THE FUNCTIONAL MOTIVATIONS OF COMPLEMENT *THAT*-CLAUSES

JUAN CARLOS ACUÑA FARIÑA
UNIVERSIDAD DE SANTIAGO DE COMPOSTELA

1. INTRODUCTION

The aim of this paper is to reveal some basic principles of the internal logic of the English complement system as applied to whole clauses.[1] Primarily, I will focus my attention upon *that*-clauses, although in order to do this appropriately, frequent mention will be made of the non-finite forms of complementation, especially of infinitives. In the main, the paper will revolve around a number of points raised by Bresnan (1972), Riddle (1975), Noonan (1985), Rudanko (1984), Beukema and Verspoor (1991), and Givón (1993), and may thus be seen as an attempt to integrate them all.

The complementation of a verb, a noun or an adjective can be expressed through different devices, the selection of one over the others normally implying a change in the meaning potential of the utterance in question. Thus, for instance, the differences between examples (1)-(4) can and must largely be attributed to the particular complementing structure chosen in each case:

(1) He told me to do a nice job
(2) He told me that he had done a nice job
(3) He did not tell me whether he had done a nice job
(4) He told me what a beautiful job he had done

The complement structure in (1) presents us with an agent that is imploring an affectee to do something in the future, (3) encodes the asking of a

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question, and (4) expresses an exclamation. (2), the subject of our concern here, conveys the reporting of information. Notice that each complement type is syntactically as well as morphologically characterised by opposition to the others. Thus, (1) is the only one to have an infinitive as predicate in the embedded clause. (3) has a "wh-word" acting as complementizer followed by a kernel clause, that is, one with unmarked word order. (4) also exhibits a "wh-word" but with no kernel patterning after it. By restricting ourselves to (2), at least in principle, we shall be concerned mainly with finite declarative clausal complementation. *That-* complementizers are the main device used to introduce this kind of complement structure.

A corpus will be used. As a matter of fact, a lot of what is known about the system of complementation has been revealed through the use of corpora, for reasons which will become clear. Our corpus will be merely illustrative (only 35,000 words). Nevertheless—it might be said in advance— the results cast by it are perfectly consonant with larger pieces of linguistic research that we will in any case need to fall back upon. We will use two extracts, one from Benjamin Franklin's *Autobiography* [2] and another from Mark Twain's celebrated *The Adventures of Huckleberry Finn*.[3] I will refer to Franklin's text as text F and to Twain's as text T. The two samples are notable for, among other things, their lack of resemblance to each other. We need to find out what factors, if any, there are in the selection of a particular syntactic frame (a *that*-clause, a *to*-infinitive) and the particular communicative effects gained by the selection in question. In Givón's words, "the main theme of this [paper] is the isomorphic relation that exists between the meaning of a main verb and the syntax of its complement clause" (1993: 2.2).

The analysis which follows will be along the following lines. In the next section, the positions occupied by complement *that*-clauses in the schematic corpus will be itemized—that is, whether they function as subject complements, complements of nouns, objects, etc. After that, in section 3, the semantics of the system of complementation will be briefly analysed. Specifically, an attempt will be made to identify the sort of semantic matrix types associated with *that-* complementation. These two (brief) stages will have a distinctly descriptive component. A description of the syntax and semantics of *that-* clauses in English will prepare the ground for section 4, which will be concerned with some of the most relevant functional and structural properties of the English clausal complement system. Section 4, then, will constitute the bulk of the present study. Summing up will briefly be the concern of section 5.

2. THE POSITIONS OCCUPIED BY COMPLEMENT *THAT*-CLAUSES

Loosely speaking, a complement is an element that expands the inherent meaning of another (head) element. More precisely, a complement is an argument of a predication. Now, a predication denotes the abstract content which is common to propositions, questions and directives, and can thus be realised by only three elements in the morphology of the clause structure: by verbs, nouns and adjectives. Hence a complement typically complements a verb, a noun or an adjective. As regards complement *that*-clauses, it is possible to find clauses of this kind depending on verbs, nouns, and adjectives in *almost* all the positions available to phrasal constituents.

Our corpus exhibits examples of these three general types, although, as might reasonably be expected, in very different proportions for each type. Table 1 displays the figures for each general complement type, as well as their distribution across the two texts.

Table 1	F	T	TOTAL
Verb complementation	50	81	131 (93.5%)
Adjective complem.	3	3	6 (4.2%)
Noun complem.	3	0	3 (2.1%)

As expected, most of the occurrences in the corpus are realized by verb complementation. However, the dominance of this form (93.5%) over both adjective and noun complementation (6.3%) is, perhaps, even beyond reasonable expectations. Incidentally, the occurrence of non-verbal forms in the same corpus in the case of infinitival complementation displays a rather less marked disproportion, with a good 18.1% of infinitives occurring after nouns and adjectives. Let us restrict ourselves to verb complementation now.

The corpus shows five different syntactic subtypes of verb complementation. Table 2 displays the figures involved in each subtype, as well as their distribution in the two texts.

Table 2	F	T	TOTAL
Monotransitive	44	73	117 (89.31%)
Ditransitive	1	5	6 (4.58%)
Extrap. Subj.	2	3	5 (3.81%)
Extrap. Obj.	1	0	1 (0.76%)
Subj. Compl.	2	0	2 (1.52%)
	50	81	131

As before, a glance at the numbers will reveal the highly unequal presence of these forms. Monotransitive complementation (as discussed in Quirk et al. 1985: 1176 ff., or Huddleston 1984: 177 ff., for instance) takes up 84.62% of the total, while the sum total for the four remaining categories is only 10.67%. (5) below is an instance of the commonest type of structure which gives rise to complement *that*-clauses, dominant both in our corpus and elsewhere:

(5) Pap always said *that* it warn't no harm to borrow things, if you was meaning to pay them back some time; but the widow said *[that]* it warn't anything but a soft name for stealing, and *[that]* no decent body would do it. Jim said *[that]* he reckoned *[that]* the widow was partly right and *[that]* pap was partly right.

3. THE SEMANTIC TAXONOMY OF PREDICATES

3.1. INTRODUCTION

So far, all that has been done is to mention the figures for the different positions that *that*-clauses typically occupy in the sentences of our corpus, with the monotransitive pattern emerging as the clearly dominant position. But this statistic in itself does not bring us much closer to finding out why the constructions in our corpus take *that*-clauses at all. Now of course, on a very general level, it could be answered that these constructions take *that*-clauses to expand their meanings. But the question then is: why, of all possible

complementing structures readily available in the English linguistic system, do these constructions take *that*-complements and not, say, participial clauses? We should remember that, apart from the mortally-wounded subjunctive, English has four main forms for the expression of its complements (Noonan 1985: 43):

(6) That Sowa came at all is remarkable. (*That*-clause, declarative)
(7) For Sowa to come at all is remarkable. (Infinitival clause)
(8) Sowa's coming at all is remarkable. (Gerundial clause)
(9) Lua saw Sowa coming. (Participial clause)

When one of them is barred another more appropriate one is not. Our task as linguists is to see in what way a form is or is not appropriate and to determine the conditions under which such appropriateness holds true. One relevant condition is the morphology of each complement type, for this endows it with certain potential abilities which other types may lack. For instance, the different meanings of (10) and (11)

(10) I have decided to have a temperature
(11) I have decided that I have a temperature

(Riddle 1975: 469)

may be put down to the form of the complement clause. So, faced with the predicate 'decide' and two rival ways of expanding its meaning, we as speakers must choose one or another way depending on the communicative effect we mean to obtain.

Seen in this light, complementation may be just a matter of selecting the adequate syntactic frame. However, a second factor normally comes into play to impose conditions on that selection: namely, the meaning of the matrix. Naturally enough, language being basically about the economic expression of meaning, it may not be possible to make use of a certain syntactic structure that is, say, particularly efficient for the coding of *any* time precisely after a matrix verb which, by virtue of its very meaning, can only code future time, especially if there are competing structures in the system that specialise in the expression of that future time. This is what explains the different acceptability of (12) and (13), for instance,:

(12) Sowa wanted to do the job.
(13) *Sowa wanted that he had done the job.

where the ungrammatical contrafactive implications of the complement clause in (12) are only obvious after a verb such as 'want' and not, for instance, after 'believe', in (14):

(14) Sowa believed that he had done the job.

The reason for their different acceptability flows naturally from their distinct meanings. 'Want' is a desiderative predicate and it therefore expresses a desire that the proposition in the complement clause be realised *in the future*. 'Believe', on the other hand, is a "propositional attitude predicate" (see below) and, thus, it expresses an attitude towards the truth or falseness of the complement proposition. The attitude may be a present one, even though the action expressed by the complement took place long ago. Now, the fact that one verb takes a *that*-clause while the other one takes an infinitival clause forces us to see that there may be a sort of specialization on the part of the different complementing structures, each covering the expression of a different range of meanings. Note also that in (10) and (11) above the verb 'decide' changes its meaning as well as its complementation pattern. At bottom, then, complementation is a matter of combining the particular potentialities of a given syntactic structure with the meaning of a matrix predicate. This combination might be seen, then, as a highly sophisticated language internal mechanism aimed at a unique and precise target: the economic expression of meaning. And it is the details of this mechanism that need further illumination.

What follows is a classification of the different semantic predicates found in our representative corpus. I present this classification now with a view to determining which of those predicates are intrinsically bound to *that*-complementation. The taxonomy is largely, but not wholly, based on the one put forward by Noonan (1985).

3.2. THE SEMANTIC PREDICATES OF OUR CORPUS

Table 3 displays the different types of semantic predicates found in the corpus. Here follow a few representative predicates of each type.

Utterance predicates: *say, mention, tell.*
Propositional attitude predicates: *think, suppose, believe.*
Knowledge predicates: *find out, know, understand.*
Commentative predicates: *be well, be glad, be likely.*
Desiderative predicates: *expect, wish, hope.*

Perception predicates: *observe, perceive, see.*
Fear Predicates: *afeared.*
Others: *take care, make it clear, be.*

Table 3 Distribution of semantic predicates

	T	F	TOTAL
Utterance predicates	31 (36.9%)	9 (16.0%)	40 (28.9%)
Propositional attitude	35 (41.1%)	23 (41.0%)	58 (41.4%)
Knowledge	6 (7.1%)	14 (25.0%)	20 (14.2%)
Commentative	2 (2.3%)	2 (3.5%)	4 (2.8%)
Desiderative	6 (7.1%)	2 (3.5%)	8 (5.0%)
Perception	3 (3.5%)	2 (3.5%)	5 (3.5%)
Fear	1 (1.1%)	0 (0%)	1 (0.7%)
Others	0 (0%)	4 (7.1%)	4 (2.8%)
Total	84	56	140

4. THE LOGIC OF THE SYSTEM: FUNCTIONAL MOTIVATIONS

4.1. SPECIALIZATION

Some interesting conclusions follow from the figures in Table 3. A first point would be the relatively few different semantic types. Only seven major categories were found, apart from the catch-all term 'others'. Moreover, even this low number is deceptive given that more than half the categories are poorly *populated*. The fact is that the first three types (utterance, propositional attitude and knowledge predicates) cover as much as 84.28% of the occurrences, leaving the second most numerous group of five types with only 15.72%. According to Noonan (1985: 110), utterance predicates like 'say' and 'tell' are used to describe "a simple transfer of information initiated by an

agentive subject." The matrix encodes the manner in which the transfer is realised and, occasionally, the speaker's propositional attitude towards the truth or falseness of the proposition encoded in the complement. As briefly pointed out earlier, propositional attitude predicates like 'think', 'suppose' or 'believe' express a certain attitude in connection with the truth of the proposition conveyed by their complements. When their subjects are animate, which is often the case, they are experiencers of the mental state implied by the matrix. As for knowledge predicates, like 'understand', 'know' or 'find out', they describe either the fact that or the way in which the proposition carried by the complement clause is grasped or known by the experiencer subject, or, to put it a different way, the manner in which the information in the complement passes on to the experiencer subject.

Across the corpus, the tendency of these three types of predicates to predominate unambiguously over the others is confirmed: the three types appear repeatedly in both samples as compared with the occasional appearance of the other five categories. Overall then, the two texts of the corpus, very different as they are, consistently show a high occurrence of the three first semantic types and a low occurrence of the remaining five categories. Both behave in exactly the same way. Now, this is a remarkable circumstance. Notice, by way of illustration, how different the two narratives can be:

(T.15) Pap always said it warn't no harm to borrow things, if you was meaning to pay them back sometime; but the widow said it warn't anything but a soft name for stealing, and no decent body would do it. Jim said he reckoned the widow was partly right and pap was partly right.

(F.16) That good fortune, when I reflected on it, which is frequently the case, has induced me sometimes to say that, were it left to my choice, I should have no objection to go over the same life from its beginning to the end. . . .

Indeed, one would be tempted to attribute the coincidence in semantic types merely to chance, but the figures are too similar and, more importantly, the communicative nature of the two pieces of narrative is clearly too different for us to conclude that the same discourse functions may be involved in the two. There must be a hidden reason to account for the coincidence, for, after all, this is not merely a coincidence in what both texts share, but also in what they both lack. With regard to the latter, is it not strange that the two pieces of prose should not express such common matrices as aspectual, achievement and manipulative predicates, predicates such as 'begin', 'get' and

'order', for instance? And is it not strange too that the same pieces of narrative should make use of only four commentative (e.g. 'be well', 'be glad') and eight desiderative predicates (e.g. 'wish', 'hope') throughout their approximately 35,000 words? But such is the case—as far as finite declarative complementation goes, of course. A look at another structural frame for the expression of complementation certainly yields valuable, illuminating results. Table 4 gives a breakdown of infinitival complementation in the same corpus.

Table 4 — Distribution of Semantic Predicates with Infinitival Clauses

	F	T	Total
Commentative	16	8	24 (16.10%)
Manipulative	14	8	22 (14.76%)
Proposit. At.	6	1	7 (4.69%)
Desiderative	10	7	17 (11.40%)
Intention	10	3	13 (8.72%)
Aspectual	10	9	19 (12.75%)
Modal	5	0	5 (3.35%)
Pretence	0	1	1 (0.67%)
Knowledge	4	1	5 (3.35%)
Achievement	6	5	11 (7.38%)
Event	3	0	3 (2.01%)
Perception	5	3	8 (5.36%)
Utterance	7	0	7 (4.69%)
Others	7	0	7 (4.69%)
	103	46	149

A comparison of the figures in Table 3 and Table 4 will show an inverse trend. In Table 4 utterance predicates (4.69%), propositional attitude predicates (4.69%) and knowledge predicates (3.35%) are on the short side. Commentative predicates (16.10%), manipulative predicates (14.76%), desiderative predicates (11.40%), aspectual predicates (12.75%), intention predicates (8.72%), and achievement predicates (7.38%) make up the major

part of the corpus now, reversing the tendency of Table 3. To these latter some others may be added which were not even present in Table 3, such as pretence or modal predicates. The overall picture, then, is one of complementary tendencies: infinitives show up in connection with precisely those matrices which *that*-clauses appear to reject. This cannot be—and in fact it is well known that it is not—coincidental. The figures do more than merely suggest, they practically confirm a highly specialised complementation system of the sort speculated about earlier on, one in which certain structures are particularly effective for the expression of a given range of discourse functions while other structures are better suited for the expression of other semantic functions. But this can be further corroborated. To do this, it must be shown that utterance, propositional attitude and knowledge predicates expand their meanings *only* by means of *that*-clause complements. This in fact proves to be the case, as (17)-(27) clearly show:

(17) She said she wouldn't let me go by myself.
(17b) *She said (her) not to let me go by myself.
(18) Some thinks old Finn done it himself.
(18b) *Some thinks old Finn to have done it himself.
(19) I reckoned I better keep still.
(19b) *I reckoned (me) to better keep still.
(20) He bet she did think of it.
(20b) *He bet her to have thought of it.
(21) I am not sure it is orthodox.
(21b) *I am not sure it to be orthodox.
(22) We are convinced therefore that you mean to do us good.
(22b) *We are convinced therefore you to mean to do us good.
(23) When he found I would leave him he took care to prevent my getting employment in any other printing house.
(23b) */?When he found me to leave him/to have left him, he took care to prevent my getting employment in any other printing house.
(24) If you go thither I believe he may employ you.
(24b) */?If you go thither I believe him to employ you.
(25) He didn't believe he could go any further.
(25b) *He didn't believe him(self) to go any further.
(26) I judge she would be proud of me.
(26b) ?I judge her to be proud of me.
(27) I imagine that he was angry at seeing me.
(27b) ?I imagine him to be angry at seeing me.

Examples (17b), (18b), (19b), (20b), (21b) and (22b) are simply not grammatical, that is, *that*-clauses are the only expansion type allowed in

them. Examples (23b), (24b), (26b) and (27b) are at best only dubiously grammatical, but, even if they are, they do not express the same meanings as their real attested counterparts. So, given that the choice of complement type appears not to be free, but rather grammatically determined, the question should be asked: what is there in a *that*-clause that cannot be conveyed by means of a non-finite form of complementation? Or, more clearly, what makes the examples mentioned either ungrammatical or different with respect to the semantic types under consideration? In order to answer these questions, let us take a closer look at these types.

4.2. THE GRAMMAR OF COMPLEMENT *THAT*-CLAUSES (AND INFINITIVES)

Example (17b), the second one, illustrates a good deal of what needs to be said on this issue. Compared with (17), it is deficient in two important respects: first, the complement clause in it cannot code the proper time relationship. Second, its complement clause cannot express a proper subject either. Now, these two aspects present no problems for *that*-clauses, as (17) clearly proves. The fact is that indicative *that*-clauses are in all respects but one (the presence of the subordinating conjunction, and not necessarily in every case) exactly like simple sentences in the sense that they are not *reduced* in any way. A *that*-clause may refer to any time, regardless of the time specified in the matrix, for it has, in Noonan's words (1985: 92 ff.), "ITR," or independent time reference. Moreover, *that*-clauses contain subjects which enter into grammatical agreement with their 'logical' predications. Now, no other complement type in English can exhibit such properties.

Note further that the time reference of the infinitive in (17b) is not exactly pinned down, unlike that of the declarative subordinate clause of (17), which expresses future relative to a previous point in time specified in the matrix predicate ('said'), which is past. What is more, even though infinitives generally refer to a time contiguous with the time of the matrix clause (Givón 1993: 2.6 ff.), as in (28)-(29):

(28) She promised to go as soon as she finished her assignments
(29) They told me to do the job myself

and even though this temporal contiguity (future) is precisely what we need to convey in the complement clause of (17b), (17b) is still wrong. This is because infinitives cannot conform to the parameters of tense-copying which are at work in (17). In English, the "integrated" or "unified perspective of

events" (Givón 1993: 2.20-1) expressed in reported speech is usually marked with the primary tense of the matrix predicate, the original tense appearing as secondary tense where possible. A primary tense is one that makes reference to only one point in time relative to the time of the utterance. Secondary tenses make reference to the time of the utterance and to one additional point in time. In (17) the primary tense is past because the matrix verb ('said') is in the past, while the secondary tense refers both to that past (since 'would' is the past form of 'will') and to the future. In (17b) the presence of the infinitive does not allow for tense-copying of this kind. In fact, infinitives do not have ITR, like full indicative clauses, but DTR, or determined time reference (Noonan, op. cit., 92 ff.), which explains why they cannot express their own time and must always depend on the control which their matrices exercise over them in order for their time reference to become specific.

As pointed out before, infinitives do not allow for the expression of a proper grammatical subject either, for the only way of endowing them with one would be by means of a proform in the objective case. However, the presence of the objective 'logical' subject would be perceived as communicatively awkward in as much as it would probably involve a complete change in the semantics of the verb, which would then be interpreted as a manipulative predicate (like 'tell'), instead of as an utterance predicate like 'say' in (17). Even ignoring this, (17b) would continue to be wrong, since it contains a proform that is incapable of successfully referring back to its proper antecedent, the first 'she' of (17b), across a sentence node. That is, (25) cannot properly code "referential continuity" (Givón 1993: 2.15). In short, severe restrictions to the grammaticalization of subjects and the grammaticalization of indispensable tense distinctions turn (17b) into an impossible string. (18)-(18b) and (19)-(19b) present the same scenario.

There is still another property of *that*-clauses which derives from their unreduced morphology and which makes them unique *vis-à-vis* the other complement types, namely, their ability to express their own modality. Note in this connection the pair (24)-(24b). Notice that there may be nothing absolutely wrong with (24b), and yet its meaning is not quite the same as (24). This is no doubt due to the presence of a modal operator in the latter, but not in the former. Modals must have ITR, although they impose DTR on the predicates they introduce as matrices. Thus, in (24) 'employ' has its time reference specified by the matrix modal 'may'. But in (24b) 'employ' does not have any time reference at all. Even contemplating hypothetical *'to may' (as in *I believe him *to may employ you*) as a possible controller would not solve matters, for *'to may' would still be a non-finite form incapable of coding time. Of course an infinitive cannot depend on another

infinitive unless at the end of the chain one can find a finite verb giving the whole catenative construction specificity in relation to time and/or to modality. The pairs (25)-(25b) and (26)-(26b) are similar instances.

As a matter of fact, the behaviour of complement *that*-clauses under the influence of modality goes beyond the capability of these clauses to express their own modality, as briefly pointed out. Complement *that*-clauses are not only capable of expressing modality, but they are also capable of sealing themselves off from external modality, and in particular, from the modality of their matrix predicates. As Bresnan (1970: 302; 1972: 72) suggests, *that*-clauses are "impervious" to modal operators. This can be seen in the pair (30)-(31):

(30) It may distress John for Mary to see his relatives
(31) It may distress John that Mary sees his relatives

There is a clear difference in the presuppositions entailed by (30) and (31). (31) presupposes that Mary does see John's relatives, which means that the complement clause in it is not affected by the presence of epistemic 'may' in the matrix. By contrast, (30) does not presuppose that Mary actually sees John's relatives, and this is because the infinitival complement clause is effectively under the semantic scope of epistemic 'may', even though this occurs in the higher clause (it must be noted, however, after Menzel [1975: 14], that if the non-finite form is a perfect infinitive then the lower clause is also immune to the scope of modals in the matrix: *It may distress John for Mary to have seen his relatives*). The same distinction that is evident in (30)-(31) affects, for instance, (32a) and (32b), which, according to Ransom, "differ in both the Information and the Evaluation Modalities of the complement, with all else remaining the same" (1986: 18):

(32) a. PREDETERMINED TRUTH
I like (it) that Alice plays chess
b. UNDETERMINED OCCURRENCE
I like for Alice to play chess

The difference between infinitival and *that*-clause complements as regards the scope of modality is related to another characteristic of the complement system which will now be looked at in connection with examples (27) and (27b) above, the last in that long series. Ungrammaticality is in (27b) of course out of the question. And yet, as before, it might be asked: does (27b), the artificial example, mean the same as (27), its attested counterpart? Well, not quite, and there is reason to argue that the difference in meaning has to do

with a corollary of the unreduced/reduced morphology distinction that we made allusion to above. In short, (27) denotes a *definite,* unique single action, whereas (27b) refers only to a *potential* occurrence. In (27) the subject of the embedded clause is in effect *angry* and that of the embedding one is *imagining* (guessing, supposing) that the reason for that matter (of fact) is that he is seeing *me*. In (27b), by contrast, the experiencer subject of the matrix clause is simply *imagining* (picturing in the mind) what would happen *if* the subject of the subordinate clause were angry at seeing *me*. As a consequence, (27) emphasizes causality (*he was angry because he saw me*), while (27b) emphasizes presupposition (*imagine that he is angry if he sees me*). On other occasions, more than a distinction between definite versus potential occurrence, there is another one between actual versus potential occurrence, as with 'imagine'. Compare *I imagine that the Chinese love and respect each other, like everybody else* with *?I imagine the Chinese to love and respect each other, like everybody else*.[4] Naturally enough, the suitability of *that*-clauses to express single definite or actual actions is a concommitant circumstance of their unreduced morphology, which enables them to pin down the accompanying circumstances of any action or event just as easily as a main clause. Among such circumstances are, crucially, the proper time relationship and the proper subject. Conversely, the difficulty of tying the meanings of infinitives to actual concrete denotations follows from their non-finite nature. Remember the word *infinitive* itself means 'not limited' (Noonan 1985: 56), that is, not limited by person, number, or tense, and therefore only potential (Jespersen 1965: 304; Wekker 1985 and 1986; Ransom 1986: 17 ff.; Beukema and Verspoor 1991: 149 ff.). To return briefly to modality, it is only too natural that *that*-clauses, like (31), being definite, should be capable of sealing off their domain from external modality, while infinitives, like (30), generally cannot. This definite/non-definite distinction in connection with *that*-clauses and infinitives respectively has also been well attested since Bresnan (1972: 71 ff.).

To return to the main line of reasoning, it is now easy to see why utterance, propositional attitude and knowledge predicates demand—almost exclusively—*that*-clauses as complements. They do so simply because these predicates introduce clauses with *in*dependent time reference, *in*dependent subject reference and *in*dependent modality. In these circumstances, non-finite forms would result in information loss. Put very crudely, *that*-clauses are the only means of fully expressing what one *says*, *thinks* or *knows* about something that has taken place / is taking place / will take place in relation to me, you, him/her or anybody else. Unlimited range of times and circumstances *equals* unreduced morphology.

Reduced morphology, on the other hand, is likely to make its appearance every time circumstances and participants can be safely inferred from the preceding linguistic context, particularly from the main sentence. For reasons of economy, then, reduced complements, which are likely to lack tense distinctions, are typically restricted to DTR contexts, and DTR contexts are but one side of a many-sided complex which is what Givón understands by "event integration" (1993: 2.20-1). Non-finite complements code events or states that are strongly integrated into those of the main clause, hence the closer syntactic bond. Conversely, full, finite declarative clauses preserve their independence from their hosts, thus being least integrated in them. In (33),

(33) She said Jim would go

for instance, failure to express either the time or the agentive subject of the lower clause would result in a serious information gap, since neither of these two circumstances can be deduced from the the matrix *she said*. By contrast, in (34),

(34) I wanted to go

both the time reference and the agentive subject of the lower clause can be easily inferred from the higher one; they can be *controlled* (Riddle 1975) from the higher clause. Thus, the subject is equi-deleted under identity with that of the higher clause (*I*), and the time is, by default, future relative to that specified in the matrix. So no information is lost. Apart from equi-deletion, which is a very common process, recoverability of the missing subject argument of the complement clause can also come through raising. Raising, in its turn, can apply variously. In (35),

(35) I believe Tom to be a nice chap

we have object raising. In (36),

(36) Peggy Sue is hard to beat

we have subject raising. In whatever shape, raising or equi, the unexpressed but easily retrievable information calls for reduced morphology.

And when is the information easily retrievable? Table 4 was rather explicit in that respect. Easily retrievable information is found after predicates expressing commands, requests, intentions, desires, endeavour, volition... That is, after such predicates as *choose, care, hope, like, prefer, long,* or

promise. For a full classification, see Rudanko (1984) and, especially, (1989), where he wishes to underscore the notion of *volition* over all others as a close associate of infinitival EQUI structures. A final comment will now be made in the context of Rudanko's findings.

It has been seen that verbs of verbal communication, as well as those meaning 'believe' or 'understand' or 'come to believe or understand' take *that*-clause complements, and that verbs of volition, intention, endeavour and the like take *to* infinitives. It may be speculated, after Rudanko, that if there is a class of verbs which mean, roughly, 'communication of intention', or 'intention + communication' the two structural frames may be simultaneously valid. Not surprisingly, there is one such class of verbs, which includes items like those contained in Table 5:

Table 5	NP1 communicates his intention
	agree
	threaten
	avow
	undertake
	consent
	volunteer
	offer
	vow
	pledge
	swear
	promise

and, as expected, these verbs can take either complement type:

(37) He threatened to kill me
(37b) He threatened that he would kill me
(38) He volunteered to do the job
(38b) He volunteered that he would do the job
(39) He pledged to defend his country
(39b) He pledged that he would defend his country

Note, from (39)-(39b), for instance, that the communication of intention need not be necessarily verbal, and that even if the verb does not make that explicit, the *that*-clause more closely implies a verbal act and the content of

that act than the infinitive. Thus, as Rudanko points out (1984: 155), only the infinitival clause would be compatible with a continuation implying a nonverbal act, as in (39c)-(39d):

(39c) He pledged to defend his country by raising his right hand
(39d) ???He pledged that he would defend his country by raising his right hand

It is clear, then, that the highly specialised English system of clausal complementation shows remarkable signs of internal logic and functional motivation. A summary of the main steps of our argumentation follows.

5. SUMMARY

It is precisely the functional motivation—the logic—there is behind the whole machinery of complementation that I would like to stress at this final stage. The steps that led to this stage were as follows.

The starting point was a description of whatever functions *that*-clause complements perform in the sentence structure. A single basic structural pattern was clearly seen to make up almost the whole of our corpus. This is the monotransitive pattern, a subtype of verb complementation. All the other patterns pale in comparison. The overwhelming presence of the monotransitive type indicates that *that*-clauses are highly specialised complementing structures, particularly suitable for the expansion of one-object-taking predicates. The next step was to explore what sort of one-object-taking predicates were involved with this complement type. The meanings of the predicates cast up by our corpus were studied and they were divided up into in semantic classes. Three clearly dominant classes emerged. These were utterance, propositional attitude and knowledge predicates. It was clear that other semantic classes were virtually prohibited with *that*-clauses, and that, interestingly enough, infinitives are associated with a completely different range of discourse functions. An attempt was made to answer an obvious question: namely, why is it that a given syntactic frame demands a given set of meanings or discourse functions, and at the same time excludes others? Note that the use of a corpus (schematic though it may well have been) proved to be an important discovery procedure, for the corpus cast a very clear liaison between particular complement types and particular discourse functions. Were it not for the corpus, then, the right questions might not have been posed. It is no wonder that a lot of what is known about the grammar of complementation has come to be revealed through the use of corpora.

Put very crudely, the answers to what may be termed *the specialization question* can be summarised as follows:

1. Verbs of knowledge, propositional attitude and reporting need complements which meet at least three conditions, namely: unlimited expression of time, unlimited expression of subject, and unlimited expression of modality. This independence of the complement clause must be what Beukema and Verspoor (1991: 153-4) refer to when they point out that these finite complements require that there is no "direct causal relationship" between the mental act or event expressed in the matrix and the action/state/event conveyed by the complement. *That*-clauses provide the ideal solution to the expansion needs of these predicates, for these clauses are morphologically unlimited themselves, and therefore highly capable of coding whatever needs to be coded *in*dependently.

2. Verbs of intention, endeavour, achievement and in general all those involving the idea of volition, together with a superordinate [+ human] NP subject may dispense with the expression of a good deal of information in their complements, since this information is in any case directly accessible from the superordinate clause in which these verbs are contained. This retrievability is, again, very probably a consequence of the direct causal link or the event integration existing between the mental state/event coded in the matrix and the action/state/event expressed in the complement. Therefore, those verbs take complements which are morphologically reduced in a number of ways, notably, in the expression of mood and tense distinctions, and in the grammaticalization of their subjects. Complements so reduced are typically infinitival (but see Beukema and Verspoor [1991] and Verspoor [1990] for very subtle distinctions between infinitives and *-ings*).

3. Thirdly, in behaving in the way reported here, language exhibits functionally firm groundings of a kind usually ignored on the face of self-contained formal regularities and idiosyncratic deviances. I think this point is worth emphasizing. To quote Givón once more: "What emerges from the study of the syntax of complementation, perhaps more clearly than in any other area of grammar, is the profoundly non-arbitrary nature of the coding relation between grammar and meaning" (1993: 2.24).

NOTES

1. I wish to thank Teresa Fanego and María José López for their perspicacious comments on an early draft.

2. As collected in *American Literature, the Makers and the Making* vol I, eds. R. W. B Lewis and Robert Pen Warren (New York: Cleanth Brooks, St. Martin's, 1973). 129-40 ("To His Son" and "Remarks on the Politeness of the Savages of North America").

3. Harmondsworth: Penguin, 1985.

4. I owe the point about 'imagine' to an anonymous reviewer, to whom I am grateful.

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POST-HUMAN: THE CULTURAL LIMITS OF "CYBERPUNK"

(INCLUDING AN ELECTRONIC CONVERSATION WITH BRUCE STERLING, AND HIS OWN SELECTED LIST OF CYBERPUNK READINGS)

FRANCISCO COLLADO RODRÍGUEZ
SERGIO A. SALVADOR SEBASTIÁN
UNIVERSIDAD DE ZARAGOZA

1. WHAT'S CYBERPUNK ALL ABOUT?

In his sixth and last column for the magazine *Interzone*, author Bruce Sterling remembers how the cyberpunk movement—and its consciously created poetics—sprouted in the early 1980s to die only a few years later. Cyberpunk, he confesses, "simply means 'anything cyberpunks write'" (1997: 2), in this way deferring the existence of any more precise definition of the new SF genre created by himself, William Gibson, Lewis Shiner, Rudy Rucker, and John Shirley. Here and there, however, the reader interested in defining the genre may find in the same article glimpses of what cyberpunk is for the author. Gradually, one may become aware, at least, of the postmodern and antihumanist stance of cyberpunk at the beginning of its literary adventure. The apparent aim was to renovate science fiction by incorporating into it a new narrative attitude, devoid of the old bourgeois and

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