

THE SYNTAX AND SEMANTICS OF COMPLEMENT CLAUSES IN ARABIC

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This paper explores how various formal and functional approaches have dealt with the syntactic and semantic issues raised by complementation, both in general linguistics and in the context of Arabic. The paper examines the methodologies taken and the explanations offered by the various approaches, focusing on these questions: (1) What are the syntactic and semantic factors that the various approaches consider important in influencing the choice of complements and complementizers? (2) What is the role of the complement-taking predicate in this choice? (3) What is the role of the complementizers? It will be concluded that functional approaches are better suited to explaining complementation phenomena. The penultimate section presents an account of the complementizer *inna* in Palestinian Arabic in the spirit of the functional paradigm.*

1. INTRODUCTION. In both English and Arabic, relative, adverbial, and complement clauses are considered to be the three basic types of subordinate clauses. The underlined clauses in the following examples show these three types of subordination in English. The present paper is concerned with the study of complement clauses in Arabic.

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|-------------------------------------------------------------------------|---------------------|
| (1) <i>The man <u>we met yesterday</u> was the driver of the truck.</i> | (Relative clause) |
| (2) <i>She got mesmerized <u>when he entered the room</u>.</i> | (Adverbial clause) |
| (3) <i><u>That he is the thief</u> is unquestionable.</i> | (Complement clause) |
| (4) <i>He says <u>(that) he called her yesterday</u>.</i> | (Complement clause) |
| (5) <i>She asked him <u>to leave</u>.</i> | (Complement clause) |

Clausal (sometimes called sentential or verbal) complementation is the process whereby a clause or predication is placed syntactically where one would normally expect a noun phrase as an argument to the matrix verb or predicate. Complementation is often accomplished by means of a complementizer (e.g. *that* in 3 & 4, *to* in 5), which is part of the complement clause. The subordination of complement clauses within matrix sentences is a universal feature of natural language (Noonan 1985).

In modern linguistics, complement clauses and their associated complementizers did not begin to receive focused attention until the publication of Rosenbaum 1967. The term 'complementizer' itself is due to Rosenbaum. Since Rosenbaum's dissertation, the field has witnessed the publication of several important studies dealing with the complementation systems of English and other languages. Several of these studies will be discussed in §2.

The first monograph-length publication dedicated to Arabic complementation is Hashim 1981. Following Hashim, a few other studies on Arabic complementation appeared. Because of the relative recency and paucity of these studies, there is to date no definitive taxonomy of complement clauses in Arabic. In §5, I synthesize the literature on Arabic complementation and discuss the types of complement clauses and complementizers said to exist in the language.

The main goal of this paper is to examine how various linguistic approaches have dealt with the syntactic and semantic issues raised by complementation, both in general linguistics and particularly in the context of Arabic. I will review the methodologies taken and the explanations offered by the various approaches. In this connection, the main questions that will be under focus in this paper are: (1) What are the factors (syntactic, semantic, discourse, etc.) that the various approaches consider important in influencing the choice of complement clauses and complementizers? (2) What is the role of the complement-taking predicate in this choice? (3) What is the role of the complementizers?

One might ask at this point: Why is it important to study complementation, and what is the general significance of issues raised by complementation? Here I attempt to give a brief answer.

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Part of the answer resides in the observation that there does not exist consensus in general linguistics about the roles that the various components of a complementation system play in language. For example, several functionalist approaches (e.g. Bolinger 1972, Kirsner & Thompson 1976, Frajzyngier & Jasperson 1991) have demonstrated that complementizers play an important semantic role in the grammar of a language. Some functionalist treatments have also convincingly shown that a specific domain with which complementizers interact is modality (e.g. Givón 1980 & 1990, Ransom 1986, Palmer 1986, Frajzyngier 1991 & 1995). In contrast, most generative approaches do not explicitly regard complementizers to have a significant semantic contribution to sentences. In these approaches, complementizers are usually regarded as optional and are characterized, at least implicitly, as meaningless. Rosenbaum 1967 was concerned with the transformational rules that generated the various complement types and complementizers in English from an underlying deep structure, but he did not allow for the different complementizers to have a semantic contribution of their own. Although as early as 1970, some generative linguists, e.g. Bresnan 1970, conceded that complementizers, if not meaningful in themselves, are at least relevant to the semantic structure of sentences, the more recent generative GB theory does not regard complementizers to be semantically significant constructs. In GB theory, the abstract category COMP, which may or may not be filled by a complementizer, plays an important role in the syntactic structure of sentences and in the operation or blocking of various syntactic rules. In spite of the fact that COMP may be filled by a complementizer that may have significant semantic consequences on the sentence, COMP is at best only tacitly considered relevant to the semantic structure of sentences. As regards the question of the interaction between complementizers and modality, GB theory is largely mute. In GB, as in Generative Semantics before it, modality is a notion that is considered to be in large measure the property of the complement-taking predicate (the embedding verb). Yet, it is clear from the functionalist literature that modality is a much richer notion that subsumes not only complement-taking predicates but also propositions, clauses, sentences, and larger units of discourse.

Bolinger 1968 was the first to propose that complementizers have semantics of their own: 'the complementizers are chosen for their own sake, not as a mechanical result of choosing something else'. Kirsner & Thompson 1976, Givón 1980, Frajzyngier & Jasperson 1991, Frajzyngier 1995, among other studies, offer adequate support for and refinement of Bolinger's insight. In §8, I will show how Bolinger's insight can be extended to the analysis of a complementizer in Palestinian Arabic.

This paper reviews some of the general as well as Arabic linguistic approaches with respect to how they have sought to discover the factors that influence complement and complementizer choice. Considering the high number of general studies dealing with this issue, I do not purport to be exhaustive in my review. In this paper I review only a subset of these studies, choosing to concentrate in my presentation on the chronological evolution of general themes in thinking on complementation.

The paper is organized as follows. Section 2 reviews the following works on general complementation: Rosenbaum 1967, Bresnan 1970, Kiparsky & Kiparsky 1971, Karttunen 1971, Andersson 1975, Josephs 1976, Givón 1980, Ransom 1986, Thompson & Mulac 1991, and Frajzyngier 1995. Section 3 is a synopsis of §2. Section 4 is an outline of the structure of complement clauses in Arabic. Section 5 reviews studies dealing with Arabic complementation. Section 6 is a synopsis of §5. Section 7 discusses some outstanding issues in Arabic complementation. Section 8 presents a functional account of the complementizer *inna* in Palestinian Arabic. Section 9 concludes this paper.

2. APPROACHES TO THE ISSUE OF COMPLEMENT AND COMPLEMENTIZER CHOICE. A fundamental aim of generative grammar has been to show the relationship between different but related structures. There is an assumption in generative grammar that certain sentences, although differing syntactically on the surface, are related in that they can be generated from a common underlying structure. Within the framework of generative grammar this is achieved through various optional and obligatory movement rules. Since English complement constructions such as *for-to*, *that*, and *poss-ing* all show significant similarities, they were discussed from the beginning in the

generative grammar framework, e.g. Rosenbaum 1967. Initially, these three structures were seen to be the result of optional transformations, and the complementizers were characterized as meaningless, insignificant particles (see Bresnan 1970 for a discussion).

The first generative syntacticians to specifically discuss the relationship between syntactic and semantic phenomena as it concerned complement constructions were Kiparsky & Kiparsky 1971. The Kiparskys discussed the role of factivity and presupposition in the English complementation system. They found the complement-taking predicate (hereafter CTP) to be a deciding factor in complement choice (345): 'the choice of complement type is in large measure predictable from a number of basic semantic factors'. This discovery necessitated a revision in the generative grammar framework in order to allow transformations to apply across clause boundaries, something previously prohibited.

The Kiparsky & Kiparsky 1971 study (first presented in 1967) sparked considerable interest in English complementation and in the interrelationship of syntax and semantics. The Kiparskys argued that CTPs subcategorize according to a feature they called 'factivity' and that this feature appeared to govern the types of complements the CTP could take. While both 'factive' CTPs such as *forget about*, *comprehend*, *ignore*, and *mind* and 'non-factive' CTPs such as *suppose*, *assert*, *claim*, *believe*, and *conclude* may take a complement introduced by *that*, only non-factives may take an infinitive as their complement; and gerunds are generally restricted to factives:

- (6) a. *He ignored that she left. (She did leave.)*
 b. *He ignored her leaving.*
 c. **He ignored her to have left.*
- (7) a. *He supposes that she left. (She may or may not have left.)*
 b. **He supposes her leaving.*
 c. *He supposed her to have left.*

The Kiparskys also found that within each class there is a semantic sub-class of 'emotive' CTPs—such as factive *bother*, *alarm*, and *make sense*, and non-factive *be reluctant*, *intend*, and *prefer*—that affect the choice of complement type. For example, non-factive verbs require extraposition of a subject complement (366):

- (8) a. *It makes sense that John has come. (factive; John has come.)*
 b. *That John has come makes sense.*
- (9) a. *It seems that John has come. (non-factive; John may or may not have come.)*
 b. **That John has come seems.*

The English complement *for-to* construction turned out to be at least partially restricted to emotive CTPs such as *important*, *relevant*, *unlikely*, *bother*, *regret*, and *prefer*, which express the 'subjective value of a proposition rather than knowledge about it or its truth value' (363):

- (10) a. *It's important for him to come. (emotive)*
 b. **It's well-known for him to come. (non-emotive)*

The Kiparskys concluded that they had barely scratched the surface and had presented 'an unfortunately oversimplified picture of a series of extremely complex and difficult problems' (364).

In the light of the Kiparskys' and others' work, Bresnan 1970 advanced a syntactic theory for complement types in generative grammar which she termed 'the phrase-structure theory', in which she argued that complementizers are specified in the deep structure. This was necessary in order to account for the meaning that various complementizers have. Until that time complementizers had been introduced via transformations. Theoretically, meaning resided in the deep structure and could not be introduced by means of a transformation. Transformations were supposed to be meaning-preserving, but the transformational rules that Rosenbaum introduced to derive the various English complements and complementizers from an underlying deep structure clearly violated that

constraint. Bresnan also stressed the notion that 'some characteristic of the higher verb or predicate affects the choice of complementizers ... In other words, the structural description of any complementizer-insertion transformation cannot be limited to a complement clause, but must include the verb or adjective which that clause complements' (299). Thus in this approach, as with the Kiparskys, the CTP—with its subcategorization features—is accorded primary status in the choice of complements and complementizers.

Karttunen 1971 went one step further to show that it is not only the CTP that affects complement choice but that the mood of the matrix sentence and the type of complement clause also play a role. For example, Karttunen concludes that no difference in meaning exists between *that* complements and *poss-ing* complements in the indicative mood; however, the subjunctive mood requires that complements be factual while *poss-ing* complements may be fictitious (60–61):

- (11) *That his bride is not a virgin would bother Harry if he knew about it.*
(**Luckily she is a virgin.*)
- (12) *His bride's not being a virgin would bother Harry, if he knew about it.*
(*Luckily she is a virgin.*)

Karttunen also demonstrated that presuppositions, central to the notion of factivity as proposed by the Kiparskys, cannot be presented as something separate from the sentence itself. Karttunen shows that some supposedly factive CTPs are not factive in certain syntactic environments; Karttunen calls these 'semifactive'. For example, although CTPs like *discover*, *find out*, and *see* are factive in simple declarative sentences, they can be interpreted as either factive or non-factive in interrogative and conditional sentences (63):

- (13) *Did you discover that you had not told the truth?*

Sentence 13 can be interpreted as either meaning that one did not tell the truth or as a request for information with no presupposition as to whether one told the truth or not.

Andersson 1975 extended the scope of the complementation studies to Swedish. He too finds presupposition to be a major factor in complement choice. He divides main and subordinate clauses into four logical categories, grouped according to whether they are semantically or syntactically main or subordinate. He then posits an implicational hierarchy of structure types (such as extraposition, left dislocation, and topicalization) and states that 'everything that happens in a subordinate clause may also happen in a main clause, but not vice versa' (128). For example, he found that topicalization of a noun phrase could occur in a main clause but not in a syntactically and semantically subordinate clause (140): (*att* = complementizer)

- (14) a. *Ada är konstigt att Carl gifte sig med Ada.*
'It is strange that Carl married Ada.'
- b. *Ada är det konstigt att Carl gifte sig med.*
'Ada, it is strange that Carl married.'
- c. **Det är konstigt att Ada gifte Carl sig med.*
'It is strange that Ada, Carl married.'

Josephs 1976 extensively reviewed studies of the Japanese complementation system. Traditional Japanese grammarians had considered the complementizers as semantically empty. However, presupposition and factivity figure heavily in a number of modern linguists' analyses of Japanese complementizer choice. Josephs shows that a CTP's preference for a certain complementizer is not idiosyncratic but due to 'semantic compatibility'. A number of Japanese CTPs occur with either a factive or a non-factive complementizer, the choice 'resulting in a subtle, yet significant, difference in meaning' (316):

- (15) *Taroo wa Mitiko ga baka na koto o nageita.* [*koto* = factive complementizer]
'Taro lamented the fact that Michiko was stupid, which she was.'

- (16) *Taroo wa Mitiko ga baka da to nageita.* [*to* = non-factive complementizer.]
 'Taro lamented that Michiko was stupid—she might or might not have been stupid.'

Joseph finds that verb tense, semantic content of the subordinate clause, and the degree of abstractness of the proposition also play a role in determining complementizer choice in Japanese.

In a typological study, Givón 1980 attempted to set forth a semantic implicational hierarchical scale of verbs that related classes of verbs to another syntactic hierarchical ranking of complement types. He posited three scales for verbs which overlap and constitute one large 'semantic hierarchy of binding scale'. At the lower end of the verbal binding scale are verbs which can be classified as dealing with epistemic attitude. This epistemic scale consists of cognition and utterance verbs. This scale is further divided into subgroups of epistemically weak verbs (*say* and *tell*) and epistemically strong verbs (*know*, *think*, *believe*, *be sure*). The middle scale he calls 'emotive' and divides into lower (*decide* and *agree*) and high (*like*, *hope*, *want*, *refuse*, *expect*, and *hate*). This scale is called 'emotive' because it contains verbs such as modals that express the subjective relationship of the main clause agent to the assertion of the subordinate clause. The highest scale has to do with implicativity, i.e. whether the main clause verb implies that the assertion of the subordinate clause is actually realized. The implicativity scale consists of the level 'strong attempt', which contains the verbs *plan*, *intend*, and *try*, and the level 'success (implicative)', which contains the verbs *begin*, *finish*, *make*, *cause*, and *prevent*. The verbal scale, or semantic hierarchy of binding, is ranked according to the amount of control the agent of the matrix clause exerts over the agent of the subordinate clause. The syntactic coding scale is ranked according to the degree to which the complement clause or construction resembles an independent clause. Figure 1 is adapted from Givón's chart (369). The focus in Figure 1 is on the correspondence between the syntactic and the semantic scales.

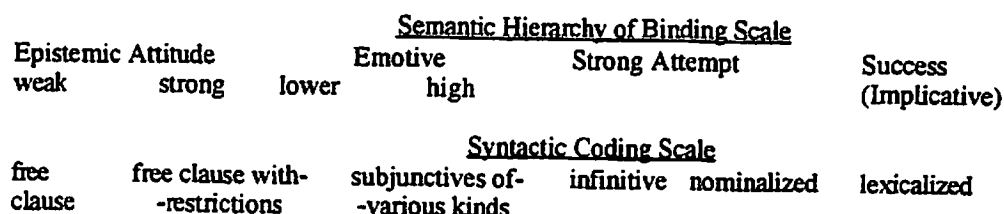


FIGURE 1. Givón's implicational hierarchical scales.

Givón demonstrates the applicability of these two corresponding distribution scales as a typological trait of natural languages, supporting his claims with data from English, Spanish, Finnish, Krio (an English Creole), Ute, Persian, Bemba, Sherpa, Hebrew, and Palestinian Arabic. Givón makes the following prediction (370): 'If a point on the semantic hierarchy of binding is coded by a certain syntactic coding device, then a semantically higher point cannot be coded by a syntactically lower point. Rather, it will be coded either by the same coding point, or by a higher coding point on the syntactic coding scale'.

Givón's study is important in several respects, but its main contributions reside in its being the first full-fledged attempt to show cross-linguistically the integration of the syntax and semantics of complementation and in its extension to the domain of complementation of an understanding of modality that goes beyond the CTP to subsume the degree of influence/control that the agent of the matrix clause has over the complement proposition.

As we will see below, Ransom 1986, Thompson & Mulac 1991, and Frajzyngier 1995 also accord modality a significant role in complementation.

Ransom 1986, finding that a 'serious problem in the study of semantics has been the verification of meanings' (3), attempts to pin down the literal meaning of sentences by isolating the following meaning components:

- A. Propositional content (lexical and morphological meanings of sentences, including time and meaning represented by grammatical relations)
- B. Propositional modality (attitudes about propositional content)
- C. Discourse function (refers to conventional uses a sentence can have, its illocutionary forces)

All simple and complex sentences are said to have these three components. The combination of the three components gives us the literal meaning of a sentence:

Simple sentence meaning = [A+B+C]

Complex complement sentence meaning = [A+B+C [A+B]]

Having thus isolated the meaning components of sentences, Ransom examines complement constructions, their matrix CTPs, and their modalities in English, Korean, Basque, and a few other languages and concludes (15–16): ‘one can see the need to distinguish two sets of modality meanings: one set of four Information Modalities of Truth, Future Truth, Occurrence, and Action, which describe information about someone’s knowledge or behavior in the world, and a second set of four Evaluation Modalities with a Predetermined, Determined, Undetermined, and Indeterminate meaning, which describe evaluations of alternatives’. These two sets can interact together to form sixteen different combinations of modality meanings, as shown in Figure 2 (16).

EVAL:	INFO: Truth	Future Truth	Occurrence	Action
Predetermined	<i>regret</i> <i>know (that)</i> <i>acknowledge</i>	<i>anticipate</i> <i>foresee</i> <i>forewarn</i>	<i>watch</i> <i>see (Ø)</i> <i>observe</i>	<i>force</i> <i>know (inf.)</i> <i>manage</i>
Determined	<i>state</i> <i>believe</i> <i>decide (that)</i>	<i>predict</i> <i>expect</i> <i>prophecy</i>	<i>tend</i> <i>wait</i> <i>about</i>	<i>command</i> <i>promise</i> <i>decide (inf.)</i>
Undetermined	<i>hope (that)</i> <i>possible</i>	<i>want</i> <i>eager</i>	<i>like (inf.)</i> <i>fun</i>	<i>permit</i> <i>willing</i>
Indeterminate	<i>wonder (whether)</i> <i>know (whether)</i>	— <i>foresee (whether)</i>	— <i>watch (whether)</i>	<i>wonder (whether to)</i> <i>know (whether to)</i>

FIGURE 2. Higher predicates and their combined modalities.

The labels in Figure 2 (Occurrence, Undetermined, etc.) are modality notions. It will be noticed that not all the slots in Figure 2 are filled for English, but they may be in other languages.

Ransom stresses the notion that modality has to be treated not as a unitary meaning, but as a combination of the Information and the Evaluation Modalities, adding (19):

Furthermore, one has to look at these meanings as residing in the complement rather than in the higher predicate, as some linguists have claimed. While certain higher predicates, like *true* and *possible*, contain the same meanings as certain combinations of the modalities, they do not represent them individually, and other higher predicates, like *tell* and *like*, do not represent them even in combination. Consequently, complements must be treated as having their own modality meanings, separate from the meanings of their higher predicates, and higher predicates must be treated as having their own meanings and as selecting the kinds of complement modalities compatible with those meanings, just as they select the kinds of subjects and objects they take.

The claim that complements must be treated as having their own modality meanings independent of the CTP marks a departure from all the approaches considered so far. A similar shift in focus will be detected in Frajzyngier 1995 (below), where a similar claim is made about complementizers, viz., complementizers have their own modality meanings or, conversely, modality meanings reside to a significant degree in complementizers.

Since the choice of a complementizer is dependent on the combined modalities, Ransom tries to predict the occurrence of the various complementizers in English. The predictable complementizers are represented in Figure 3 (118):

	Truth	Future Truth	Occurrence	Action
Predetermined	<i>that</i>	<i>that</i>	—	<i>for-to</i>
Determined	<i>that</i>	<i>that</i>	—	<i>for-to</i>
Undetermined	<i>that</i>	<i>for-to</i>	<i>for-to</i>	<i>for-to</i>
Indeterminate	<i>whether</i>	<i>whether</i>	<i>whether</i>	<i>whether-to</i>

FIGURE 3. Complementizers and their combined modalities.

Ransom points out that although the above complementizers are 'predictable for their particular combinations of complement modalities, they are not obligatory in all cases. There are other complementizers that do not appear to be predictable by a general rule ... The predictable occurrences of complementizers can be accounted for by each complementizer being listed in the lexicon with selectional restrictions for the combinations of modalities that it can occur with. The unpredictable occurrences can be accounted for in the lexicon by selectional restrictions on the particular higher predicate that they can occur with' (118).

Frajzyngier 1995 pushes further the notion of modality in complementation. He observes that there is a correlation (not exceptionless) in a language between the presence of complementizers and the presence or absence of modality encoding devices, so he explains the presence of a complementizer in a sentence as having the function of encoding modality. He takes a maximalist approach in asserting that complementizers and other modality encoding devices are in a complementary distribution relationship. Like Ransom, he postulates mood as a component of the sentence and takes the position that complementizers are part of the system of modality.

All the approaches reviewed above that utilized the notion of modality took this notion to be relevant to or interactive with complementizers. However, Frajzyngier goes further to state that the construct 'complementizer' is part of the modality system of a language, being one of the devices that encode modality. Specifically, complementizers encode epistemic, deontic, or other types of modality. Frajzyngier points out that if this hypothesis turns out to be true, then one would expect complementizers and other modality encoding devices to be in complementary distribution since they are part of the same set (477): 'If there is a complementizer marking an α modality there should not be other α modality markers in the clause, and if there is an α modality marker already present in a clause there should not be a complementizer encoding the α modality. If an epistemic or a deontic modality is not marked in the embedded clause it may be marked by a complementizer. If an α modality is marked within the embedded clause it will not be marked by a complementizer'. Frajzyngier supports his hypothesis using data from English, Old English, Polish, French, Old French, and the Chadic languages Guider, Lele, and Mupun.

Here is an example from English that Frajzyngier offers to illustrate the complementary distribution of complementizers with other devices marking modality in the main clause. This set of examples had not previously been explained in terms of modality ('interrogative' is an epistemic modality category; *whether* is a complementizer).

- (17) *He should go.*
- (18) *Should he go?*
- (19) *I asked whether he should go.*
- (20) **I asked whether should he go.*

What needs to be explained here is the ungrammaticality of 20. If we assume that subject-auxiliary inversion marks the interrogative modality and that the complementizer *whether* marks the same modality, then according to the hypothesis these two markers should not cooccur in the same clause—they should be in complementary distribution. This explains the ungrammaticality of 20.

Frajzyngier concludes his study by acknowledging that it is possible in some languages for complementizers to acquire a second, purely formal function and become markers of embedded clauses, thereby losing their modality encoding function. Frajzyngier 1996 elaborates on this second formal (i.e. syntactic) function by advancing the hypothesis that this function pertains to grammatical relations and parsing configurations that have to do with the proper assignment of NP arguments to their verbs.

The last study that will be reviewed in this section is Thompson & Mulac 1991. Thompson & Mulac's study is the first to investigate the English complementizer *that* based on conversational data. Their central concern in this fairly large quantitative study is the discovery of the discourse factors that affect the occurrence or non-occurrence of *that* in conversational English. Their findings unambiguously refute the claim that the use of *that* is arbitrary or optional. They find that the use or non-use of *that* highly correlates with other discourse factors like first and second person subjects, the verbs *think* and *guess*, auxiliaries, indirect objects, adverbs, and the pronominal embedded subject. One of their compelling findings is that certain combinations of main clause subjects and verbs—e.g., *I think* in *I think it's going to snow*—are being reanalyzed in conversation as unitary epistemic phrases almost acting as 'bleached' adverbials when these combinations are postposed, e.g., *It's going to snow, I think*. They point out that as this happens the distinction between the main and the complement clause is being eroded/blurred, with the omission of *that* a strong concomitant. Thus, the use of *that* is correlated with the degree of embeddedness of the complement clause. When there is no *that*, the main clause subject and verb function as an epistemic phrase, rather than as a main clause introducing a complement. They also find that a pronominal subject in the complement clause, which is an indication of the topicality of that subject in the discourse, tends to occur without *that*. They also find that the presence in the matrix clause of an adverb, which reduces the likelihood that the subject and verb are functioning as an epistemic phrase, favors the use of *that*.

Thompson & Mulac summarize their findings thus (249): '[T]he more the "main" subject and verb are taken as an epistemic phrase, the less the "complement" is taken as a "complement", and the less likely is the complementizer *that* to be used ... [T]he factors most likely to contribute to this reanalysis are precisely those which relate either to the epistemicity of the main subject and verb or to the topicality of the complement at the expense of the main clause'.

3. SYNOPSIS-I.

3.1. THE DATA. It is hard to determine with certainty the sources of the data used in the above studies because more often than not the individual studies do not make a statement about the sources of their data. Often, however, one is able to guess from reading the examples used in the studies. It is safe to assume that Karttunen, Rosenbaum, the Kiparskys, Bresnan, and Andersson—consonant with the spirit of the time and with the theoretical orientation—all make use largely of introspective data. Furthermore, and predictably, their data derive from consideration of a single language, i.e. are not cross-linguistic. On the other hand, Givón, Ransom, and Frajzyngier use introspective and elicited data as well as data from reference and descriptive grammars, and their studies are cross-linguistic. With the exception of Thompson & Mulac 1991, the data analyses in all of the above approaches do not go beyond the level of the sentence.

3.2. THE ANALYSIS. From the preceding discussion, we can identify a few trends in the analysis of the complementizers, the CTPs, and modality—broadly along the following lines: As we get closer to the present time, complementizers assume a more significant semantic role, the CTP assumes a less primary role, and modality assumes a more significant role. We also note a progression towards a more distributed approach to the meaning of complement clauses, in the sense that meaning becomes a property distributed over more components of the sentence.

As for the complementizers, early generative approaches regarded them as meaningless and insignificant. They were introduced along with their complements transformationally by optional rules, but this turned out to be problematic because transformations changed not only the syntactic structures but also the semantic structure, which was theoretically prohibited. Later, it was determined (the Kiparskys) that the CTP played a crucial role in selecting the complements and the complementizers, but the meaning resided in the CTP and the complement, and only secondarily in the complementizer, if at all. For Bresnan, complementizers are specified in deep structure, and the CTP and the complement together are thought to select the surface complementizer. For Karttunen and Josephs, the CTP and the mood of the sentence jointly determine the complement and complementizer. For Givón, the complementizer is a meaningful unit, as it plays a role in the event integration semantic scale and interacts with the notion of control: more control usually entails the absence of a complementizer, and less control usually entails its presence. Ransom sees complementizers as contributing to modality and to the meaning of the sentence. For Frajzyngier, the complementizer is a fully functional category and a part of the system of modality. For Thompson & Mulac, the complementizer interacts with, and is predictable from, other discourse factors.

As regards the role of the CTP, it assumed primary significance with the Kiparskys and Bresnan. It was thought that the semantic features (e.g. presupposition) of the CTP played the deciding role in selecting the complement and complementizer, and the meaning of the complement clause was the conjunction of the CTP and the complement. For Karttunen, the meaning is distributed between the CTP and the mood of the sentence. For Givón, the CTPs are important in terms of their modal categories, but meaning is more distributed over the agent and its control, which in turn influence the complement and complementizer. For Ransom, the CTP assumes a less significant role in terms of the meaning of the complement, and modality takes on a larger role. For Frajzyngier, the CTP is important insofar as it contributes to modality. For Thompson & Mulac, the CTP is only one of several discourse components that gives a sentence its meaning.

As for modality, the Kiparskys and Bresnan understood it as a restricted notion residing in the CTP. For Karttunen, modality is as important as the CTP, and both modality and the CTP significantly contribute to the meaning of the complement. For Givón, modality assumes a larger role, applying to the CTP and to agents and their degree of control, and it is distributed over matrix and complement clauses. For Ransom and Frajzyngier, modality is a crucial notion without which we cannot even begin to understand the meaning of complements or complementizers. For Thompson & Mulac, modality is a discourse property.

In §5 I will review studies of Arabic complementation in order to discover to what extent the notions discussed in the last three paragraphs are utilized. Before we go on to §5, it is necessary to present a brief outline of the Arabic complementation system.

4. THE STRUCTURE OF ARABIC.

4.1. GENERAL. The studies of Arabic complementation that will be reviewed in §5 deal with Standard Arabic and some Colloquial dialects (e.g. Egyptian Arabic).¹ It will be necessary, therefore, to outline just briefly the main structural differences between Standard Arabic and the Colloquial dialects that are relevant to complementation.

STANDARD ARABIC:

- The main-clause word order can be either VSO or SVO, but VSO is predominant.
- In subordinate clauses, both VSO and SVO are possible, but SVO is predominant.

¹ Standard Arabic, also known as Literary/Written Arabic or Modern Standard Arabic, is assumed to be the direct diachronic descendant of Classical Arabic. Although there are some syntactic differences between Standard Arabic and Classical Arabic, it is generally agreed that most of the differences lie in the lexicon. In this paper, the label 'Standard Arabic' stands for Standard or Classical Arabic.

- There is a case inflectional system marking the grammatical relations on NPs, and there is also a verbal case inflectional system. The relevant cases here are nominative and accusative.
- The main and most frequent complementizers are *inna*, *anna*, and *an*.

COLLOQUIALS:

- The main-clause word order is both SVO and VSO, but SVO is predominant.
- In subordinate clauses, both SVO and VSO are possible, but SVO is predominant.
- There is no case inflectional system. Grammatical relations are indicated by word order and prepositions.
- The main complementizer is *inna*, which is the merger of all the three complementizers of Standard Arabic above (i.e., it is a cognate of all the three complementizers); *inna* has different phonetic values in the Colloquial dialects (e.g. *inna*, *inni*, *inn*, *in*).

4.2. COMPLEMENT CLAUSES. Standard Arabic has three common complementizers which do not appear to share the same distribution. The complementizer *inna* has a very limited distribution: It only follows the verb *qaala* 'say' or one of its derivatives. The complementizer *anna* occurs with a number of verbs, nouns, and adjectives and introduces clauses that complement verbs such as *sarafa* 'know', *awdaha* 'explain', *istagada* 'think, believe' and predicates such as *alwaaqif* 'the fact, reality' and *assu'al* 'the question'. The complementizers *inna* and *anna* are always followed by an NP. When there is no overt subject in the embedded clause (Arabic is a pro-drop language; it does not usually require a subject pronoun since the verb is conjugated to indicate person, number, and gender), a pronoun agreeing with the subject is suffixed as an enclitic onto the complementizer. Furthermore, complement clauses that follow *inna* and *anna* are indicative (finite).²

- (21) *qaala inn-ii dahab-tu.*
say.PERF.3MS COMP-1S go.PERF.INDIC-1S
'He said, "I went".'
- (22) *istagada anna-hu sa-yaḥabu.*
believe.PERF.3MS COMP-3MS FUT-go.IMPERF.INDIC.3MS
'He believed that he would go.' Or: 'He believes that he will go.'

The third complementizer, *an*, is followed by a subjunctive verb.³ *an*, along with its subjunctive complement, quite often corresponds to an infinitival construction in English. The complementizer *an* must be followed by a verb:

- (23) *yuriidu an yaḥaba l-an.*
want.IMPERF.3SM COMP go.SUBJ.3SM ART-now
'He wants to go now.'

In addition to the indicative and subjunctive complement types, Standard Arabic also has a third complement type: the verbal noun complement. The verbal noun complement construction is never introduced by a complementizer.

² The fusional/synthetic nature of Arabic words necessitates that our glossing be simplified in order not to distract from the points under focus. I resort to a simplified glossing after the first few examples. The following abbreviations are used: M = masculine, F = feminine, S = singular, P = plural, COMP = complementizer, PREP = preposition, ART = definite article, PERF = perfect, IMPERF = imperfect, FUT = future, SUBJ = subjunctive, NOM = nominative, ACC = accusative, NEG = negative particle. All the consonant symbols have their usual IPA values except /j/, which should be read here as voiced alveo-palatal affricate as in English 'jar'. Two adjacent identical vowels indicate a long vowel.

³ The subjunctive mood in Arabic, which only occurs in embedded clauses, expresses deontic modalities such as obligation, permission, and prohibition as well as modal categories like unreality and possibility.

- (24) *haawala* *jamʕa* *t-tabarruʕaat*
 try.PERF.3SM collect/collecting(verbal noun) ART-donations
 'He tried to collect the donations.'

The above is the basic structure of complement clauses in Standard Arabic. As for an outline of the meanings of complements, here is what a popular Arabic textbook for second language learners has to say (Abboud & McCarus 1983:429–30):

The basic difference in meaning between *ʔanna-ʔinna* on the one hand and *ʔan* on the other is the difference between fact and possibility. A clause introduced by *ʔanna* or *ʔinna* describes a fact, or something which has actually occurred or is occurring, or something which it is assumed will occur, and may often be translated 'the fact that...'. A clause introduced by *ʔan*, however, generally refers to a possible event, one which is perhaps desired, or feared, but one which may or may not be realized. Such clauses commonly are found in expressions such as 'It is necessary (proper, desirable, etc.) that...', or 'I want...' or 'He ordered that...'.⁴

Before we go on to the next section, a note about tense in Arabic is necessary as this will be relevant for the ensuing discussion. In Standard Arabic, there is said to be a perfect tense and an imperfect tense. For the purposes of this paper, these can be regarded as corresponding to the past and present tenses. The important point to note here regards the interaction of these two tenses with the indicative and subjunctive complements: The verb in the indicative complement can be either perfect or imperfect, but the subjunctive is associated with the imperfect only. There is no such thing in Arabic as a perfect subjunctive.

5. ARABIC COMPLEMENTATION STUDIES. All the studies that deal significantly with Arabic complementation in the modern linguistic era—i.e. the 20th century—have been written in the last twenty-five years (beginning with Cantarino 1974–5). For the sake of brevity, I will review in this section, in chronological order, only some of these studies.

Rosenhouse 1976 investigates complement clauses (which she calls 'direct object clauses' or 'DOC') in Standard Arabic and in Iraqi, Syrian, Lebanese, Palestinian, Egyptian, and Moroccan Arabic.⁴ Her approach accords primary status to the governing CTP. She groups DOCs into two major classes according to the syntactic and semantic requirements of the governing CTP: (1) single DOC sentences—in which the DOC is the only object argument in the sentence—and (2) DOC as the second object of the governing CTP. Each class is divided into two sub-classes according to the semantics of the governing verbs. The single DOC type is divided into 'factual' and 'volitional', and the second object DOC is divided into 'mental' and 'physical', each of which is in turn broken down into two sub-classes. The resulting eight classes of CTPs are then viewed from the aspect of syndetic/asyndetic subordination, ultimately ending up with sixteen classes of CTPs. The syndetic/asyndetic aspect corresponds to the presence/absence of a complementizer. In her approach this aspect is a secondary one; it falls out of the analysis of the governing CTP, the primary aspect, which she treats as having an important role in selecting the complementizer.

Rosenhouse divides the 'factual verbs' into two sub-classes: 'factual verbs' and 'verbs of saying'. Factual verbs are said to express certainty of the contents of the subordinated DOC: *ʔirif* 'know', *ʔilim* 'know', *ʔimiʕ* 'hear', *ʔaaf* 'see', *ʔajad* 'find', *ʔala* 'find', *ʔaddaq* 'believe', *ʔakar* 'think', *ʔan* 'think', *ʔanaʕ* 'prevent', *ʔiʕawwir* 'imagine'. She states that a complementizer may or may not be used with the complements of these verbs. Verbs of saying include all kinds of verbs expressing communication. When these verbs introduce direct discourse, there will usually not be an intervening complementizer (asyndetic subordination). On the other hand, when the verb

⁴ I will ignore here Rosenhouse's findings and statements concerning Standard/Classical Arabic, as her findings are simply a synthesis of what other grammarians have said about the complementizers.

is followed by indirect discourse, the discourse will usually be introduced by a complementizer (syndetic subordination).

The 'volitional' class is divided into two sub-classes: 'volitional verbs' and 'modal verbs'. Volitional verbs are said to express uncertainty of the action indicated in the DOC: *habb* 'like, desire', *ṭalab* 'request', *ḥaawal* 'try', *tamma* 'wish, desire'. Most of the DOCs subordinated to these verbs are verbs in the subjunctive and are asyndetic, but there are some that are not subjunctive and are syndetic. The modal verbs include *qadara* 'can, be able to, may', *bada* 'begin', *biddi* 'want'. Rosenhouse claims that these verbs 'require some complement, either a noun serving as the object of the verb or a DOC ... In the course of time, these verbs have become automatically associated with the government of DOC (rather than with a noun as the object) and semantically become "modal" or "auxiliary", so that it is the DOC which is the main verb semantically. Asyndetic subordination is typical of the modal verbs' (17).

As for the verbs that govern the second object DOC, they seem to defy Rosenhouse's semantic classification, and the classification essentially breaks down. But Rosenhouse, trying too hard to impose some order, divides CTPs that take a second object DOC into 'mental action' and 'physical action' verbs and says (18): 'The division into "mental" and "physical" aspects is a semantic feature ... we extend it to distinguish between various types of a syntactic structure'. Mental action verbs include two sub-classes: 'verbs of the heart' and 'verbs of becoming and volition'. She says that verbs of the heart 'signify an act which takes place in the mind' or 'verbs of certainty and doubt', and she gives examples such as 'think', 'know', 'see', 'hear'. Verbs of becoming and volition include *ṭalab* 'ask, request', *jaab* 'bring, become', *yuriid* 'want'.

Physical action verbs have causative meanings: *kallaf* 'ask, charge', *sallam* 'teach', *waṣṣa* 'advise', *fahham* 'make (someone) understand', *laazim* 'must, should'. At this point, the semantic classification breaks down completely, and Rosenhouse resorts to a morphosyntactic classification of the two subtypes that belong in this category: Form I conjugation verbs and Forms II & IV conjugation verbs.

Rosenhouse tries to correlate the above CTPs and their complements with the syndetic/asyndetic aspect, i.e. with the presence versus absence of complementizers. Her findings show considerable variation among the dialects, and it is therefore difficult to make strong generalizations. However, there are some tendencies that can be observed. One such tendency is for the class of volitional verbs to subordinate the DOC asyndetically. Another tendency is that factual verbs govern syndetic DOCs. A third tendency is that verbs of saying with indirect speech are used syndetically, but with direct speech they are used asyndetically. The fourth and strongest tendency is for the class of 'modal' verbs to subordinate asyndetically (21): 'it appears that only modal verbs can be automatically associated with asyndetic subordination of the DOC'.

Hashim 1981 investigates the clausal complements of Egyptian Colloquial Arabic (ECA). Writing within the framework of the Extended Standard Theory and basing his analysis on introspective data, Hashim takes a purely syntactic approach to ECA complementation. Consistent with the Extended Standard Theory, complementizers are assumed to be generated in the base (i.e. not transformationally) by phrase structure rules. He lists the phrase structure rules that generate the deep structure of complement clauses in ECA and introduces seven transformations (complementizer deletion, preposition deletion, equi-NP deletion, pronominalization, Subject-to-Object raising, Subject-to-Subject raising, Extraposition) that he believes are needed to derive the surface structure of the complement clauses from their deep structures. He observes that embedded clauses in ECA 'occur where Noun Phrases typically do. They function as Subject, Direct Object, and Oblique Objects ... Embedded sentences, however, cannot function as Subjects in the Surface Structure. Only Noun Phrases can do that. When an embedded sentence occurs in the Subject position in the Deep Structure, it obligatorily moves to the end of the sentence by the Extraposition Transformation in the Surface Structure' (9). Thus we have a case here of something claimed to exist in deep structure which never occurs in the surface syntax of ECA.

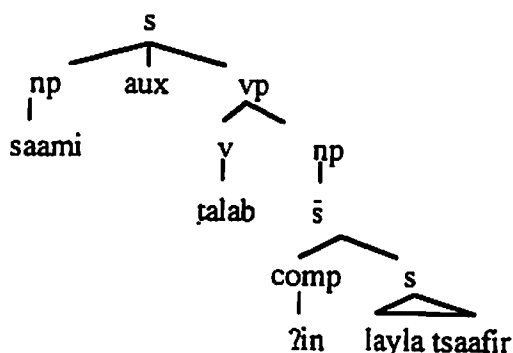
Hashim distinguishes between 'NP complements' and 'VP complements'. He distinguishes five patterns of NP Complements and one pattern of VP complements. Thus according to him, ECA has six complement types. The two main types differ in several respects, but one difference is that NP complements may be introduced by the complementizer *ʔin* while VP complements may

not.⁵ He introduces an optional rule deleting *ʔin* in some environments. Although this complementizer deletion rule is said to operate on the deep structure, it is impossible to see how this could be so, since we must first have access to the surface structure to see whether *ʔin* is or is not present. If it is not present in the surface structure, the deletion rule operates on the deep structure to delete it. Of course, Hashim does not say it in these terms, but that is essentially how it works. The circularity of the argument is evident.

The six complement patterns Hashim distinguishes are based on purely formal tree configuration structures. These structures are said to be selected by the syntactic requirements of the CTP, with no regard to semantics. The five NP complement patterns are as follows.

(1) 'Transitive Noun Phrase Complements' occur with CTPs such as *ʔakkad* 'confirm', *ʔalab* 'demand', *saddaʔ* 'believe', *ʔaaz* 'want', *ʔihim* 'understand', *ʔirif* 'know', *ʔawaqqas* 'expect', *ʔaddal* 'prefer', *rafaʔ* 'refuse'. Examples:

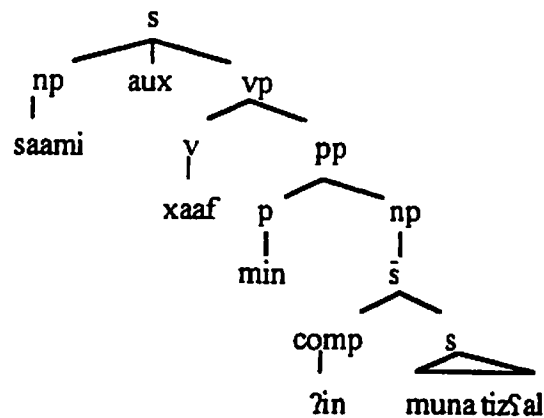
- (25) *saami saddaʔ ʔin layla nagahat*
Sami believed COMP Layla passed
'Sami believed that Layla passed.'
(26) *saami ʔalab ʔin layla tsaafir*
Sami demanded COMP Layla leave
'Sami demanded that Layla should leave.'



(2) 'Intransitive Oblique NP-Complements (a)' occur with CTPs such as *xaaf* 'fear, be afraid', *ʔak* 'doubt', *ʔass* 'feel', *ʔammam* 'insist'. Example:

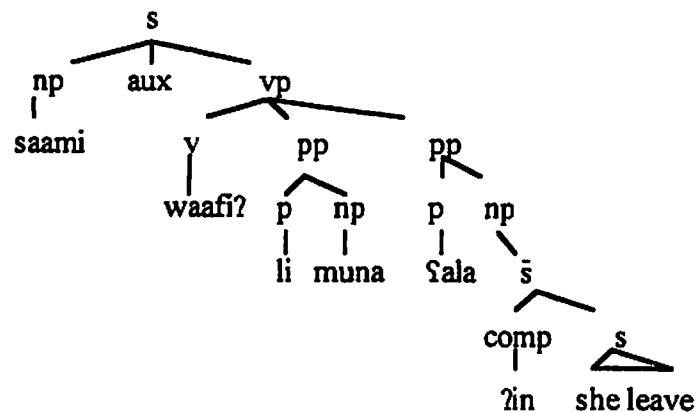
- (27) *saami xaaf min ʔin muna tizʔal*
Sami feared from COMP Mona be.offended
'Sami was afraid that Mona would be offended.'

⁵ *ʔin* is the merged cognate in ECA of the Standard Arabic complementizers, as mentioned in §4.



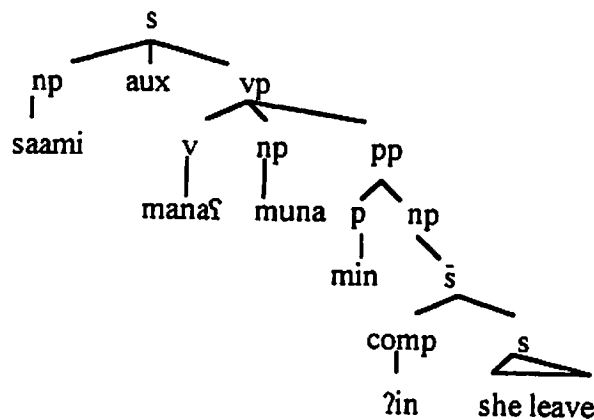
(3) 'Intransitive Oblique NP-Complements (b)' occur with CTPs such as *waafiʔ* 'agree', *samaħ* 'permit', *ħakam* 'rule'. Example:

- (28) *saami waafiʔ li muna ʔala ʔin-ha tsaafir*
 Sami agreed to Mona on COMP-she leave
 'Sami agreed that Mona would leave.'



(4) 'Transitive Oblique NP-Complements' occur with CTPs such as *manaʔ* 'prevent', *naʕaħ* 'advise', *waʕʕa* 'advise'. Example:

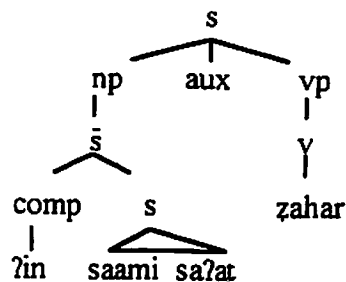
- (29) *saami manaʔ muna min ʔin-ha tsaafir*
 Sami prevented Mona from COMP-she leave
 'Sami prevented Mona from leaving.'
 (Alternatively translated as 'Sami did not allow Mona to leave'.)



(5) 'Subject-NP Complements' occur with CTPs such as *zahar* 'appear', *baan* 'appear, seem', *ittadah* 'appear, become clear', *laazim* 'necessary'. Example:

- (30) *saami zahar ?in-u sa?at*
 Sami appeared COMP-he failed
 'Sami appeared to have failed.'

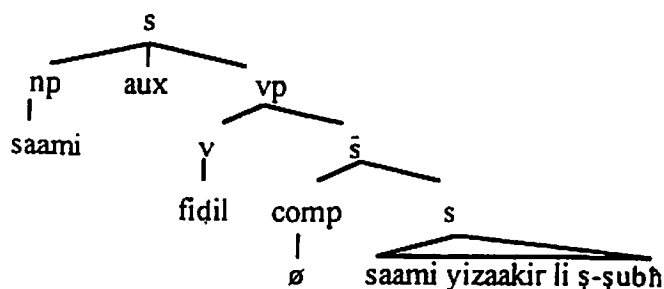
Ex. 30 is said to be derived from the following deep structure by subject-raising and extraposition:



Again, we have here an instance of a structure (*?in saami sa?at zahar*) claimed to exist in deep structure which never occurs in surface structure (i.e. NP complement in subject position).

The sixth and last complement type is the lone pattern of VP complements. 'Verb Phrase Complements in ECA are embedded sentences ... introduced by the "null complementizer" Ø' (21). VP complements occur with CTPs such as *xalla* 'make', *fidil* 'keep (doing)', *ladad* 'keep (doing)'. Example:

- (31) *saami fidil yizaakir li s-subh*
 Sami kept studying to the-morning
 'Sami kept studying till morning.'



Curiously, in a dissertation about complement clauses, Hashim makes few statements about the complementizer *ʔin*, the central complementizer in ECA. One of these statements is the following. He compares sentences like 32–33 and concludes simply that we need a complementizer deletion rule, said to apply to the deep structure and only optionally (79–80).

- (32) *saami ʔalab ʔin layla trawwah*
 Sami asked COMP Layla leave-SUBJ
 'Sami asked that Layla should leave.'
 (33) *saami ʔalab layla trawwah*
 Sami asked Layla leave-SUBJ
 'Sami wanted Layla to leave.'
 (Alternatively translated as 'Sami asked Layla to leave'.)

Besides failing to attach any semantic significance to either *ʔin* or its associated complement, Hashim claims that the second sentence has a S-to-O raising structure. The S-to-O raising rule is said to be an obligatory rule that operates after the complementizer deletion rule. Under this analysis, Hashim seems to suggest that there is not a non-raised subject in the embedded clause in ECA simultaneous with the absence of *ʔin* (as a result of *ʔin* deletion). If this is what he means, this interpretation would be observationally wrong for ECA sentences of this type. This interpretation appears to be later confirmed (82–83): 'the embedded sentences ... do not behave as a single constituent after the deletion of the complementizer. The Subject of the embedded sentence ... is extracted ... after the deletion of the complementizer, and now serves as an Object-NP in the higher sentence'. What remains unclear from his discussion is the scope of this statement: When does a complementizer deletion rule entail a subsequent S-to-O raising rule, and when does a complementizer deletion rule need not be followed by such a raising rule?

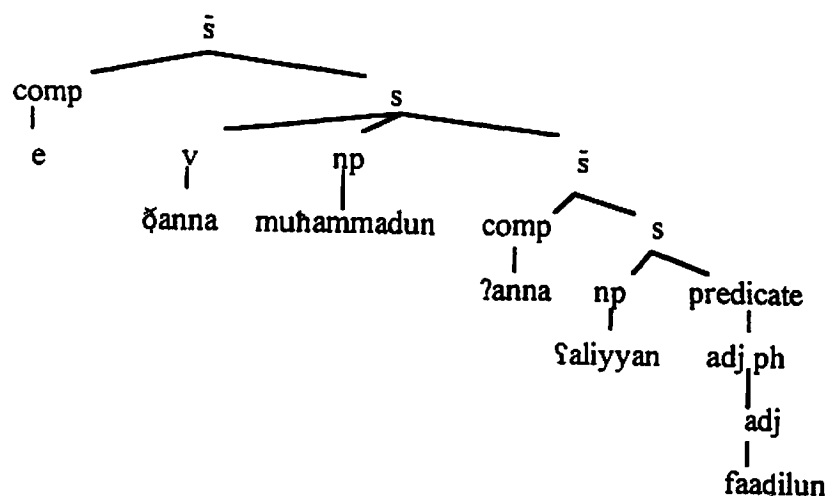
Also written within the framework of the Extended Standard Theory is Shawish 1984, which is concerned with an investigation of NP and adverbial complements in Standard Arabic. Shawish treats complement clauses as a subtype of NP complements and, like Hashim, takes a purely formal syntactic approach in his analysis. Also like Hashim, he is concerned with a statement of the phrase structure rules that generate the deep structure of sentences and the movement rules that derive the surface structure from the underlying structure. He does not make a systematic attempt to list or classify the CTPs, nor does he survey the specific types of complements. He is more concerned with the linear order of sentence constituents and with the general type of object complements (complement clauses being only one type of object complements). Also like Hashim, he makes no mention of the semantics of complements or function of complementizers, and his treatment does not invoke non-syntactic issues.

The discussion relevant to complement clauses mentions that there are two kinds of sentences that involve complement clauses: sentences from which a predicate object can be derived (syntactically), and sentences from which no predicate object can be derived. The second type refers to structures where the complement clause is the only object argument of the CTP. The first type can derive two kinds of complement object constructions: the 'double object construction' and the 'three-object construction'. The 'double object construction' is illustrated by 34:

- (34) *ʔanna muḥammad-un ʔaliyy-an ʔaʔdil-an*
 thought-3MS Mohamed-NOM Ali-ACC excellent-ACC
 'Mohamed thought that Ali was excellent.'

The two accusative arguments are the two objects that the 'double object construction' refers to. The second object *ʔaʔdil-an* is a predicate of the first object *ʔaliyy-an*. Such sentences are said to be derived from underlying structures containing a complementizer. Sentence 34 is said to be derived from 35 by the deletion of the *ʔ* node containing the complementizer *ʔanna*, after which the main verb will assign accusative case to the second object *ʔaʔdil-an*. (In Extended Standard Theory, case-assignment rules take place after movement rules.)

- (35) *ʔanna muḥammad-un ʔanna ʕaliyy-an faaḍil-un*
 thought-3MS Mohamed-NOM COMP Ali-ACC excellent-NOM
 'Mohamed thought that Ali was excellent.'

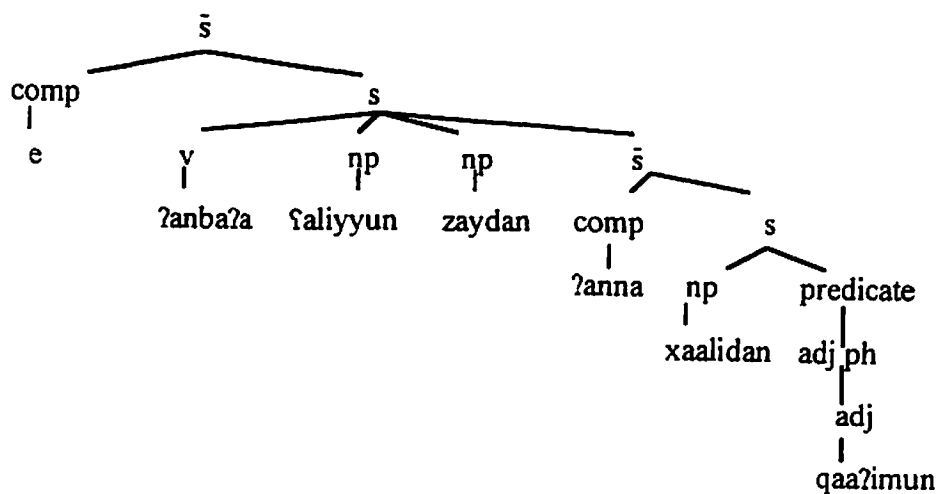


The 'three-object construction' is illustrated by the following sentence:

- (36) *ʔanbaʔa ʕaliyyun zaydan ʔaalidan qaaʔiman*
 informed-3MS Ali-NOM Zayd-ACC Khalid-ACC staying-ACC
 'Ali informed Zayd that Khalid was staying.'

Ex. 36 has three objects, the third of which is a predicate of the second, and the second and third together form one constituent in terms of movement phenomena. Ex. 36 is said to be derived from 37 by the deletion of the \bar{s} node containing the complementizer *ʔanna*, after which the main verb will assign accusative case to the third object *qaaʔiman* (156).

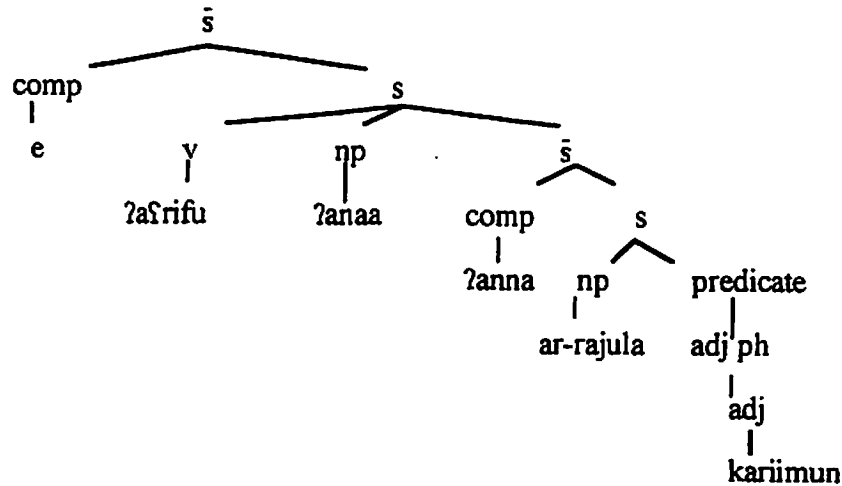
- (37) *ʔanbaʔa ʕaliyyun zaydan ʔanna ʔaalidan qaaʔimun*
 informed-3MS Ali-NOM Zayd-ACC COMP Khalid-ACC staying-NOM
 'Ali informed Zayd that Khalid was staying.'



The other kind of sentences involving complement clauses are those from which no predicate object can be derived, by which Shawish means structures where the complement clause is the only object argument to the matrix verb, illustrated by 38:

- (38) *ʔaʕrifu ʔanna ʔar-rajul-a kariim-un*
 know-1S COMP the-man-ACC generous-NOM
 'I know that the man is generous.'

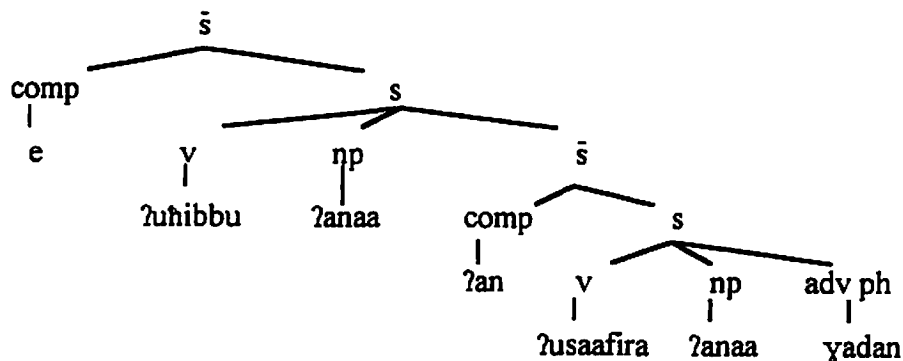
Ex. 38 is derived from the following deep structure (158):⁶



Shawish considers 39 as illustrating the same point:

- (39) *ʔuhibbu ʔan ʔusaafir-a yadan*
 like-1S COMP travel-1S-SUBJ tomorrow-ACC
 'I would like to leave tomorrow.'

This sentence is derived from the following deep structure (158):



The only difference between the two sentences, as far as Shawish's analysis is concerned, is that one has the COMP *ʔanna* followed by an NP, and the other has the COMP *ʔan* followed by a verb.

In Shawish's rather mechanical approach, all double-object and triple-object constructions that contain a predicate object must be derived from underlying structures containing the

⁶ *ʔanaa* = 1S pronoun 'I'; when this pronoun occupies subject position in a clause, it is deleted in surface structure by a rule that deletes [- emphatic] pronouns.

complementizer. His approach does not allow reference to semantic structure. As can be seen above, the surface sentences that are said to be derived from their corresponding underlying structures have the same interpretations as their non-derived, underlying ones. Thus both 40 and 41 are said to have the same interpretation despite their differing structures.

- (40) *ḥanna muḥammad-un ṣaliyy-an faaḍil-an*
'Mohamed thought that Ali was excellent.'
(41) *ḥanna muḥammad-un ḥanna ṣaliyy-an faaḍil-un*
'Mohamed thought that Ali was excellent.'

This claim appears to be observationally and intuitively wrong, in the same way that it would be wrong in English to say that 'Mary thought (that) John is good' and 'Mary thought John to be good' have the same interpretation. The same interpretation may have to be assigned to them as an artifact of the theory-internal analysis (perhaps due to the requirement that transformations be meaning-preserving), but doing so violates even the elementary generative tenet of observational adequacy. Once again, implicit in this approach is the proposition that the complementizer has no semantic function.

The last study that will be discussed in this section is Talaat 1987. Talaat, who also uses introspective data, is concerned with how to account for the syntax of complementation of Egyptian Arabic (EA) in terms of GB theory. Her central concern is with the utilization of the GB notational apparatus to describe the base-generation and derivation rules of EA complements. Like Hashim and Shawish, she has little to say about the function of complementizers, but she considers the semantics of CTPs and makes some use of the notion of modality.

Talaat argues that EA has both finite and non-finite complement clauses. Finite complements in EA are chosen by matrix verbs that are of the 'dicto-cognitive' type whose meaning is related to knowledge and are epistemic in nature, such as *ʕirif* 'know' and *saddaʔ* 'believe'. Non-finite complements, on the other hand, are chosen by verbs whose meaning has to do with volition or coercion and are deontic in nature, such as *ʕaaz* 'want' and *xalla* 'let, make'. She points out that some verbs may take either finite or non-finite complements, with the difference between the two being modal, for example (155–6):

- (42) *ʕana ʕammimt ʕinn-u geh*
I I-insisted COMP-he he-came-INDIC
'I insisted that he had come.'
(43) *ʕana ʕammimt ʕinn-u yiigi*
I I-insisted COMP-he he-come-SUBJ
'I insisted that he should come.'

She argues that the complementizer *ʕinn* is a governor comparable to the complementizer *for* in *for-to* complements in English.⁷ She points out that this explains the fact that *ʕinn* must always be followed by an NP (cliticized onto the complementizer in 42–43).

Talaat goes on to describe the internal structure of the finite and non-finite complement types in terms of the GB theory. With respect to their internal structure, the distribution of the complementizer *ʕinn*, and the elements that may fill their subject position, non-finite complements are grouped into four basic types, the locus of the analysis resting on the CTPs that 'select' them. Type 1 verbs include *ʕaaz* 'want', *tawaqqas* 'expect', *ḥabb* 'like', *qarrar* 'decide', *ṭalab* 'ask'. Type 2 verbs include *ḥaawil* 'try' and *waʕad* 'promise'. Type 3 verbs include the causative verbs *xalla* 'make', *saab* 'let', *yaʕsab* 'force', *iṭarr* 'be obliged' and the quasi-causative verbs *ʕaggaʕ* 'encourage', *naʕaḥ* 'advise', *ʕaḡnaʕ* 'persuade', *ʕayra* 'tempt'; whereas the causative verbs indicate that the action denoted by the embedded verb has taken place, the quasi-causative verbs do not

⁷ Talaat transcribes the complementizer in Egyptian Arabic as *ʕinn*; Hashim transcribes it *ʕin*. This difference is inconsequential for the discussion.

necessarily indicate that. Type 4 verbs include directional verbs like *xarag* 'go out', *ʔaam* 'get up', *nizil* 'get down', *geh* 'come'. With all these four types, *ʔinn* may or may not be present.

Finite complements, on the other hand, are classified into three basic types, according to whether or not they allow *ʔinn* and whether *ʔinn* is optional or obligatory. Again, the finite complement types are selected by the CTPs. (1) Complements with optional *ʔinn* are selected by CTPs such as *ʔiftakar* 'think', *ʔstabar* 'regard', and *ʔstaqad* 'think'; these verbs take complements with or without *ʔinn*. (2) Complements with obligatory *ʔinn* are selected by CTPs like *saddaʔ* 'believe', *ʔakkid* 'assert', *ʔaal* 'say', and *nisi* 'forget'. Finally, (3) complements that do not allow *ʔinn* are selected by perception verbs like *ʔaaf* 'see' and *semiʃ* 'hear', which are said to subcategorize for sentential complements with an empty complementizer position.

As Talaat understands them, the modal notions 'epistemic' and 'deontic' are properties residing in the CTPs. The syntactic and semantic requirements of the CTP are what is primarily responsible for choosing a particular kind of complement and for the presence or absence of the complementizer. This is reminiscent of Rosenhouse's—and to some extent Hashim's—analysis, although the theoretical orientations the authors follow are distinct.

6. SYNOPSIS-II.

6.1. SUMMARY. Of the three significant components in general complementation studies we reviewed in §3—the complementizer, modality, and the CTP—only the CTP figures significantly in the Arabic complementation studies. Although we find many comments about the complementizers' forms, syntactic behavior (e.g. deletion), and distribution with the different complement types, we find no comments attaching any semantic function to them. With the exception of Talaat, we also find no explicit mention of modality, let alone of the possibility of interaction between complementizers and modality. When Talaat considers modality, she understands it in a limited sense that applies mainly to CTPs, although she also uses the labels non-finite/deontic and finite/epistemic to christen her two super-categories of complements. In Rosenhouse 1976, Hashim 1981, and Talaat 1987, the locus of the analysis of complement clauses is in the CTP. The number and type of complement clauses is to be found in the syntactic and semantic requirements of the CTPs. But here we find discrepancies among these authors. Rosenhouse finds eight (internally inconsistent) classes of CTPs. Hashim finds six classes of CTPs in Egyptian Arabic. Talaat finds seven classes of CTPs, also in Egyptian Arabic. It is impossible to tell whether the discrepancy in the Egyptian Arabic results are due to different observations about the data or to the theory-dependent analyses, or both.

We also find internal and external inconsistency in the classification of CTPs. For example, Rosenhouse includes the CTPs 'know' 'think', 'hear', 'see' in the class of 'factual verbs', which she says refers to certainty. But she also includes precisely these verbs in the class called 'verbs of the heart' (which also includes the verb 'doubt') without any justification or mention of potential semantic consequences. She does the same thing with the verb 'want', which is cross-classified in the class 'modal' and the class 'becoming and volition', and then explicitly leaves it out of the prototypically 'volitional' class which includes 'like', 'desire', and 'wish'. Also, the verb 'request' is cross-classified under 'volitional' and 'becoming and volition'. There is also discrepancy between Hashim's and Talaat's classifications. For example, Hashim includes 'want' in the same class as 'confirm', whereas in Talaat these two verbs belong in two different classes. And there is also discrepancy between Hashim and Talaat, on the one hand, and Rosenhouse, on the other.

6.2. DATA AND METHODOLOGY. It is noteworthy that of all the Arabic complementation studies reviewed in this paper only one is based to some degree on actual, non-introspective data. That study is Rosenhouse 1976. Rosenhouse based her study on data from field recordings and some written texts but mostly on reference grammars that may or may not have been based on actual data. All the other authors mentioned in §5 based their studies on introspective data. Thus, the Arabic complementation scholarship has been essentially based on introspection and intuition and necessarily therefore on sentence-level phenomena.

The methods of analysis that the authors employ vary. Rosenhouse, following a traditional structuralist approach, is centrally concerned with a classification of the CTPs in half a dozen Arabic dialects in order to determine what complements are 'chosen' by these CTPs. She starts with a semantic classification but then resorts to the syntax of CTPs. Her classification is motivated by the data but it seems that there was too much variation among the dialects to find coherence. Hashim 1981, written in the framework of Extended Standard Theory, bases his analysis on the syntactic requirements of the CTP and then writes deep structure and movement rules to derive them. Shawish, also written within the EST framework, takes the purest syntactic approach of all the studies, completely neglecting semantic considerations, in order to account for the linear order of NP complements and their derivations. Talaat (a GB linguist), like Rosenhouse and Hashim, is concerned with the CTPs and the complements they 'choose'. Thus, the three most recent studies situated in modern linguistics—Hashim 1981, Shawish 1984, Talaat 1987—are written within the generative paradigm. All three are centrally concerned with theory-internal accounts of complementation, and the accounts concentrate on a mere description of syntactic phenomena.

7. OUTSTANDING ISSUES IN ARABIC COMPLEMENTATION. From general studies of complementation, only some of which were reviewed in §2, we know that complementation involves the interaction of several components. Some of these components are: the classes of CTPs (factive, cognitive-utterance, emotive, etc.), the complementizers, the complement-clause structure and type, the mood/modality of the clauses, the semantic/propositional content of the embedded clause, the tense and time reference in the clauses, the agent/subject in the clauses, the polarity of the clauses, control, and coreference. All these are important considerations in complementation. To these we may also add discourse and contextual factors, an area that is at best only partially explored (cf. Thompson & Mulac 1991). Some of these components are inseparable from others. In this paper I have isolated and focused on only three of these components: CTPs, modality, and complementizers. Of these three constructs, only one—CTPs—is explored significantly for Arabic, but even here there is still much work to be done.

Of the Arabic colloquial dialects, only Egyptian receives some significant degree of attention. And yet only a small subset of the issues mentioned in the previous paragraph is discussed for Egyptian Arabic, namely the CTPs. The CTPs are certainly important to explore, as the functionalist literature demonstrates, but the fruitfulness of approaches that take the CTP as the primary factor in the choice of complementizers and complements was shown in §2 to be limited. There is no reason to believe that Arabic is an exception in this regard.

It is evident that there are many issues in Arabic complementation that have not been resolved, and many more that have not been explored. In some strong sense, the Arabic complementation studies have not capitalized on the functionalist advances of the last two decades. It is also evident that many colloquial Arabic varieties have not been studied in terms of complementation at all, e.g. Palestinian Arabic. Furthermore, to the extent that Arabic complementation has been investigated, the investigations have taken formal syntactic approaches, largely or totally ignoring semantic and discourse functions.

It would then seem reasonable and fruitful for future studies on Arabic complementation to follow a functionalist paradigm along the lines of the literature reviewed in §2. This paradigm is concerned with providing meaning-based, data-oriented, functional explanations. In the next section, I give a functional account of the main complementizer in Palestinian Arabic (*inna*) along the lines suggested by the functionalist literature.

8. THE ROLE OF AN ARABIC COMPLEMENTIZER.⁸

8.1. INTRODUCTION. In this section I investigate one component of the system of complementation in Palestinian Arabic—the complementizer *inna*. I argue that this complementizer has an inherent semantics capable of influencing the meaning of sentences in which it is embedded. Specifically, I show that the presence of *inna* in a complex sentence communicates modal

⁸ This section contains part of my CLS article (see References).

meanings distinct from those communicated by analogous sentences lacking the complementizer. By way of illustration, compare the following minimal pair. These sentences differ only in the presence versus absence of the complementizer.

- (44) *smiʕna l-wlaad bilʕabu maʕ il-xurfaan*
 we.heard the-children they.play with the-sheep
 'We heard the children playing with the sheep.'
- (45) *smiʕna ʔinna l-wlaad bilʕabu maʕ il-xurfaan*
 we.heard COMP the-children they.play with the-sheep
 'We heard that the children are playing with the sheep.'

Both sentences contain the embedded assertion *l-wlaad bilʕabu maʕ il-xurfaan* 'the children play with the sheep'. Ex. 44 indicates that the speaker's source of evidence for this assertion is direct auditory perception, as suggested by the English translation. Ex. 45 indicates that the source of evidence is indirect. The source of evidence in 45 is hearsay. Ex. 45 shows that the complementizer *ʔinna* codes the evidential basis on which the speaker asserts the proposition *l-wlaad bilʕabu maʕ il-xurfaan*. The sentences presented in 44–45 indicate that an appropriate analysis of the complementizer must make reference to the meanings that it contributes to assertions in which it is embedded.

The meanings that *ʔinna* contributes largely fall under the rubric of epistemic modality as defined in Palmer 1986:51: 'the term "epistemic" should apply not simply to modal systems that basically involve the notions of possibility and necessity, but to any modal system that indicates the degree of commitment by the speaker to what he says. In particular, it should include evidentials such as "hearsay" or "report" (the Quotative) or the evidence of the senses'. Palmer's definition makes clear that evidential functions such as the ones indicated in 44–45 fall within the realm of epistemic modality, and so do the notions of 'hearsay', 'report', and 'commitment', notions which are taken up later.

This section aims to provide a semantic/functional motivation for *ʔinna*. The hypothesis is that the function of the complementizer *ʔinna* in Palestinian Arabic (hereafter PA) is to lessen the degree of the matrix subject's commitment to the proposition embodied in the complement clause. The support for this hypothesis will consist in arguing for the following three claims, each of which is discussed in turn below:⁹

- The occurrence of *ʔinna* in subjunctive complements that allow it lessens the degree of commitment of the matrix subject to the proposition contained in the complement.
- When *ʔinna* introduces complements to main-clause perception verbs (e.g. 'see', 'hear'), it indicates that the propositional event in the embedded clause was a result of indirect evidence (thus entailing less speaker commitment) when compared with the same but without *ʔinna* (where perception is direct, thus entailing more speaker commitment).
- In natural conversation data, when *ʔinna* introduces direct quotes it indicates low speaker commitment to the quoted utterance.

8.2. ʔINNA WITH SUBJUNCTIVE COMPLEMENTS. Some manipulative verbs, e.g. *ʔaʕbar* 'oblige, force', *ʔamar* 'order', *manaʕ* 'prevent', *xalla* 'make, let', never allow the occurrence of the complementizer in their complements. Thus in the following set of examples, *ʔinna* cannot appear anywhere:

- (46) *layla ʔaʕbar-aʔ xaalid yruuʕ*
 Layla force.PERF-3FS Khalid go.SUBJ.3MS
 'Layla forced Khalid to go.'
- (47) *ʔaʕbar-eʔ xaalid yruuʕ*

⁹ Palestinian Arabic appears to have three complement types: indicative, subjunctive, and verbal noun. For reasons of space, in this section I will only refer to the subjunctive and (less frequently) indicative complements. I will not discuss the verbal noun complement type.

- force.PERF-1S Khalid go.SUBJ.3MS
 'I forced Khalid to go.'
- (48) *layla xall-at xaalid yruuh*
 Layla make.PERF-3FS Khalid go.SUBJ.3MS
 'Layla made Khalid go.'
- (49) *xall-eet xaalid yruuh*
 make.PERF-1S Khalid go.SUBJ.3MS
 'I made Khalid go.'

On the other hand, emotive verbs, e.g. *habb* 'like', *xaaf* 'fear', *taammal* 'hope', *tmanna* 'wish', do allow *inna* in their complement clauses if the subject of the matrix clause and the subject of the embedded clause are non-coreferential. If the two subjects are coreferential, the complementizer is disallowed. Thus 50–51 are well-formed, but 52–53 are not:

- (50) *habb-eet aruuh*
 like.PERF-1S go.SUBJ.1S
 'I liked to go.'
- (51) *habb-u yruuh-u*
 like.PERF-3PL go.SUBJ-3PL
 'They liked to go.'
- (52) **habb-eet in-ni aruuh*
 like.PERF-1S COMP-1S go.SUBJ.1S
 for: 'I liked to go.'
- (53) **habb-u in-him yruuh-u*¹⁰
 like.PERF-3PL COMP-3PL go.SUBJ-3PL
 for: 'They liked to go.'

The picture that is emerging with respect to subjunctive complements to matrix clause emotive verbs is that these complements typically do not allow *inna* except under the condition that the matrix and complement subjects are non-coreferential. Manipulative verbs (see 46–49) are excluded from this statement by type. These verbs do not allow *inna* under any circumstances, possibly because of a lexically specified constraint that they must have non-coreferential subjects since one typically makes, forces, prevents, etc. others, not oneself. With these verbs, the question of the occurrence of *inna* does not arise; *inna* never occurs with these verbs.

But the picture with respect to emotive verbs is a little more complicated than painted above. Whereas it is true that the presence of the complementizer is the norm if the subjects of the main and embedded clauses are non-coreferential, as in 54, the absence of the complementizer MAY be acceptable; hence the marginal acceptability of 55. Ex. 55 is not as well-formed as 54, but it is not outright infelicitous.

- (54) *habb-eet in-him yruuh-u*
 like.PERF-1S COMP-3PL go.SUBJ-3PL
 'I liked them to go.'
- (55) ?*habb-eet yruuh-u*
 like.PERF-1S go.SUBJ-3PL
 'I liked them to go.'

I would like to suggest that the phenomena represented in 50–55 can be explained in the light of the notion of commitment, in the following sense. The matrix and embedded clauses each have one proposition consisting of a subject and its predicate, and a relation holds between the two propositions such that the second proposition (the embedded proposition) is dependent upon the

¹⁰ This sentence would be acceptable if the subject of the main clause and the subject of the embedded clause are interpreted as non-coreferential.

first (the matrix proposition). If the agent of the second predicate is the same as that of the first predicate, the agent has more control in bringing about the action or event in the complement than if the agents of the matrix and complement were different. Thus in 50–55 one can be committed to and responsible for one's own actions (here going) but not necessarily so for the actions of others. Admittedly, it is not clear what is responsible in 54 for the lack of commitment—whether it is the presence of the complementizer or the non-identity of the subjects in the main and embedded clauses. If it turns out that there is in fact a clear preference for 54 over 55, then we may be more confident in concluding that it is the complementizer—rather than the non-identity of the subjects—that is responsible for the low commitment. We will return to this issue after we consider one more set of examples.

The complement-taking verb *ɬasarr* 'insist' is one that allows both indicative and subjunctive complements. When *ɬasarr* is followed by an indicative complement, the complement must be introduced by the complementizer, regardless of coreferentiality:

- (56) *ɬasarr-eet ɬin-ni ruhit*
insist.PERF-1S COMP-1S go.PERF.INDIC.1S
'I insisted that I had left.'
- (57) **ɬasarr-eet ruhit*
- (58) *ɬasarr-eet ɬin-him raah-u*
insist.PERF-1S COMP-3PL go.PERF.INDIC.3PL
'I insisted that they had left.'
- (59) **ɬasarr-eet raah-u*

On the other hand, when *ɬasarr* is followed by a subjunctive complement, we get a phenomenon very similar to the one observed in 50–55, namely, if the matrix and embedded subjects are coreferential, the complementizer is disallowed; but if the matrix and embedded subjects are non-coreferential, the complementizer is obligatorily present. Exx. 60–65 are parallel to 50–55.

- (60) *ɬasarr-eet aruuh*
insist.PERF-1S go.SUBJ.1S
'I insisted on going.'
- (61) *ɬasarr-u yruuh-u*
insist.PERF-3PL go.SUBJ-3PL
'They insisted on going.'
- (62) **ɬasarr-eet ɬin-ni aruuh*
insist.PERF-1S COMP-1S go.SUBJ.1S
for: 'I insisted on going'
- (63) **ɬasarr-u ɬin-him yruuh-u*¹¹
insist.PERF-3PL COMP-3PL go.SUBJ-3PL
for: 'They insisted on going.'
- (64) *ɬasarr-eet ɬin-him yruuh-u*
insist.PERF-1S COMP-3PL go.SUBJ-3PL
'I insisted that they go.'
- (65) ?*ɬasarr-eet yruuh-u*
insist.PERF-1S go.SUBJ-3PL
'I insisted that they go.'

From these examples we may conclude that it is the complementizer—not the like/unlike subjects—that is responsible for lessening the commitment of the main-clause subject to the event in the embedded clause when the main and embedded subjects are non-coreferential. In the infelicitous

¹¹ This sentence would be acceptable if the subject of the main clause and the subject of the embedded clause are interpreted as non-coreferential.

52–53 and 62–63, where the main and embedded subjects are coreferential, the introduction of *inna* creates a distance, iconically represented, between the controlling main verb and its subject and the achievement of the event in the embedded clause. The interpretation of the subjunctive verb cannot be properly understood without the emotive matrix verb on which it depends. Thus main-subordinate status with subjunctive complements is blurred, and the two clauses are semantically more unified than in the *inna* clauses. In fact, this dependence is seen in the syntax. Compare the complements in 66–67, which are extracted from 58 and 64, respectively:

- (66) *raah-u*
 'They went.'
 (67) **yruuh-u*
 for: 'They go.'

8.3. *INNA* WITH PERCEPTION VERBS. Related to the hypothesis that the function of the complementizer *inna* is to weaken the commitment of the subject of the main clause to the propositional content of the embedded clause is the sub-hypothesis that *inna*, when it introduces an embedded clause following a main-clause perception verb, functions as an evidential marker, a marker of indirect (or less-than-direct) evidence. Commitment and evidence are correlated in the following way. If one's evidence for a proposition is indirect or second-hand, one would be less committed to the proposition than to a proposition that contains an event the evidence for which is attained through direct experience. The following examples illustrate this point:

- (68) a. *smiʕna l-wlaad bilʕabu maʕ il-xurfaan*
 we.heard the-children they.play PREP the-sheep
 'We heard the children playing with the sheep.'
 Or: 'We heard that the children are playing with the sheep.'
 b. *smiʕna inna l-wlaad bilʕabu maʕ il-xurfaan*
 we.heard COMP the-children they.play PREP the-sheep
 'We heard that the children are playing with the sheep.'

Ex. 68a has two interpretations. For the first interpretation, the evidence is direct auditory perception. In 68b, on the other hand, the subject most likely was TOLD that the children were playing; i.e., the evidence in 68b is indirect—hearsay.

With the verb *fufit* 'see', *inna* also functions as a marker of indirect evidence:

- (69) a. *fufit is-saʕina yirkat*
 I.saw the-ship it.sank
 'I saw the ship sink.'
 Or: 'I saw that (i.e. realized) the ship had sunk.'
 b. *fufit inna is-saʕina yirkat*
 I.saw COMP the-ship it.sank
 'I realized that the ship had sunk.'

Ex. 69a has the same sort of ambiguity associated with 68a. On the other hand, 69b, with the complementizer, is not ambiguous. The evidence for the event coded in the embedded clause in 69b is perforce indirect, as can be seen from the use of the word 'realize' in the English translation, an indirect evidence verb by definition. Exx. 70a–b are the pronominalized versions of 69a–b, respectively:

- (70) a. *fufit-ha yirkat*
 I.saw-it it.sank
 'I saw it sink.' (Direct perception only)
 b. *fufit in-ha yirkat*
 I.saw COMP-it it.sank

'I realized that it sank.' (Indirect evidence only)

The examples in 71 provide more support for the hypothesis that the function of *ʔinna* with perception verbs is to mark indirect evidence. If we look at the imperfect counterpart of the embedded perfect verb *yirkat* in the four sentences in 69–70, we find that only the imperfect counterparts of 69a and 70a (i.e. the direct perception sentences) are acceptable, whereas the imperfect counterparts of 69b and 70b are infelicitous. Note that the unacceptable strings 71b and 71d are the ones that contain the complementizer.

- (71) a. *fufit is-safiina btiyrak* (Counterpart of 69a)
 I.saw the-ship it.sink
 'I saw the ship sinking.'
 (Direct perception only)
- b. **fufit ʔinna is-safiina btiyrak* (Counterpart of 69b)
 I.saw COMP the-ship it.sink
- c. *fufit-ha btiyrak* (Counterpart of 70a)
 I.saw-it it.sink
 'I saw it sinking.'
 (Direct perception only)
- d. **fufit ʔin-ha btiyrak* (Counterpart of 70b)
 I.saw COMP-it it.sink

In some sense, there is a strong interaction between tense/aspect and the visual modality in the examples in 71. The infelicity of 71b and 71d seems to be associated with the incompatibility of perceiving an event directly simultaneous with the presence of a marker that indicates indirect evidence: One can only see directly when the ship is sinking but cannot 'realize' indirectly that the ship is sinking at the same time one is seeing it sinking. Put differently, if one has direct visual access to an event, it is contradictory to introduce a device (i.e. *ʔinna*) to mark one's evidence as indirect.

In another sense, there may be no interaction between tense/aspect and modality in 71. In the context of a sinking ship where the verb 'see' is involved, it is hard to resist the interpretation of the event of the sinking ship as not having resulted from direct visual perception. But a direct perception interpretation is not available for 71b or 71d under any circumstances. However, there may be contexts where the knowledge of the event of the sinking ship may have resulted from non-visual or indirect evidence with tense/aspect playing no part. One could, for example, imagine the following scenario. A woman who is driving back home from work on road X near a seaport sees a crowd of onlookers and rescue teams and decides to make a turn and take road Y instead. The next day she hears on the radio that a ship had been sinking at the time when she saw the crowd and took the alternative route. She later relates the experience to her friend saying:

- (72) *fufit ʔinna is-safiina btiyrak, fa-ʔaxaḏ-et faariS ʔaxani*
 I.saw COMP the-ship it.sink, so-took-I road another
 'I saw that the ship was sinking, so I took another road.'

Now the string in 71b has become well-formed. At no time, however, did the speaker have direct visual perception of the sinking ship.

8.4. ʔINNA WITH DIRECT DISCOURSE. It is unusual and unexpected to find instances in any kind of writing, including the genre of informal personal letters, in PA (or for that matter other Arabic dialects) of the complementizer introducing direct discourse. This is also true in formal written Arabic (as well as in English). However, in a corpus of recorded natural conversation, several occurrences were found of the complementizer preceding direct quotes. Here are two examples:

- (73) *biikuul zinna 'maa tkuul zin-ni ana layla'*
 she.says COMP 'NEG you.say COMP-I I.am Layla'
 'She says, "Don't say that I am Layla.'"
- (74) *nashat-ni zinna 'maa tkuul la xaaltak*
 she.advised-me COMP 'NEG you.say PREP your.aunt
wa-la la hada'
 and-NEG PREP one'
 'She advised me, "Don't tell your aunt or anyone else.'"

These examples were uttered by a speaker who was narrating events that had taken place several years earlier, and so it is reasonable to expect that the speaker was not vouching for the accuracy of the quotes. If this is true, *zinna* seems in such examples to be employed as a device for the speaker to introduce the discourse as tentative/constructed, not as genuine/actual. That is to say, the quotes in 73–74 are not exactly what was said, but rather the speaker imagines the quotes to have been similar in content to the ones reported, and the speaker indicates by the use of *zinna* that he is not fully committed to the quotes, that the discourses are reconstructed approximations. A larger database must be examined before this hypothesis can be confirmed, however.

8.5. CONCLUSION. It is clear that Palestinian Arabic *zinna* plays several functional roles. First, it creates a conceptual, semantic distance between the main clause and the embedded subjunctive clause when the subjects of the two clauses are coreferential. In a sense, *zinna* blocks the control that the matrix subject has over the achievement of the event/action in the embedded clause. Second, *zinna* sometimes functions as a device to lessen the matrix subject's commitment to the proposition in the embedded clause; this includes phenomena involving the so-called direct discourse as well as phenomena involving subjunctive complements. And third, with perception verbs it functions as a marker of indirect evidence. All these functions are significant communicative functions about which the Arabic complementation literature has nothing to say so far. The evidence presented in this section at the very least suggests that the complementizer has an important semantic component, again a *communicative* function.

9. CONCLUSIONS. It is evident from the foregoing discussion that there are many issues in Arabic complementation that have not been resolved, and many more that have not been explored. Several of these were pointed out in §§6–7. In some strong sense, the Arabic complementation studies have not capitalized on the functionalist advances of the last two decades, some of which advances were reviewed in §2. It is also evident that many colloquial Arabic varieties have not been studied in terms of complementation at all.

We have seen in this paper that the reliance on formal syntactic criteria to understand complementation phenomena leads only to a deadend in that a functional explanation of complementizers and complements cannot be hoped to be elucidated there. In addition to their neglect of real language data, the approaches that rely exclusively, or nearly exclusively, on the formal syntactic properties of complements and complementizers cannot go beyond the theory-internal manipulations and descriptions of complementation phenomena, descriptions that may be real only theory-internally, and they certainly cannot explain complements and complementizers in terms of the functions that these perform in communication. We saw, for example, how the differing theory-internal analyses of Hashim 1981 and Talaat 1987 resulted in different types of complements in the same variety of Arabic. Even if there are in Egyptian Arabic as many complement types as Hashim and Talaat claim—and they claim different types and numbers—they have not provided us with a statement on the functions, or possible functions, of any of the types they describe.

In §8 we broached three issues that need to be underscored here. The first issue has been stated many times already, namely, the complementizers have a semantic function. This has been clearly shown by, among other researchers, Bolinger, Frajzyngier, Givón, Ransom, and Thompson. I have also attempted to show that this is also true in Palestinian Arabic.

The other two issues that need to be underscored—mentioned only in passing in §8—point to the importance of the data. One issue concerns the phenomena of direct and indirect discourse. The data in §8 suggest that our understanding of these phenomena may be limited by the data we use. As was pointed out before, the conventional wisdom in Arabic (and English) suggests that complementizers and direct discourse are largely mutually exclusive. I suspect that this conclusion has been based in the reliance on intuitive data and data from the written genre, rather than on spoken data. But as the Palestinian Arabic data suggests, at least mildly, the complementizer may interact with direct discourse complementation in an interesting way. The exclusion of spoken discourse impoverishes our understanding of the phenomena suggested by this interaction.

Another related point regards the importance of context, suggested by examples 71–72 in §8. The examples suggest that sometimes a proper interpretation of a sentence containing a complement clause may be hindered by the neglect of contextual factors in the surrounding discourse. The lesson that suggests itself is that for a full understanding of complementation phenomena we must include in our base data from spoken discourse and must entertain the possibility that contextual factors in the discourse have an effect on complementation phenomena.

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