

TENSE AND ASPECT AS CODING MEANS FOR INFORMATION STRUCTURE: A POTENTIAL AREAL FEATURE

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Starting with the fundamental assumption that every linguistic form is a coding means for a function, this study examines the structural motivation for the existence of two or more tense and/or aspectual systems in selected West and Central African languages. The study claims that the multiple tense/aspectual systems, in addition to their tense and aspectual functions, also carry pragmatic functions. Evidence for the proposed pragmatic functions is grammar-systemic, in the sense that the tense/aspectual forms are in complementary distribution across languages with other means coding the same pragmatic functions. The study demonstrates that although the use of tense and aspectual systems is a widespread phenomenon in West and Central Africa, its use in individual languages is dictated neither by genetic affiliation nor areal influences, but rather by language-internal characteristics. The presence of this coding means in languages in the area, however, makes it readily available to be borrowed by other languages.

Le point de départ de cette étude est l'hypothèse fondamentale que toute forme linguistique est un moyen de coder une fonction; de là on examine la motivation structurelle pour l'existence de deux ou de plusieurs systèmes temporels et/ou aspectuels dans certaines langues ouest- et centre-africaines. L'étude propose que les systèmes temporels/aspectuels multiples, outre leurs fonctions temporelles et aspectuelles, exercent des fonctions pragmatiques. L'évidence de ces fonctions pragmatiques réside dans le système grammatical, en ce sens que les formes temporelles/aspectuelles sont en distribution complémentaire en diverses langues ayant d'autres moyens de coder les mêmes fonctions pragmatiques. Cette étude démontre que, bien que l'utilisation de systèmes temporels et aspectuels soit un phénomène très répandu en Afrique Occidentale et Centrale, son utilisation dans une langue particulière n'est dictée ni par une affiliation génétique, ni par des influences aréales, mais plutôt par des caractéristiques internes de la langue même. La présence de ce moyen de codage dans certaines langues d'une région rend toutefois plus aisé son emprunt par d'autres langues.

0. INTRODUCTION: THE PROBLEM AND THE STATE OF THE ART

Descriptive studies of various Niger-Congo and Chadic languages have often reported the existence of two tense and/or aspectual systems, whereby each aspectual or tense function has a different formal realization in a different syntactic environment.¹ Studies differ considerably with respect to the interpretation of such phenomena. For example, in studies of Hausa the two aspectual systems have been said to be selected by different types of clauses (Gouffé 1966, 1967, 1968, Caron 1986, Newman and Schuh 1974, Newman 2000, Pawlak 1993). Robert 1991 has postulated for Wolof that there are different aspectual forms, each coding a focus on a different constituent of a clause.

Hyman and Watters 1984 postulate a typology consisting of two focus domains: one is focus on tense-aspect, modality, and polarity, and the other is focus on a nominal constituent of a proposition. Hyman and Watters's study requires an extensive commentary, for which there is no space in the present work. Suffice it to say for the time being that the categories that Hyman and Watters consider to be in focus in some

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languages are considered to be out of focus by other writers. In addition, Hyman and Watters assume that every specific question has the question word in focus. That assumption is not justified by empirical data, as shown below for Gulfe Kotoko, where the specific interrogative marker may be focused or not.

Jungraithmayr (1994:119) states that in the Chadic languages Mubi, Bidiya, and Dangaleat (Dangla) aspectual markers distinguish between semantically independent and semantically dependent clauses, and that a similar situation exists in Hausa. Jung-raithmayr, like several writers before him, also states that the movement of an element to clause-initial position triggers the use of a different aspectual form, a fact not confirmed in languages that have multiple aspectual/tense forms. Caron 1998 and 2000a, and studies in Caron 2000b, postulate that in some languages there are special aspects used in focus constructions. A cross-language typological comparison (see table 1) clearly indicates that the functions of one of the tense/aspectual systems are not limited to focus constructions. Frajzyngier (2001, 1997) postulates that in some languages the two aspectual systems code different types of clauses, namely, a clause that must be interpreted in connection with another proposition, thus pragmatically dependent; and a clause that can be interpreted on its own, thus pragmatically independent. The present study, based mainly on data gathered by the author in the field and supplemented by published studies, examines the validity of this hypothesis cross-linguistically within Niger-Congo and Chadic languages. Because of the limitations of space, the bulk of what follows is the argumentation for the hypotheses to be proposed. The detailed discussion of the previous scholarship must await another opportunity. A full typological picture of the relevant areas of grammars of various languages is also beyond the scope of the present study.

The present study examines several types of clauses where one usually finds one set of tense/aspectual markers: comments on focus, polarity, specific interrogatives, relative clauses, and sequential clauses. These are contrasted with another group where one usually encounters a different set of tense/aspectual markers: indicative affirmative clauses, comments on topic, questions about the truth of the proposition. The temporal and conditional protases and apodoses may belong to one or the other group.

The bulk of the data comes from languages spoken in a relatively compact area of northern Cameroon, north-eastern Nigeria, and southern Chad. These languages belong to: Chadic (Afroasiatic family) represented by languages from all four branches; West Atlantic, represented by Fula, and Adamawa-Ubangi represented by Tupuri.² The last two groups belong to Niger-Congo. The geographic proximity and genetic relationship may be a reason for similarity among languages. But the differences among languages belonging to the same family and spoken within the same area must be attributed to factors other than areal influences or common retention. They may indicate the presence of relevant structural characteristics.

² Sources of data: Pero, Frajzyngier 1989; Mupun (West Chadic), Frajzyngier 1993; Lele (East Chadic), Frajzyngier 2001; Hdi, Frajzyngier and Shay 2002; Mina and Gidar (Central Chadic), author's fieldwork; Fula (Fulfulde, West Atlantic), Noye 1974 and author's fieldwork; Wolof, Robert 1991 and 2000; Tupuri (Adamawa), author's fieldwork and Ruelland 2000; Masa (Masa Branch), Kapsiki, Mandara, Mafa, Mere, Gulfe Kotoko and Giziga (Central Chadic), author's fieldwork.

1. HYPOTHESES

1.2 HYPOTHESIS 1

If a language has two tense and/or aspectual systems with identical temporal or aspectual values coded by each system, the two systems also have functions other than the coding of aspect or time.

1.3 HYPOTHESIS 2

In a language with multiple aspectual and tense systems one system participates in the coding of one or several of the following functions: specific interrogative clauses, comment-on-focus clauses, relative clauses, sequential clauses, temporal or conditional protasis or apodosis, and negative clauses. These types of clauses share a pragmatic status in that they must be interpreted in connection with another proposition or event. Aspects and tenses coding such clauses are referred to as 'dependent'. The other system does not code the pragmatic status of the clause, and such clauses can be interpreted independently of any other proposition or an event, or they can be interpreted in connection with another proposition. Such aspects and tenses are referred to as pragmatically unmarked.

2. THE NATURE OF PRAGMATIC DEPENDENCY ACROSS DIFFERENT TYPES OF CLAUSES

2.1 SPECIFIC INTERROGATIVE CLAUSES

Such clauses are pragmatically dependent because the question about a specific element of the clause must be interpreted with the assumption that the whole proposition is true, and that the only unknown element is the element that the question is about. Questions about the truth of a proposition do not have to have any presupposition and accordingly have the unmarked aspects. In Mina (Central Chadic) in specific interrogatives one cannot use a reduplicated form of the verb, which is used in pragmatically independent clauses.³

- (1) **mə mbáɗ ví**
REL⁴ surpass who
Who is superior?
- (2) **báyzá ngwáy bəhámàn bákà bá dzán-á nók mí**
chief COMP people Bahaman today still find-OBJ 2PL what
The chief said, "People, what else did Bahaman find us today?"

The dependent aspect codes the interrogative function, since the marker **ví** just codes an unspecified human.

³ Throughout the text, a translation in *italics* marks an elicited example. A translation that is not italicized marks an example drawn from natural discourse. The number of examples has been reduced to a minimum to save space.

⁴ For the meanings of abbreviations used in the interlinear glosses, please see the list on p. 66.

- (3) **kóo ví zá sà déyá ká mbéŋ**
 QUANT who COMP.1SG also 3SG like that
 Each one of them said, "Same thing with me."

Compare the reduplicated form, a characteristic of the perfective aspect in the pragmatically unmarked clause.

- (4) **séy ndə dzáŋ á dzáŋ-á kə́dóm á dāmù**
 so go find 3SG find-DIST calabash PREP bush
 And then she found a calabash in the bush.

2.2 COMMENT-ON-FOCUS CLAUSES

The comment-on-focus clause is often the only marker of the informational nature of the clause. In languages in which both the focused and the topicalized constituents are fronted and there are no other systematic markers of focus, the comment clause with the dependent aspect is the only marker indicating that the fronted element is in focus. This is the case in Mina, where the coding of the subject in focus may be accomplished only through the use of the dependent aspect, as in (5a), where the only marker of focus is the dependent habitual *rà*. Compare the use of the unmarked habitual aspect in a pragmatically unmarked clause in (5b).

- (5) a. **à zá hìdì wà á wək rà**
 3SG COMP man DEM 3SG go.crazy D.HAB
 She said, "This man is crazy."
 b. **túm à-ndí dāl kə mbéŋ**
 always.(Ful.) 3SG-HAB do PREP ANAPH
 She always did like that.

Similarly in Hausa, the dependent aspect may be the only marker of focus. In (6a) the clause is pragmatically unmarked, and in (6b) the adverb of time *jiyà*, 'yesterday', is in focus.

- (6) a. **jiyà sun sana-ř dà mu**
 yesterday 3PL.COMPL know-CAUS ASCC 1PL
*Yesterday they informed us.*⁵
 b. **jiyà suka sana-ř dà mu**
 yesterday 3PL.PRET know-CAUS ASCC 1PL
Yesterday they informed us. (Newman 2000:572; glosses added.)

A general characteristic that distinguishes the topicalization of the subject from the focus-on-subject functions is the use of the unmarked aspect, e.g. the unmarked habitual rather than the dependent habitual is used in the comment on topic.

- (7) **wàl wà á ndí tàl ngòn dáp á ndí tàl ngòn dáp á dāmù**
 wife DEM 3SG HAB walk 3SG only3SG HAB walk 3SG only PREP bush
 The wife would still take walks in the bush. (Mina.)

⁵ See footnote 3 above.

2.3 RELATIVE CLAUSES

The dependent aspect may be the only marker of the function of the clause as the comment on the head, regardless of the position of the head.

- (8) à zá í kè lù rə hìdì gənák syì hà vù
 3SG COMP 3PL INF say D.HAB man person COMP 2SG Q
 He said, "That person that they are talking about, is it you?" (Mina.)

2.4 SEQUENTIAL CLAUSES (WHETHER S₁ OR S₂)

Coding of either clause as pragmatically dependent forces its interpretation in connection with another clause. No other marker of temporal sequence is needed. In the following example from Mina the second clause has the dependent aspect.

- (9) zám zám zám á zám zá á n kəđóm ngən bət
 eat eat eat 3SG eat be 3SG PREP calabash 3SG take
 She ate and ate and ate, then she took her calabash.

2.5 TEMPORAL PROTASIS OR APODOSIS, OR BOTH

Coding of either clause as pragmatically dependent forces its interpretation in connection with another clause. The dependent habitual aspect in Mina, without any other markers of subordination, codes temporal protasis.

- (10) mə mbír mbír ván đə rá đíy-á mbír nə
 REL jump jump rain fall D.HAB start-DIST jump PREP
 məŋ cìđék cìđék cìđék cìđék cìđék
 L.ANAPH ideophone
 The jumper, when the rain was falling, he started to jump in it.

2.6 CONDITIONAL PROTASIS OR APODOSIS, OR BOTH

Coding of a clause as pragmatically dependent may be used to code conditional protasis. In the following example there is no conditional protasis coding other than the dependent aspect.

- (11) á ndər skù mbí mə žebér tá tükóŋ
 3SG go D.HAB NEG ANAPH SUBJ follow GEN 2SG
 If she does not leave, she should follow yours. (Mina.)

2.7 NEGATIVE CLAUSES

These display considerable variation within and across languages. Coding of a negative clause as pragmatically dependent forces its interpretation in connection with a corresponding affirmative clause.

- (12) á tük hà báṅ rə skù wúl béhl rə wa syì
 PREP you 2SG think D.HAB NEG neck break D.HAB DEM COM
 You are not thinking, you are crying with joy like that, i.e.,
 You're out of your mind and screaming and shouting. (Mina.)

The absence of dependent coding allows for an interpretation unrelated to a corresponding affirmative clause. This confirms the proposed function of the dependent aspect marker.

- (13) mǎllúm wà bàhá à táló skù
 marabout DEM also 3SG walk NEG
 The teacher does not walk, i.e.:
 That teacher is a sedentary one (as opposed to a travelling teacher).

Any clause may be marked as pragmatically dependent. An affirmative clause may have a dependent aspect or tense, thus signaling to the hearer that the clause must be interpreted in connection with another proposition.

3. COMPLEMENTARITY OF MEANS AS AN ARGUMENT FOR A FUNCTIONAL LOAD

The tense aspectual system is in complementary distribution with other coding means for the listed domains, in particular with external markers, i.e. markers that are not part of the verb. The external marker of focus is a marker that either precedes or follows the focused element. The external marker of relativization codes the relative clause. In some languages such markers code the features of gender, person, and number of the head of the relative clause. The external marker of specific interrogative is a marker that occurs in addition to question words indicating the scope of the question, such as 'who' or 'what'. In many Chadic languages these additional markers occur clause finally. The following is an example of the absence of external coding for the specific interrogative (first clause) and for the focus (second clause). The dependent aspect codes the interrogative and the focus functions.

- (14) à mǐsíl mí à mǐsíl wədá
 3SG steal what 3SG steal food
 What did she steal? She stole food! (Mina.)

The external temporal or sequential marker is a marker that codes the general temporal relationship between clauses rather than some specific relationship. Forms corresponding to 'when' are external temporal markers; forms corresponding to 'after', 'before', 'while', etc., are specific temporal markers, and they co-occur with the dependent aspectual forms.

If focus, specific interrogative, sequential, temporal or conditional clauses are coded systematically (i.e. obligatorily) by external markers, they are not coded by tense/aspectual systems. If a language does not have obligatory external markers for a pragmatic function, such a function is coded by tense/aspectual systems.

4. LANGUAGES WITH FULL INTERNAL CODING

In some languages, the tense/aspectual coding extends to several pragmatic domains. There are no external markers for such domains. Consider the following data from Hdi, a VS PREP O language.⁶ In Hdi in pragmatically unmarked clauses the perfective aspect is coded by the reduplication of the verb.⁷ The third-person singular pronominal subject is unmarked.

- (15) **bá-f-bá tá xgá**
 build-UP-build OBJ house
He built a house.

Reduplication in Hdi is not a coding means for the focus on the assertion (or 'auxiliary focus' as in Hyman and Watters 1984), because it can be used with hedging devices.

- (16) **hláx⁸ bá-f-bá tá xgá**
 maybe build-UP-build OBJ house
Maybe he built a house.

In pragmatically dependent clauses the reduplicated form cannot be used. Instead the simple form of the verb is used. Following are various types of pragmatically dependent clauses.

All focused constituents are fronted in Hdi, but the fronting is not a focusing means, since all constituents are also fronted for topicalization. The fundamental marker of focusing is the use of the pragmatically dependent aspect. Focus on the subject and only on the subject, in addition to the dependent aspect, also involves the comment clause marker *tá*.

- (17) **tsátsí tá bá-f tá xgá**
 3SG COM build-UP OBJ house
It is he who built a house.

Focus on constituents other than the subject is coded solely by the dependent aspect.

- (18) a. **xgá bá-f-tsí**
 house build-UP-3SG
It is a house that he built.
- b. **mà ndrùk bá-f-tá-tsí (tá xgá)**
 in Ndruk build-up-REF-3SG (OBJ house)
It is in Ndruk that he built (a house).

The relative clause also requires the dependent aspect, whether the subject or another constituent is the head.

⁶ In order to facilitate a comparison of the data, the examples come from elicited material so that they contain only what is minimally required for the issue at hand.

⁷ This is different from the situation in related Lamang, where Wolff 1983 analyses the reduplication as coding focus on aspect.

⁸ The digraph **hl** represents a lateral voiceless continuant.

- (19) **ndá sn-í tsá m̀dú tá bá-f-tá xgá mghám ya⁹**
 STAT know-1SG DEF man COM build-UP-REF house.GEN chief DEM
 I know the man who built the house of the chief.
- (20) **ndá sn-í tá tsá xgá bá-f-tsí yá**
 STAT know-1SG OBJ DEF house build-UP-3SG DEM
 I know the house that he built.

Specific questions have the question word in clause-initial position and a dependent aspect.

- (21) **wá tá bá-f tá xgá**
 who COM build-UP OBJ house
Who built a house?

In a negative clause only the dependent aspect can be used.

- (22) **bá-f-á tá xgá wà**
 build-UP-NEG OBJ house NEG
He didn't build a house.

In sequential clauses, in addition to the dependent aspect, there is also the marker **ká** in between the two clauses.

- (23) **skwa-p-skwá vrúà tá gù kà skwá-p-tà ngárgwà tá hlà**
 buy-OUT-buy Vrua OBJ goat SEQ buy-out-REF Ngargwa OBJ cow
 Vrua sold a goat and then Ngargwa sold a cow.

Compare the paratactic construction where independent aspect is used:

- (24) **skwa-p-skwá vrúà tá gù skwa-p-skwá ngárgwà tá hlà**
 buy-OUT-buy Vrua OBJ goat buy-OUT-buy Ngargwa OBJ cow
 Vrua sold a goat and Ngargwa sold a cow.

On the face of it, the use of the marker **kà** with dependent aspect in a sequential clause would contradict the proposed complementarity of coding means. This, however, is not so, since the marker **kà** has a much broader function as evidenced by its use with conditional clauses where it does not require the dependent.

- (25) **kà skwá-p-skwá-tsí tá gù dzà'á skwá-skwá tá lgút**
 SEQ buy-OUT-buy-3SG OBJ goat FUT buy-buy OBJ cloth
If he sold a goat, he will buy cloth.
- (26) **kà ma skwá-p-skwá-tsí tá gù má dzà'á skwá-skwá tá lgút**
 SEQ HYP buy-OUT-buy-3SG OBJ goat HYP FUT buy-buy OBJ cloth
Had he sold a goat, he would have bought a cloth.

Hence, the dependent coding is a means to code the sequential clause.

⁹ In stative constructions in Ildi the object is not marked by the preposition **tá**.

5. LANGUAGES WITH EXTERNAL CODING

If a language has systematic and obligatory external coding means, the tense/aspectual forms do not participate in the coding of the pragmatic functions focus, specific interrogative, sequential relative clause, and temporal protasis. One such language is Gulfe Kotoko, Central Chadic. The language appears to have only a tense and not an aspectual system. Arguments are coded by configuration, SVO.

- (27) **mèdángè nè dùwá dèlgé tùdá**
 Medangi 3M buy goat yesterday
 Medangi bought a goat yesterday.

The same form of the verb is used in the negative clause, coded by clause-final particle **ḏò**.

- (28) **mèdángè nè dùwá dèlgé tùdá ḏò**
 Medangi 3M buy goat yesterday NEG
 Medangi did not buy a goat yesterday.

Questions about the subject are coded by clause-initial **yày** 'who', followed by the subject pronoun.

- (29) **yày nè dùwá dèlgé tùdá**
 who 3M buy goat yesterday
 Who bought a goat yesterday?

The specific interrogative without an additional marker is not in focus, as evidenced by the fact that the focus is coded by different means. The questioned subject may be focused through the focusing particle **nó** which follows the focused constituent.

- (30) **yày nó nè d́ nì**
 who FOC 3M go L.ANAPH
 Who went there? (Referring to a place mentioned earlier.)

Questions about the remaining arguments and adjuncts are coded by the question word coding the features human, place, etc., and the specific interrogative marker **-dì**, glossed as SP.Q. The whole interrogative complex occurs in situ or is preceded by the appropriate preposition to code its grammatical role. Since there are systematic means to code the specific interrogative function, there is no motivation to use the tense/aspectual means to code this function.

- (31) **mèdángè nè dùwá d́-dì tùdá**
 Medangi 3M buy what-SP.Q yesterday
 What did Medangi buy yesterday?
- (32) **mèdángè nè dùwá dèlgé á hó-dì**
 Medangi 3M buy goat PREP where-SP.Q
 Where did Medangi buy a goat?
- (33) **mèdángè nè dùwá dèlgé á só-dì**
 Medangi 3M buy goat PREP when-SP.Q
 When did Medangi buy a goat?

Focus is coded by fronting the focused element and by the marker **ná** that follows the focused element. The verb and the tense and aspectual system are the same as in the indicative clause.

- (34) **mèdángà nà nà dùwá d̀̀lgé t̀̀d́á**
 Medangi FOC 3M buy goat yesterday
It is Medangi that bought a goat yesterday.

Objects and nouns not marked by prepositions have the suffix **r**, which otherwise is a feminine demonstrative.

- (35) **d̀̀lgé-r ná mèdángà nà dùwá t̀̀d́á**
 goat-DEM.F FOC Medangi 3M buy yesterday
It is a goat that Medangi bought yesterday.
- (36) **t̀̀d́á-r nà mèdángà nà dùwá d̀̀lgé**
 yesterday-DEM.F FOC Medangi 3M buy goat
It is yesterday that Medangi bought a goat.

The relativized subject is in clause-initial position, followed by the relative marker, which varies depending on the gender and number of the head. The relative pronoun for the masculine head is **yèŋ** (R.M), and the relative pronoun for the feminine head is the form identical with the third-person masculine singular subject pronoun **nà** (R.F). The relative pronoun for the third-person plural is **éŋ** (R.PL). The relative pronoun is followed by the subject pronoun, coding the gender and number of the head. Since the relative clause is systematically and obligatorily coded by the dedicated relative forms, no tense/aspectual means of coding is required.

- (37) **blò yèŋ nà dùwá d̀̀lgé-r gù nà d́s nì**
 man R.M 3M buy goat-DEM.F 1SG 3M go OUT
The man who bought my goat left.
- (38) **gràm nà d̀̀ dùwá d̀̀lgé-r gù d̀̀ d́s nì**
 woman R.F 3F buy goat-DEM.F 1SG 3F go OUT
The woman who bought my goat left.
- (39) **mèywè éŋ yè dùwá d̀̀lgé-r gù yè d́s nì**
 men R.PL 3PL buy goat-DEM 1SG 3PL go OUT
The men who bought my goat left.

The relativized object is in clause-initial position, followed by the relative marker, which varies according to the gender of the head noun. The verb is followed by a demonstrative coding the gender of the relativized object. The head of the relative clause is followed by the nominal or pronominal subject. But the nominal subject is itself coded by the focus particle **ná**. If the subject is masculine, it does not have to be followed by the subject pronoun; the focus particle alone is used. The focus particle after the subject is the coding means to indicate that the head of the relative clause is the object. The focus particle is the same for masculine, feminine, and plural subjects, and does not depend on the gender or number of the head of the relative clause.

- (40) **dàlgé nè bló-ŋ ná dùwá rà nè gú**
 goat R.F man-DEM 3M buy DEM.F 3M 1SG
The goat that the man bought is mine.
- (41) **dàlgé nè mèywè ná yè dùwá rà nè gú**
 goat R.F men FOC 3PL buy DEM.F 3M 1SG
The goat that the men bought is mine.
- (42) **dàlgé nè grèm ná dè dùwá rà nè gú**
 goat R.F woman FOC 3F buy DEM.F 3M 1SG
The goat that the woman bought is mine.
- (43) **cà yèŋ bló-ŋ ná dùwá ŋ nè gú**
 cow R.M man-DEM.M 3M buy DEM.M 3M 1SG
The cow that the man bought is mine.
- (44) **wàlgé éŋ bló-ŋ ná dùwá nè éŋ gú**
 goats R.PL man-DEM 3M buy DEM.PL 3PL 1SG
The goats that the man bought are mine.

Gulfe Kotoko, unlike many other Chadic languages, has a dedicated coordinated clausal conjunction. Hence there is no motivation for the aspectual/tense coding of the sequential clause.

- (45) **nè dùwá dǎlgè dú nè lé gà-dè wáyà**
 3M buy goat CONJ 3SG cut GEN-3F neck
He bought a goat and slaughtered it.

The evidence shows that **dú** is a clausal conjunction, as it conjoins clauses that describe simultaneous events.

- (46) **ná nè yóm wà dú ná dè l-ár**
 PROG 3M eat thing CONJ PROG 3F serve-3M
*He is eating and she is serving him. (The conjunction **dú** cannot be omitted.)*

The temporal protasis is coded by the form **sártàn** 'when' (Arabic?). The apodosis clause is unmarked. The verbs in both clauses have the same aspectual forms.

- (47) **sártàn nè wí dǎlgé-r-gán nè dùwá tèmár**
 when (Ar.) 3M sell goat-DEM-3M 3M buy cloth
When he sold his goat, he bought cloth.

The conditional protasis is coded by the form **sàr** followed by the simple or reduplicated form of the complementizer **gí(gí)**. The conditional apodosis is coded by the form **ádà**. Hence there is no motivation for tense/aspectual coding of either the protasis or the apodosis clause.

- (48) **sàr gí(gí) nè wí dǎlgé-r-gán ádà mó n dùwá tèmár**
 if COMP 3M sell goat-DEM-3M then FUT 3M buy cloth
If he sells his goat, he will buy cloth.

The irrealis condition in the future is coded by the protasis marker **àcá gígí** 'if'; the apodosis clause is preceded by the form **ádà**, and the apodosis clause has the future tense.

- (49) *àcá gígí wàyá mé à málbè àdà mù géy lèkól*
 if COMP ISG chief PREP Malbe then FUT.ISG build school
If I had been the chief of Malbe, I would have built a school.

6. CROSS-LINGUISTIC EVIDENCE

Table 1 summarizes the results of the cross-linguistic study of the interaction of tense and aspect marking and the external marking of various pragmatic functions. The entries within the columns are as follows:

In the column T/A (tense and aspect), the number 1 means there is only one system in the language and 2 indicates that there are two or more systems coding the same temporal and aspectual values.

The column FOC represents the coding of focus on any element of the proposition, be it an argument, adjunct, or the predicate, although this last element has not been checked systematically.

The column SP.Q represents the coding of specific questions, i.e. questions that assume the truth of the rest of the proposition, and ask about the unknown element.

The column RC represents the domain of the relative clause.

TEMP represents temporal protasis clauses. In some languages, the same coding means are also used for temporal apodosis clauses.

COND represents conditional protasis clauses.

SEQ represents sequential clauses. The importance of sequential clauses for the present study is that they sometimes show the same properties as other clauses discussed, and yet they do not share any of the semantic or informational features with the focus or specific questions.

NEG represents negative clauses. In some languages these clauses are marked by special tenses or aspects.

ASS represents the focus on the factuality of the event. This category, attested in only some languages, belongs to the domain of focus, as evidenced by the fact that it cannot co-occur with any other coding of focus in the clause (cf. also Hyman and Watters 1984).

The entry E means that the given function is coded externally, i.e. outside of the proposition, or by means other than tense or aspect. The entry TA indicates that the given function is coded inside the proposition, by a tense or an aspectual form. For Wolof, Bijogo, Banda-Linda, and Gbaya, i.e. for languages for which I have used only published sources, the entries in the table are incomplete because the relevant forms were not discussed by the authors. The second solid horizontal line in table 1 separates Chadic languages from Niger-Congo languages.

Table 1. The coding of selected functional domains in West-Central Africa

	T/A	FOC	SP Q	RC	TEMP	COND	SEQ	NEG	ASS
Mupun	2 (F/T) ¹⁰	E/T	E/T	E/T	E/T	E/T	E/T	E/T	
Giziga		E	E	E	E	E	E	E	TA
Hdi	2	TA	TA	TA	TA	TA	TA	TA	
Gidar	2	TA	TA	TA	TA	E	TA	TA	
Mina	2	TA	TA	TA	E/TA	E/TA	TA	E	
Mere	1	E	E	E	E/PRO	E/PRO	SEQ	E	
Mafa	1	E	E PRO	E	APOD	E	E PRO	E	
Mandara	2	E	E	E	Ø	E	Ø	E	TA
Kapsiki	1	E	E	E PRO			E	E	E
Gulfe Kotoko	1	E	E	E	E	E	E	E	
Lele	2	E + TA	E + TA	TA	TA	TA	TA		
Masa	1	E	E						
Fula	2	E/TA	TA	TA	E	E	E	TA	
Wolof	2	TA	TA	?	?	?	?		TA
Bijogo	2	TA	TA						
Banda-Linda	1	E	?	?	?	?	?	?	?
Gbaya	1	E	?	?	?	?	?	?	?
Tupuri	1	E	E	E	E/PRO	E/PRO	E/PRO		
Dagara	1	E	?	?	?	?	?	?	?

7. CONCLUSIONS

(1) Multiple tense and aspectual systems are also coding means for functions other than tense and aspect. In particular, one system may code one or more of the following functions: marking the comment on focus clause, and thereby indicating that one of the constituents is in focus; specific interrogative clause; relative clause; polarity coding; temporal or conditional protasis; sequential clause. For the domains examined, the following correlation obtains: the domains are coded either outside of the proposition or inside the proposition. In the latter case the double tense and aspectual systems are the coding means.

(2) The existence of two aspectual systems has been observed in languages from different families. Yet within the same family, and even within the same subgroup, only some languages have multiple aspectual systems. There exists a complementarity of coding means in that the tense/aspectual system is used when there are no obligatory external markers for the various functions coded. The pragmatic functions of the tense/aspectual system are therefore motivated by language-internal characteristics. The fact that the tense/aspectual system rather than some other means has been selected for the coding of the pragmatic functions may be motivated by the widespread use of those functions in languages of the area. The exact mechanism of how a language borrows a grammatical mechanism without its phonological realization is a topic for a different study.

¹⁰ Mupun has two future tenses, whose distribution appears to be along pragmatically dependent / pragmatically independent lines.

GRAMMATICAL ABBREVIATIONS

1	First person	GEN.....	Genitive
2	Second person	HAB.....	Habitual
3	Third person	L.....	Locative
A.....	Aspect	M.....	Masculine
ANAPH.....	Anaphor	NEG.....	Negative
AR.....	Arabic	OBJ.....	Object marker
ASS.....	Assertive	OUT.....	Extension coding movement 'out'
ASSC.....	Associative	PL.....	Plural
CAUS.....	Causative	PRET.....	Preterite
COM.....	Complementizer	PROG.....	Progressive
COMPL.....	Completive	Q.....	Question marker
COND.....	Conjunctive	R.....	Relative
CONJ.....	Conjunction	RC.....	Relative clause
D.....	Dependent	REF.....	Referential
DEF.....	Definite	REL.....	Relative marker
DEM.....	Demonstrative	SEQ.....	Sequential
DIST.....	Distal	SP.....	Specific
E.....	External	STAT.....	Stative
F.....	Feminine	T.....	Tense
FOC.....	Focus marker	TEMP.....	Temporal
FUT.....	Future	UP.....	Extension coding movement 'up'

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