Existential, Possessive, Locative, and Progressive Constructions in Mayrinax Atayal: Towards a Head-Movement Analysis

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In this paper, I demonstrate that the auxiliaries in Mayrinax Atayal, *hani'an* and *kia'*, are products of successive head movement and incorporation. This analysis can unify both the non-verbal constructions (EXT, POSS, and LOC) and the verbal construction (PROG), with the specific type of incorporated head responsible for the semantic subtleties.

Keywords: auxiliary, head movement, Atayal

I. Introduction[1]

This paper aims to account for cross-constructional similarities found in the existential (EXT), possessive (POSS), locative (LOC), and progressive (PROG) constructions in Mayrinax Atayal, a Formosan language. The hallmark of these four constructions is the prevalent use of auxiliaries, *kia'* and *hani'an*, similar to BE in English. However, in the first three constructions (EXT, POSS, and LOC) the auxiliary manifests the stative reading, while in the PROG construction it encodes the dynamic, progressive reading. Surprisingly, no morphosyntactic distinction of the auxiliary is observed among the four constructions. An explanation of such polarized auxiliary semantics is also attempted in this paper.

The aforementioned cross-constructional similarities are not solely found in Mayrinax Atayal, but also in some Romance (e.g. French and Italian) and Austronesian languages (e.g. Tagalog and Chamorro). In a cross-linguistic study on EXT, POSS, and LOC constructions, Freeze (1992) advances a unified analysis that EXT, POSS, and LOC constructions start from the locative structure (1a) at Deep Structure to different output forms (1b-d) after derivation.

[1] ACC = accusative case; AV = actor voice; AUX = auxiliary; GEN = genitive; LIN = linker; LOC = locative case; LV = locative voice; NEG = negative; NOM = nominative case; Perf = perfective marker; PV = patient voice; 1SG = first-person singular; 2SG = second-person singular.

(1) a. The underlying locative structure
[$_{IP}$ [$_{I'}$ **I** [$_{PP}$ **NP-$_{THEME}$** [$_{P'}$ **P** **NP-$_{LOC}$]]]]

b. Predicate locative
[$_{IP}$ **NP-$_{THEME}$** [$_{I'}$ **I** [$_{PP}$ ~~**NP-$_{THEME}$**~~ [$_{P'}$ **P** **NP-$_{LOC}$]]]]

c. Existential
[$_{IP}$ [$_{P'}$ **P** **NP-$_{LOC}$**] [$_{I'}$ **I** [$_{PP}$ **NP-$_{THEME}$** ~~[$_{P'}$ **P** **NP-$_{LOC}$**]~~]]]

d. Predicative possessive
[$_{IP}$ [$_{P'}$ **P** **NP-$_{LOC}$**] [$_{I'}$ **I** [$_{PP}$ **NP-$_{THEME}$** ~~[$_{P'}$ **P** **NP-$_{LOC}$**]~~]]]

The underlying structure is a Complete Functional Complex (CFC) (Chomsky, 1985) headed by P, with Theme NP as subject and Locative NP as complement (1a). When Theme NP is [+DEFINITE], it raises to [Spec, IP] yielding the LOC construction (1b). When Theme NP is [-DEFINITE], it remains in situ and [$_{P'}$ **P** **NP-$_{LOC}$**] raises to [Spec, IP], forming the EXT construction (1c). The P' structure in the POSS construction also raises, but the [+HUMAN] feature carried by the Locative NP contributes the possessive semantics to the whole structure (1d). This study also advances one hypothesis that **BE + P = HAVE**: incorporation of BE and P yields lexical HAVE. It indicates that HAVE is not a lexical item stored in the lexicon but a product after syntactic incorporation. Based on this proposal, languages in the world can be classified as BE-languages (without lexical HAVE) or HAVE-languages (with lexical HAVE).

A typological study also reports such similarities in auxiliary in EXT, POSS, and LOC constructions of 10 Formosan languages, in the affirmative and negative contexts (Zeitoun et al., 1999). In a study of clausal possession in Palestinian Arabic (a BE-language), Boneh and Sichel (2010) propose that the source of alienable and inalienable possession is an applicative structure. Furthermore, the auxiliary in Palestinian Arabic, a counterpart to BE in English, is shown to be a product after incorporation.

Following Freeze, Kayne (1993) extends the analysis from lexical HAVE to auxiliary

HAVE. The underlying structure is a DP headed by an inaudible prepositional D, with a nominalized participal VP as its complement. The derivation proceeds from BE+D/P incorporation and subject DP raising to [Spec, IP].

(2) Kayne's extended analysis

[$_{IP}$ **SUBJECT** [$_{I'}$ **BE+D** [$_{DP}$ ~~**SUBJECT.**~~[$_{D'}$ ~~**D**~~ [$_{VP}$ ~~**SUBJECT**~~ [$_{V'}$ **V OBJECT**]

John has broken the window

To account for the EXT, POSS, LOC, and PROG constructions in Mayrinax Atayal, I follow Freeze (1992), Kayne (1993), and Boneh and Sichel (2010), and propose that the auxiliaries *kia'* and *hani'an* are products of unselective head incorporation, and that different functional elements involved contribute to the polarized semantics between stativity and dynamicity.

II. Morphosyntactic and Syntactic Description

This section offers a brief sketch of the EXT, POSS, and LOC constructions in Mayrinax Atayal, and illustrates the shared characteristics of auxiliaries[2].

1. Existential, Possessive, and Locative Constructions

The EXT, POSS, and LOC constructions unanimously use the auxiliaries, *kia'* and *hani'an*, at the left sentential periphery. The two auxiliaries are varied in lexical semantics: *kia'* is used for events of temporal/locational distality, while *hani'an* is for those of temporal/locational proximity (Huang, 1995, 2000).

(2) Affirmative EXT, POSS, LOC constructions

a. Kia' ku' ngiyaw ka' rahuwal

AUX NOM cat LIN big

[2] Even though *kia'* and *hani'an* are labeled "exist" that highlights their verbal property in Huang (1995, 2000) and Zeitoun et al. (1999). For the reasons that I mention in this paper, I unanimously label them as AUX as they are functional in nature. The negator *ukas* is also labeled as a negative AUX, for the same reasons above.

‘There is a big cat.’ (Huang, 2000: 120)

b. Kia’ a’ imuwaag=mu
AUX NOM house=1SG.GEN
‘I have a house.’ (Huang, 2000: 122)

b’. Hani’an ku’ qutux imuwaag=mu
AUX NOM one house=1SG.GEN
‘I have a house (here).’ (Huang, 1995: 174)

c. Kia’ cku’ naniqan ku’ ruwas
AUX LOC desk NOM book
‘ The book is on the desk.’ (Huang, 2000: 121)

c’. Hani’an i’ runi’ ‘i’ yumin
AUX LOC here NOM yumin
‘Yumin is here.’ (Huang, 2000: 121)

(3a) manifests the EXT construction. (3b-b’) and (3c-c’) illustrate the alternative use of the two auxiliaries accompanied by the distality/proximity distinction, in POSS and LOC constructions. In negative constructions, the two auxiliaries are consistently replaced with *ukas* in the three constructions. No such distality/proximity distinction is reflected.

(4) Negative EXT, POSS, LOC constructions

a. Ukas a’ qulih
NEG.AUX NOM fish
‘There is no fish.’ (Huang, 2000: 123)

b. Ukas a’ pila’ nku’ nabakis
NEG.AUX NOM money GEN old.man
‘The old man has no money.’ (Huang, 2000: 124)

c. Ukas ku’ ‘ulaqi’=mu i’ imuwaag
NEG.AUX NOM child=1SG.GEN LOC home
‘My child is not at home.’ (Huang, 2000: 123)

The almost identical use of auxiliaries involved intuitively corresponds to Freeze (1992) in his unified analysis of the three (though he does not include negative constructions in the discussion). The data also show that Mayrinax Atayal is a BE-language as it has no lexical HAVE.

One question arises as for the appropriate label given to *kia'*/*hani'an* and *ukas*. In Huang (1995, 2000) and Zeitoun et al. (1999), they are labeled as main verbs. Here I argue that, although they manifest some verbal property, they should be treated as auxiliaries (or functional verbs) but not as lexical verbs. They are verbal as they can attract a second-position pronominal clitic.

(5) Speaker A: Kia?=si? Inu? (Zeitoun et al., 1999)
Exist=2SG.NOM where
'Where do you live?'

Speaker B: kia?=ci? / hani'an=ci? taypak
Exist=1SG.NOM / exist=1SG.NOM Taipei
'I live in Taipei.'

Yet, they cannot be inflected with different voice markers, behaving differently from normal lexical verbs in Mayrinax Atayal and other Formosan languages (Zeitoun et al., 1999). Such morphological deficit is also observed in the auxiliaries in Tzotzil, a Mayan language (Aissen, 1994). In addition, they do not carry concrete semantics as most lexical verbs do. Therefore, I follow Aissen (1994) in treating these verbal elements (*kia'*, *hani'an*, and *ukas*) in Mayrinax Atayal as auxiliaries in these three constructions and also in the PROG construction.

2. Progressive Construction

In the PROG construction in Mayrinax Atayal, the two auxiliaries *kia'* and *hani'an* are also used, along with the same distality/proximity distinction.

(5) Affirmative PROG construction

a. Kia' t<um>uting ku' 'ulaqi' cu' xuil
AUX hit<AV>hit NOM child ACC dog
'The child is hitting a dog.' (Huang, 2000: 119)

b. hani'an=ci' m-aniq cu' bunga
AUX=1SG.NOM AV-eat ACC sweet.potato
'I am eating a sweet potato.' (Huang, 2000: 119)

The major difference between the PROG construction and the other three is that the former involves a lexical verb with the auxiliary marking the progressive aspect. The auxiliary can also attract a pronominal clitic (5b).

3. Brief Summary

The EXT, POSS, LOC, and PROG constructions in Mayrinax Atayal unanimously require *kia'* and *hani'an* at the left sentential periphery. The former carries a distal reading while the latter carries a proximal reading. The EXT, POSS, and LOC constructions in the negative context select only *ukas*. Such formal correlation supports Freeze (1992) in grouping them together, and it is promising to extend the analysis to even the PROG construction. Furthermore, I argue that these elements, though verbal in nature, should be approached as auxiliaries or functional verbs (contra Huang 1995, 2000; Zeitoun et al., 1999), due to their morphological deficit and semantic rarity (Aissen, 1994).

III. Towards a Unified Analysis via Head Movement and Incorporation

In this section, I argue that the auxiliaries, *kia'* / *hani'an* and *ukas*, are syntactic products derived from head movement and head incorporation, following Freeze (1992) and Kayne (1993). In EXT, POSS, and LOC constructions, the affirmative auxiliaries *kia'* and *hani'an* are derived from AT+F+I, with the applicative head AT responsible for stativity (Boneh & Sichel, 2010). The functional head (a Spatial category) F carries the distality/proximity

feature for the semantic distinction quite common in Formosan languages. The negative auxiliary *ukas* is assumed to be the obligatory spell-out of AT+F+NEG+I[3], regardless of the spatial feature carried by F.

1. Existential, Possessive, and Locative Constructions

The basic structure of EXT, POSS, and LOC constructions in Mayrinax Atayal, following Pylkkanen (2008) and Boneh and Sichel (2010), is posited to be headed by the stative applicative head AT. The rationale is that the three constructions unanimously express the stative semantics rather than dynamic semantics. Therefore the applicat AT is an appropriate head than its dynamic counterparts like TO and FROM. The theme DP is base-generated at [Spec ApplP] and the locative DP serves as its complement, similar to Freeze's (1992) underlying CFC structure. A functional projection, which can be a SpatialP, is also posited to accommodate the spatial features (hereafter as S-features), [distal] and [proximate].

The modeled structure is presented below (6).

(6) The modeled EXT, POSS, and LOC basic structures

$[_{IP}\ [_{I'}\ \mathbf{I}\ [_{FP}\ [_{F'}\ \mathbf{S\text{-}feature}\ [_{ApplP}\ \mathbf{DP_{theme}}\ [_{Appl'}\ \mathbf{AT}\ \mathbf{DP_{locative}}]]]]]]$

The EXT constructions with *kia'* (7a-b), as well as the possible word orders observed by Zeitoun et al. (1999) (7c-d) are shown below.

(7) The EXT construction in Mayrinax Atayal and its word order (Zeitoun et al., 1999)

a. Kia' ku' ngiyaw ka' rahuwal
AUX NOM cat LIN big
'There is a big cat.' (Huang, 2000: 120)

[3] Since the negative EXT, POSS, and LOC constructions are marked with *ukas*, I assume that it is the product of head movement and incorporation, with the NEG head introduced into the process. The derivation is almost similar to the affirmative constructions, so I do not include it into detailed discussion.

b. Kia’ a’ ruwas cku’ naniqan
AUX NOM book LOC desk
‘There is a book on the desk.’ (Huang, 2000: 121)

c. AUX-THEME-LOCATIVE

d. AUX-LOCATIVE-THEME

The derivation of auxiliary generation goes as follows.

(8) Derivation of the EXT construction
[$_{CP}$ **I+S-feature +AT** [$_{IP}$ [$_{I'}$ ~~**I+S-feature +AT**~~ [$_{FP}$ ~~**S-feature +AT**~~ [$_{ApplP}$ **DP$_{theme}$** [$_{Appl'}$ ~~**AT**~~ **DP$_{locative}$**]]]]]]

The applicative head AT head-moves to the S-feature carried by F, and this complex further raises and incorporates to I, yielding the auxiliary. If the S-feature is [distal], then the generated auxiliary is *kia’*; if the S-feature is [proximate], the auxiliary is *hani’an*. Its last movement to C, a scope position, contributes the stative reading to the whole sentence as it stands in a c-commanding position. In brief, the applicative head AT contributes the stative aspectual reading, and the S-feature carried by F determines the form of auxiliary and the distal vs. proximate reading. The head INFL can be assumed to provide material for auxiliary realization.

As the theme DP is indefinite, it stays in situ (following Freeze) and gets Case-checked by INFL as it is the closet goal within search. As the applicative head has moved away, the locative DP is free to undergo scrambling within the extended head domain (den Dikken, 2006), that is the whole IP. The locative DP may be stranded sentence-finally or it may precede the theme DP but not across CP domain. The two possible word orders (7c-d) correspond to that observed by Zeitoun et al. (1999) in Mayrinax Atayal. The optional DP movement, along with the movement of the head complex, yields the observed word orders.

The POSS construction can also be explained in a way similar to that of the EXT

construction.

(9) The POSS construction and its word order (Zeitoun et al. 1999)

a. kia’ a’ pila’=mu
AUX NOM money=1SG.GEN
‘I have money.’ (Huang, 1995: 174)

b. hani’an ku’ qutux imuwaag=mu
AUX NOM one house=1SG.GEN
‘I have a house (here).’ (Huang, 1995: 174)

c. AUX-THEME

(10) Derivation of the POSS construction

[$_{CP}$ **I+S-feature +AT** [$_{IP}$ **DP$_{theme+}$DP$_{locative}$** [$_{I'}$ ~~**I+S-feature +AT**~~ [$_{FP}$ ~~**S-feature +AT**~~ [$_{ApplP}$ ~~**DP$_{theme+}$DP$_{locative}$**~~ [$_{Appl'}$ ~~**AT**~~ ~~**DP$_{locative}$**~~]]]]]]

What is different is that the [+HUMAN] locative DP (the possessor DP) is obligatorily realized as a pronominal clitic or a clitic-like DP in Mayrinax Atayal (Huang, 1995, 2000). The affixal nature of the possessor DP makes them attached to the nearest DP, that is the theme DP, at the very beginning of derivation (10). In this way, the movement of [+HUMAN] locative posited in Freeze (1992) is blocked due to the unique affixal property of the possessor DP. The EPP feature of INFL then attracts this DP complex to [Spec, IP]. Here surfaces the only word order, AXU-THEME, in the POSS construction as reported. The head complex at C also contributes the stative reading and the contained S-feature determines the distal/proximate reading and specific auxiliary form.

The LOC construction and its word order are presented below.

(11) The LOC construction and its word order (Zeitoun et al., 1999)

a. kia’ i biyeh na’ imuwaag ‘i’ yumin
AUX LOC side GEN house NOM Yumin
‘Yumin is by the side of the house.’ (Huang, 1995: 171)

b. hani'an i' runi 'i' yumin
AUX LOC here NOM Yumin
'Yumin is here.' (Huang, 1995: 171)

c. AUX-THEME-LOCATIVE

d. AUX-LOCATIVE-THEME

(12) Derivation of the LOC construction
[$_{CP}$ **I+S-feature +AT** [$_{IP}$ **DP$_{theme}$** [$_{I'}$ ~~**I+S-feature +AT**~~ [$_{FP}$ ~~**S-feature +AT**~~ [$_{ApplP}$ ~~**DP$_{theme}$**~~ [$_{Appl'}$ ~~**AT**~~ **DP$_{locative}$**]]]]]]

As the theme DP is definite, I follow Freeze (1992) and assume that it moves to [Spec, IP] due to attraction of the EPP feature carried by INFL. The successive head movement from AT to C extends the head domain and allows the locative DP to undergo scrambling within IP. Therefore, there are also two possible word orders for the LOC construction (11c-d) as for the EXT construction (7c-d). The auxiliary at C also scopes over IP, giving it the stative reading. The form of auxiliary is also determined by the S-feature of F, which allows two alternatives according to the spatial semantics selected.

2. Progressive Construction

The PROG construction in Mayrinax Atayal is also characterized by the use of auxiliary, like the previous three non-verbal constructions. Auxiliary selection between *kia'* and *hani'an* is also manifested, with the former for past progressive and the latter for present progressive. Approximately such distinction is a reflex of the distality/proximity distinction realized in the other three. The other characteristic of the PROG construction is the use of lexical verb. Its appearance seems to contribute to the dynamic progressive reading, rather than the stative meaning.

(13) Perfective and progressive constructions in Mayrinax Atayal
a. m<in>aniq=ci' cu' qulih

AV<Perf>eat=1SG.NOM ACC fish
'I ate fish.' (Huang, 1995: 152)

b. k<in>tal-an=mu ku' xuil
see<Perf>see-LV=1SG.GEN NOM dog
'I saw the dog.' (Huang, 1995: 153)

c. hani'an=ci' m-aniq cu' iyok
AUX=1SG.NOM AV-eat ACC orange
'I am eating an orange.' (Huang, 1995: 156)

d. kia'=ci' m-aniq cu' iyok
AUX=1SG.NOM AV-eat ACC orange
'I was eating an orange.' (Huang, 1995: 156)

The perfective aspect can surface as a verbal affix (14a-b). The examples above show that the progressive is not realized on the verb; it can be realized as an auxiliary (14c-d). This distinction shows that the perfective marker *–in-* is affixial while the progressive marker is not. The reported distal/proximate distinction is also reflected in the two alternative progressive auxiliaries: *kia'* for past progressive (distal to the speaker) and *hani'an* for present progressive (proximate to the speaker).

Therefore, I posited that in Atayal, the affixial perfective marker attaches to the verb at the very beginning of derivation and therefore cannot get involved in successive head movement and incorporation. That is, no auxiliary should appear to encode the perfective aspect, as attested by the data from Mayrinax Atayal. On the other hand, the progressive marker, being non-affixial, is permitted to be involved in successive head movement and incorporation, yielding the progressive auxiliaries *kia'* and *hani'an* respectively.

(15) Derivation of the PROG construction
[$_{CP}$ [$_{C'}$ **I+PROG**+v+**V** [$_{IP}$ [$_{I'}$ ~~**I+PROG+v+V**~~ [$_{AspP}$ [$_{Asp'}$ ~~**PROG+v+V**~~ [$_{vP}$ **DP$_{agent}$** [$_{v'}$ ~~**v+V**~~ [$_{VP}$ ~~**V**~~ **DP$_{theme}$**]]]]]]]

As Atayal has no affixal progressive marker, the [progressive] feature held by Asp cannot jump to the verb. Rather, it stands alone and incorporates into the head complex generated by successive head movement. When this head complex reaches INFL, the I+Asp+v part yields an auxiliary that further raises to C to scope over the whole sentence, leaving the lexical verb stranded in INFL. As the distal/proximate distinction is related to tense disambiguation, it is reasonable to have the two features selected by INFL and determine the auxiliary form: the [distal] feature appears with *kia'* and the [proximate] feature with *hani'an*. This can explain the correlation of auxiliary selection and tense distinction.

IV. Summary and Conclusion

In this paper, I demonstrate that auxiliaries in Atayal, *hani'an* and *kia'*, are the products of successive head movement and incorporation. This analysis can unify both the non-verbal constructions (EXT, POSS, and LOC) and the verbal construction (PROG), with the specific type of incorporated heads responsible for the semantic subtleties. The applicative head AT contributes the stative reading to the EXT, POSS, and LOC constructions, while the lack of AT and addition of Asp contribute the dynamic reading to the PROG construction. The two features, [distal] and [proximate], placed either in F or INFL, help determine auxiliary selection between *kia'* and *hani'an*. This analysis also blends the spirit of Freeze (1992), Kayne (1993), and Boneh and Sichel (2010) in using head incorporation as the key process, to explain the simple form of auxiliaries that encode various types of semantic information.

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汶水泰雅語存在句、方位句、所有句、進行態句—中心語移動式分析

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本文以汶水泰雅語存在句、方位句、所有句、進行態句中所使用的助動詞*kia'*與*hani'an*為分析目標。試圖提供以連續中心語移動及中心語融合為主的統合式分析，並藉由融合過程中相異中心語種類解釋助動詞中所含之複雜語意。

關鍵詞：助動詞、泰雅語、中心語移動