepared a pie, but Bill did not eat.
(42.1)   Carol had prepared a pie, but Bill did not eat anything.
(42.2)   Carol had prepared a pie, but Bill did not eat it.

while the intransitive use of *to notice* cannot be paraphrased by using an existentially quantified noun phrase to make its second argument explicit.

(43.0)   Carol was preparing a pie, but Bill did not notice.
(43.1)   Carol was preparing a pie, but Bill did not notice anything.
(43.2)   Carol was preparing a pie, but Bill did not notice that she was.

In fact, when the second argument of the verb *to notice* is left implicit, its construal is like that of an endophoric expression or that of an exophoric expression, as we shall now see.

Consider the following pair of two sentence sequences.

(44.1)   Bill was sleeping. Carol noticed.
(44.2)   Bill was smoking. Carol noticed.

What Carol noticed, according to the sentences in (44.1), is that Bill was sleeping; what she noticed, according to the sentences in (44.2), is that Bill was smoking. This shows that the expression *Carol noticed* is endophoric

and that the source of the endophora is the verb *to notice.*

Not only may the unexpressed relatum of the verb *to notice* be determined endophorically, it may also be determined exophorically. Imagine, for example, two people walking together past a scene which each would take to attract the other's attention. The first question below is acceptable, but not the second:

(45.1) Did you notice?
(45.2) *Did you note?

To notice also forms a minimal pair with itself, in the same way that *to leave* and *to arrive* each forms a minimal pair with itself. The verb *to notice* may take both a clausal complement and a noun phrase complement; but only the form of *to notice* which takes a clausal complement permits the omission of its complement, as illustrated below.

(46.1) Alan warned Bill of the approaching stranger. *But Bill had already noticed.
(46.2) Alan warned Bill of the approaching stranger. But Bill had already noticed him .
(46.3) Alan warned Bill that a stranger was approaching. But Bill had already noticed.

Observations made by Kent Bach regarding verbs such as *to finish* suggest that there are also implicit gerundial phrase complement clauses. It too comes with a contrasting near synonym, namely, the verb *to complete.*

(47.1) Bill has been washing the car. He just finished.
(47.2) Bill has been washing the car. *He just completed.

What we have seen so far is that many binary relational verbs permit their second argument to remain implicit. However, we also saw that these implicit arguments are nonetheless available for semantic interpretation and their interpretation falls within the kinds of interpretations typical of various well studied exophoric and endophoric expressions or are susceptible to the interpretation corresponding to an existentially quantified noun phrase.

While I have confined discussion in this paper to binary relational words,

as is well known, verbs can also express ternary relations. Work done by Dowty (1982) and by Fillmore (1986) has shown that verbs with three arguments permit their third argument to remain implicit. It is beyond the scope of this paper to pursue the semantic properties of these implicit arguments. Suffice it to say that the evidence uncovered so far shows that the interpretations of these arguments fall within the same range as those of the implicit arguments of binary relational verbs.

3.2 Adjectives with implicit arguments

If many verb complement types have not been very systematically studied, adjectival complement types have been studied even less systematically. Nonetheless, ample data are available to indicate the generalization given for binary relational verbs holds for binary relational adjectives as well.

Complements of adjectives are of two kinds: they are either clauses or they are prepositional phrases. Let us begin with examples of adjectives which permit their second arguments to remain implicit, but when expressed, are expressed by prepositional phrases. These adjectives include *hostile*, *friendly*, *domestic*, *foreign*, *local*, *faraway* and *nearby*, to mention but a few. Consider again the adjective *faraway*. Its second argument, when implicit, is construed as an exophor, not as an existentially quantified noun phrase. Thus, the correct paraphrase of the sentence in (48.0) is the one in (48.1), not the one in (48.2).

(48.0)   Bill lives faraway.
(48.1)   Bill lives faraway from here.
(48.2)   Bill lives faraway from somewhere.

Again, the correctness of this observation is substantiated by the negations of the sentences in (48).

(49.1)   Bill does not live faraway.
(49.2)   Bill does not live faraway from here.
(49.3)   Bill does not live faraway from anywhere.

As shown by Partee (1989), implicit second arguments of some binary relational adjectives are construed endophorically.

(50.1)   Each worker received a letter from the head of the local union.
         <u>Each worker</u> received a letter from the head of <u>his</u> local union.

(50.2)   The head of the local union sent a letter to each worker.
         The head of <u>his</u> local union sent a letter to <u>each worker</u> .

The reader can confirm that the adjective *local*, which tolerates one of the relata of the binary relation it expresses remaining unexpressed, conforms to the patterns set out above.

Among the adjectives which permit their second arguments to remain implicit are also ones whose second arguments, when left implicit, receive a reciprocal construal. They include adjectives such as *equal, parallel, opposite, perpendicular, contradictory, simultaneous,* etc. (Pupier 1973). When these adjectives are predicates and they have no complement, the sentences containing them become ungrammatical, unless the subject noun phrase is plural, in which case the sentence acquires a reciprocal construal.

(51.1)   *The explosion was simultaneous.
(51.2)   The explosion was simultaneous with the arrival of the train.
(51.3)   The explosion and the arrival of the train were simultaneous.

It is worth noting, in this connection, the minimal pair formed from the adjective *similar* and the verb *to resemble*. These near synonyms differ in that the adjective permits its second argument to remain implicit, while the verb requires its second argument to be explicit.

(52.1)   The books are similar.
(52.2)   The books are similar to each other.

(53.1)   *The books resemble.
(53.2)   The books resemble each other.

Some of adjectives also allow their second argument, when left implicit, to be construed ambiphorically. The endophoric use is illustrated below and confirmed by the paraphrase.

(54.1)   The Eiffel Tour is over there and Bill lives just opposite.
(54.2)   <u>The Eiffel Tour</u> is over there and Bill lives just opposite to <u>it</u>.

The skeptical reader is welcome to carry out the test of changing the cotext and the further test of using negation.

The exophoric use is illustrated by first sentence below.

(55.1)   Bill lives just opposite.
(55.2)   Bill lives just opposite here.

I have not seen cited in the literature any adjectives whose second implicit argument is construed reflexively. Though, again, I know of no systematic investigation of adjectives from this point of view.

I mentioned above that some adjectives have clausal complements. They include such adjectives as *certain*, *glad*, *happy*, *sad*, *sure* and *upset*. These adjectives exhibit all the evidence of containing an implicit clausal argument subject to an endophoric construal.

(56.1)   Carl left. Bill was glad.
(56.2)   Mary left. Bill was glad.

(57.1)   Carl left. Bill was glad.
(57.2)   Carl left. Bill was not glad.

It is not obvious to me whether the implicit argument can be construed exophorically. I leave that to the reader to determine.

3.3   Preposition and Adverbs with implicit arguments

It was known, even in traditional English grammar, that some prepositions can occur without their noun phrase complements. Prepositions, when so used, were called in traditional grammar *prepositional adverbs* (Jespersen 1924). Early generative linguists such as Klima (1965) dubbed them *intransitive prepositions*. Emonds (1972) and Jackendoff (1973) also investigated such prepositions. Jackendoff (1973 p. 346) claimed that such prepositions were just like verbs such as *to eat*. What we will see is that Jackendoff was partly right and partly wrong. These prepositions permit their second argument to remain implicit. In that respect, Jackendoff was right. But unlike implicit existential object verbs, the second argument, when it is implicit, is not construed existentially, but either exophorically or endophorically. A

lengthy list of such prepositions can be found in Quirk *et al.* 1985 (ch. 9.65-66).

(58.0)   Bill walked up to the edge and jumped over.
(58.1)   Bill walked up to the edge and jumped over it.
(58.2)   Bill walked up to the edge and jumped over something.

In the same way as we saw above, the sentence in (58.0) is properly paraphrased by the one in (58.1), not by the one in (58.2). And, as above, this paraphrasal equivalence is borne out by comparing the negations of the sentences in (58.0).

(59.0)   Bill walked up to the edge and did not jump over.
(59.1)   Bill walked up to the edge and did not jump over it.
(59.2)   Bill walked up to the edge and did not jumped over anything.

Furthermore, the sentence in (58.0) is importantly different from the sentence in (60.0)

(60.0)   Bill walked up to the edge and jumped.
(60.1)   Bill jumped over the edge.

The sentence in (58.0) entails the sentence in (60.1), while the one in (60.0) only implicates the sentence in (60.1).

It is clear that the second argument of these prepositions, when implicit, can be construed exophorically.

(61.1)   Bill is out.
(61.2)   Is Bill in?
(61.3)   Don't jump over.

Again, some prepositions form minimal pairs with others. For many speakers, the preposition *in* can be used in the same sense as the preposition *into*, as shown below:

(62.1)   Bill ran into the house.
(62.2)   Bill ran in the house.

Yet, of the two, only the preposition *in* on the shared sense permits its argument to be implicit.

(63.1)   Bill had been standing in front of his house. When he heard the telephone ring, he ran in.

(63.2)   Bill had been standing in front of his house. *When he heard the telephone ring, he ran into.

The kind of minimal pair we just saw comprised two prepositions, which, in spite of having the same sense, differ in that one requires its argument to be explicit, while the other permits it to be implicit. Some prepositions also form another kind of minimal pair. These are pairs of binary relational words sharing a sense, yet one permits its an argument to be implicit whereas the other requires its corresponding argument to remain implicit. Prepositions such as *after* and *before* pair with the adverbs *afterwards* and *beforehand* to form such minimal pairs.

(64.1)   Bill arrived at dinner time; Carl arrived shortly after (that).

(64.2)   Bill arrived at dinner time; Carl arrived shortly afterwards.

Both implicit arguments of *after* and *afterwards* are construed either endophorically or exophorically.

3.4   Nouns with implicit arguments

Finally, we come to nouns. Perhaps the best known examples of relational word with implicit arguments whose values are contextually determined are the directional nouns *left* and *right*. (For detailed discussion, see Gillon 2004 pp. 183-185.) Let us turn instead to other binary relational nouns such as *father*. No one can be a father and never have had a child. Its second argument, when left implicit, is construed existentially.

(65.1)   Bill is a father.

(65.2)   Bill is not a father.

The second argument of some relational nouns, when left implicit, can be construed exophorically. These include relational nouns such as *friend*,

cousin, *neighbor*, *colleague*, etc. Thus, the sentences in (66) can be paraphrasal equivalents.

(66.1)   Bill is a friend.
(66.2)   Bill is a friend of mine.

This observation is borne out the use of negation.

(67.1)   Bill is not a friend.
(67.2)   Bill is not a friend of mine.

Though I know of no binary relational nouns whose second argument, when implicit, receives a reflexive construal, but there are many which receive a reciprocal construal. This construal arises for many of the nouns just alluded to above. The reciprocal construal requires that the subject noun phrase be a plural one and that the second argument remain implicit.

(68.1)   Bill and Carl are friends.
(68.2)   Bill and Carl are friends of each other.

(69.1)   Bill and Carl are not friends.
(69.2)   Bill and Carl are not friends of each other.

Not surpisingly, some of these nouns give rise to an ambiguity, precisely like the ambiguity we noted above with respect to some implicit reciprocal object verbs such as *to marry*. Consider the noun *spouse*. Suppose the sentence in (70) is uttered by a speaker who is telling someone who in the room is married and who is not.

(70)   Bill is a spouse.

When it is used in those circumstances, the second argument of *spouse* is construed existentially. But it can also be understood reciprocally. The fact that the next sentence is not self-contradictory shows that the word is ambiguous.

(71)   Bill and Carol are spouses but not of each other.

Before ending this all too brief discussion of nouns, I would like to point out one other fact about relational nouns whose second argument, when implicit, receives an existential construal. Above, I stated the well-known fact of English that the first argument of any binary relational verb appearing in a finite active form must be made explicit and it must be made explicit by the subject of the verb's clause. I also pointed out another well-known fact, namely that, when the verb appears in the passive voice, it is the second argument which must be made explicit by the subject of the clause. There is a remarkable parallel with relational nouns. When these nouns are NP complements to the verb, if the verb is the verb *to be* the first argument must be made explicit and expressed by the verb's subject, and if the verb is the verb *to have*, the second argument must be made explicit and expressed by the verb's subject. In both cases, the implicit argument is construed existentially.

(72.1)   Bill is a father.
(72.2)   Bill has a father.

(73.1)   Bill is not a father.
(73.2)   Bill does not have a father.

3.5   Summary of the findings

We have surveyed binary relational words in English. We have seen that they are found in every lexical class: adjective, adverb, noun, preposition and verb. Moreover, we have seen that each class has binary relational words which permit one of their arguments to remain implicit. We have also seen that, when such arguments remain implicit, their construals fall within a limited range, essentially the range of endophoric and exophoric expressions as well as that of existentially quantified noun phrases. In other words, if an implicit argument is not construed in the same way as are endophoric or exophoric elements, then it is construed as an existentially quantified argument.

In addition, we have seen that many of the binary relation words with implicit arguments form minimal pairs of three kinds. One kind of minimal pair is formed from a binary relational word which has an implicit argument and another binary relation word which is a near synonym of the first and both of whose arguments are required to be explicit. Here are a number of

such minimal pair, including the ones cited above, most of which are found in Fillmore (1986 pp. 98-102).

<div align="center">

SECOND ARGUMENT

IMPLICIT	EXPLICIT
to eat (NP)	*to devour* *(NP)
to follow (NP)	*to pursue* *(NP)
to leave (NP)	*to vacate* *(NP)
to arrive (PP)	*to reach* *(PP)
to look (PP)	*to seek* *(PP)
to insist (S)	*to demand* *(S)
notice (S)	*to note* *(S)
to suppose (S)	*to maintain* *(S)
to try (IC)	*to attempt* *(IC)
to promise (IC)	*to pledge* *(IC)
to find out (IQ)	*to discover* *(IQ)
to finish (GC)	*to complete* *(GC)
to object (GC)	*to oppose* *(GC)

</div>

(Following linguistic convention, the parentheses signal that the constituent is omissible, while the asterisk in front of the parentheses indicates that the constituent is not omissible, that is, that it is required. S stands for a clause whose verb is inflected for tense, IC for a clause whose verb is an infinitive, IQ for an indirect question, and GC for a clause whose verb is a gerund.)

A second kind of minimal pair is one formed from a binary relational word whose implicit argument may be made explicit and another binary relational word which is a near synonym of the first, whose corresponding implicit argument must remain implicit. These are found primarily among prepositions and related adverbs such as *after* and *afterwards* and *before* and *beforehand.*

A third kind of minimal pair is one formed from a binary relational word which has an implicit argument and the phonologically identical word, which differs from the first only with respect to meaning. Thus, we saw that the

verb *to leave* permits its direct object to be implicit, if it means to remove oneself from the premisses, but it requires its direct object to be explicit, if it means to deposit something someplace. Other words exhibiting this correlation between a difference in sense and the omissibility of an argument are: *to accept, to apply, to approve, to open, to close, to win, to lose, to care, to return, to forget, to hear, to know, to see, to remember, to volunteer.* (See Fillmore 1986 pp. 98-102 for illustrations.)

The first two kinds of minimal pairs make it overwhelmingly evident that the distinction between arguments which are implicit and arguments which are explicit is not a matter of pragmatic enrichment. Recall that enrichment results from the application of pragmatic principles to the shared conversational background and the semantic content of an utterance. If two sentences are the same, except that where one sentence contains one of a pair of synonymous words, the other sentence contains the other of the pair, then, those sentences, when uttered with the same cotext and in the same circumstances, must give rise to the same set of enrichments. And so, either each word in its respective sentence would require a complement or neither would : it would not be the case that one would require a complement and the other would not.

Finally, all three kinds of minimal pairs make it clear that the distinction between implicit and explicit arguments, at least for these cases, must be lexical. This being so, it is natural to generalize whatever device distinguishes the minimal pairs to those cases where the minimal pairs do not exist.

4 Theoretical Account

So, how is the difference between implicit and explicit arguments to be represented in a lexical entry? The answer is that it is done by exploiting assumptions which have been in widespread use in model theory since its inception and in syntactic theory for the past fifty years.

It is customary in semantic theory to borrow a page from model theory and to assign to each relational word its degree or adicity. Thus, just as in model theory, one specifies for each predicate its adicity, or arity, so for each relational word of a language one specifies its adicity or arity. For example, a verb such as *to die*, which is intransitive, is specified as having

an adicity of one, that is, as taking only one argument, while a verb such as *to admire*, which is transitive, is specified as having an adicity of two, that is, as taking two arguments. Such a specification accounts for the contrasts in acceptability of the sentences given below.

(69.1)   Bill died.
(69.2)   *Bill died Fred.

(70.1)   *Mary admires.
(70.2)   Mary admires Bill.

Moreover, just as each predicate of a given arity is interpreted by a relation of a corresponding arity, so each relational word is interpreted by a relation of a corresponding arity. It is crucial that this correspondance be properly established. To see why, consider this example from model theory. Let R be a binary predicate and let a and b be individual constants. Let M be a model whose domain is $\{1, 2, 3\}$ and whose interpretation function i assigns 1 to a, 2 to b and the set of ordered pairs $\{\langle 1, 2\rangle, \langle 2, 3\rangle, \langle 3, 1\rangle\}$ to R. The clause of the truth definition of an atomic formula guarantees the following: Rab is true if and only if $\langle i(a), i(b)\rangle \in i(R)$. It is crucial that the order of appearance of the individual constants a and b in the formula Rab be correlated with the ordered pair $\langle i(a), i(b)\rangle$, not with the ordered pair $\langle i(b), i(a)\rangle$. As the reader can easily verify, the ordered pair $\langle i(a), i(b)\rangle$ is a member of $i(R)$, but not the ordered pair $\langle i(b), i(a)\rangle$.
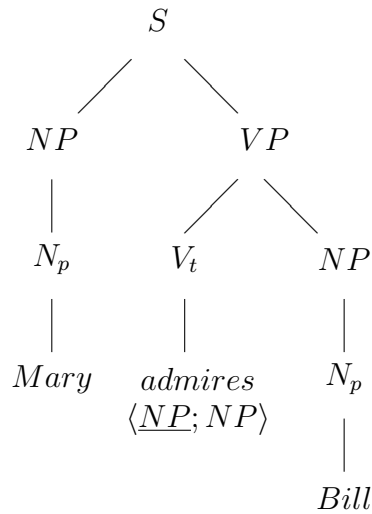
The same problem arises for expressions of natural language. Consider the verb *to admire*. Let it be interpreted as the admiration relation, comprising the set of ordered pairs where the first coordinate is an admirer and the second coordinate is the person or thing admired by the first coordinate. Now, if the sentence in (70.2) is true, it should be because the ordered pair of $\langle i(Mary), i(Bill)\rangle$ is in the set of ordered pairs determined by the admiration relation, and not because the ordered pair $\langle i(Bill), i(Mary)\rangle$ is in the set of ordered pairs. In other words, we intend that the sentence in (70.2) be true if and only if Mary admires Bill, and not, for example, that it be true if and only if Bill admires Mary.

For this reason, it is imperative that the first coordinate of an ordered pair in the set of ordered pairs interpreting the verb be correlated with the value assigned to the subject noun phrase and that the second coordinate in the ordered pair in the set of ordered pairs be correlated with the value

assigned to the object noun phrase. This can be achieved with what linguists call *argument structure*, a specification of relational words which draws both from the specification of arity used in model theory and from the specification of so-called subcategorization frames introduced into constituency grammars by Chomsky (1965 ch. 2.3.4; 2.4). Subcategorization frames specify for a relational word the syntactic categories of its sister constituents. (In this way, Chomsky was able to formalize the distinction in traditional grammar between transitive and intransitive verbs.) A relational word's argument structure, then, provides the formal means whereby a proper match between the arguments of the relational word and the other expressions which will express its arguments.

Let us give some examples. Since we are dealing with words which either express simple properties or binary relations, we can simplify the notation we shall use for expressing argument structure. The argument structure of a word is either an ordered singleton $\langle \_ \rangle$ or an ordered pair $\langle \_, \_ \rangle$. A word which is assigned a set of ordered singletons is the counterpart in natural language to a unary predicate of logical notation; a word which is assigned a set of ordered pairs is the counterpart in natural language of a binary predicate.

As a result of the syntactic complexity of natural language expressions, it is necessary to supplement the indication of a basic expression's arity with an indication whereby the argument corresponding to a subject noun phrase is distinguished from one corresponding to an object noun phrase and with indications whereby to distinguish noun phrase complements, from prepositional phrase complements and from various clausal complements. The latter can be accomplished by replacing the underscore by an appropriate label of the corresponding syntactic category. Moreover, to distinguish the argument corresponding to the subject noun phrase from one corresponding to the object noun phrase, we shall underline the syntactic label for the former and not underline the syntactic label for the latter. Thus, the argument structure for the verb *to die* is $\langle \underline{NP} \rangle$, while that of the verb *to admire* is $\langle \underline{NP}; NP \rangle$. This annotation imposes the requirement that the verb *to admire* have a subject noun phrase and a noun phrase complement and that the value of its arguments be determined by the values of the corresponding noun phrases. The sentence in (70.2) satisfies this condition, as can be seen from inspecting its constituency tree, shown below:

```
                        S
                      /    \
                   NP       VP
                    |       /  \
                   N_p    V_t    NP
                    |      |      |
                  Mary  admires  N_p
                        ⟨NP; NP⟩  |
                                 Bill
```

A transitive verb whose complement is realized as a prepositional phrase has the argument structure $\langle \underline{NP}; PP \rangle$. And one whose complement is a tensed clause has the argument structure $\langle \underline{NP}; S \rangle$. The values associated with these arguments will be those of the corresponding constituent in the complex expression in which these verbs are found.

To handle the case where the verb's complement is optional, let us consider first how to handle the case of a binary relational verb, should there be one, which, like the relational adverb *afterwards*, requires its second argument to remain implicit. Suppose that the verb *to dine* were such a verb. Its argument structure would be $\langle \underline{NP}; q \rangle$. The label in the second position of the argument structure is not a syntactic label. The absence of a syntactic label from the second position in its argument structure requires that the verb occur in a verb phrase whose verb has no sister constituent. This, then, accounts for the contrast in acceptability in the two sentences below.

(71.1) Bill dined.
(71.2) *Bill dined lobster.

Moreover, the fact that the argument structure comprises an ordered pair means that, when *dine* is interpreted, the verb is assigned a set of ordered pairs, where a diner is in the first co-ordinate and the thing he or she ate is in the second. At the same time, the semantic value of the symbol q is the function which maps the set of ordered pairs interpreting the verb *dine*

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to the set containing just the set whose members are the first co-ordinates of the graph assigned to *to dine*, that is, the set of diners. Finally, on the assumption that dining implies eating, it would account for the entailment of the second sentence by the first sentence.

(72.1)   Bill dined.
(72.2)   Bill ate something.

Now let us turn to verbs with optional complements. As we saw above, implicit existential object verbs are such verbs. These verbs are assigned the argument structure of $\langle \underline{NP}; NP, q \rangle$. The second argument position is given two labels, one syntactic and one non-syntactic, separated by a comma. (Notice that we are using the semi-colon to distinguish co-ordinates in an ordered set; the comma, customarily used for that purpose, is being used for a different one, which is about to be described.) Now, any given position (as distinguished by semi-colons) will contain at most one syntactic label. Just above, we saw what happens if a position contains no syntactic label. Here, the second position in the argument structure contains, in addition to a syntactic label, a non-syntactic label. The force of this notation is that, if the verb has a sister, the sister must be a noun phrase. In that case, the usual semantic rules apply to the verb and its sister noun phrase to assign a value to the verb phrase. In contrast, should the verb have no sister, then the function interpreting q assigns to the verb phrase the set of first co-ordinates of the set of ordered pairs. Thus, the existential object verb *to eat* is assigned a set of ordered pairs. If it occurs with no direct object, then the verb phrase containing it is assigned the set of eaters from the set of ordered pairs. More formally:

> Let D be the domain of the model and let G be the graph of the binary relation assigned to a lexical entry with the argument structure of $\langle \underline{NP}; NP, q \rangle$. Then, the function assigned to q assigns $\{x : \exists y \in D \langle x, y \rangle \in G\}$ to the VP node of the V node dominating the lexical entry.

Next, consider implicit reflexive object verbs such as the verb *to bathe*. Such verbs are assigned the argument structure of $\langle \underline{NP}; NP, f \rangle$. Everything works just as it did with implicit existential object verbs, except that f is assigned a function different from the one assigned to q. If the verb occurs

in a verb phrase with no direct object, then the function assigned to f maps the set of ordered pairs assigned to the verb to the set of first co-ordinates which are paired with themselves. This too can be stated more formally:

> Let D be the domain of the model and let G be the graph of the binary relation assigned to a lexical entry with the argument structure $\langle \underline{NP}; NP, f \rangle$. Then, the function assigned to f assigns $\{x : \langle x, y \rangle \in G \text{ and } x = y\}$ to the VP node of the V node dominating the lexical entry.

Implicit reciprocal object verbs like the verb *to kiss* are assigned the argument structure: $\langle \underline{NP}; NP, c \rangle$. The non-syntactic label c is assigned the function which maps the set of ordered pairs assigned to the verb to the set of first co-ordinates whose second co-ordinates are also first co-ordinates. Its formal statement is this:

> Let D be the domain of the model and let G be the graph of the binary relation assigned to a lexical entry with the argument structure $\langle \underline{NP}; NP, c \rangle$. Then, the function assigned to f assigns $\{x : \langle x, y \rangle \text{ and } \langle y, x \rangle \in G\}$ to the VP node of the V node dominating the lexical entry.

Finally, we come to implicit ambiphoric object verbs such as the verb *to leave*. These verbs are assigned the argument structure: $\langle \underline{NP}; NP, a \rangle$. Everything works just as it has above, except that a is assigned the function which maps the set of ordered pairs assigned to the verb to the set of first co-ordinates which are paired with some fixed value. That fixed value is determined either exophorically or endophorically. The endophoric value is the value which would be suitably assigned to a pronoun, were the verb to have a pronoun as a sister. Here is a more precise formulation.

> Let D be the domain of the model and let G be the graph of the binary relation assigned to a lexical entry with the argument structure $\langle \underline{NP}; NP, a \rangle$. Then, the function assigned to a assigns $\{x : \langle x, y \rangle \in G \text{ and } y \text{ is the value of a suitable antecedent in the cotext or is a suitable from the setting }\}$ to the VP node of the V node dominating the lexical entry.

Nothing, of course, depends on the optional complement being a noun phrase. Implicit PP complement verbs such as *to arrive* have the argument structure $\langle \underline{NP}; PP, a \rangle$. Moreover, verbs such as *to marry* whose implicit object can be interpreted either existentially or reciprocally have this argument structure: $\langle \underline{NP}; NP, q, c, \rangle$. With suitable changes, this notation can be extended to relational words from any lexical class.

The foregoing gives us a complete account of the distribution of implicit arguments and their construals. It also gives an account for a variety of entailments, illustrated below, where sentences with an implicit argument entail one where the argument is made explicit by an appropriately chosen existentially quantified noun phrase.

(73.1) Bill left.
(73.2) Bill left somewhere.

(75.1) Bill washed.
(75.2) Bill washed someone.

These entailments follow from the well-known logical principle of existential generalization. No mysterious metaphysical necessity need be invoked to explain them.

5   Conclusion

The foregoing account relies on nothing beyond the most widely shared assumptions about constituency syntax and semantics: namely, constituency grammar, subcategorization frames and lexical arity. This is satisfying, since the empirical evidence is overwhelming that the phenomena examined are of a purely lexical nature and that pragmatic enrichment and metaphysics play no role.

If the foregoing account is right, it suggests that perhaps it is time to re-examine some long standing assumptions regarding the existence of so-called empty pronominal elements in general; after all, maybe so-called PRO is just an implicit argument. Maybe the missing subjects of verbs in the imperative mood are also just implicit arguments. Maybe pro drop languages are just languages where not only the subjects of imperative verbs are implicit argu-

ments, but the subjects of any verb may be implicit arguments. If implicit arguments are as abundant as the literature suggests, then maybe all implicit arguments are just that — implicit arguments.

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