

# THE SEMANTIC CONTRIBUTION OF COMPLEMENTIZERS AND COMPLEMENTATION TYPE: THE CASE OF BOLANCI *na*

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This paper argues that the Bolanci complementizer *na* has an inherent semantics capable of changing the meaning of sentences in which it is embedded. Specifically, I show that the presence of *na* in a complex sentence communicates evidential meanings distinct from those communicated by analogous sentences lacking *na*. The present analysis challenges linguistic approaches that regard complementizers as grammatical morphemes devoid of semantic content, whose main function is to signal the subordinate status of the following embedded clause. I argue that the foremost function of *na* is to code indirect evidence. The indirect evidence coded by *na* is of three types. The unifying generalization about the function of *na* with all three types of indirect evidence is that *na* introduces propositional content that is not directly witnessed and that cannot be directly validated by the speaker.\*

1. INTRODUCTION. In this paper I will investigate one component of the system of complementation in Bolanci—the complementizer *na*.<sup>1</sup> I will argue that this complementizer has an inherent semantics capable of influencing the meaning of sentences in which it is embedded. Specifically, I will show that the presence of the complementizer *na* in a complex sentence communicates evidential meanings distinct from those communicated by analogous sentences lacking the complementizer. By way of illustration, let us compare the following minimal pair. Note that in the surface syntax these sentences differ only in the presence vs. absence of the complementizer:<sup>2</sup>

- (1) a. *n innaa-wo anbara karuu kom.*  
1SG.NOM see-PERF hunter slaughter.PERF cow  
'I saw the hunter slaughter a cow.'
- b. *n innaa-wo na anbara karuu kom.*  
1SG.NOM see-PERF COMP hunter slaughter.PERF cow  
'I saw that the hunter had slaughtered a cow.'

Both sentences contain an assertion: The hunter slaughtered a cow. Ex. 1a indicates that the speaker's source of evidence for this assertion is direct visual perception, as suggested by the English translation. Ex. 1b indicates that the source of evidence is indirect. The source of evidence in 1b, as I will argue later in the paper, is after-the-fact inference: The speaker has inferred the occurrence of the slaughtering event via its accessible consequences. The sentences in 1a–b show that the complementizer *na* codes the evidential basis on which the speaker asserts the proposition 'the hunter slaughtered a cow'. These data indicate that an appropriate analysis of the complementizer *na* must make reference to the meanings that it contributes to assertions in which it is embedded.

The present analysis challenges traditional assumptions regarding the functional import of complementizers. Structuralist approaches have generally regarded complementizers as grammatical morphemes (functors) devoid of semantic content, whose main function is to signal the subordinate status of the following embedded clause and/or to signal the type of complement. This assumption is succinctly captured by Noonan, who writes (1985:44–5):

\* The bulk of the data presented in this paper comes from a corpus of several hundred simple and complex sentences collected by the author from about two dozen interviews conducted in 1991–92 with a native speaker of Bolanci. The main focus of the investigation surrounded a variety of issues in syntax and semantics. Work on this paper was supported by a fellowship from the President's Fund for the Humanities provided to Professor Zygmunt Frajzyngier, and by a Dean's Small Grant to the author from the Graduate School.

To my knowledge, the following is an exhaustive review of studies available on Bolanci. The most recent published work on Bolanci is Awad 1993a. To my knowledge, it is the only published work on Bolanci syntax. Johannes Lukas' publications (1969, 1970–72, 1971), all in German, concentrate mainly on the phonology and the verbal system. Benton 1912 has a short grammatical sketch, and Meek 1931 is a wordlist. Among the known unpublished manuscripts, Schuh's 'The Bolanci verbal system' (1983a) and 'Bolanci genitives' (1983b) are the most recent. 'The Bolanci verbal system' is quite extensive in its coverage. Abraham (n.d.) has some field notes in the Kaduna archives at Bayero University College (Nigeria), including grammatical notes and a wordlist (Schuh, p.c.). Finally, there is a B.A. thesis which is a contrastive analysis of Bolanci and English but which doesn't have a lot of information on Bolanci per se (Schuh, p.c.).

I wish to thank my native consultant, Sam Bulus, for providing me with information about his language. I am deeply indebted to Zygmunt Frajzyngier, whose insights, encouragement, and support made this paper happen. I am also grateful to Barbara Fox, Géraldine Legendre, and Laura Michaelis for valuable comments on a previous version. I acknowledge with gratitude the helpful comments and information that Russell Schuh provided in miscellaneous communication. Any errors in data or analysis are mine alone.

<sup>1</sup> Bolanci is a West Chadic language spoken in Borno State, in the southwestern part of northeastern Nigeria. Other names for this language are Bole and Bolewa.

<sup>2</sup> Bolanci is a tone language. To the best of my knowledge, the fact that I have not transcribed tone here does not affect the analysis or conclusions of this study.

'Complement types often have associated with them a word, particle, clitic, or affix whose function it is to identify the entity as a complement. Such forms are known as COMPLEMENTIZERS.' It is clear from 1a-b that the complementizer *na* signals more than simply the subordinate status of the complement clause. Note further that the complements in 1a-b, as I will explain later in the paper, have different structures, i.e., they are different complement types. In 1a, the NP *unbara* is a constituent of the matrix clause—the direct object of the verb 'see'. In 1b, *unbara* is a constituent of the embedded clause—its subject. If it were true that the function of complementizers is simply 'to identify the entity as a complement' or to identify the type of complement, why is it that we do not have a complementizer to code this function in 1a? And if we do not need a complementizer to signal the type of complement in 1a, why do we need one in 1b?

Exx. 1a-b raise another theoretical and empirical issue. A substantial number of studies on complementation have claimed that the type of complement clause or the choice of a complementizer is largely predictable from and triggered by the matrix verb. Thus Noonan writes: 'Complementation is basically a matter of matching a particular complement type to a particular complement-taking predicate. The basis of this matching is the semantic relation between predicate and complement that is inherent in the meaning of the CTP' (1985:90-91). Dirven 1989, who defines the term 'complementizer' as the syntactic form of the verb in the complement clause, echoes Noonan's view: 'From the point of view of language learning, complementation then means coming to grips with eight different complementisers in English ... The use of the correct complementisers is mainly a question of matching the semantics of each complementiser with the semantics of the governing verb (or adjective or noun) in the main clause and with the type of verb or other elements in the complement' (p. 113). Formal syntactic approaches that have attended to semantic aspects of complementation have also generally ascribed the choice of the complementizer to the main-clause verb. One of the early examples of this mode of analysis can be found in Rosenbaum 1967.

Thus, in both syntactic and semantic analyses, complement and complementizer choice is dictated by the requirements of the main verb. An early counterproposal is found in Bolinger 1968, who states that complementizers have semantics of their own: 'the complementizers are chosen for their own sake, not as a mechanical result of choosing something else.' Example 1 above illustrates Bolinger's point. In both sentences, the main-clause verb *innaa* 'see' is the same, yet the complements are different. In one we have a complementizer, and in the other we do not. Furthermore, the embedded complements in these two sentences have different syntactic structures. This point will be clarified later in the paper.

To varying extents, Bolinger 1972, Bresnan 1979, Kirsner & Thompson 1976, Givón 1980, Ransom 1986, Frajzyngier & Jaspersen 1991, and Frajzyngier 1995 are elaborations on Bolinger's proposal. The aim of the present study is to explore the semantics of the complementizer *na* in the spirit of these latter studies. The goal of this paper is to show that the complementizer *na* is an autonomous grammatical functor whose semantics may either REFLECT that of the main verb or MODULATE the sentence meaning. That grammatical elements effect meaning shifts is not a controversial claim. Among other studies mentioned below, Talmy 1988 is primarily concerned with providing evidence for precisely this claim.

The meanings that *na* contributes largely fall under the rubric of epistemic modality, which Lyons defines as follows (1977:797): 'Any utterance in which the speaker explicitly qualifies his commitment to the truth of the proposition expressed by the sentence he utters, whether this qualification is made explicit in the verbal component ... or in prosodic or paralinguistic component, is an epistemically modal, or modalized, utterance'. Palmer's 1986 construal of epistemic modality overlaps with Lyons': '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' (p. 51). Palmer's definition makes clear that evidential functions such as the ones indicated in 1a-b are part of the system of epistemic modality. In this paper, I will employ both definitions of epistemic modality; however, Palmer's will prove more relevant because it makes explicit reference to the evidential notions of quotative and hearsay, notions which are discussed later in the paper.

A careful examination of the interaction of *na* with various verb classes shows that *na* both mirrors and influences its semantic context. In the remainder of this paper I will examine the interaction of *na* with various verb classes. In §2, I introduce what Givón 1980 refers to as cognitive-utterance verbs. These verbs by their very nature introduce complements representing opaque contexts: propositions which are depicted as beliefs of some referent (Fauconnier 1985). With these verbs, the presence of *na* is optional and does not carry a modal function. In §§3-5, I will show that the function of *na* is extended from that of introducing opaque contexts to that of coding evidential distinctions. The strongest evidence for the evidentiary function of *na* comes from the data on sensory verbs; thus §3, which examines the interaction of *na* with sensory verbs, constitutes the bulk of this paper. Here *na* codes the source of evidence. The facts presented in §3 about the complementizer's being associated with indirect evidence and its absence being associated with direct evidence after verbs of perception is by no means unique to Bolanci. In a typological study of the interaction of complementizers with perception verbs, Taylor 1991 showed that this same dichotomy exists in at least a dozen other Chadic languages. The English equivalent of *na*, i.e. 'that', has well been

established to perform a similar function. In §4, I examine the interaction of *na* with complements representing direct and indirect speech. Here, the absence of *na* indicates directly witnessed speech, and the presence of *na* indicates a reconstructed utterance (reported speech). In §5, I look at the interaction of *na* with the verb 'to know'. Here, *na* codes the source and possibly strength of evidence. In §6, I present the conclusions. The unifying generalization about the various functions of *na* is that it indicates that the propositional content it introduces cannot be directly validated by the speaker.

2. THE COMPLEMENTIZER *na* WITH COGNITIVE-UTTERANCE VERBS. As can be seen in the following declarative sentences, Bolanci has SVO word order. Embedded clauses (sentential complements) are introduced by the complementizer *na*. These finite embedded clauses are the direct objects of the matrix clause verbs *poro* and *kono*.

- (2) *ita poro (na) yusup anbara.*  
3F.SG said (COMP) Yusup hunter  
'She said that Yusup is a hunter.'
- (3) *isin kono (na) ayša karuu kom.*  
3M.SG think (COMP) Aysha slaughter.PERF cow  
'He thinks that Aysha slaughtered a cow.'

After some verbs, notably verbs of saying (e.g. 'say', 'tell') and verbs of cognition (e.g. 'think', 'believe'; see §5 for a discussion of 'know'), the presence of the complementizer *na* is optional. This optionality is indicated in parentheses in the above examples. There is no discernible difference in meaning between the *na*-ful and *na*-less sentences in 2–3. These sentences do not contain any modal verbs, modal adjectives, or modal adverbs and thus cannot be discussed in terms of modality. The speaker who utters these sentences does not qualify her/his commitment to the truth of the propositions expressed in the embedded clauses. The speaker who utters these sentences divests her-/himself of responsibility for the factuality of these propositions, and thus these sentences fall outside our definition of epistemic modality in §1. To use Lyons' terminology, these clauses are 'epistemically non-modal'. The speaker, however, is committed to the factuality of the main-clause propositions 'she said X' and 'he thinks Y', where X and Y stand for the embedded propositions. These two assertions are straightforward statements of fact. A speaker who utters these commits her-/himself to the truth of these assertions by virtue of uttering them (cf. Frajzyngier 1987).

Because higher predicates such as 'say' and 'believe' are 'ABOUT the truth of the [complement] proposition, regardless of whether that truth value is certain or uncertain', Ransom 1986 analyzes them as Truth Modality predicates. She illustrates her point by examples from English in which the expression 'be true' may redundantly be inserted. Thus, for Ransom the following two sentences do not differ in meaning. The expression 'be true' does not affect the truth modality of the complement proposition.

- (4) I believe that Dawn is a female.  
(5) I believe that it is true that Dawn is a female.

In a similar fashion, the complementizer *na* is redundant in exx. 2–3. The optionality of *na* in the following examples provides additional evidence that, after a cognitive-utterance verb, the presence or absence of *na* does not affect the modality of the sentence; i.e., *na* does not carry a modal function.

- (6) *ita poro (na) isin karuu kom.*  
3F.SG said (COMP) 3M.SG slaughtered cow  
'She said that he slaughtered a cow.'
- (7) *ita tubbutu (na) isin anbara.*  
3F.SG believe (COMP) 3M.SG hunter  
'She believes that he is a hunter.'
- (8) *isin kono (na) ita ndii gaa gomaan nzono.*  
3M.SG think (COMP) 3F.SG went PREP market yesterday  
'He thinks that she went to the market yesterday.'

The complementizer *na* in these sentences introduces embedded opaque contexts, just as the complementizer 'that' often does in English (cf. Frajzyngier & Jaspersen 1991). These contexts make it possible to get *de dicto* (linguistic) readings for the embedded clauses as opposed to *de re* (reality) readings. (I will say more about these two notions in §3.) We can illustrate this point about opaque contexts by invoking the logical operations of sentential exportation (SE) and existential generalization (EG) to see the kind of inferences that can be drawn from 2–3. The asterisk in the following examples indicates invalid inferences:

- (9) She said that Yusup is a hunter;  
a. therefore, she said that Yusup is a hunter (SE)  
b. therefore, there exists someone (she) such that she said that Yusup is a hunter (EG)  
c. \*therefore, Yusup is a hunter. (SE)

- (10) He thinks that Aysha slaughtered a cow;  
 a. therefore, he thinks that Aysha slaughtered a cow (SE)  
 b. therefore, there exists someone (he) such that he thinks that Aysha slaughtered a cow (EG)  
 c. \*therefore, Aysha slaughtered a cow (SE)  
 d. \*therefore, there exists someone (Aysha) such that he thinks that she slaughtered a cow. (EG)

The application of either SE or EG fails to produce valid inferences (c–d) when these operate on the embedded clause; but when they operate on the main clause, they do produce valid inferences (a–b). With the invalid inference in 10d, EG fails because it infers from the domain *de dicto* about elements (which may not exist) in the domain *de re*. In the invalid inferences in the (c) versions, SE fails because the reality of the embedded propositions cannot be ascertained; i.e., the propositional content cannot be validated. The observations about the invalidity of the inferences in (c–d) involving the embedded clauses are intended to illustrate the statement made earlier that the speaker who utters 2 or 3 divests her-/himself of responsibility for the factuality of the embedded propositions.

In its capacity to introduce opaque contexts, *na* is redundant with cognitive-utterance verbs; this is evinced by the optionality of *na* in all the examples in this section. Here, modal distinctions are not possible because the factuality status of the embedded clauses is not at issue. With this class of verbs, *na* does not make any semantic contribution to sentences; it does not signal evidential or any other modal functions. Here *na* simply mirrors or reflects the semantics of the complement-taking predicate. This fact about *na*'s not carrying a modal function after cognitive-utterance verbs is not unique to Bolanci. There is a vast amount of literature on the optionality of the equivalent English complementizer *that* with these verbs (but cf. Bolinger 1972, Wierzbicka 1988, Langacker 1991).

Frajzyngier 1991 shows that when the (perhaps related) complementizer *nə* in Mupun (Chadic) occurs after cognitive-utterance verbs, the complementizer *nə* carries no modal function, but that when *nə* follows verbs of perception, it indicates indirect evidence. In the next section, I will argue that this situation also obtains for the Bolanci complementizer *na*.

**3. THE COMPLEMENTIZER *na* WITH PERCEPTION VERBS.** Following Frajzyngier 1991, I hypothesize that the function of the complementizer *na* in Bolanci is to mark the embedded clause it introduces as belonging to the domain of speech (domain *de dicto*) as opposed to the domain of reality (domain *de re*). This is true analytically; i.e., it is true by virtue of the fact that this complementizer follows verbs of saying. The complementizer does not carry any information about the epistemic value of the embedded clause when occurring after a verb of saying. However, the complementizer is associated with complements of verbs of saying, which have an inherent epistemic value, such that information obtained through speech (hearsay) is generally less reliable than information obtained through direct perception (see, hear). The complementizer *na* acquires the same epistemic value when used with verbs of perception as the verb that triggers the complementizer's presence, i.e. the verb 'to say'. The complementizer *na* is now available to serve the function of indicating less than direct evidence when used with other verbs, including verbs of perception. The complementizer *na*, which is associated with verbs of saying, is used to indicate inference because of the strong sense that information obtained through speech is less reliable than information obtained through direct perception. When *na* occurs after a verb of perception, it functions as a marker of indirect evidence. Witness the following examples:

- (11) *n konnu-wo na isin karuu kom.*  
 1SG hear-PERF COMP 3M.SG slaughtered cow  
 'I heard that he had slaughtered a cow.'
- (12) *n konnu-nii-wo kuruu kom.*  
 1SG hear-3M.SG.ACC-PERF slaughtered cow  
 'I heard him slaughter a cow.'
- (13) *n innu-wo na isin karuu kom.*  
 1SG see-PERF COMP 3M.SG slaughtered cow  
 'I saw that he had slaughtered a cow.'
- (14) *n innu-nii-wo kuruu kom.*  
 1SG see-3M.SG.ACC-PERF slaughtered cow  
 'I saw him slaughter a cow.'

In 11, the subject did not actually hear the event or action of slaughtering; her/his evidence is indirect—hearsay. She/he was TOLD about the slaughtering event. In 12, however, the subject witnessed the event firsthand. The evidence for these claims is that it is possible for 15 to felicitously precede or follow 12, but it is not possible for 15 to precede or follow 11.

- (15) *lookuši ina n erno ga bai boo bin*  
 time REL 1SG stand PREP back mouth room  
 'when I was standing behind the door'

When the clause in 15 immediately precedes 12, it creates a context compatible with a direct perception interpretation for 12. In contrast, it is difficult to establish a causal connection between the propositions in 11 and 15; that is to say, it is not clear what causal relation there exists between one's standing behind the door and one's hearing ABOUT the slaughtering event. This difficulty in establishing a causal relation between 11 and 15 is in fact supported by the interpretation the native speaker gave to these strings. The native consultant dismissed as semantically dubious the sentence in 11 when preceded or followed by 15. In this situation, the translation he rendered for this string was: 'When I was standing behind the door, I heard him that he slaughtered a cow', and when prompted to repeat the translation, he rendered 'When I was standing behind the door, I heard him SAY that he slaughtered a cow.' While these renditions are a little odd, they reinforce the claim that the subject in 11 does not actually hear the event/action of slaughtering, but rather hears ABOUT it.

Similarly, 11 can be felicitously followed by the string in 16, while 12 cannot; hence the infelicity of 17:

- (16) *inko aysha por-naa-wo*  
because Aysha tell-1SG.ACC-PERF  
'because Aysha told me (so)'
- (17) \**n konnaa-nii-wo karuu kom*  
I hear-3M.SG.ACC-PERF slaughtered cow  
*inko aysha por-naa-wo*  
because Aysha tell-1SG.ACC-PERF  
for: 'I saw him slaughter a cow because Aysha told me (so)'

The reason for the infelicity of 17 is that there appears to be a contradiction between the propositions in the two clauses. The word *inko* 'because' establishes a causal relation between the two clauses, such that the *inko* clause provides a reason for the subject's knowledge of the slaughtering event in the preceding clause. However, this reason is specified as hearsay, and this contradicts the firsthand, direct perception claim to knowledge in the first clause.

What should at least be clear from the preceding examples is that the main-clause perception verb 'to hear' followed by the complementizer *na* indicates hearsay evidence. I will therefore call this complementizer a *de dicto* complementizer because of the function it performs in transferring the evidence in the embedded clause from the domain of reality to the domain of speech, from direct evidence to indirect evidence (in this case hearsay; but see below for other types of indirect evidence.). It will be shown below that the mere absence of *na* after a main-clause perception verb does not necessarily indicate direct evidence, but that when *na* is present it always indicates indirect evidence. Thus to falsify the hypothesis that *na* is a *de dicto* complementizer, one should not look for data where *na* is absent but rather where *na* is present. The simplest way to falsify the claim is to find data where *na* follows a main-clause perception verb to indicate direct evidence. Thus the hypothesis would evidently be falsified if one encountered in Bolanci sentences such as the ones in 11 and 13 (reproduced as 18–19) but with a direct perception interpretation:

- (18) *n konnaa-wo na isin kuruu kom*  
I hear-PERF COMP 3M.SG slaughtered cow  
for: 'I heard him slaughter a cow.'
- (19) *n innaa-wo na isin kuruu kom*  
I see-PERF COMP 3M.SG slaughtered cow  
for: 'I saw him slaughter a cow.'

When one compares the *na*-ful, indirect evidence sentences in 20–21 with the *na*-less, direct perception sentence in 22, it becomes more transparent what kind of function the complementizer *na* encodes. Note the spontaneous use of 'realized' in the translation of 20, an inference verb by definition. Ex. 20 is very similar to 13. Exx. 13 and 20 were elicited in two different sessions separated by several days.

- (20) *n innau-wo na isin kuruu kom.*  
I see-PERF COMP 3M.SG slaughtered cow  
'I realized that he had slaughtered a cow.'
- (21) *n innaa-wo na anbara kuruu kom.*  
I saw COMP hunter slaughtered cow  
'I saw that the hunter had slaughtered a cow.'
- (22) *n innaa-wo anbara kuruu kom.*  
I saw hunter slaughtered cow  
'I saw the hunter slaughter a cow.'

Exx. 20–21 require some elaboration; however, since the same points can be made for both of them, I will focus on 20. Ex. 20 is relevant for two reasons. The first is that *na* occurring after the sensory verb 'to see' indicates indirect evidence (which statement is also true of 21). However, the nature of this indirect evidence is different from the indirect evidence that is indicated by *na* when it follows the sensory verb 'to hear'. The complementizer *na*

coming after the verb 'to hear' indicates hearsay or reported evidence, which is one kind of indirect evidence. This interpretation is not available for the verb 'to see' because of the inherent meaning of this verb. To state the obvious, hearsay or reported evidence, which is obtained through the auditory mode, cannot be reconciled with evidence obtained through the visual mode; these are two independent modes of evidence. Thus it would presumably be as odd in Bolanci as it is in English to say something like, 'I saw that he slaughtered a cow because I was told so.' So, then, what is the nature of evidence available to the speaker who utters 20? I would like to suggest that the source of this evidence is what is called abductive (after-the-fact) inference. Abductive inference is reached by reasoning from results to causes. Abductive inference is one type of indirect evidence, a type which is less direct than evidence involving direct perceptual witnessing of an event (Slobin & Aksu 1982). Sentence 20 can be appropriately said when, for example, the speaker had just seen physical evidence consistent with a cow-slaughtering event but had not witnessed the event firsthand. It is thus appropriate to follow 20 immediately by the clause in 23, which denotes a resultant situation that is consistent with a cow-slaughtering event, i.e. the presence of blood on the floor. The clause in 23 provides the right kind of evidence to the speaker of 20, i.e. evidence consistent with an after-the-fact inference:

- (23) *inko ga dom kirkir ga ko olli gaa bin*  
 because PREP blood all PREP top ground PREP room  
 'because there was blood all over the floor'
- (24) *n innua-wo na isin karuu kom,*  
 I see-PERF COMP 3M.SG slaughtered cow  
*inko ga dom kirkir ga ko olli gaa bin.*  
 because PREP blood all PREP top ground PREP room  
 'I realized that he had slaughtered a cow because there was blood all over the floor.'

If the speaker witnessed the slaughtering event firsthand, i.e., if the speaker had direct evidence for the event, the speaker cannot use 20 because the evidence in it is arrived at by inference. Instead, in this situation the speaker must use a direct perception, *na*-less sentence like 25 (which is a repeat of 14):

- (25) *n innua-nii-wo karuu kom.*  
 I see-3M.SG.ACC-PERF slaughtered cow  
 'I saw him slaughter a cow.'

As one would expect, 25 cannot be followed by 23, because 23 imposes on the resultant string an indirect evidence interpretation that contradicts 25. Hence the infelicity of 26:

- (26) \**n i nnua-nii-wo karuu kom,*  
 I see-3M.SG.ACC-PERF slaughtered cow  
*inko ga dom kirkir ga ko olli gaa bin.*  
 because PREP blood all PREP top ground PREP room  
 for: 'I saw him slaughter a cow because there was blood all over the floor'

Also as one would expect, the direct perception sentence 25 can be felicitously followed by a clause that is consistent with a direct evidence interpretation. Thus it is appropriate to follow 25 by either 27 or 28:

- (27) *inko n innua-mi-wo ii-wo ii*  
 because I see-3M.SG-PERF do-PERF it  
 'because I saw him do it'
- (28) *inko n ga isin*  
 because I PREP 3M.SG  
 'because I was with him'

Figure 1 will help to conceptualize the kinds of evidence we have looked at up to this point.

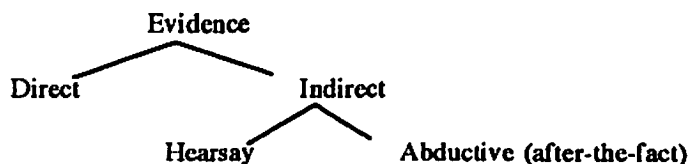


FIGURE 1.

The distinction between direct perception and after-the-fact inference involving the sensory verb *see* can also be observed in English. Take for instance the following two sentences, discussed in Kirsner & Thompson 1976:206:

- (29) Len saw that Margie played croquet.  
 (30) Len saw Margie play croquet.

Ex. 29, with the *that* clause after the verb *see*, can be easily said in a context where Len saw nothing but croquet balls and mallets, whereas 30 can be said only if Len saw Margie with his own eyes while she was playing a game of croquet. Kirsner & Thompson provide the following examples to show the semantic contrast between 'sensory verb complements', which communicate physical perception, and *that* clauses, which involve interpretation or indirect deduction:

- (31) Peering at the mallets, balls, and wickets strewn about the garden, Holmes could see that the Duchess played croquet.  
 (32) ?Peering at the mallets, balls, and wickets strewn about the garden, Holmes could see the Duchess play croquet.

Ex. 20, where the expected 'saw' gets the reading 'realized', is relevant for another reason. The important point here is not simply that 'saw' becomes 'realized', for this may just be an artifact of the translation—after all, the identical sentence in 13 maintains the word 'saw'; seeing is also involved in 20, but it is just sighting of results not of the causal event. Ex. 20 is important from a theoretical point of view because it illustrates the claim that grammatical morphemes (in this case *na*) often have the ability to influence or alter the inherent meanings of lexical items with which they co-occur (i.e. *innna*). Talmy 1988 describes this phenomenon in terms of a 'conversion' or 'shift' operation that a grammatical form performs on a neighboring lexical item's referent to bring it into accord with the meaning of a construction. My claim here is that the referent of the lexical item *innna* in 20 is 'converted' by *na* from the cognitive domain of visual perception to that of reasoning, notwithstanding visual perception plays a role in this reasoning. This conversion takes place in order to bring the referent of *innna* into accord with the indirect evidence meaning of the construction as a whole. Frajzyngier 1985 shows, in the context of a discussion of stative and non-stative verbs, that if a grammatical morpheme is productive in a language (such as the English progressive), that morpheme can be used to change the inherent semantic features of lexical items in a construction (e.g. changing a stative verb to non-stative). In specific reference to complementizers and complementation type, Givón 1980 shows how in several languages, including English, a complementizer or a complement type has the ability to alter the meanings of main-clause predicates, thus contributing to the polysemy of these predicates. A simple example involving complementation type in English is the two different meanings for the lexical item 'agree' in the following two sentences:

- (33) He agreed that it would be a good idea.  
 (34) He agreed to go.

Here the claim is that the form the complement clause takes determines the meaning of 'agree'. Similarly, for Bolanci ex. 20, the claim is that it is the presence of the complementizer *na* that gives the sentence its indirect observation modality.

As was hinted earlier, while it is true that when *na* occurs after a perception verb it indicates that the evidence for the information expressed in the embedded clause is indirect, as in 11, its absence per se does not necessarily signal direct evidence. Witness the following example, which except for the absence of the complementizer is identical to 11. Exx. 11 and 35 have the same meaning. In 35, the evidence for the event of slaughtering is also unwitnessed—hearsay. Compare these examples with 36, where the evidence is direct perception:

- (35) *n konnaa-wo isin karuu kom.*  
 I hear-PERF 3M.SG slaughtered cow  
 'I heard that he had slaughtered a cow.'  
 (36) *n konnaa-nii-wo karuu kom.*  
 I hear-3M.SG.ACC-PERF slaughtered cow  
 'I heard him slaughter a cow.'

It is true that, in the direct perception sentence of 36, the complementizer is absent; but it is not the absence per se of the complementizer that gives this sentence its direct perception interpretation. The absence of the complementizer in 36 seems to be a by-product of what in classical TG terminology is known as subject-to-object raising: The subject of the embedded clause in 36 is raised to object position in the main clause. Notice that the syntactic structures in 36, on the one hand, and in 11, 20, and 35, on the other, are different. In 36, the embedded clause has no overt subject, and in the main clause the direct object is *-nii* (3M.SG.ACC), suffixed onto the matrix verb. In contrast, in 11, 20, and 35, there is no NP direct object (the direct object is the whole of the embedded complement clause), and the embedded clauses all have overt subjects (*isin*). That 36 has a raised object is evidenced by the fact that a sentence cannot have both a direct object in the main clause and a subject in the embedded clause, hence the unacceptability of the following strings:

- (37) \**n konnaa-nii-wo (na) isin karuu kom*  
 for: 'I heard him slaughter a cow'  
 or 'I heard that he slaughtered a cow.'

- (38) \**n innaa-nii-wo (na) isin karuu kom*  
for: 'I saw him slaughter a cow'  
or 'I saw that he slaughtered a cow.'
- (39) \**n innaa-wo yusup isin karuu kom*  
for: 'I saw Yusup slaughter a cow'  
or 'I saw that Yusup slaughtered a cow.'
- (40) \**n innuu-nii-wo yusup karuu kom*  
for: 'I saw Yusup slaughter a cow'  
or 'I saw that Yusup slaughtered a cow.'
- (41) \**n innaa-nii-wo isin karuu kom*  
for: 'I saw him slaughter a cow'  
or 'I saw that he slaughtered a cow.'

It is noteworthy that, on a different occasion, the consultant accepted the string in 37 only if interpreted as 'I heard from him that he slaughtered a cow' or 'I heard him SAY that he slaughtered a cow'. I think that it is not an accident that 11 and 37 were interpreted as having the verb 'say' when in fact these sentences do not contain this verb overtly. This observation further reinforces the claim that the primary function of the complementizer *na* in Bolanci is to mark the embedded clause as belonging to the domain of speech (de dicto). These facts provide additional support for Frajzyngier 1991, who reports a similar phenomenon involving Mupun.

The verb 'to see' behaves similarly to the verb 'to hear'. Direct evidence involving the verb 'to see' is also indicated by a structure involving an accusative NP:

- (42) *n innuu-nii-wo karuu kom.*  
I see-3M.SG.ACC-PERF slaughtered cow  
'I saw him slaughter a cow.'
- (43) *n innuu-wo unbaru karuu kom.*  
I see-PERF hunter slaughtered cow  
'I saw the hunter slaughter a cow.'

The evidence that the subject of the matrix verb in 42–43 actually saw the cow being slaughtered is the fact that both sentences can felicitously be followed by the string in 44:

- (44) *inko n ga isin*  
because I PREP 3M.SG  
'because I was with him'

Ex. 43 (which is identical to 1a and 21) is the only instance we have so far of an accusative nominal NP. We can use the test of complementizer insertion to see whether the NP *unbaru* is in fact a constituent of the main clause. The complementizer *na* can only be inserted before *unbaru* in 43, never after it. We conclude that an accusative NP in the main clause cannot coincide with the presence of *na*; i.e., *na* is incompatible with the complement type containing an accusative NP which is also the agent of the embedded clause:

- (45) \**n innaa-wo unbaru na karuu kom*  
for: 'I saw the hunter slaughter a cow'  
or 'I saw that the hunter slaughtered a cow.'
- (46) \**ita konnaa-nii-wo na kuruu kom*  
for: 'She heard him slaughter a cow'  
or 'She heard that he slaughtered a cow.'
- (47) \**ita innuu-nii-wo na kuruu kom*  
for: 'She saw him slaughter a cow'  
or 'She saw that he slaughtered a cow.'

However, if *unbaru* is analyzed as a constituent of the embedded clause (its subject), we would expect that the complementizer may grammatically precede it. This is in fact the case, as can be seen in 48, but with an important difference in meaning from 43:

- (48) *n innuu-wo na unbaru kuruu kom.*  
I see-PERF COMP hunter slaughtered cow  
'I saw that the hunter had slaughtered a cow.'

When contrasted with 43, ex. 48 clearly shows the function of the complementizer: In 49, *na* is the sole marker of indirect evidence.

One may conclude from the preceding discussion that for verbs of perception, direct evidence is indicated by a structure containing an accusative NP in the matrix clause with the concomitant absence of the complementizer, while indirect evidence is indicated by the presence of the complementizer. Thus, where evidential distinctions are



possible, the presence of *na* is meaningful per se. This contrasts with the opacity-introducing function of *na* with cognitive-utterance verbs, where evidential distinctions could not be made. There, *na* is redundant.

4. DIRECT VS. INDIRECT SPEECH. Corroborating evidence that the primary function of the complementizer *na* is to mark evidence as indirect is provided by data from direct (quoted) speech and indirect (paraphrased/reported) speech. In this domain, the function of this complementizer has evidently been extended to marking the speaker's confidence about the validity of the statements she/he is making. Specifically, if a correlation can be found between the presence versus absence of the complementizer and direct versus indirect speech, one would predict (consonant with the hypothesis that the function of this complementizer is to mark evidence in the subordinate clause as indirect) that when the language structure makes a distinction between direct and indirect speech, the absence of the complementizer would be associated with the former, whereas the presence of the complementizer would be associated with the latter. To a great extent, this prediction is borne out by the data. In the following examples, after a verb of saying in the main clause, quoted speech is not introduced by the complementizer *na*, whereas indirect/paraphrased speech is.

- (49) a. *n por-su nde-zi.*  
I told-3PL take.away-body  
'I told them, "Go."  
b. *n por-su na nde-zi.*  
I told-3PL COMP take.away-body  
'I told them to go.'
- (50) a. *ita por-ni gojji-to kure sa.*  
she told-3M.SG buy-3F.SG clothes NEG  
'She told him, "Don't buy her any clothes."  
b. *ita por-ni na gojji-to kure sa.*  
she told-3M.SG COMP buy-3F.SG clothes NEG  
'She told him not to buy her<sub>i/j</sub> any clothes.'

In 49b and 50b, the complementizer *na* is the sole marker of indirect speech. Its absence in 49a and 50a marks the speech as direct. A speaker who uses 50a, for example, is in effect conveying a high degree of confidence in the validity of the quote. She/he is indicating her/his belief that these are the words uttered. (Whether the quote is in fact objectively accurate is a different matter. The important point is that the speaker is conveying the BELIEF that it is accurate.) A speaker who uses 50b, on the other hand, is indicating that she/he is only paraphrasing what was said.

The use of *na* with direct and indirect speech unifies with the account presented in the previous section about its use with perception verbs: Directly witnessed events cannot be presented by *na*, whereas indirectly witnessed or reconstructed events are presented as such by the use of *na*.

Having said that, I should point out that there are two examples in the data where a direct quote after the verb *poro* 'to say' is preceded by the complementizer *na*. One such example is:

- (51) *ita por-ni na gojji-no kure sa.*  
she told-3M.SG COMP buy-1SG clothes NEG  
'She told him, "Don't buy me any clothes."

While this example may appear to contradict the arguments made about 49–50 above, it does not necessarily negate or falsify them. It may simply be the case that *na* preceding the direct quote in 51 is used as a device for the speaker to introduce the quote in effect as tentative, imagined, or constructed—not as a genuine/actual quote. That is to say, the quote in 51 may not be conveying the speaker's belief that this is exactly what was uttered, but rather the speaker imagines the quote to have been similar in content to the one reported, and the speaker indicates to the hearer by the use of *na* that she/he is less than fully committed to the quote. (Awad 1993b discusses a parallel phenomenon involving Palestinian Arabic.) It is not possible, however, to verify this hypothesis from the data available. One would presumably need larger pieces of connected discourse (e.g. narrative, story-telling, etc.) to verify such a hypothesis.

The reader will have by now discerned an apparent inconsistency. It will be recalled from §2 that *na* after the verb *poro* 'say' is optional, entailing no meaning difference. However, the present section shows that the absence versus presence of *na* after the verb *poro* signals direct vs. indirect speech, a significant semantic-pragmatic distinction. This apparent contradiction will be resolved if we view the optionality of *na* as applying in the context of those embedded clauses which are instances of indirect/reported speech. This means that the mere absence of *na* after the verb *poro* does not entail that the following embedded clause will be a direct quote. However, if the speaker chooses to use a direct quote, then she/he must not use *na* to introduce that quote (ex. 51 being an exception).

5. THE VERB 'TO KNOW'. The relevance of the verb 'to know' (*mono*) for our investigation is the observation that has been made in some other languages that there exists a correlation between this verb and complementizers.

The nature of this correlation is the following, again in keeping with the hypothesis that the function of the complementizer is to mark evidence in the subordinate clause as indirect: The absence of the complementizer is associated with knowledge that results from direct experience, and the presence of the complementizer is associated with knowledge attained through indirect experience. For example, Frajzyngier 1995 finds two divergent interpretations for the verb *sèn* 'to know' in Lele (Chadic) depending on what complementizer(s) follow this verb. Frajzyngier first examines the interaction of two complementizers with perception verbs and determines that the complementizer *gó* is the direct perception complementizer and the complementizer *ná* is the indirect evidence complementizer. He then finds that when the complementizer *gó* follows the main clause verb *sèn* 'to know', it indicates that the source of knowledge is the speaker's personal experience. On the other hand, a sequence of the two complementizers *gó + ná* occurring after *sèn* indicates that the source of knowledge is hearsay. It will be recalled from §3 that in Bolanci, unlike Lele, direct perception is indicated by the absence of the complementizer after a verb of perception. Like Lele *ná*, Bolanci *na* is the indirect evidence complementizer. While my data on the Bolanci verb *mono* 'to know' occurring with the complementizer *na* do not provide conclusive evidence about the source of knowledge, the data do appear to suggest the dichotomy said to exist in Lele in connection with the verb 'to know'.

A frequency count of dozens of complex sentences involving the verb *mono* 'to know' suggests that, all other factors remaining constant, when sentences have a direct/personal experience interpretation, it is more likely (by a ratio of at least 2:1) for the complementizer to be absent than to be present. On the other hand, when the source of knowledge is hearsay, it is more likely for the verb *mono* to be followed by *na*. That is to say, it is more likely to find *na*-less sentences like 52–54 than to find their *na*-ful counterparts, and it is also more likely to find *na*-ful sentences like 55–56 than it is to find their *na*-less counterparts. The source of knowledge in 52–54 is the speaker's personal experience. In 55–56, the source of knowledge is hearsay. (Note here that abductive inference (which was argued to be a type of indirect evidence with perception verbs) in 53 counts as direct evidence because the source of knowledge is direct/personal experience.)

- (52) *n mono isin kuruu kom, inko n innau-wo ii.*  
 I know he slaughtered cow, because I see-PERF it  
 'I know that he slaughtered a cow because I saw it (i.e. the action of slaughtering).'
- (53) *n mono yusup kuruu barke,*  
 I know Yusup slaughtered goat,  
*inko ga dom kirkir ga ko olli gan bin.*  
 because PREP blood all PREP top ground PREP room  
 'I know that Yusup slaughtered a goat because there was blood all over the floor.'
- (54) *n mono yusup kuruu barke,*  
 I know Yusup slaughtered goat,  
*inko n innau-ni-wo ii-wo ii.*  
 because I see-3M.SG-PERF do-PERF it  
 'I know Yusup slaughtered a goat because I saw him do it.'
- (55) *n mono na isin kuruu kom,*  
 I know COMP he slaughtered cow,  
*inko isin por-naa-wo.*  
 because he tell-1SG-PERF  
 'I know that he slaughtered a cow because he told me so.'
- (56) *n mono na yusup kuruu barke,*  
 I know COMP Yusup slaughtered goat,  
*inko nyša por-naa-wo.*  
 because Aysha tell-1SG-PERF  
 'I know Yusup slaughtered a goat because Aysha told me so.'

The purpose of the adverbial clauses introduced by *inko* 'because' in 52–56 is to specify the source of knowledge. When the source of knowledge is the speaker's personal experience (direct evidence), as in 52–54, we notice the absence of the complementizer. In 55–56, however, the presence of the complementizer coincides with hearsay evidence. We can safely state this generalization only if we couch it in terms of a tendency. Furthermore, when the source of knowledge is not specified, the unmarked case for a complex sentence with *mono* 'to know' entails complementizer presence:

- (57) *ita mono na isin kuruu kom*  
 she know COMP he slaughtered cow  
 'She knows that he slaughtered a cow.'

The conjunction of the frequency facts that the complementizer is likely to be present when the source of knowledge is not specified (as in 57), and that the complementizer is likely to be absent when the source of knowledge is

specified as direct (as in 52–54) suggests that these phenomena are not accidental. They suggest that the presence of a complementizer is not fully compatible with a direct-evidence interpretation.

6. CONCLUSIONS. I have shown here that where modal contrasts are possible, complementizer or complement choice indicates a modal notion. In §2, with cognitive-utterance verbs, where there is only indirect speaker access to the conceptual content of the embedded proposition, the presence versus absence of *na* is meaningless. Here, *na* simply mirrors the semantics of the matrix verb to introduce de dicto embedded opaque contexts. Here, modal contrasts are not possible. Beginning with §3, we see constructional accommodation at work: The de dicto semantics associated with *na* in cognitive-utterance contexts 'detaches' and modulates the semantics in other contexts. In §3, we saw that the presence of *na* after a verb of perception always indicates that the evidence for the described event is indirect. Direct evidence is indicated by a complementation type that entails the necessary absence of *na*. In §4, we saw that directly witnessed speech is presented as such by the absence of *na*. Reconstructed speech is presented by *na*. Non-quoted speech may of course be directly witnessed but is presented as reconstructed, not actually recorded by the speaker. With the verb 'to know' in §5, we saw that direct experience is not compatible with *na*. Knowledge that derives from indirect evidence (such as hearsay), however, is compatible with *na*.

Converging evidence has been provided from several independent domains (e.g. perception verbs, direct/indirect speech, the verb 'to know') to argue for the function of the Bolanci complementizer *na*. The indirect evidence signaled by *na* that we have adduced in this paper is of three types, as shown in Figure 2.

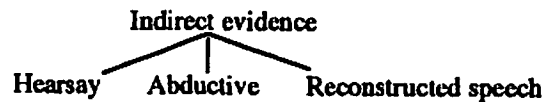


FIGURE 2.

We can make the following unifying generalization about the function of *na* with all three types of indirect evidence: *na* introduces propositional content that is not directly witnessed and that cannot be directly validated by the speaker. It is clear that the complementizer *na* in Bolanci is not a functor devoid of semantic content.

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