

In-situ and ex-situ wh-question constructions in Moro*

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Abstract

This paper addresses the formation of wh-questions in Thetogovela Moro, a Kordofanian language spoken in the Nuba Mountains of Sudan. Moro has both in-situ and ex-situ wh-questions, but exhibits a subject/non-subject asymmetry: while non-subjects may employ either construction, subjects must appear in the ex-situ form. Ex-situ wh-questions are analyzed as wh-clefts, and they share several properties with clefts and relative clauses. The fronted element is marked with a cleft particle and for noun phrases, a demonstrative that we analyze as a relative pronoun. Verbal tone patterns are those that are found in dependent clauses rather than main clauses. Subject questions, clefts and relative clauses are marked with a verbal prefix *é-*, while non-subject questions, clefts and relative clauses are marked with a verbal prefix *ǎ-*. We analyze these prefixes as dependent clause markers and provide evidence of additional dependent clause uses in the language. Finally, non-subject wh-questions bear an optional particle *nǎ-* on the subject and/or verb. We offer several arguments that this is best analyzed as a complementizer.

1. Introduction

In many languages, the formation of constituent questions, or wh-questions, involves the question word appearing in the standard or canonical position in the sentence, a strategy

known as *in-situ*. In others, the question word appears displaced external to the clause, leaving a “gap” in the canonical position, a strategy known as *ex-situ*. Some languages uniformly utilize one strategy for constituent question constructions while some languages exclusively utilize the other. There are, however, some languages that possess both in-situ and ex-situ constructions (Cheng 1997; Potsdam 2006). Moro, a Kordofanian (Niger-Congo) language spoken in the Nuba Mountains of Sudan, belongs to this latter class. Schadeberg (1981) classifies Moro as belonging to the Western group of West-Central Heiban Kordofanian languages.

The two types of wh-question constructions in Moro display strikingly different properties. In the typical in-situ strategy, a question word appears in the canonical position. In the example in (1), the declarative sentence (1a) is juxtaposed against an in-situ object question (1b). The question word appears in the post-verbal object position. In the ex-situ strategy in (1c), in contrast, the form of the question word itself is different (**wánde** vs. **ɲwánde:k:i**) and the verb has a different prefix (**a-** glossed as Root Clause (RTC) as it occurs in declaratives, in-situ questions, and complements of bridge verbs, and **ǎ-** in the ex-situ question, which we gloss as DEPENDENT CLAUSE2 (DPC2); Jenks 2013, Rose 2013). In addition, a particle **nǎ-**, which we will analyze as a complementizer, is optionally attached to the subject and/or the verb (1c). All data are from the Thetogovela dialect (in Moro orthography, *Ḑətogovəla*).^{1, 2} Moro has two tones. High tone is marked with an accent (´) and low tone is unmarked.

- (1) a. **kúku** **g-a-s:-ó** **eḏa**
 CLg.Kuku SM.CLg-RTC-eat-PFV CLj.meat
 ‘Kuku ate the meat.’

- b. **kúku** **g-a-s:-ó** **wánde?**
 CLg.Kuku SM.CLg-RTC-eat-PFV CLg.what
 ‘What did Kuku eat?’
- c. **ɲwándók:i** **(nǎ-)kúku** **(nǎ-)g-é-s:-ó?**
 what.CLg (COMP-)Kuku (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’

Subject wh-questions only use the *ex-situ* strategy as in (2). This is surmised from the form of the question word, and the prefix on the verb. Unlike object questions, there is a different prefix on the verb, *é-*, glossed as *DEPENDENT CLAUSE 1 (DPC1)*. In addition, the particle *nǎ-* prefixed to the verb in (1c) is never attested in these constructions.

- (2) **ɲwándók:i** **g-é-s:-ó** **eða?**
 what.CLg SM.CLg-DPC1-ate-PFV CLj.meat
 ‘What ate the meat?’

The goals of this article are threefold. First, we provide a basic description of constituent or wh-question constructions in Thetogovela Moro. In the grammar of a related Moro dialect (Black and Black 1971), *in-situ* questions are reported for all wh-phrases (p. 73), but only a few examples of *ex-situ* constructions are given for ‘why’ and ‘how’. Nevertheless, the structure of the *ex-situ* constructions differs from Thetogovela. There is a dearth of descriptive material on the syntactic properties of Kordofanian languages in general, and this article aims to contribute to a better understanding of one of these languages. Second, we outline the ways in which *ex-situ* constituent question constructions share structural parallels

with cleft and relative clause constructions. We propose that ex-situ questions are, in fact, a type of wh-cleft construction. Third, we provide an analysis of the morphological markers found in ex-situ questions. The verb prefixes *é-* and *é-*, observed in (1c) and (2) respectively, and the particle *né-*, pose analytical challenges. We argue that evidence from other constructions in the language point to the verb prefixes as dependent clause markers, as they appear in other dependent clause constructions. The distribution of *né-* suggests that it is a type of complementizer that can appear cliticized to the verb or the subject. It, too, appears in other dependent clause constructions where its status as a complementizer is clearer.

The paper is organized as follows. In Section 2 we present wh-in-situ constructions, comparing them to corresponding declarative clauses. Section 3 explores wh-ex-situ constructions identifying the basic differences between subject and non-subject wh-constructions. Section 4 demonstrates similarities between wh-ex-situ questions and relative clauses and clefts, leading to the conclusion that wh-ex-situ questions constitute a wh-cleft construction. We provide arguments from negation for the biclausality of clefts, evidence from tone that all three types employ dependent clauses, and examples demonstrating that the verb prefixes *é-* and *é-* are employed in other dependent clause constructions. In section 5, we address properties of non-subject wh-ex-situ questions, clefts and relative clauses, including alternate morphological marking in different persons, the distribution of resumptive pronouns, and evidence that the marker *né-* in (1c) is a complementizer. Finally, we conclude in section 6 with some typological considerations.

2. Wh-in-situ questions

In this section we describe the behavior of wh-in-situ questions. We begin with those bearing the lexical category noun (N): this is the lexical category in Moro that determines class agreement both internal to the noun phrase (NP) as well as with subject agreement on the verb in a clause.

Before presenting the relevant examples it is important to introduce some aspects of the noun class system of Moro. As in other Niger-Congo languages, nouns in Moro are divided into a number of noun classes (Stevenson 1956-7; Black and Black 1971; Schadeberg 1981; Gibbard et al. 2009). Noun class is marked by the first segment, usually a consonant, on the noun, and indicates singular, plural or invariable, e.g. **ɲerá** ‘girl, child’ (class marker **ɲ**) vs. **ɲerá** ‘girls, children’ (class marker **ɲ**). Subject agreement on verbs and nominal modifiers shows class agreement with the noun through use of a corresponding consonant. Some nouns are vowel-initial; these nouns have either **g** or **j** noun class agreement. We indicate noun class with CL followed by the agreement consonant, following Gibbard et al. (2009).

Declaratives and corresponding in-situ object wh-questions are illustrated in (3).

- (3) a. **kúku** **g-a-ɬað-ó** **eða**
CLg.Kuku SM.CLg-RTC-leave-PFV CLj-meat
‘Kuku left the meat behind.’
- b. **kúku** **g-a-ɬað-ó** **wánde?**
CLg.Kuku SM.CLg-RTC-leave-PFV CLg.what
‘What did Kuku leave behind?’

- (4) a. **kúku g-a-tǎð-ó ów:á**
 CLg.Kuku SM.CLg-RTC-leave-PFV CLg.woman/wife
 ‘Kuku left the woman/wife behind.’
- b. **kúku g-a-tǎð-ó ʌɖʌ́ŋgaŋo?**
 CLg.Kuku SM.CLg-RTC-leave-PFV CLg.who
 ‘Whom did Kuku leave behind?’

As can be seen, the wh-phrase functioning as an object occupies the same clausal position as the NP object in a declarative clause.

The nominal form **ʌɖʌ́ŋgaŋo** has a shorter form **ʌɖʌ́**, which is used in particular constructions,³ such as with comitatives, glossed here as instrumental (INST) as the same marker is used for both senses.

- (5) a. **k-a-tǎð-ó-ŋó sára-ga**
 SM.CLg-RTC-leave-PFV-3SGOM CLg.Sara- CLg.INST
 ‘S/he left him/her with Sara.’
- b. **k-a-tǎð-ó-ŋó ʌɖʌ́-gá?**
 SM.CLg-RTC-leave-PFV-3SGOM CLg.who-CLg.INST
 ‘With whom did s/he leave him/her?’

Nominal expressions associated with non-subject functions containing the modifiers ‘which’ and ‘whose’ may also appear in-situ. The expression “whose NP” is a genitive construction, which is formed by prefixing the possessor with **Cá-** (**C’** before vowel-initial stems) where **C** represents a noun class marker that agrees with the class of the possessed (Jenks 2013). This

can be seen in (6) where the wh-modifier functioning as possessor bears the class prefix **η-**, determined by the class of the possessed nominal.

- (6) a. **ηάλ:ο** **g-a-m:-ό** **ηερά** **η-άτζά?**
 CLg.Ngalo SM.CLg-RTC-take-PFV CLη.girl CLη.POSS-who
 ‘Whose daughter did Ngalo marry?’
- b. **ηάλ:ο** **g-a-m:-ό** **ηερά** **η-άηγα?**
 CLg.Ngalo SM.CLg-RTC take-PFV CLη.girl CLη.POSS-which
 ‘Which daughter did Ngalo marry?’

In contrast to these in-situ non-subject nominal constructions, all wh-elements occupying the subject role relative to a verb occur only in the ex-situ constructions; their discussion will be deferred to section 3 where we address this strategy.⁴

Turning to time and spatial adverbials, their wh-forms can also appear in-situ. Moreover, they, like nominals, typically appear in the clausal position associated with that specific adverbial. Sentential temporal adverbs such as **έρέκά** ‘yesterday’ may appear in multiple positions in declarative sentences, but usually appear post-verbally and following the object, if one is present. The order of manner adverbials with respect to time adverbials is not fixed: some manner adverbials are more flexible than others with respect to linear order; however, unlike temporal adverbs, manner adverbials do not appear between subject and verb or between verb and object. In (7) and (8), the position of the time adverbial ‘yesterday’ in (7a) and (8a) is occupied by the question word ‘when’ in (7b) and (8b), but the reverse order of adverbs in both sentences is also possible.

- (7) a. **ηόní** **η-αr-ό** **έρέká** **kaɲ**
 CL_η.dog SM.CL_η-cry-PFV yesterday loudly
 ‘The dog barked loudly yesterday.’
- b. **ηόní** **η-αr-ό** **ndónj** **kaɲ?**
 CL_η.dog SM.CL_η-cry-PFV when loudly
 ‘When did the dog bark loudly?’

The spatial wh-adverb ‘where’ displays a similar distribution:

- (8) a. **á-g-erl-eɬ-ό** **n-ején** **joána**
 2SGSM-CL_g-walk-LOC.APPL-PFV LOC-CL_j.mountain CL_j.many
 ‘You went to different countries/regions.’
- b. **á-g-a-v-eɬ-ό** **ηgá?**
 2SGSM-CL_g-RTC-go-LOC.APPL-PFV where
 ‘Where did you go?’

Finally, the wh-adverbials denoting ‘how’ and ‘why’ also appear in-situ:

- (9) a. **á-g-áf:-a** **ɖátáo** **egea?**
 2SGSM-CL_g-build-IPFV how CL_g.house
 ‘How are you building the house?’
- b. **á-g-oás-a** **ndréð** **eðá** **ηínáηí?**
 2SGSM-CL_g-wash-IPFV CL_n.clothes why today
 ‘Why are you washing clothes today?’

A summary of the wh-in-situ words is provided in the following chart. There are also plural forms of ‘what’ and ‘who’. Wh-words have the singular/plural class pairing **g/l** used primarily for humans. The words ‘which’ and ‘whose’ also have noun class agreement, shown here as **g/l**, but for these words, noun class can vary depending on the lexical noun, as expected given the structure of genitive constructions.

Table 1. In-situ wh-words

	Singular	Plural
what	wánde	lánde
who	Λɔ́ʎηgαηo / Λɔ́ʎ	Λɔ́ʎlánda
which	N gáηga	N láηga
whose	N gΛ(n)ɔ́ʎ	N lΛ(n)ɔ́ʎ
where	ηgá	n/a
when	ndónη	n/a
why	eǎá	n/a
how	(ǎá)ǎáo	n/a

In conclusion, the ability of wh-elements to appear in-situ depends on their syntactic position: while all non-subject wh-elements may optionally appear in-situ, subject forms cannot. These latter must appear in ex-situ constructions. Consequently, we turn to a discussion of this question formation strategy.

3. Ex-situ questions

Ex-situ question constructions contain a wh-phrase in sentence initial position, followed by a modifying dependent clause. In section 4, we provide arguments that these constructions are best analyzed as clefts. In this section, we simply describe the basic properties of ex-situ wh-question constructions, beginning with subject questions and then turning to non-subject questions.

3.1 Subject questions

Consider the following pairs of sentences, where (10a) and (11a) illustrate declarative clauses, and (10b) and (11b) represent their interrogative analogues with the non-human variant of the wh-element.

- (10) a. **ugviə** **g-a-s:-ó** **uðλ**
CLg.bird SM.CL-RTC-eat-PFV CLg.worm
'A bird ate a worm.'
- b. **ηwándók:i** **g-é-s:-ó** **uðλ?**
what.CLg SM.CLg-DPC1-hit-PFV CLg.worm
'What ate a worm?'
- (11) a. **jáηála** **j-a-t;w-ó**
CLj.sheep SM.CLj-RTC-get.lost-PFV
'The sheep got lost'
- b. **ηwándól:i** **l-é-t;w-ó?**
what.CLI SM.CLI-DPC1-get lost-PFV
'What (plural) got lost?'

These ex-situ questions are the only allowable means for forming a subject question: no in-situ subject question strategy is available. Note that for the interrogatives in (10b) and (11b), the verbal prefix **é-**, glossed as DEPENDENT CLAUSE 1 (DPC1), is observed, as opposed to the **a-** verbal prefix seen in the declaratives in (10a) and (11a).⁵ The wh-expression **ηwándók:i** ‘what’, which appears in clause-initial position in (10b) can be decomposed into the prefix **ηwá-**, the word **wánde** ‘what’, and the demonstrative **-ík:i**. Note, however, that the vowel /a/ of **wánde** has been raised to [ʌ]. Typically, **-ík:i** does not trigger vowel raising on a root. The occurrence of vowel harmony in this case, however, serves as an indication that the word has become lexicalized. (Height harmony in Moro raises /e a o/ to [i ʌ u] respectively.) The [i] of the demonstrative regularly fuses with the final vowel of the stem (Strabone and Rose 2012), and in this case is reduced to [ə]. The word **ηwándól:i** in (11b) is the plural form of ‘what’; plurality is expressed by the noun class of the demonstrative **-íl:i** and the noun class subject agreement on the verb.

The sentences below illustrate a declarative sentence and a corresponding subject wh-question containing the human wh-question form ‘who’ **ηwádžák:i**.

- (12) a. **ηerá** **η-a-s:-at-é-je** **átšónáη**
 CL_η.child SM.CL_η-RTC-eat-LOC.APPL-PFV-1SGOM CL_g.food
 ‘A girl ate my food.’
- b. **ηwádžák:i** **g-é-s:-at-é-je** **átšónáη?**
 CL_g.who SM.CL_g-DPC1-eat-LOC.APPL-PFV-1SGOM CL_g.food
 ‘Who ate my food?’

The word **ηωάτζάκ:i** in (12b) is composed of **άτζά** ‘who’, the prefix **ηωά-** (which is responsible for the first high tone on **-άτζά-**), and the demonstrative **-ík:i**.

The same basic ex-situ question strategy obtains for phrasal wh-questions involving ‘which’ and ‘whose’, where the **ηωά-** element can be seen marking a lexical noun, without a co-occurring demonstrative (13a-b). In each question, the verb form contains the dependent clause **έ-** prefix on the verb, in this case raised to [i] due to vowel harmony.⁶

- (13) a. **ηωά-ηερά [ήηερά] η-άηγα η-ί-τζήνδ-α?**
 CLF-CLη.girl CLη-which SM.CLη-DPC I-cough-IPFV
 ‘Which girl is coughing?’
- b. **ηωά-ηερά η-ά(η)τζά η-ί-τζήνδ-α?**
 CLF-CLη.girl CLη-who SM.CLη-DPC I-cough-IPFV
 ‘Whose girl is coughing?’

In sum, irrespective of the structural status of the wh-element as head of an NP or modifier, subject wh-phrases obligatorily appear ex-situ. For modified wh-phrases, the question word may appear with a prefix **ηωά-** in one variant or with a demonstrative suffix in another, but the verb is always marked by a dependent clause prefix **έ-**.

3.2 Non-subject questions

We have already seen how objects and adverbials behave in in-situ question formation. In this section we examine the varieties of non-subject wh-questions that also permit ex-situ wh-constructions.

3.2.1 Object questions

Object ex-situ question words appear in clause-initial position. Wh-phrases in this position are prefixed with **ɲwǎ-** and suffixed with the demonstrative **-ík:i**. While they share these characteristics with subject questions, two additional properties are unique to non-subject questions: 1) a prefix **ǎ-** between the subject class marker and the verb root, and 2) an optional complementizer **nǎ-** on the subject, verb, or both (see section 5.3 for further analysis). We take the prefix **ǎ-** to be a second type of DEPENDENT CLAUSE MARKER (DPC2), used for non-subject wh-question constructions, alternating with **é-** which marks subject questions (see section 4.4 for further discussion of these prefixes). The prefix **ǎ-** marks non-subject wh-questions, rather than objects, since verbs occurring with adverbial question words also show the same prefix. In each of the examples below, an in-situ question is contrasted with the ex-situ version (those in (14) are repeated from (1b,c)):

- (14) a. **kúku** **g-a-s:-ó** **wánde?**
 CLg.Kuku SM.CLg-RTC-eat-PFV CLg.what
 ‘What did Kuku eat?’
- b. **ɲwǎndǎk:i** **(nǎ-)kúku** **(nǎ-)g-ǎ-s:-ó?**
 what.CLg (COMP-)Kuku (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’

The in-situ question has the root clause prefix **a-** on the verb, whereas the ex-situ question has the prefix **ǎ-**. In addition, the subject and the verb in the ex-situ question are optionally marked with the particle **nǎ-** in (14b). The wh-word **wánde** ‘what’ occurs in the in-situ question, but is additionally marked with **ɲwǎ-** and with the demonstrative pronoun in the ex-

- (16) a. **k-af:-ó** **egea** **ηγά?**
 SM.CLg-build-PFV CLg.house where
 ‘Where did s/he build the house?’
- b. **ηήgwa** **(νό-)g-áf:-ó-u** **egea?**
 CLF.where (COMP-)SM.CLg-build-PFV-LOC CLg.house
 ‘Where did s/he build the house?’

Ex-situ questions with the manner adverbial constituents ‘how’ also appear with an obligatory **ηwó-** marker prefixed to a shorter version of **δάτáo**, the form that appears in in-situ questions.⁸ Note that the complementizer **νό-** does not appear in this example due to a phonological constraint against /n(ə)-l/ sequences (Gibbard et al. 2009; Jenks 2013).

- (17) a. **lədží** **l-a-dat-togaṭ-ó** **egea** **δάτáo**
 CLI.person SM.CLI-ITER-repair-PFV CLg.house how
 ‘How did the people repair the house?’
- b. **ηwó-τáo** **lədží** **l-ó-dat-togaṭ-ó** **egea?**
 CLF-how CLI.person SM.CLI-DPC2-ITER-repair-PFV CLg.house
 ‘How did the people repair the house?’

As for interrogatives requesting causal explanations with ‘why’, these may be formed as ex-situ structures, but there is no occurrence of **ηwó-**. In ‘why’ questions, the verb displays the typical ex-situ form with the dependent clause prefix **ó-**, while the subject and verb can optionally host a **νό-** element.

- (18) a. **ów:á** **g-oás-a** **ndréð** **eðá** **ηίνάηί?**
 CLg.woman SM.CLg-wash-IPFV CLn.clothes why today
 Why is the woman/wife washing clothes today?
- b. **eðá (n-)ów:á** **(nó-)g-oás-a** **ndréð** **ηίνάηί?**
 why (COMP-)CLg.woman (COMP-)SM.CLg-wash-IPFV CLn.clothes today
 ‘Why is the woman/wife washing clothes today?’

To review, there is variability among adverbial wh-elements concerning the occurrence of the **ηwó-** marker. It is obligatory with ‘where’ and ‘how’, optional with ‘when’ and disallowed with ‘why’. Furthermore, none of the adverbials bear the demonstrative **-ík:i** found with nominals. Nevertheless, these constituent interrogatives display the same dependent clause marker **é-** and optional **nó-** marking. The following chart summarizes the forms of ex-situ wh-words:

Table 2. Ex-situ wh-words

	Singular	Plural
what	ηwándók:i	ηwándól:i
who	ηwándzák:i	ηwándzálándól:i
which	ηwó-N gáηga	ηwó-N lánηga
whose	ηwó-N gΛ(n)dzá	ηwó-N lΛ(n)dzá
where	ηήgwa	n/a
when	(ηwó-)ndónη	n/a
why	eðá	n/a
how	ηwóǰáo	n/a

4. Cross-constructual similarities

In this section we review structural parallels among *ex-situ* *wh*-questions, non-interrogative **ɲwá-** marked fronting constructions, and relative clauses in Moro. These parallels suggest not only that these three constructions should be analyzed as members of a unified class of filler-gap constructions, but also that **ɲwá-** marked structures, including both the *ex-situ* *wh*-questions described in the previous section and their non-interrogative counterparts, introduced below, are best analyzed as clefts, as detailed in section 4.1. We review patterns of negation in 4.2 and tone marking patterns in section 4.3 as evidence that the ‘body’ of the proposed cleft structure is a dependent clause. In section 4.4. we take up a fuller description of the dependent clause-markers used in clefts and relatives, considering their role within the larger grammar.

4.1 Structure of clefts and relatives

Ex-situ *wh*-questions bear a strong resemblance to both relative clauses and identificational focus constructions. All three construction types feature complex constituents which combine a head (usually nominal) constituent and a dependent clause. If nominal, the head is marked by a suffix **-íC:i**, which in other contexts functions as a demonstrative marker. The demonstrative marker agrees in noun class with the noun to which it is attached (other forms include **-íŋ:i**, **-íl:i**, **-íð:i**, etc.), and the initial vowel fuses with the final vowel of the noun (Strabone and Rose 2012; Jenks 2013). The head noun bearing this demonstrative marker fills a semantic role associated with an argument position in the dependent clause, and the grammatical relation of that argument determines the agreement marker found on the dependent verb: **é-** for subjects, **ǎ-** for non-subjects (direct objects and obliques). In

identificational focus structures and in ex-situ questions (though notably not in relative clauses), the head noun also bears the prefix **ηwά-**.

This set of features is demonstrated in the subject filler-gap structures shown in (19-20). The subject question in (19a) bears a striking similarity to the subject focus structure in (19b). In the latter case, the head noun bears the **ηwά-** prefix and the **-ík:i** demonstrative affixed to the nominal base **matfó** ‘man’. The wh-question word **ηwάτζάk:i** demonstrates a formal parallelism with the head marking pattern of the focused nominal in (19b) and, as mentioned in section 3.1, can be decomposed into the **ηwά-** prefix, the root **τζά** ‘who’, and the demonstrative suffix **-ík:i**.

(19) a. Subject Question

ηwάτζάk:i **g-é-m:-ó** **ów:á** **g-óal-á?**
 CLg.who SM.CLg-DPC1-take-PFV CLg.woman SM.CLg-tall-ADJ
 ‘Who married the tall woman?’

b. Subject Focus

ηwά-matfó-k:i **g-é-m:-ó** **ów:á** **g-óal-á**
 CLF-CLg.man-CLg.DEM SM.CLg-DPC1-take-PFV CLg.woman SM.CLg-tall-ADJ
 ‘This is the man who married the tall woman’

Compare the ex-situ question and the subject focus structure with the relative clause in (20), which also shows the relative marker **-ík:i** suffixed to the head, but which omits the **ηwά-** prefix.

(20) Subject Relative

matʃé-k:i	g-é-m:-ó	ów:á	g-óal-á
CLg.man-CLg.DEM	SM.CLg-DPC1-take-PFV	CLg-woman	SM.CLg-tall-ADJ
g-Λnd-ú	ogómá		
SM.CLg-catch-PFV	CLg.thief		

‘The man who married the tall woman caught the thief’

Jenks (2013) observes that this demonstrative relative marker alternates with normal nominal concord in relative clauses, with only the former receiving definite or specific interpretations.

Ex-situ questions, focus structures, and relative clauses also all show the **é-** dependent clause marker characteristic of subject questions on the embedded verb (**g-é-m:-ó**). They differ from the declarative in (21) which shows the **a-** clause marker found in root clauses.

(21) Declarative

matʃé-k:i	g-a-m:-ó	ów:á	g-óal-á
CLg.man- CLg.DEM	SM.CLg-RTC-take-PFV	CLg.woman	CLg-tall-ADJ

‘This man married the tall woman’

The use of the **-ik:i** marker in the simple declarative yields a demonstrative reading, an interpretation that is absent in the other structures, where it functions instead as a relativizer. This relativizing function of the demonstrative is common across the world’s languages and is especially prevalent among related Niger-Congo Bantu languages (Cheng 2006; Demuth and Harford 1999; Ngonyani 2001; Zeller 2004, inter alia).

Patterns of head marking and verbal morphology are likewise shared across non-subject structures, as shown in (22). Ex-situ object questions, object focus structures, and relative clauses each make use of the **ǎ-** verbal prefix and the **-ík:i** relative pronoun, while the **ɲwǎ-** marker is prefixed to the nominal head in questions and focus structures only. Note that the verb **obǎð** within the relative clause is vowel-initial, and so the root clause marker **a-** is not realized due to vowel hiatus.

(22) a. Object Question

ɲwǎndǎk:i (n-)údzí (nǎ-)g-ǎ-wǎndaɽ-ó?
 CLg.what (COMP-) CLg.person (COMP-)SM.CLg-DPC2-see-PFV
 ‘What did the person see?’

b. Object Focus

ɲw-ógovél-k:i (n-)údzí
 CLF-CLg.monkey-CLg.DEM (COMP-)CLg.person
(nǎ-)g-ǎ-wǎndaɽ-ó
 (COMP-)SM.CLg-DPC2-see-PFV
 ‘This is the monkey that the person saw’

c. Object Relative

ogovél-k:i (n-)údzí
 CLg.monkey-CLg.DEM (COMP-)CLg.person
(nǎ-)g-ǎ-wǎndaɽ-ó g-obǎð-ó
 (COMP-)SM.CLg-DPC2-see-PFV SM.CLg-run-PFV
 ‘The monkey that the tall person saw ran away’

Each of the constructions in (22) exhibits optional **nǎ-** marking on subjects and verbs. These contrast with the simple declarative in (23) which shows the **a-** marker on the verb, no occurrence of **nǎ-**, and **-ík:i** interpreted as demonstrative.

(23) Declarative

uǰí **g-a-wəndaɬ-ó** **ogovél-k:i**
 CLg.person SM.CLg-RTC-see-PFV CLg.monkey- CLg.dem
 ‘The person saw this monkey’

Note, moreover, that for the declarative in (23), the object noun-phrase **ogovél-k:i** appears in its canonical position following the verb. In contrast, for each of the structures in (22), the post-verbal object position is unfilled.

Summing to this point, despite construction-specific differences, ex-situ questions display significant commonalities with non-interrogative focus structures and with relative constructions, supporting a unified analysis for all three construction types. In particular, the following elements recur: a relative marker of the shape **-íC:i** (in these examples **-ík:i**) affixed to the head noun, plus either of two clause markers that are distinct from the marker seen in simple declarative clauses. An additional marker, **ɲwǎ-**, appears prefixed to the head noun in both identificational focus structures and ex-situ questions. Finally, the optional marker **nǎ-** appears only in non-subject structures and can appear on the subject and/or dependent verb. These patterns lead us to two conclusions.

First, based on evidence showing a gapped argument position for ex-situ object questions, as well as for object relatives and object focus structures, we conclude that all three are instances of filler-gap constructions, i.e. they instantiate a syntactic and semantic

dependency between the head noun and the gapped argument position. In all three cases, an element appearing external to the clause is associated with this gap. Next, based on the patterns of head-marking and verbal morphology observed across questions, focus structures, and relatives, we conclude that ex-situ wh-questions and **ɲwá-** marked focus-structures in Moro are clefts. We base the latter conclusion primarily on evidence that all three structures involve an embedded clause (as detailed in sections 4.2-4.5). Further support comes from the fact that the **ɲwá-** marker appears in questions and focus structures, but not relatives.

A cleft analysis of ex-situ questions holds that Moro has two strategies of question formation available: one based on a simple declarative, the second based on a cleft structure. In both cases a wh-word substitutes for a nominal constituent. In one case, that constituent appears in its base, in-situ position, giving rise to an in-situ question. In the second case, the wh-word appears in a fronted position at the head of a cleft structure to form an ex-situ question. This analysis explains the difference in verbal morphology observed across in-situ and ex-situ questions, where the in-situ variants shows matrix clause marking, but ex-situ questions require a dependent clause marker. If it were the case that the ex-situ structure contained a matrix clause vowel, we might conclude that ex-situ questions are formed by displacing a wh-element from a base position in a simplex structure, but this is not the case. Similarly, if it were the case that the **ɲwá-**marked focus structures contained a matrix clause vowel, we might conclude that they are simple fronting structures, as opposed to clefts. Fronting structures with a noun are possible in Moro, but the following verb has a matrix clause vowel, and **ɲwá-** does not appear. The **ɲwá-** may, but does not typically occur in response to information questions. Nor is it standardly used in selective, corrective or contrastive focus constructions. Thus, it does not appear to be a general focus marker, but

rather a specific type of identificational focus construction, which is also in accordance with the analysis as a cleft.

A cleft analysis of ex-situ questions extends further to accommodate two additional aspects of the patterns seen here. First, it explains the absence of the **ḡwá-** marker in relative clauses: if it is the case, as we propose here, that **ḡwá-** serves to mark the nominal head in a cleft structure, its occurrence would be predicted for both interrogative (question) and non-interrogative (identificational) clefts, but not for relative clauses, where a head noun combines directly with a modifying dependent clause. Next, the cleft analysis makes sense of the fact that in-situ question formation for subjects is not permitted. It appears that in Moro, as in many SVO languages, the subject position serves as a default topic position. Question formation, meanwhile, serves to focus the questioned constituent. Questioning an in-situ subject would present a clash between topic and focus (c.f. Zerbian 2006a, 2006b; Sabel and Zeller 2007; Hartmann and Zimmerman 2007). As such, in order to question a subject, the subject must appear in a non-topic position, i.e. as the head of a cleft. Use of a cleft for question formation is common cross-linguistically (Dryer 2011), as are asymmetries between subject and non-subject focus marking (Fiedler et al. 2010). The specific case of a subject/non-subject asymmetry in question formation driven by constraints on focus expression has been described for Bantu languages, including Northern Sotho (Zerbian 2006a, 2006b), Tumbuka (Kimper 2006; Downing 2012), and Zulu (Cheng and Downing 2009; 2013), which all require clefts to form subject questions.

If ex-situ wh-questions are clefts, these sentences should be demonstrably biclausal. This means that there should be two distinct predicates in these sentences, and that the higher predicate should be a kind of copular sentence. However, ex-situ wh-questions do not include the copular verb, **-d-** which occurs in predicational copular sentences: **kúku gadó ṡrwí**

‘Kuku is a policeman.’¹⁰ Instead, these sentences seem much more closely related to equative copular clauses, e.g. **udʒí-katíka ŋál:ó-k:i** ‘That man is Ngalo,’ or in identificational copular clauses, e.g. **ŋwá-kúká-k:i** ‘This is Kuku.’ The final morpheme in both of these copular sentences is the proximal demonstrative ík:i, which also occurs in ex-situ wh-questions and might be functioning as a copula in these sentences.¹¹ While the precise analyses of these copular sentences is unclear, in the following section we will show that identificational copular clauses in particular behave like clefts with respect to negation, providing further evidence that ex-situ wh-questions are biclausal, hence clefts.

4.2 Negation and biclausality

One piece of evidence in support of a cleft analysis of ex-situ questions comes from patterns of negation, which indicate that the identificational focus structures which ex-situ questions resemble are complex structures involving a dependent clause. This section demonstrates that while monoclausal declarative sentences can only be negated in one position, clefts can be negated in two positions, either at the left edge, before the focused element, or before the embedded verb. The two negation strategies are compatible with distinct truth conditions.

Negation in Moro is expressed by means of a negative auxiliary verb. The negative verb **an:** shows subject agreement; aspectual distinctions are distinguished by tone: **g-án:-a** (IMPV) versus **g-an:-á** (PFV). The negative verb selects a simplified infinitive verbal complement, which uses an alternate subject agreement pattern (see Table 3 in section 4.3). The declarative is shown in (24a) and the negative in (24b).

- (24) a. **é-g-a-wəndaɾ-ó** **um:iə**
 1SGSM- CLg-RTC-see-PFV boy
 ‘I saw the boy.’
- b. **é-g-an:-á** **e-wəndaɾ-a** **um:iə**
 1SGSM-CLg-neg-PFV 1SGSM-see-INF boy
 ‘I didn’t see the boy.’

Simple declarative clauses can only be negated in this way in Moro.

Negation has a different distribution with identificational copular clauses, such as **ɲwə-kúkə-k:i** ‘**This is Kuku**’. In these cases, Moro uses the negative verb followed by the complementizer **tá** (see section 5.3), before the entire copular sentence:

- (25) **k-an:-á** **tá** **ɲwə-kúkə-k:i**
 SM.CLg-neg-PFV COMP CLF-Kuku-DEM
 ‘This isn’t Kuku.’

This alternative strategy for negation will be called *high negation*. One hypothesis for why high negation is used in identificational copular clauses is that these clauses lack verbs — recall that the negative verb selects for a particular infinitival verb form. Because no verb is available, identificational copular clauses require high negation, which embeds the identificational copular clause under a complementizer. High negation is not available with clauses containing verbs, such as (24a), e.g. **kan:á tá égawəndaɾó um:iə*. The ungrammaticality of high negation in these contexts follows from the hypothesis that high negation is forced by the absence of a verb.

Now when a cleft (26a) is negated, negation can either occur to the left of the cleft element, as in the identificational copular clause (26b), or in the embedded clause, negating the embedded verb (26c):

- (26) a. **ɲw-úm:íə-k:i** **(n-)é-wəndaɬ-ó**
 CLF-boy-CLg.DEM (COMP-)1SGSM-see-PFV
 ‘It is the boy that I saw.’
- b. **k-a-n:-á** **ɬá** **ɲw-úm:íə-k:i** **(n-)é-wəndaɬ-ó**
 SM.CLg-RTC-neg-PFV COMP CLF-boy-CLg.DEM (COMP-)1SGSM-see-PFV
 ‘It isn’t the boy that I saw.’
- c. **ɲw-úm:íə-k:i** **(n-)é-n: 'é-wəndaɬ-a**
 CLF-boy-CLg.DEM (COMP-)1SGSM-NEG 1SGSM-see-INF
 ‘It’s the boy that I didn’t see.’

As these examples demonstrate, the two positions for negation in clefts correspond to distinct interpretations: either the identity relation expressed by the higher cleft is being negated, or the predicate in the embedded clause.

The ability of negation to occur in two positions and the more particular fact that the higher form of negation is identical to its form in identificational copular clauses supports the conclusion that cleft structures are biclausal, consisting of an identificational cleft which embeds a relative clause around a nominal pivot. If cleft structures were not biclausal, there would be no way to explain the availability of the higher negative strategy in (26b) because a verb would be putatively available for negation in the single clause.

Unfortunately, the argument for biclausality from negation cannot be used directly to demonstrate that ex-situ wh-questions are biclausal. This is because high negation with an ex-situ wh-question is rejected by Moro speakers, e.g. ***kan:á tá ηwáɓáki núɓí nógéwəndaɓó?** (cf. 22a). However, a highly relevant fact is that identificational copular clauses have an identical restriction. When these clauses have a *wh*-element, e.g. **ηwáɓáki** ‘Who’s this?’, high negation is likewise ungrammatical, e.g. ***kan:á tá ηwáɓáki**. Thus, the impossibility of negation in the top clause of an ex-situ wh-question follows predictably from the impossibility of negation in identificational wh-copular sentences. This parallel restriction provides a clear argument for a link between identificational copular clauses and ex-situ wh-questions. Why such a restriction should hold is unclear, though it may be due to conflicting information structural properties of negation and wh-clefts.

In summary, clefts in Moro allow negation to occur in two different positions corresponding to two different interpretations. The higher position of negation is identical to the distribution of negation before identificational copular clauses, and this position for negation is not available for monoclausal declarative sentences. This provides direct evidence that the focus/cleft constructions in Moro is biclausal, consisting of a higher identificational copular clause with an embedded relative clause. While negation is unable to occur in the higher position in ex-situ wh-questions, this restriction follows from an independent restriction on negation with identificational wh-questions. We conclude that ex-situ wh-questions are biclausal.

4.3 Tone patterns of dependent clauses

Further evidence that ex-situ questions are clefts comes from tone patterns: clefts, ex-situ questions, and relative clauses each display a tone pattern in the proximal imperfective form that is characteristic of dependent verbs rather than matrix verbs.

Certain embedded verb forms exhibit an alternate subject marking paradigm, and a particular tone marking pattern. The root clause proximal imperfective and two dependent verb forms, the proximal infinitive and a consecutive perfective, are shown in Table 3 for the root **ṭaǎ** ‘leave’. This particular verb has high tone on the root which extends onto the final suffix in all three forms: **-ṭaǎ-á** or **-ṭaǎ-é** (see Jenks and Rose 2011 for more details on high tone extension). However, while the root clause proximal imperfective exhibits this tone pattern throughout the paradigm, the other two dependent forms are low-toned in the 1st exclusive plural and 3rd plural forms, Note that we have used the class prefixes **g/l** for 3rd singular/plural respectively, but these can be changed for other singular/plural class pairings such as **ŋ/p** or **l/n** (Gibbard et al. 2009).

Table 3. Tone patterns of root and dependent clauses

	Root clause proximal imperfective 'X is about to leave'	Proximal infinitive 'for X to leave'	Consecutive perfective 'and then X left'
1SG	é-g-a-tǽð-á	(ɲ)e-tǽð-é	n-e-tǽð-é
2SG	á-g-a-tǽð-á	a-tǽð-é	n-a-tǽð-é
3SG	g-a-tǽð-á	ǻŋé-tǽð-é	n-ǻŋé-tǽð-é
1INC.DU	ǻlǻ-g-a-tǽð-á	alǻ-tǽð-é	n-alǻ-tǽð-é
1INC.PL	ǻlǻ-g-a-tǽð-á-r	alǻ-tǽð-é-r	n-alǻ-tǽð-é-r
1EXC.PL	ɲá-g-a-tǽð-á	ɲa-tǽð-e	nǻ-ɲa-tǽð-e
2PL	ɲá-g-a-tǽð-á	ɲa-tǽð-é	nǻ-ɲa-tǽð-é
3PL	l-a-tǽð-á	alǻ-tǽð-e	lǻ-tǽð-e

The same tone distribution pattern is also found in the filler-gap structures described in the previous section, as shown in Table 4 for ex-situ wh-question forms. The 1exc.pl and 3pl have a low-toned root and the aspect/mood/deixis suffix in ex-situ constructions, but not root clause forms, just as in Table 3. Note that the non-subject forms lack the default class marker *g-* and the clause marker *ǻ-* in 1st and 2nd persons. See section 5.1 for more on these constructions.

Table 4. Tone patterns of proximal imperfective constructions

	Root clause	Wh-subject	Wh-non-subject
1SG	é-g-a-tǎǎ-á	é-g-é-tǎǎ-á	é-tǎǎ-á
2SG	á-g-a-tǎǎ-á	á-g-é-tǎǎ-á	á-tǎǎ-á
3SG	g-a-tǎǎ-á	g-é-tǎǎ-á	g-é-tǎǎ-á
1INC.DU	áǎ-g-a-tǎǎ-á	áǎ-g-é-tǎǎ-á	áǎ-tǎǎ-á
1INC.PL	áǎ-g-a-tǎǎ-á-r	áǎ-g-é-tǎǎ-á-r	áǎ-tǎǎ-á-r
1EXC.PL	ǎá-g-a-tǎǎ-á	ǎá-g-é-tǎǎ-a	ǎá-tǎǎ-a
2PL	ǎá-g-a-tǎǎ-á	ǎá-g-é-tǎǎ-á	ǎá-tǎǎ-á
3PL	ǎ-a-tǎǎ-á	ǎ-é-tǎǎ-a	ǎ-é-tǎǎ-a

We conclude that the tone pattern wherein the root and suffix of the 1st exclusive plural and 3rd plural forms are low-toned, is associated with dependent clause constructions of all types. While use of a dependent verb form is not surprising in a relative clause structure, the fact that the same dependent verb form is seen in both identificational focus structures and ex-situ wh-questions lends support to our proposal that the latter two constructions are best analyzed as clefts comprising a nominal head and a dependent clause body.

4.4 Dependent Clause Marking

Having argued that ex-situ wh-questions employ a cleft structure, we now turn to the verb prefixes *é-* and *ǎ-* that mark the verb in the dependent clauses of relatives, clefts, and wh-questions.

We begin by expanding on our claim that the *é-* and *ǎ-* markers seen on the verbs in filler-gap structures are dependent clause markers. These markers are not limited to filler-gap structures, but in fact are observed in a variety of contexts. The *é-* marker seen in subject filler-gap structures, for example, also appears in clausal complements to perception verbs like *n:* ‘hear’, *n:at̥* ‘listen’, *wəndaṭ* ‘see, watch’, and *sAṭf* ‘see’ (27), in complements to the desiderative verb *bwajp* ‘want’ (28), as well as in temporal adverbial clauses (29).

(27) **oráj** **g-a-n:-ó** **ɖɔrdɖ-əŋ** **g-é-lanɖ-ó** **Λurí**
 CLg.man SM.CLg-RTC-hear-PFV George-OC SM.CLg-DPC1-close-PFV CLj.door
 ‘The man heard George close the door.’ /

‘The man heard George while he was closing the door.’

(28) **é-g-a-bwáj-p-á** **wΛs-Λj-(o)**
 1SGSM-CLg-RTC-want-IPFV CLg.wife-1SGPOSS-(OC)
k-é-dát-toḏ-a **ram**
 SM.CLg-DPC-ITER-move-IPFV early

‘I want my wife to get up early.’

(29) **ŋál:o** **g-a-v-álón-a** **ləɖzí** **l-é-lál-ləvəṭf-a** **um:iə**
 Ngalo SM.CLg-RTC-PROG-sing-IPFV CLl.man SM.CLI-DPC1-ITER-hide-IPFV CLg.boy

‘Ngalo is singing while the men are hiding the boy.’

Similarly, the **é-** marker seen in non-subject wh structures also occurs in complements to verbs of saying, including **mwandəð** ‘ask’ (30), **lugəʔ** ‘tell’, **ʌləf** ‘promise’, **ʌllʌŋiʔ** ‘remind’, and **ʌrəʔ** ‘yell at’, each of which selects a clause introduced by the complementizer **ʔá**. The complementizer **ʔá** is selected by particular verbs and can co-occur with different kinds of verbal complements, except those marked with the dependent clause vowel **é-**.

- (30) **é-g-a-mwandəð-ó** **or-áŋ-ó** **ʔá**
 1SG.SM-CLg-RTC-ask-PFV brother-1POSS-OC COMP
g-é-náʔf-a-lo **uʔəra**
 SM.CLg-DPC2-give-IPFV-3PLOM CLg pig
 ‘I asked my brother to give them a pig.’

The **é-** marker also appears in the complement to the negative implicative verb **neð**, which means ‘refuse’ or ‘prevent’ (31). In this case, complementizer **né-** may be optionally present.

- (31) **k-a-neð-ó** **(né-)kúku** **g-é-reð-á** **ugi**
 SM.CLg-RTC-refuse-PFV (COMP-)Kuku SM.CLg-DPC2-chop-IPFV CLg.tree
 ‘S/he refused for Kuku to chop the tree.’

Finally, the **ǎ**- verbal marker is used for specialized conditional/temporal structures which feature a clause headed by a verb marked with **ǎ** (and optional **nǎ**- marking), followed by a clause containing a verb in the consecutive form (32).

- (32) **ɲenea (n-)úm:iə (nǎ-)g-ǎ-m:-ó ðoala**
 when (COMP-)CLg.boy (COMP-)SM.CLg-DPC2-take-PFV CLð.money
n-ǎɲǎ-nátʃ-e ɲerá ndreð
 CLF-3SG.SM-give-CONS.PFV CLɲ.girl CLn.clothes
 ‘When the boy got the money, he gave the girl clothes.’

While the types of contexts in which these markers can appear vary considerably, they are unified as a class in that the verb hosting the marker is always within a dependent clause.

Cross-linguistically it is quite common to see a shift to a different verb form when moving from matrix to relative clauses. Such shifts have been extensively documented for the Chadic ‘relative tenses’ (see Zima 2006 for a review), and agreement shifts are also seen for some languages within Bantu (Downing et al. 2010). In each case, the question arises: what causes the shift? Linking the use of dependent verb forms to the expression of focus (cf. Fiedler et al. 2010) and/or more specifically to wh displacement/agreement (cf. Haik 1990; Reintges et al. 2006) seems plausible, given our cleft analysis of Moro wh ex-situ questions. Indeed, these facts may be more generally connected to the phenomenon of so-called anti-agreement in Bantu languages (e.g. Schneider-Zioga 2007). We note with caution, however, that the dependent verb forms have a variety of uses (see above), many of which do not obviously implicate focus/wh. (See Frajzyngier (2004)’s discussion of ‘pragmatic

dependency' for similar considerations with respect to Chadic.) A second question raised by the Moro data thus involves the choice of different dependent markers for subject and non-subject clefts/relatives. Given that these markers are not limited to relatives or even to filler-gap structures as a class, one important question for future research is to explain why the different markers align as they do: that is, why *é-* is used for subject and *ǎ-* for non-subject filler/gap constructions.

4.5 Summary

In conclusion, the morphological similarities among ex-situ wh-questions, non-interrogative focus structures, and relative clauses support the conclusion that ex-situ wh-questions are a form of cleft. Further evidence for this conclusion comes from tone patterns and prefix-marking for the embedded verb in each type of structure, both characteristic of dependent clauses, and from patterns of negation, which diagnose our proposed cleft as a biclausal structure.

5. Properties specific to non-subject filler-gap constructions

This section presents more detailed descriptions of three properties which are characteristic of ex-situ wh-questions from non-subject positions. These properties also occur in non-subject relative clauses and clefts, solidifying the relationship between the three constructions. Section 5.1 addresses morphological properties of subject-verb agreement in these clauses which distinguishes them from main clauses. In Section 5.2 the distribution of resumptive pronouns is reviewed, and Section 5.3 presents evidence that the proclitic *nǎ-*, which occurs optionally before subjects and verbs in these clauses, is a complementizer.

5.1 Subject agreement and verb prefixes

When non-subject relatives and ex-situ wh-questions have 3rd person subjects, the verb exhibits noun class agreement followed by the prefix *ǎ-*. When the subject of a main clause declarative is 1st or 2nd person a fixed person/number marker is followed by a default class marker *g-* (33a, 34a). However, in ex-situ non-subject questions, 1st and 2nd person subject agreement does not occur with the *g-* class prefix, and there is no evidence for the presence of the dependent clause prefix *ǎ-* either (33b, 34b):

- (33) a. **ǎ-g-a-wəndaɾ-ó** **náɫájá**
 2SGSM-CLg-RTC-see-PFV CLn.red ant
 ‘You saw the red ants.’
- b. **ŋwáɫdók:i** **(n-)ǎ-wəndaɾ-ó?**
 CLg.what (COMP-)2SGSM-see-PFV
 ‘What did you see?’
- (34) a. **ɲá-g-a-védáǎ-a** **ɫdné-gá**
 2PLSM-CLg-RTC-clean-IPFV CLg.young mother-CLg.INST
 ‘You (all) are cleaning with the young woman.’
- b. **ŋwáɫɟák:i** **(né-)ɲá-védáǎ-a** **lók:a?**
 CLg.who (COMP-)2PLSM-clean-IPFV together (dual)
 ‘Who are you (all) cleaning with?’

It is not immediately clear if the dependent clause *ǎ-* prefix is morphologically absent in these forms or deleted due to vowel hiatus resolution. Since all non-3rd person subject marker prefixes end in a vowel, the absence of the default class marker *g-* leads to vowel hiatus.

Although usually the first of two vowels is deleted in vowel hiatus in Moro, if a schwa is one of the vowels, schwa is preferentially deleted. Thus, /á-é-wəndaɾ-ó/ would reduce to [áwəndaɾó] (cf. 33b). The only clue as to the presence of é- might be the preservation of its tone. The high tone cannot migrate leftwards as the subject prefix is high-toned already, but it also fails to appear on the first vowel of the root: *[áwəndaɾó]. This indicates that the é- prefix is not morphologically present in these forms.

The same pattern of prefixation occurs with other non-subject ex-situ questions:

- (35) **ŋwé-ɬáo** **(n)-áf:-ó** **egea?**
 CLF-how (COMP-)2SGSM.build-PFV CLg.house
 ‘How did you build the house?’

This subject agreement pattern also occurs in clefts (36a) and relative clauses (36b):

- (36) a. **ŋw-úm:iə-k:i** **(n)-é-wəndaɾ-ó**
 CLF-boy-CLg.DEM (COMP-)1SGSM-see-PFV
 ‘It is the boy that I saw’
- b. **um:iə-k:i** **(n)-é-wəndaɾ-ó** **k-á-s:-iə** **jánála**
 boy-CLg.DEM (COMP-)1SGSM-see-PFV SM.CLg-RTC-eat-CAUS.IPFV CLj.sheep
 ‘The boy I saw is grazing sheep’

Consequently, the absence of the dependent clause prefix and default class agreement prefix with 1st and 2nd subjects is one more way that non-subject clefts, relative clauses and ex-situ questions pattern alike.

5.2 Resumptive markers in ex-situ object constructions

Another characteristic of non-subject ex-situ questions is resumptive pronouns. Cross-linguistically, resumptive marking is expressed by several different, functionally equivalent, encoding strategies, e.g., independent pronouns, clitics, affixes or other verbal marking (Ariel 1999; Sharvit 1999; Falk, 2002; de Vries 2005; Marten et al. 2007). In Moro, pronominal object markers appear on the verb. In declarative root clauses, object markers cannot co-occur with the lexical NPs with which they co-refer; this also holds for in-situ wh-questions. The fact that object markers can occur in ex-situ wh-questions and clefts thus provides further support (see Section 4.2) that these constructions are biclausal, consisting of a cleft element and a dependent clause.

The person and number features on object markers in Moro reflect the same person and number features which are marked in Moro pronouns and subject agreement, including inclusive/exclusive 1st plural and dual forms. Their distribution is complex and correlates with tone (Rose 2013). Here we illustrate only the third person singular forms.

The pattern of object marking with ex-situ object questions parallels pronominal object marking more generally: a resumptive third person singular pronoun occurs with human objects (37b), but not with non-human singulars (37a).

- (37) a. **ɲwáɲdók:i (n-)úm:iə (nə-)g-ə-ləvətʃ-ó?**
 CLg.what (COMP-)CLg.boy (COMP-)SM.CLg-DPC2-hide-PFV
 ‘What did the boy hide?’
- b. **ɲwáɲzák:i (n-)úm:iə (nə-)g-ə-ləvətʃ-ó-ŋó?**
 CLg.who (COMP-)CLg.boy (COMP-)SM.CLg-DPC2-hide-PFV-3SGOM
 Who did the boy hide?

The 3pl object marker **-lo** is used with plural objects regardless of animacy or human status. In (38a), the plural form of the cleft wh-word appears, and **-lo** occurs on the verb.

- (38) a. **ɲwáɲdɔ́l:i (nɔ́-)kúku (nɔ́-)g-ɛ-tɔ́ð-ó-lo?**
 CLI.what (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV-3PLOM
 ‘What (pl.) did Kuku leave?’
- b. **ɲwáɲɔ́ɲlɔ́ɲdɔ́l:i (nɔ́-)kúku (nɔ́-)g-ɛ-tɔ́ð-ó-lo?**
 CLI.who (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV-3PLOM
 ‘Who (pl.) did Kuku leave?’

Object questions with ‘which’ and ‘whose’ show a similar pattern. Resumptive pronouns occur with extracted plurals regardless of animacy or humanness, and resumptive pronouns can occur with singular wh-phrases, but are optional (39c):

- (39) a. **ɲw-ðoála ð-aɲga (nɔ́-)kúku (nɔ́-)g-ɛ-tɔ́ð-ó?**
 CLF-CLð.livestock CLð-which (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV
 ‘Which livestock did Kuku leave behind?’
- b. **ɲw-írɪə j-aɲga nɔ́-kúku (nɔ́-)g-ɛ-tɔ́ð-é-lo?**
 CLF-CLj.cows CLj-which (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV-3PLOM
 ‘Which cows did Kuku leave behind?’
- c. **ɲw-úm:iə g-aɲga (nɔ́-)kúku (nɔ́-)g-ɛ-tɔ́ð-ó(-ɲó)?**
 CLF-CLg.boy CLg-which (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV(-3SGOM)
 ‘Which boy did Kuku leave behind?’

The distribution of plural resumptive pronouns in clefts and relative clauses is the same as for ex-situ questions: they are required in all three constructions. However, there are some differences with respect to singular resumptive pronouns. In all three constructions, singular resumptive pronouns refer only to humans. In ex-situ questions, resumptive pronouns are optional with human objects in general. In relative clauses, singular resumptive pronouns are restricted to proper names. In clefts singular resumptive pronouns occur with proper names and independent pronouns.¹² Despite these specific restrictions, the occurrence of resumptive pronouns in all three filler-gap constructions provides further evidence for biclausality as object pronouns are elsewhere prohibited with clausemate lexical NPs.

5.3 The prefix **nǎ-**

The last aspect of non-subject wh-constructions that requires further analysis is the use of the particle **nǎ-**, which can appear optionally at various positions within the filler-gap domain. To establish the role of **nǎ-** in dependent clauses, we compare its distribution with that of the complementizer **ǵá**, and conclude that **nǎ-**, too, is a complementizer.

The particle **nǎ-** appears optionally on the subject and/or the verb. It can also appear on the clause-level adverb **bǎté** ‘never’ for two out of the three speakers consulted, but Angelo Naser, who rejects this, prefers **bǎté** to appear sentence finally. Example (14b), repeated here as (40), shows the particle appearing on the subject and the verb. Example (41b) shows the particle on the adverb ‘never’ as well.

- (40) **ŋwǎndǎk:i** **(nǎ-)kúku** **(nǎ-)g-ǎ-s:-ǎ?**
 CLg.what (COMP-)CLg.Kuku (COMP-)-SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’

- (41) a. **bóte ná-g-¹án:-a ná-bəlw-a kúku-ga**
 never 1PLEXC.SM-CLg.RTC-neg-IPFV 1PLEXC.SM-wrestle-INF Kuku-INST
 ‘We never wrestle with Kuku.’
- b. **ɲwádʒáki (nó-)bóte (nó-)ɲ-án:-a**
 who (COMP-)never (COMP)-2PLSM-neg-IPFV-SUB
(nó-)ɲá-bəlw-á lók:a?
 (COMP)-2PLSM-wrestle-INF together (dual)
 ‘Who do you never wrestle with?’

First, consider the distribution of **nó-** in a variety of constructions. It appears not only in non-subject filler-gap constructions as in (41), but also in complement clauses, i.e. clauses with **a-** and **á-** clause markers, as discussed in section 4.4. Depending on the verb, such clauses permit the **nó-** complementizer or else require the **ɲá** complementizer. The particles **nó-** and **ɲá** never co-occur. In addition, dependent clauses in which the **ɲá** complementizer never appears are likewise places in which **nó-** is unattested: subject filler-gap constructions (wh-questions, clefts, and relative clauses), as well as for the complement clauses and adjunct clauses illustrated in section 4.4.

Second, **nó-** has a similar distribution in clefts and in dependent clauses (non-subject filler-gap constructions, adjunct clauses, and in the complement clause of ‘refuse’). In both cases, it occurs as a proclitic on the subject or the verb. Furthermore, it is optional.

Third, if a non-subject element of a dependent clause is questioned with a wh-cleft, the **nó-** can appear in the dependent clause, but only in limited circumstances: i) in complements that are normally marked with **a-** in declaratives and ii) if there is no other complementizer present in the dependent clause. Otherwise, the verb morphology associated with an ex-situ

question appears only on the verb of the main clause. In (42), the main clause verb **n**: ‘hear’ (in the sense of informed) selects a complement clause with **tá** and a verb that is prefixed with root clause **a-** ([Λ] due to vowel harmony). In the wh-cleft question in (43), the **nó**- appears only on the main verb, not on the dependent clause. The main verb bears the verb morphology of an ex-situ non-subject question: it lacks the default class marker **g-** and the **ó**- (see section 5.1). The lower verb is unaltered morphologically, except for the fact that it bears a resumptive pronoun **-nó**.

(42) **é-g-a-n:-ó tá kúku g- Λ -bəg-ú bitər(-o)?**
 1SGSM-CLg-hear-PFV COMP CLg.Kuku SM.CLg-RTC-hit-PFV Peter(-OC)
 ‘I heard that Kuku hit Peter’

(43) **ŋwáɖʒák:i (n-)á-n:-ó tá kúku g- Λ -bəg-ó-nó?**
 CLg.who (COMP-)2SGSM-hear-PFV COMP CLg.Kuku SM.CLg-RTC-hit-PFV-3SGOM
 ‘Who did you hear that Kuku hit?’

In contrast, the verb **aṭ** ‘think’, does not select a complement clause with **tá** (43). In this case, when the object is questioned, the embedded verb is marked with DPC2 and **nó**- marking can appear in both the matrix and subordinate clauses, as shown in (44).

(44) **nána g-aṭ-a bitər g-a-s:-ó ləbəmbáj**
 mama SM.CLg-think-IPFV Peter SM.CLg-RTC-eat-PFV CLI.yam
 ‘Mama thinks that Peter ate a yam’

- (45) **ŋwánda:k:i (nǎ-)nána (nǎ-)g-aṭ-a bitər**
 what (COMP-)mama (COMP-)SM.CLg-think-IPFV Peter
(nǎ-)g-ǎ-s:-ó
 (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Mama think that Peter ate?’

All these factors point to an analysis of **nǎ-** as a complementizer. It typically co-occurs with **ǎ-** in a variety of constructions, not just those that exhibit filler-gap relationships. The **nǎ-** is obligatory when the verb is in the infinitive form (with alternate subject marking), but is otherwise optional, and when optional can appear cliticized on either the subject (as the first element in the clause) or the verb or both. Furthermore, it cannot co-occur with another complementizer. Its phonological form is that of a clitic. Moro does not allow words that end in [ə], and so all consonant-only or Cə morphemes cannot be free. In contrast the complementizer **ṭá** can occur as a separate functional word, as can the quotative complementizer **ma**.

The optionality of **nǎ-** is consistent with the behavior of complementizers in other languages, such as English. Moreover, the two most common positions of **nǎ-** (the subject and the verb) represent canonical positions for complementizers in languages of the world: i) at the left edge of the clause (cliticized on the subject) and ii) cliticized to the verb, as occurs in Bulgarian (Rivero 1993), Yimas (Foley 1991, Phillips 1996) or Amharic (Leslau 1995). Moro allows for both positions to occur simultaneously, a phenomenon known as ‘complementizer doubling’, attested in European Portuguese (Mascarenhas 2007), some dialects of Italian (Paoli 2003, 2007), and Laze (Lacroix 2009). Consider the following construction from Ligurian (Paoli 2007:1058), in which the complementizer *che* is expressed

in the embedded clause at the left edge before the lexical subject and again before the subject clitic and verb.

- (46) **Teeja a credda che a Maria ch' a**
 the Teresa SCL believe.PR.3s that the Mary that SCL
parta duman
 leave.s.PR.3S tomorrow
 ‘Teresa believes that Mary will leave tomorrow’

Although the forms of the two **che** are identical, Paoli (2003, 2007) proposes that they occupy distinct positions in an expanded syntactic tree, and are not both complementizers; the second one signals mood. Her analysis is based, in part, on theoretical considerations prohibiting repetition of identical elements. In Moro, however, we do not detect any distinction in the function of the two **nǎ-**, and it would be speculative to assume a similar syntactic analysis of the two positions. The behavior of the Moro complementizer appears to be more similar to the subordinate complementizer clitic **na** in Laze, a Kartvelian language. This clitic marks conditional clauses, relative clauses, circumstantials and completives. In relative clauses, it attaches as an enclitic to an element, usually a nominal, preceding the verb in the clause, or if the clause contains only a verb, as a proclitic to the verb. Significantly, Lacroix notes (p. 753) that **na** can appear on more than one element at a time in the clause.

We conclude, therefore, that **nǎ-** is a complementizer based on its distribution and function. Like complementizers in some other languages, it may be repeated in different positions. Unlike the other complementizer **ǰá**, or the quotative complementizer **ma**, it is cliticized to the verb or the subject due to its phonological form.

6. Typological observations and conclusion

This concludes the overview of the major characteristics of wh-interrogative clauses in Moro for the Thetogovela dialect. Moro has both in-situ and ex-situ wh-questions. Consistent with Cheng's (1997) observations about the typology of wh-questions, these two kinds are not identical: the ex-situ question construction is a wh-cleft. A host of properties characterize ex-situ wh-cleft questions as distinct from in-situ questions. First, wh-words are marked with a prefix **ɲwá-** also found in cleft constructions. Second, wh-nominals are suffixed with a demonstrative **-ík:i** (or **-íl:i**) which functions like a relative pronoun. Third, there are different prefixes on the verb identifying the construction as either ex-situ subject (**é-**) or non-subject (**ǎ-**) question. Fourth, the proximal imperfective verb form in ex-situ constructions exhibits the tone pattern of dependent verbs. Fifth, for non-subject ex-situ questions, the 1st and 2nd persons show alternate morphological marking. Finally, resumptive pronouns are found in ex-situ object questions. These properties are also found in clefts and/or relative clauses, which together with ex-situ wh-questions form the class of filler-gap constructions. This kind of shared structural typology is attested in other languages. Schacter (1973) for example, observes that Akan (Niger-Congo), Hausa (Afro-Asiatic), and Ilonggo (Austronesian) exhibit striking formal similarities between clefts and relative clauses, while Croft (2003: 108) additionally shows that Makua (Bantoid) and K'iche' (Mayan), like Moro, display such similarities among all three construction types.

There is a main distinction between subject questions and non-subject questions in Moro in that subject questions must be ex-situ, whereas non-subject questions may be ex-situ or in-situ. Other languages with subject and non-subject asymmetries of this nature include Hausa (Green 2007), Bantu languages such as Chichewa (Bresnan and Mchombo 1987), Zulu

(Sabel and Zeller 2007; Chen and Downing 2009), Kitharaka (Muriungi 2005) and Dzamba (Bokamba 1976), and Austronesian languages such as Malagasy (Sabel 2002; Potsdam 2006). Explanations for the asymmetry have been offered in the literature, including a definiteness/specificity requirement for subjects (Potsdam 2006), or that it is related to focus requirements (Zerbian 2006a; Sabel and Zeller 2007).

One of the more intriguing aspects of Moro wh-questions are the prefixes **a-**, **é-** and **ǎ-** that we have analyzed as clause markers. The latter two, which appear in wh-questions, are dependent clause markers, and appear in several other dependent clause constructions.

Finally, the puzzling optional and repetitive use of the **nǎ-** clitic was analyzed as complementizer doubling, a phenomenon that is attested in some Romance languages as well as Laze. The **nǎ-** clitic occurs in other constructions as a complementizer, does not co-occur with the complementizer **ǎ́**, it is optional, and it can be repeated in two canonical positions for complementizers: cliticized to the subject or the verb.

The syntactic properties of Kordofanian languages are understudied, and this paper provides an exploration of not just wh-questions, but other syntactic constructions in Moro. It also contributes to our understanding of the typology of wh-questions in Africa and cross-linguistically.

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¹ Thetogovela is one of seven dialects of Moro, and it differs from the standard dialect known as Thengorban or Werria, spoken in Um Dorein, and discussed in Black and Black (1971). The data in this article were provided by three speakers: Ikhlas Elahmer, Elyasir Julima, and Angelo Naser. There are slight differences between speakers, such as pronunciation and word meaning choice; however, there is no difference in the basic structure of wh-questions. Our transcriptions in this paper reflect Elyasir Julima's pronunciation.

² Abbreviations: APPL = benefactive applicative; CAUS = causative; CL = noun class; CLF = cleft; COMP = complementizer; CONS = consecutive; DU = dual; EXC = exclusive; IMP = imperative; INC = inclusive; INF = infinitive; INST = instrumental; IPFV = imperfective; ITER = iterative/durative; LOC = locative, LOC.APPL = locative applicative; OC = object case; OM = object marker, PASS = passive; PFV = perfective; PL = plural; PN = pronoun; PROG = progressive; PROX = proximal; RTC = root clause; DPC = dependent clause; SG = singular; SM = subject marker.

³ It is also used with the verb ‘to be called’ when asking someone’s name: **άγανόρνιθ άτζά?** ‘What are you called?’ (literally, “you are called who?”). It may also be a response to an accusatory statement, in the sense of “who, me?”, ex. **κúku, άgakeró gəla** ‘Kuku, you broke the plate!’ Response: **άτζά?** ‘Who?’. The longer form **άτζάηgəηo** is undoubtedly composed of **άτζά** and **ηgəηo**, but the composition and meaning of the latter half of this word are not clear to us.

⁴ Note that Moro does not permit multiple wh-questions.

⁵ The different prefixes are evident with consonant initial verb roots. If, however, the verb root begins with a vowel, they are deleted due to vowel hiatus resolution, ex. **ηwάτζάk:i góbəðó?** ‘Who ran away?’, derived from /g-é-obəð-ó/ → [góbəðó]. However, the high tone of the é- prefix is realized on the first vowel of the root. Compare this with the main declarative form of the verb: **gobəðó** ‘he/she ran away’.

⁶ There are several alternatives to this construction. First, the **ηwά-** can appear on **anga** instead of the head noun, and with no genitive marker. Second, the **ηwά-** can be missing from **άτζά**, but the latter can be marked with the genitive marker and a demonstrative: **η-άτζά-η:i**. Finally, neither **ηwά-** nor the demonstrative appears, but the question still has the dependent clause prefix **é-** on the verb. The latter, however, is not interpreted as a simple interrogative, but conveys a sense of incredulity in response to a surprising assertion, challenging the likelihood of the proffered assertion.

⁷ The expression ‘how many’ cannot occur in an ex-situ construction; rather, as shown below, it appears in-situ in the predicate position of a copular structure, followed by a relative clause modifying the subject, here ‘onions’, as evidenced by agreement in class markers for the subject and the demonstrative marker **is:i**, which functions as a relativizer.

itúmi j-a-d-ó mánáo is:i n-údzí g-ért-ó-lo?

CLj.onion CLj-RTC-be-PFV how many CLj.DEM COMP-person SM.CLg-have-PFV-3PLOM

‘how many onions does the person have?’

(literally, “onions are how many, those/that the person has?”)

⁸ This structure is semantically ambiguous: it either requests information for the particular manner in which the event was accomplished or expresses incredulity concerning the very fact of an event having occurred at all.

¹⁰ This is a perfective verb form used in a stative sense. The imperfective form **gadeə** or **gavádéə** carries the inceptive meaning ‘to become’.

¹¹ A process of grammaticalization from demonstrative/deictic pronoun to copula has been proposed for various languages in Africa, including Amharic, Coptic, and Beja (Afro-Asiatic), as well as Dongolese Nubian (Nilo-Saharan). (See Stassen 2004:77-86 and citations therein for examples and extended discussion.) Yet one piece of evidence arguing against a demonstrative-as-copula analysis for Moro is its position: in clefted structures, the demonstrative occurs in its typical NP-internal position immediately after the noun and before modifiers. A second possibility is that the **ɲwá-** prefix which we have analyzed as a cleft marker is itself functioning as a copula. This marker bears a resemblance to the 3SG pronoun **ɲɲú** in Moro, raising the possibility that the two are diachronically linked. Use of a personal pronoun for a copular function is attested for languages like Kanuri (Nilo-Saharan; Lukas 1937) and Margi (Afro-Asiatic; Hoffman 1963), and in a number of geographically proximate languages, including Nuer (Crazzolara 1933) and Dinka (Nebel 1948), both spoken in South Sudan, as well as Luo (Tucker and Bryan 1966), spoken in Kenya and Tanzania. (As above, see Stassen 2004 for discussion.) Beyond the superficial resemblance between the pronoun and the cleft marker in Moro, however, there is very little direct

evidence to support an analysis of the **ἦψά-** prefix as a copula derived from a personal pronoun.

¹² Resumptive pronominal marking is also attested in locative constructions. We do not have the space to provide examples and analysis here.

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