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A Head-Marking Grammar for Applicative Constructions

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Head-marking languages take opposite strategies from dependent-marking languages. The former mark grammatical relations on the head while the latter on the dependent. In a head-marking language the head of a sentence is the verb so that grammatical relations are marked on the verb. Applicative constructions seem to be strategies characteristic of head-marking languages but have been studied mainly from the viewpoint of dependent-marking languages. In this paper, therefore, I will discuss them from a head-marking perspective.

Key words: applicative, head-marking, Uto-Aztecan, Mayan

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1. Introduction

Rincon (1595) may be the first person who used the term “applicative verbs (verbos aplicativos)”, although Peterson (2007: 2) notes that the term appears first in the Nahuatl grammar by Carochi (1645). Rincon’s grammar is one of the three early grammars known before Carochi’s famous grammar. However, his treatment is very simple. He only gives
three examples, *ni-c-cui-lia in Pedro i-tilma* ‘I take his clothes from Pedro’, *ni-c-uztqui-ilia in Pedro* ‘I laugh with Pedro’, and *ni-c-cotoni-ilia i-mapil Pedro* ‘I cut the finger of Pedro’, though he explains in detail how applicative verbs are derived (Rincon 1885: 44–45).

The first grammar of Nahuatl was written by Olmos (1547). He does not mention applicative verbs but discusses “reverential” verbs which have the same suffixes as applicatives. The second Nahuatl grammar is Molina’s (1571), in which we cannot find the term *verbos aplicativos* but applicative constructions are treated in detail.

According to the definition by Andrews, who writes an excellent primer grammar, applicative verbs are those that relate or apply an action indirectly to a patient, either to his benefit or to his harm (Andrews 1975: 102). Peterson (2007: 1) defines applicative constructions as the means some languages have for structuring clauses that allow the coding of a thematically peripheral argument or adjunct as a core-object argument. To put it simply, from the viewpoint of head-marking languages, a peripheral argument is encoded on the verb through applicative affixation. These constructions are also called “preposition incorporation” (Baker 1988) or “relational preverbs” (Craig 1978; Craig and Hale 1988).

Direct or core arguments are subject and direct object, while indirect arguments or adjuncts, peripheral or oblique arguments are related to benefactive, additional benefactive, malefactive, instrumental, comitative, prioritive, relinquitive, locative, etc.

In this paper I will treat applicatives of native Middle American languages. I begin with Classical Nahuatl in which the term “applicative” is first used.

## 2. Classical Nahuatl

The applicative marker in Classical Nahuatl has three allophones, *-ia/-lia/-huia*. The morphological difference among these suffixes depends on the verb morphology and there are no differences functionally or semantically. Applicative stems in Classical Nahuatl are derived stems, formed by means of a suffix which, depending on the meaning of the source stem, may be glossed as ‘to’, ‘for’, ‘from’, ‘about’, ‘in relation to’, ‘on behalf of’, ‘for the sake of’, etc. Single-object applicatives come from intransitive stems; double-object applicatives come from single-object transitive stems; and triple-object applicatives come from double-object transitive stems. Therefore applicatives seem to be valence-increasing suffixes.

To better understand Nahuatl sentences, I will first describe the pronominal system (Table 1). Nahuatl is an accusative language. In the third person, the subject pronominal is zero and only the object pronominal is marked on the verb. Indefinite accusative and posses-

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<td><strong>SG</strong></td>
<td><strong>PL</strong></td>
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<td>nēch-</td>
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<tr>
<td>2</td>
<td>ti-</td>
<td>am-*</td>
<td>mitz-</td>
</tr>
<tr>
<td>3</td>
<td>Ø</td>
<td>Ø</td>
<td>c-/qu-/qui-</td>
</tr>
<tr>
<td>IND</td>
<td>Ø</td>
<td>Ø</td>
<td>tē-/lā-</td>
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</tbody>
</table>

* am, ìn, quim become an, ìn, quin before n.
sive and reflexive are marked by tē-/tla-, tē-/tla-/ne-, ne-, respectively.

### 2.1. One argument verbs

An intransitive verb is transformed into a two-argument verb by adding an applicative suffix. At first glance the resulting verb seems to be transitive formally but the applicative suffix does not affect the meaning of the verb.

(1) \( ni\)-tlaōcoya \ (Andrews 1975: 107)
   s1-be sad
   ‘I am sad.’

(1a) \( ni\)-tē-tlaōco-\( lia \) \ (Andrews 1975: 107)
   s1-\( IND\)-be sad-APPL
   ‘I am sad in regard to someone; I feel pity for someone.’

(1b) \( ni\)-mitz-tlaōco-\( lia \) \ (Andrews 1975: 107)
   s1-o2-\( be\) sad-APPL
   ‘I am sad in regard to you; I feel pity for you.’

(1c) \( ni\)-no\( -\)tlaōco-\( lia \) \ (Andrews 1975: 107)
   s1-ref-\( be\) sad-APPL
   ‘I am sad in regard to myself; I feel self-pity.’

### 2.2. Two argument verbs

As shown in the following examples (2a)–(3a), only indirect object occurs and direct object becomes null after the applicative transformation. The reason may be that there is incompatibility of the same set of affixes on the verb.

(2) \( ni\)-c-xeloa \ (Andrews 1975: 108)
   s1-o3-divide
   ‘I divide it’

(2a) \( ni\)-mitz-xel-huia \ (Andrews 1975: 108)
   s1-o2-divide-APPL
   ‘I divide it with you.’ \( (c\)→\( Ø))

(3) \( ni\)-quin-nāmo\( ya \) \ (Andrews 1975: 108)
   s1-o3PL-kidnap
   ‘I kidnap them.’

(3a) \( ni\)-quin-nāmoya-\( lia \) \ (Andrews 1975: 108)
   s1-o3PL-kidnap-APPL
   ‘I kidnap them from them.’ \( (quin\)→\( Ø))

However, indefinite tē-/tla- and reflexive markers co-occur with an object marker, resulting in three argument verbs.

(4) \( ni\)-tla-pāca \ (Andrews 1975: 107)
   s1-\( IND\)-wash
   ‘I wash things.’
(4a) *ni-tē-ṭla-pāqui-ṭia*  (Andrews 1975: 107)
   s1-INDF-INDF-wash-APPL
   ‘I wash things for people.’

   s1-03-INDF-wash-APPL
   ‘I wash things for him.’

(4c) *ni-no-ṭla-pāqui-ṭia*  (Andrews 1975: 107)
   s1-REF-INDF-wash-APPL
   ‘I wash things for myself.’

2.3. Three argument verbs

Three argument verbs include indefinite markers. Four argument verbs are created by adding the applicative suffix.

   s1-02-INDF-wash-CAUS
   ‘I have you wash something.’

   s1-02-INDF-INDF-wash-CAUS-APPL
   ‘I have you wash something for someone.’

   s1-02-REF-INDF-wash-CAUS-APPL
   ‘I have you wash something for me.’

2.4. Passive and impersonal

Applicative verbs may undergo passive and impersonal transformations. Indirect object becomes subject.

(6) *Ø-tēch-quiahu-i-č*  (Andrews 1975: 111)
   s3-o1PL-rain-APPL-FUT
   ‘It will rain on us.’

(6a) *ṭquiahu-ṭi-ō-z-queh*  (Andrews 1975: 111)
   s1PL-rain-APPL-PASS-FUT-PL
   ‘We will be rained on.’

   s3PL-o1-INDF-take-APPL-PL
   ‘They take something from me.’

(7a) *ni-ṭla-cuį-ṭi-lo*  (Andrews 1975: 111)
   s1-INDF-take-APPL-PASS
   ‘I am being deprived of something.’

Formally indirect objects promote to subject and so indirect objects are primary objects and direct objects are secondary objects, according to the definition by Dryer (1986) who
distinguishes between Primary object, consisting of the indirect object of a ditransitive clause or the direct object of a monotransitive clause, and Secondary object, consisting of the direct object of a ditransitive clause.

Applicative affixes are marked on the verb, irrespective of whether it is intransitive, monotransitive or ditransitive. At first glance applicative affixes function as valence-increasing affixes, that is, inherently intransitive verbs seem to become transitive, and inherently transitive verbs become ditransitive. But some questions arise, because applicative affixes do not affect the status of the verb. Can the same grammatical affix be attached to a different verb class? Is this a view from head-marking grammar? Is it enough to say that an applicative affix only codes the indirect argument on the verb? Is the concept that indirect object promotes to subject true also for a dependent-marking grammar?

Applicatives are common in Uto-Aztecan languages, and their normal effect is to add an argument to the verb, but Southeastern Tepehuan provides evidence that the applicative affix functions as an index of the indirect argument on the verb.

3. Southeastern Tepehuan

In southeastern Tepehuan, one of the Uto-Aztecan languages, spoken in Northern Mexico, some transitive verbs inflect according to the number of the object, while some intransitive verbs are pluralized in agreement with the number of the subject. We say, therefore, that verbs inflect ergatively.

The intransitive verb *cos* is pluralized by means of reduplication of the first syllable when the subject is plural.

(8)    `va-cos-Ø gu-'ahlí` (Willett 1981: 66)
      `CMP-sleep-s3 ART-child`
      `The child is sleeping [sic].`

(9)    `va-có-cos-'am gu-'aahl` (Willett 1981: 67)
      `CMP-RDI-sleep-s3 ART-children`
      `The children are sleeping [sic].`

In (10) the object *gu-jannuhl* is singular and so the verb takes a singular form. In (11) the object is plural and so the transitive verb is pluralized. In (12) the verb is plural in agreement with the plural object. In the verbal phrase, however, the indirect object *ñ* occurs instead of the direct object marker *ja*. If the first person indirect object functions as object, the verb

<table>
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<td></td>
<td>Subject</td>
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<td>1</td>
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<td>-p</td>
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<tr>
<td>3</td>
<td>-Ø</td>
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</table>

by

-ñ-
should take a singular form, but the verb is plural, agreeing with the initial direct object \textit{gu-ja-jannuhl}. Willett analyzes the indirect object as primary object and the direct object as secondary object.

(10) \textit{ma’n-am tu-vacuan gu-jannuhl} (Willett 1981: 61)
\begin{tabular}{lll}
\textup{one-s3pl} & \textup{dur-wash} & \textup{ART-cloth} \\
\end{tabular}
‘They are washing (out) a (piece of) cloth.’

(11) \textit{tu-vopcon-’ap gu-ja-jannuhl} (Willett 1981: 67)
\begin{tabular}{lll}
\textup{dur-wash+rdp-s2} & \textup{art-rdp-cloth} \\
\end{tabular}
‘You are washing clothes.’

(12) \textit{tu-ñ-vopcoñ-iñ-’ap gu-ja-jannuhl} (Willett 1981: 67)
\begin{tabular}{lll}
\textup{dur-01-wash+rdp-appl-s2} & \textup{art-rdp-cloth} \\
\end{tabular}
‘You are washing clothes for me.’

It is very interesting to note the agreement system in the verbal phrases. In (13) the object \textit{gu-tacárui}’ is singular and so the verb is singular, even though the object marker \textit{jam} on the verb is plural. In (14)–(15) the object \textit{gu-tatcarui}’ is plural and so the verb is plural. The verb of (14) is transitive and the plural object prefix \textit{ja} on the verbal phrase cross-references the object \textit{gu-tatcarui}’. In contrast, the sentences (13) and (15) are applicative constructions and the second person \textit{jam} and \textit{jum} occur, which are initial indirect object. In (15) the verbal form is plural, agreeing with the plural object, but the third person \textit{ja} does not occur on the verb. Instead of \textit{ja}, the second person singular \textit{jum} associating with the applicative \textit{dy} occurs. If the distinction between primary object and secondary object is effective, the pluralization of the transitive verb violates this distinction, because the verb is pluralized in agreement with the primary object in (14), but with the secondary object in (15). The verb is pluralized in agreement with the direct object. According to relational grammar, indirect object advances to the direct object. If so, the verb should agree in number with the initial indirect and final direct object. Therefore, it is sufficient to say that the applicative \textit{dy} registers the presence of the indirect object, although Aissen (1983: 281) criticizes this registration analysis.

(13) \textit{xiv-añ jam-bi-idy-ica’ gu-tacárui}’ (Willett 1981: 67)
\begin{tabular}{llll}
\textup{now-s1} & \textup{o2pl-go to-appl-trnsf-fut} & \textup{ara-chicken} \\
\end{tabular}
‘I’ll bring the chicken to you (pl) right now.’

(14) \textit{xiv-añ ja-’ui-ca’ gu-tatcarui}’ (Willett 1981: 68)
\begin{tabular}{llll}
\textup{now-s1} & \textup{o3pl-go to+pl-trnsf-fut} & \textup{art-chickens} \\
\end{tabular}
‘I’ll take the chickens away right now.’

(15) \textit{xiv-añ jum-’ui-’dy-ica’ gu-tatcarui}’ (Willett 1981: 68)
\begin{tabular}{llll}
\textup{now-s1} & \textup{o2-go to-appl-trnsf-fut} & \textup{ara-chickens} \\
\end{tabular}
‘I’ll bring the chickens to you (sg) right now.’

In (16) the postposition \textit{-javin} is attached to the noun \textit{gu-m-’a’mi}. In (17) the applicative affix \textit{-idy} is suffixed to the verb and the postposition disappears. In place of the post-
position -javim the applicative -idya appears on the verb. Therefore we may say that the function of the applicative -idya corresponds to the postposition -javim and the affix ja cross-references the noun gu-m-’a’mi’.

(16) \textit{tu-’a’ga-’iñ \ gu-m-’a’mi’-javim} (Willett 1981: 68)  
\hspace{1cm} \text{DUR-talk-FUT-S1 \ ART-POSS2-friends-with}  
\hspace{1cm} ‘I’ll talk with your friends (about it).’

(17) \textit{tu-ja-’a’gu-idya-’iñ \ gu-m-’a’mi’} (Willett 1981: 68)  
\hspace{1cm} \text{DUR-G3-PPL-talk-appl-FUT-S1 \ ART-POSS2-friends}  
\hspace{1cm} ‘I’ll talk with/to(?) your friends (about it).’

4. Tepehua

Tepehua is a Totonacan language spoken in the state of Veracruz. Affixes that function as applicatives are comitative \textit{t’a-}, beneficiary \textit{-ni}, and instrumental \textit{pu:-}. When applicatives are used with intransitive verbs, the verbs have both subject and object arguments. Transitive verbs suffixed with applicatives have three direct arguments. It is impossible for a verb to take four arguments in Tepehua.

(18) \textit{tapaatzaa-ni-l \ kin-kuku} (Watters 1988: 80)  
\hspace{1cm} \text{work-APPL-PER \ POSS1-uncle}  
\hspace{1cm} ‘X worked for my uncle.’

(19) \textit{ki-st’aa-ni-yee-’i} (Watters 1988: 83)  
\hspace{1cm} \text{O1-sell-APPL-FUT-S2}  
\hspace{1cm} ‘You will sell her to me.’ or ‘You will sell me to him.’

(20) \textit{Pedro \ t’aa-laqtz’in-aa-n ni Juan} (Watters 1988: 83)  
\hspace{1cm} \text{Pedro \ APPL-see-IMPF-O2 \ ART \ Juan}  
\hspace{1cm} ‘Pedro with Juan sees you.’ or ‘Pedro with you sees Juan.’

(21) is an intransitive construction with a prepositional phrase. In (21a) the preposition \textit{laka:} is replaced by \textit{pu:-}, which is marked on the verb. In (21b) both \textit{pu:-} and \textit{laka:} occur redundantly.

(21) \textit{mi-l \ laka:=hu:li} (Watters 1988: 474)  
\hspace{1cm} \text{come-PER \ PREP=horse}  
\hspace{1cm} ‘He came on a horse.’

(21a) \textit{pu:-mi-l \ hu:ki} (Watters 1988: 474)  
\hspace{1cm} \text{APPL-come-PER \ horse}  
\hspace{1cm} ‘He came on a horse.’

(21b) \textit{pu:-mi-l \ laka: \ hu:ki} (Watters 1988: 474)  
\hspace{1cm} \text{APPL-come-PER \ PREP \ horse}  
\hspace{1cm} ‘X came on a horse.’
The languages treated so far are nominative/accusative and there is no person marker distinction between intransitive and transitive subjects. To search the distinction it is appropriate to test ergative languages where the distinction between an intransitive and transitive subject is clearly marked by person markers.

5. Sierra Popoluca

Sierra Popoluca is a Mixe-Zoquean language, spoken in Veracruz, Mexico. Sierra Popoluca is an ergative language and has two sets of person markers. Person agreement marker Set A is used to indicate transitive subject and the possessor on nouns, while Set B is used for intransitive subject and transitive object. The valence of the verb increases when the instrumental applicative -ka is used. *kim-* in (22) and *mi:ch-* (23) are intransives and take Set B absolutive as subject. When the instrumental applicative -ka is suffixed to these verbs in (22a)–(23a), the verbs take Set A ergative, which means the verbs are transitives, even though the meaning of the verbs does not change.

<table>
<thead>
<tr>
<th>Table 3 Sierra Popoluca Pronominal System</th>
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<tbody>
<tr>
<td>Set A</td>
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<td>1</td>
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<td>1 DUAL</td>
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(22) *jem tzi:xi Ø-kim-pa kuy yukmi* (Elson 1999: 100)

DEF child B3-climb-INC tree on

‘The child climbs up a tree.’

(22a) *an-kim-ka-pa (> anki'jak'd':ba)* (Elson 1960: 66; Elson 1999: 182)

A1-climb-APPL-INC

‘I climb it.’

(23) *jem tzi:x-tam Ø-mi:ch-yaj-pa anši:aksi* (Elson 1999: 83)

DEF child-PL B3-play-PL-INC outside

‘The children play outside.’

(23a) *i-mi:ch-ka-pa tun tipxi* (Marlett 1986: 372)

A3-play-APPL-INC one lariat

‘He plays with a lariat.’

The subject of an intransitive construction is treated differently from the subject of a transitive construction in ergative languages. Sierra Popoluca examples clearly show that adding an applicative suffix has a valence-increasing effect, even though the meaning seems to be the same. It is not clear, but I guess the focal point moves to indirect arguments when the applicative is used.
6. The applicative suffix -b’e in Mayan languages

Mayan languages are ergative and have two sets of person markers, just as Sierra Popoluca. Set A (ergative) person markers reference the agents of transitive verbs and nominal possessors. Set B (absolutive) person markers indicate direct objects when affixed to transitive verbs and subjects when affixed to intransitive verbs. Since Mayan languages are head-marking, an indirect object may be marked on the verb. From the viewpoint of head-marking grammar, the suffix -b’e marks a peripheral element on the head verb. This marker -b’e is observed only in the southern lowland Mayan languages except Tojolabal and Chorti’, and eastern highland Mayan except Q’eqchi (Craig 1978, Mora-Marín 2003, Norman 1978). -b’e in eastern highland Mayan functions mainly as an instrumental applicative suffix.

6.1. Tzotzil

(24) i-Ø-h-chon-b’e-Ø  chitom li  Xun-e (Aissen 1983: 272)
   CMP-B3-A1-sell-APPL-B3  pig  DEF  Xun-TER
   ‘I sold (the) pigs to Xun.’

The third person absolutive is Ø in all Mayan languages and we postulate that the second Ø in (24) that occurs after -b’e functions like the first person absolutive -on in the following example (25), where the indirect object -on is marked on the verb.

(25) ti  mi  ch-av-ak’-b’-on  ep  tak’in-e (Aissen 1983: 282)
    if  q  INC-A2-give-APPL-B1  much  money-TER
    ‘if you will give me plenty of money’

We analyze the second -Ø in (24) as cross-referencing li Xune, though the actual form is ihchonb’e and the indirect object li Xune is unmarked.

The initial indirect object advances to subject in passive sentences.

(26) ch-i-ak’-b’-at  hun  tzeb’ (Aissen 1983: 283)
    INC-B1-give-APPL-PASS  one  girl
    ‘I am being given a girl’

(27) i-Ø-ak’-b’-at  libro  li  Xun-e (Aissen 1983: 283)
    CMP-B3-give-APPL-PASS  book  DEF  Xun-TER
    ‘Xun was given the book’

Sentence (27) is ambiguous and may be translated as ‘The book was given to Xun’. If this interpretation is not correct, there must be a restriction that only an animate subject is permitted and the order of V-IO-DO is ungrammatical, as is shown in (28).
(28) ²mi i-Ø-ak’-b’-at Xun li chitom-e  (Aissen 1983: 284)  
Q  CMP-B3-give-APPL-PASS Xun DEF pig-TER  
‘Was Xun given the pig?’

However, the following sentence takes the order of V-IO-DO. This -b’e is used as an instrumental applicative.

(29) ³ta-Ø-s-hech’-b’e machita li krem-otik-e  (Aissen 1983)  
FUT-B3-hit-APPL machete ART child-PL-TER  
‘He is hitting the boys with a machete.’

In Tzotzil intransitive verbs do not involve an indirect argument as is shown in (30). This means intransitives remain intransitives and do not promote to transitives by means of suffixing the applicative -b’e.

(30) a li petul-e i-Ø-tal y-u’un li maruche  (Aissen 1983)  
TOP DEF Petul-SUF CMP-B3-come A3-RN DEF Maruch  
‘Petul came for/on account of Maruch.’
(30a) *a li petul-e i-Ø-s-tal-b’e li maruche  (Aissen 1983)  
TOP DEF Petul-SUF CMP-B3-A3-come-APPL DEF Maruch  
‘Petul came for/on account of Maruch.’

6.2. Ixil

Ixil is spoken in the rugged northeastern highlands of Guatemala and consists of three dialects, Nebaj, Cotzal and Chajul.

(31) n-in-tzok’-Ø tze’ ta’n machit  (Ayres 1991: 159)  
PROG-A1-cut-B3 tree PREP machete  
‘I am cutting the tree with a machete.’
(32) machit n-in-tzok’-b’e-Ø tze’  (Ayres 1991: 160)  
machete PROG-A1-cut-APPL-B3 tree  
‘With a machete I am cutting the tree.’

(31) is a transitive sentence and the instrumental machete is marked with the preposition ta’n. In (32) the machete is highlighted and precedes the verb phrase. The preposition disappears and instead -b’e is marked on the verb.

(33) kat ja’-in ta’n iqvil  (Ayres 1991: 159)  
CMR climb-B1 PREP rope  
‘I climbed with a rope.’
(34) iqvil kat in-ja’-e-b’e  (Ayres 1991: 160)  
rope CMR A1-climb-EPEN-APPL  
‘With a rope I climbed.’
(33) is an intransitive sentence and the instrumental is marked with preposition ta’n. In (34) iqvil ‘rope’ is preposed and -b’e is marked on the verb. The prefix in- ‘I’ in (34) is a Set A (ergative) subject marker and so the sentence may be a transitive construction because the ergative is used. If so, iqvil is treated as an object. However, since the third person of Set B is -Ø, sentence (34) could be an intransitive construction, because in some cases a split ergative alignment is used. In sentences with progressive aspect and some adverb-initial constructions, for example, Set A (ergative) is used as a subject marker.

(35) nik v-i’l-e’ (Ayres 1991: 107)
    PROG A1-rest-TER
     ‘I am resting’

(35b) antel t-aq’omv-e’ (Ayres 1991: 107)
    still A3-work-TER
     ‘He is still working.’

To know whether sentence (34) is intransitive or transitive, it is necessary to show an example with an instrumental that is not a Set B third person pronoun. The following is the preferred expression where axh is not Set B but is an independent pronoun. Since the second person is not expressed by Set B, the structure remains ambiguous.

(36) axh in-ja’-a-b’e (Ayres 1991: 160)
    i2 A1-climb-E PEN-APPL
     ‘I climbed for you.’

In the following passive and antipassive sentences, a Set B (absolutive) marker is used and the verbs are analyzed as intransitive and thus (34) may be transitive.

(37) u machit kat tzok’-ox-b’e-Ø u tze’ (s v-a’n) (Ayres 1991: 161)
    DEF machete CMP cut-PASS-APPL-B3 DEF tree (PREP A1-RN)
     ‘With the machete the tree was cut (by me).’

(38) kat q’os-on-axh (s v-i’) (Ayres 1991: 129)
    CMP hit-ANTI-B2 (PREP A1-RN)
     ‘You hit (me).’

(39) u entoho il-on-b’e-in (s-e-ti’) (Ayres 1991: 161)
    DEF glasses see-ANTI-APPL-B1 (PREP-A2PL-RN)
     ‘Using the glasses I see (you).’

However, in (40), the two slots on the verb for subject and object markers are filled with a- and -in, respectively. The instrument ula has no corresponding marker without -b’e. In (41), Ø on the verb cross-references u ispeech and the instrument is not treated as an object. Set B (absolutive) markers cross-reference the object, and the instrument is not cross-referenced on the verb. Thus we can say that -b’e does not affect the subject and object of the verb but functions as an indication of the presence of a pre-verbal instrumental.
(40) *ula a-k’on-i-b’e-in* (Ayres 1991: 160)
    sling A2-hit-ENP-APPL-B1
    ‘With a sling you hit me.’
(41) *axh la’ in-pax-i-b’e-Ø u ispeeha* (Ayres 1991: 160)
    *ip2 FUT A1-break-ENP-APPL-B3 DEF mirror*
    ‘Using you like an instrument I will break the mirror.’

Sentences (40) and (41) are examples from the Chajul dialect but in the Nebaj dialect the object *u ixoj* becomes an indirect object by means of the preposition *ti’*, as in (42). Then what is cross-referenced by -Ø? If we were to consider that -Ø cross-references *ma’l u tze’*, we would need to treat the instrumental phrase, in which the preposition *ma’l* occurs, as having been promoted to direct object. It is more appropriate to think that the verb phrase is intransitive and that the instrumental phrase *ma’l u tze’* triggers split ergativity.

(42) *ma’l u tze’ i-q’os-b’e-Ø u naj ti’ u ixoj* (Ayres 1991: 161)
    with DEF stick A3-hit-APPL-B3 DEF man PREP DEF woman
    ‘With a stick the man hit the woman.’

The phenomena are very similar to the examples of preposed indirect arguments in Classical Yucatec, shown in (43)–(44), where the first/second person is marked with nominative/accusative but the third person is marked with ergative/absolutive (Yasugi 2005: 67, 82–84).

(43) *mach-bil in kab in tal-ic vaye* (Yasugi 2005: 83)
    grasp forcefully-IP A1 hand A1 come-MCMP here
    ‘With my hand being grasped I came here.’
(44) *ximbal bin-ci-Ø* (Yasugi 2005: 67)
    walk GO-MCMP-B3
    ‘He went by walking.’

6.3. K’ichean
The K’ichean group also has an instrumental applicative -b’e(e) but its treatment varies from language to language. We mention three languages that have a close genetic relationship.

When the instrumental *ab’aj* is preposed to the verb in K’iche’ (Lopez Ixcoy 1997: 374), the preposition *r-uu*k’ is lost and the object is demoted to indirect object through the preposition *k-eech*. This means that *ab’aj* is promoted to direct object and is cross-referenced by the absolutive third person plural *e*.

(45) *x-e’u-paxii-j ri b’o’j r-uu*k’ ab’aj ri ali*  
    CMP-B3PL-A3-break-SUF DEF vase A3-RN stone DEF child
    ‘The child broke the vase with the stone.’
(45a) *ab’aj x-e’u-paxii-b’e-e-j k-eech ri b’o’j ri ali*  
    stone CMP-B3PL-A3-break-APPL-SUF A3PL-RN DEF vase DEF child
    ‘The child broke the vase with the stone.’
The same process is observed in Tzutujil (García Ixmátá 1997: 378) where the direct object b’ojo’y is demoted to indirect object by means of the preposition r-ixiin, when aaba’j without the preposition r-e is fronted. The presence of aaba’j is indexed by -b’ee on the verb.

(46) x-Ø-u-pax-ii-j ja b’ojo’y chi r-e aab’aj jar ixoq
cmp-b3-a3-break-thv-suf def vase prep a3-rn stone def woman
‘The woman broke the vase with a stone.’

(46a) aab’aj x-Ø-u-pax-i-b’ee-j r-ixiin ja b’ojo’y jar ixoq
stone cmp-b3-a3-break-1hv-appl-suf a3-rn def vase def woman
‘The woman broke the vase with a stone.’

However, when the two pronominal slots are filled with Set A and Set B, respectively, the instrument is not indexed on the verb, except by -b’ee.

(47) tζ’uum x-in-r-che’ey-b’ee-j (Dayley 1985: 355)
whip cmp-b1-a3-hit-appl-ter
‘It was a whip that he hit me with.’

However, a Set B object can be demoted with the relational noun in K’iche’e’.

(48) ch’iich’ x-Ø-in-sok-b’ee-j aw-eech (Dayley 1981: 27)
machete cmp-b3-a1-hit-appl-ter a2-rn
‘It was a machete that I wounded you with.’

In Kaqchikel (García Matzar 1997: 383–5), a prepositional phrase occurs before a verb which carries the applicative suffix -be’ and its original position is filled with the gap filler wi.

(49) chi ikâj x-Ø-u-choy-o-b’ee-j wi ri che’ ri achi
prep axe cmp-b3-a3-cut-thv-appl-suf gf def tree def man
‘With an axe the man cut the tree.’

When the applicative -b’ee is attached to the intransitive verb pal, the verb takes Set A as subject. Structurally (50a) is a transitive construction, though it is difficult to understand the true meaning of the sentence.

(50) x-Ø-pa’-e’ pa ru-wi’ jun pop ri ixtâan
cmp-b3-stand-suf prep a3-rn one mat def woman
‘The woman stood on a mat.’

(50a) x-Ø-u-pal-b’ee-j jun pop ri ixtâan
cmp-b3-a3-stand-appl-suf one mat def woman
‘The woman stood on a mat.’
7. Conclusion

From the viewpoint of head-marking languages, the original and fundamental function of applicatives is to mark peripheral arguments on the verb. However, in the verb phrase only two slots are allotted for personal markers except for indefinite pronouns in Nahuatl. If the base verb is intransitive and the applicative affix is added, the resulting applicative verb is structurally transitive and two slots are filled with personal markers, even though the meaning of the verb remains intransitive and the object marker on the verb is semantically peripheral. This discrepancy leads to much variation among languages. For example, Tzotzil does not have intransitive applicatives and Ixil hesitates to produce applicative transitive verbs from intransitives and uses a second person independent pronoun instead of Set B as is shown (36). In Kaqchikel, on the other hand, the applied intransitive verb is transitive, as in (50a), and the applicative construction seems to be a valence-increasing operation. In the case of a transitive verb, an indirect benefactive object is usually animate and tends to be taken into the verb as a pronominal object marker. In such a case an indirect object is promoted to direct object. But the instrument is almost invariably inanimate and third person is cross-referenced. When two slots are filled with first and second person markers, there is no cross-referencing slot for the instrument. This structural restriction may prove the function of applicatives which mark a peripheral argument on the verb.

Abbreviations

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<th>Set A ergative pronominal</th>
<th>ANTI</th>
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<td>TRNSF</td>
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