High Applicatives are not High Enough: A Cartographic Solution

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This paper examines a cluster of phenomena in Mandarin Chinese, which may collectively be characterized as "affective constructions". Based on the diversified and sometimes hybrid nature of these affective construals, we argue that the usual dichotomy between high and low applicatives is not enough to capture their syntactic and semantic idiosyncrasies. We will need a more elaborate theory to map out the topography of applicatives under the Cartographic Approach (Rizzi 1997, Cinque 1999). It is shown that Chinese affectives have an unusual distribution extending far beyond the boundary of the *v*P phase, which in turn argues for an independent applicative projection in the left periphery, presumably associated with speaker-orientedness and a presupposition of unexpectedness.

Keywords: applicatives, affective constructions, Chinese syntax, left periphery Cartographic Approach

1. High Applicatives vs. Low Applicatives

In the literature, applicatives are often characterized as syntactic projections hosting extra arguments within the *v*P phase (cf. Marantz 1984, 1993; Pesetsky 1995; McGinnis 2001; Harley 2002; Pylkkänen 2002; Hole 2006; Georgala et al. 2008). In particular Pylkkänen proposes to separate applicative constructions into two types, namely, the high applicative as in the Chaga example (1) vs. the low applicative in the English example (2):

(1) N-˝a-˝ı-lyì-í-à 'm- kà k-élyá.
FOC-1s-PR-eat-APPL-FV 1-wife 7-food
'He is eating food for (his) wife ' (Bresnan and Moshi 1993)

(2) John baked Bill a cake.

In terms of semantics, high applicatives typically differ from low applicatives in not involving a directional possessive relationship. As illustrated in the diagram (3a), the high applicative head takes a DP specifier and a VP complement, relating a Beneficiary argument to an event denoted by the main verb. By contrast, the low applicative head in (3b) takes a DP specifier and a DP complement, expressing a directional possessive relationship between two individuals, i.e., the Recipient *Bill* and the Theme *a cake*:

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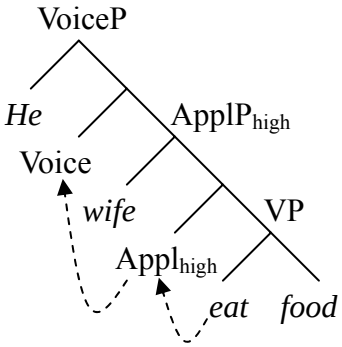
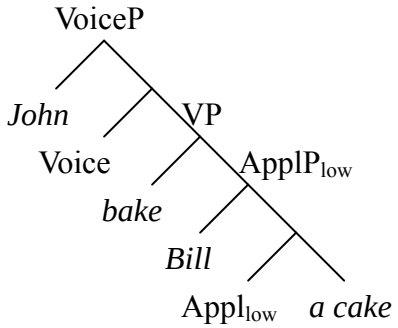
(3) a. Chaga:



b. English:



In this light, we may consider the following pair of affective construals in Mandarin Chinese:

(4) a. ta juran [gei wo] he-le san-ping jiu!
he unexpectedly AFF me drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on me!'

b. ta juran he-le wo san-ping jiu!
he unexpectedly drink-Prf me three-bottle wine
'Unexpectedly, he drank three bottles of wine on me!'

On the surface, both sentences involve an affective relation between the Affectee *wo* 'me' and the wine-drinking event. Upon a closer look, it becomes clear that (4a) differs from (4b) in a number of ways:

I. In terms of syntax, the affective construal of (4a) is signaled by an applicative marker *gei*, which has its verbal origin as 'give'. (4b), on the other hand, assumes a configuration often dubbed "pseudo double object construction", in that there is no directional possession between the Affectee and the Theme argument.

II. There is a truth-conditional distinction between the two sentences: In the scenario that a doctor asked a patient not to drink wine at home, but the patient did not follow the instruction, the doctor may utter (4a), but not (4b). In fact, the latter construal seems to require the Affectee to the source of the three bottle of wine, in direct contrast with the "to-the-possession-of" reading of English low applicatives such as (2).

III. Finally, there is a person restriction on the Affectee of (4a): The ungrammaticality of (5a-c) indicates that it can only be a first-person singular pronoun, hence speaker-oriented. By contrast, the same restriction is not observed for (4b), as evidenced by the well-formedness of (6a-c):

(5) a. * ta juran [gei women] he-le san-ping jiu!
he unexpectedly AFF us drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on us!'

b. * ta juran [gei ni/nimen] he-le san-ping jiu!
he unexpectedly AFF you/you(pl.) drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on you!'

c. * ta juran [gei ta/tamen] he-le san-ping jiu!
he unexpectedly AFF him/them drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on him/them.'

(6) a. ta juran he-le women san-ping jiu!
he unexpectedly drink-Prf us three-bottle wine
'Unexpectedly, he drank three bottles of wine on us!'

b. ta juran he-le ni/nimen san-ping jiu!
he unexpectedly drink-Prf you/you(pl.) three-bottle wine
'Unexpectedly, he drank three bottles of wine on you!'

c. ta juran he-le ta/tamen san-ping jiu!
he unexpectedly drink-Prf him/them three-bottle wine
'Unexpectedly, he drank three bottles of wine on him/them!'

In the following discussion, we may call (4a) an outer affective, and (4b) an inner affective. I will show that the properties of Mandarin affectives presented above can be accommodated if a novel notion "middle applicative" is introduced at the *v*P phase, which in turn provides a coherent account of a variety of affective and benefactive construals in Mandarin Chinese. In section 2, we employ a few more criteria to check upon the peripheral status of the outer applicative in (4a), and to see if there is indeed a grey area in-between highest and lowest applicatives. Along the same line, section 3 examines the inner applicative in the pseudo double object construction (4b).

2. Applicatives in the Left Periphery

2.1. Applicativity Tests

In addition to the possession test mentioned above, there are two additional criteria in the literature for determining the height of an applicative projection; that is, the transitivity test and the passivization test (cf. McGinnis 2001, Pylkkänen 2002): The first test has to do with the fact that low applicatives cannot combine with an unergative predicate, as shown by the contrast between (7b) and (8b):

(7) a. John baked a cake. [transitive]
b. John baked Bill a cake.

(8) a. I ran. [unergative]
b. * I ran him.

So one can derive a low applicative such as (7b) from a transitive sentence like (7a), whereas it is impossible for an unergative such as (8a) to derive (8b). On the other hand, high applicatives are quite compatible with an unergative predicate, as evidenced by the Chaga example (9):

(9) N-˝a-˝ı-lyì-í-à 'm- kà. [unergative]
FOC-1s-PR-eat-APPL-FV 1-wife.
'He is eating for/on (his) wife.' (Bresnan and Moshi 1993)

The second test concerns the observation that low applicatives only allow passivization of an indirect object (IO), as shown by the contrast between (10a) and (10b):

(10) a. Bill was baked a cake by John. [ApplP$_{low}$, IO passivized]
b. * A cake was baked Bill by John. [ApplP$_{low}$, *DO passivized]

High applicatives, on the other hand, do not have such restriction. As pointed out by McGinnis (2001, 2003), both high and low applicatives appear in Kinyarwanda, where benefactive constructions allow both IO and DO to undergo passivization, as illustrated in (11a) and (11b) respectively:

(11) a. umukoôbwa$_k$ a-ra-andik-ir-w-a t_k íbárúwa n'ûmuhuûngu.
girl SP-Pres-write-Appl-Pass-Asp letter by.boy
'The girl is having the letter written for her by the boy.' [ApplP$_{high}$, IO passivized]

b. íbárúwa$_k$ i-ra-andik-ir-w-a umukoôbwa t_k n'ûmuhuûngu.
letter SP-Pres-write-Appl-Pass-Asp girl by.boy
'The letter is written for the girl by the boy.' [ApplP$_{high}$, DO passivized]

So both (11a,b) should be classified as high applicatives. On the other hand, the contrast between (12a,b) shows that only IO but not DO can be passivized in Kinyarwanda locative constructions:

(12) a. ishuûri$_k$ ry-oohere-j-w-é-ho t_k igitabo n'úúmwáalímu.
school SP-send-Asp-Pass-Asp-Loc book by.teacher
'The school was sent the book by the teacher.' [ApplP$_{low}$, IO passivized]

b. * igitabo$_k$ cy-oohere-j-w-é-ho ishuûri t_k n'úúmwáalímu.
book SP-send-Asp-Pass-Asp-Loc school by.teacher
'The book was sent to school by the teacher.' [ApplP$_{low}$, *DO passivized]

These locative construals therefore count as instances of low applicatives. As a result, we have secured some reliable tests at hand to map out the topography of applicatives across languages.

Now we are in a position to apply the tests one by one to outer affectives in Mandarin: First consider (4a). As revealed by its truth conditional distinction from (4b), there is no directional possessive relationship between the Affectee *wo* 'me' and the Theme *san-ping jiu* 'three bottles of wine'. So it fails the possession test. Secondly, this type of affectives has no trouble with taking an unergative predicate, as in (13), passing the transitivity test with flying colors:

(13) ta juran [gei wo] ku le.
he unexpectedly AFF me cry Inc
'Unexpectedly, he started crying on me.'

Both results indicate that (4a) belongs to the class of high applicatives. The passivization test, on the other hand, is rather inconclusive: Passivization appears to be blocked for both IO and DO, as in (14a,b):

(14) a. * wo bei ta juran gei he-le san-ping jiu.
I BEI he unexpectedly AFF drink-Prf three-bottle wine
'I underwent the event he drank three bottles of wine on me unexpectedly.'

b. * you san-ping jiu bei ta juran [gei wo] he-le.
have three-bottle wine BEI he unexpectedly AFF me drink-Prf
'There are three bottles of wine that were drunk by him on me unexpectedly.'

2.2. Peripheral Construals of Mandarin Outer Affectives

The next step is to see how Mandarin affectives should be encoded in syntactic structures. In the following discussion, I will attempt to show that the so-called high applicatives are not high enough, and there are even higher applicatives merged to the left periphery (or to the CP phase to the same effect). They display a cluster of properties typically associated with the information structure.

Our first argument is built upon the fact that the outer affective of (15a) ((4a) repeated here) is licensed through a special kind of illocutionary force. As indicated by the following contrast, the presence of the evaluative adverb *juran* 'unexpectedly' is obligatory, without which the sentence becomes declarative, and is ruled out consequently, as in (15b):

(15) a. ta juran [gei wo] he-le san-ping jiu!
he unexpectedly AFF me drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on me!'

b.* ta [gei wo] he-le san-ping jiu.
he AFF me drink-Prf three-bottle wine
'Unexpectedly, he drank three bottles of wine on me.'

The same restriction does not apply to its inner counterpart in (16a) ((4b) repeated here). As indicated by the well-formedness of (16b), the pseudo double object construal does not require an evaluative adverb, and is quite compatible with the declarative usage:

(16) a. ta juran he-le wo san-ping jiu!
he unexpectedly drink-Prf me three-bottle wine
'Unexpectedly, he drank three bottles of wine on me!'

b. ta he-le wo san-ping jiu.
he drink-Prf me three-bottle wine
'He drank three bottles of wine on me.'

Interestingly enough, the licenser in question can also be replaced either by a reversal adverb like *que* 'however' in (17a), or by an outer *wh*-adverb such as *zenme* 'how.come' in (17b):

(17) a. wo jiao ta bang wo mai jiu. ta que [gei wo] mai-le yan!
I ask him help me buy wine he however AFF me buy-Prf cigarette
'I asked him to help me to buy wine. He, however, bought cigarettes on me!'

b. wo jiao ta bang wo mai jiu. ta zenme [gei wo] mai-le yan?!
I ask him help me buy wine he how.come AFF me buy-Prf cigarette
'I asked him to help me to buy wine. How come he bought cigarettes on me?!'

In addition, this type of affective construals can also be licensed by imperative and negative moods, as illustrated by (18a,b) respectively:

(18) a. [gei wo] gui-xia!
AFF me kneel-down
'Kneel down for my sake!'

b. Akiu cong-mei [gei wo] diu-guo lian!
Akiu ever-have.not AFF me lose-Exp face
'Akiu has never lost face on me!'

Another argument stems from the fact that outer affectives marked by *gei* is strictly speaker-oriented: As mentioned above, the Affectee argument in question can only be first person singular, as in (5a-c), and there is again no such restriction for their inner counterparts throughout (6a-c). Furthermore, there is a presupposition associated with the affective construal of (15a), i.e., the wine-drinking event should never happen in the first place. As noted by Shu (2008), certain sentential adverbials carries a focus interpretation, and an evaluative adverb like *juran* 'unexpectedly' may well take a focused constituent as its complement. Therefore, it seems reasonable to suggest that the focused portion of (15a) (presumably IP) carries the new information "he drank three bottles of wine", which is indeed unexpected given the presupposition mentioned above. All these are the hallmark of peripheral construals associated with the information structure, and should therefore be encoded syntactically on the complementizer layer.

From a cross-linguistic point of view, there is a class of non-argumental clitics in Modern Greek (and Romance languages in general) which are very much in line with the peripheral construals of Mandarin affectives. They typically express some sort of affectedness between an individual and an event. These so-called "ethical datives" observe a speaker/hearer-oriented restriction similar to Mandarin high affectives (cf. Perlmutter 1971; Jaeggli 1982; Cuervo 2003; Michelioudakis & Sitaridou 2008, among others), as in (19):

(19) mu/su/?tu arostise i Maria.
me/you/him fell.ill on Mary
'Mary fell ill on me/you/him.'

Modern Greek ethical datives also require licensing from imperative, optative, subjunctive or negative moods, as shown by the contrast between (20a) and (20b):

(20) a. na mu prosechis! [imperative]
Subj eth.dat.1S take.care
'Take care, for my sake!'

b. ?? mu prosechis. [??declarative]
eth.dat.1S take.care
'You take care, for my sake.'

These clitics are often analyzed either as CP-adjuncts (cf. Catsimali 1989), or as the

realization of the φ-features of a high applicative head which takes the whole event as its argument, merging well beyond *v*P (cf. Cuervo 2003).

Our observations thus point to the conclusion that the otherwise puzzling restrictions on outer affective construals have a close bearing on the force and/or mood of the entire sentence. In other words, the "extra" argument introduced by *gei* may well be associated with some functional projection beyond the *v*P phase, presumably taking its hold in the left periphery.

2.3. Mapping the Topography of Mandarin High Applicatives

One question still remains as to how to separate Mandarin outer affectives from their benefactive/goal counterparts, which are also marked by *gei*, as exemplified by (21a,b):

(21) a. Akiu [**gei** wo/women/ni/nimen/ta/tamen] kao-le yi-kuai dangao.
Akiu for me/us/you/you(pl.)/him/them bake-Prf one-Cl cake
'Akiu baked a cake for me/us/you/you(pl.)/him/them.' [benefactive]

b. Akiu [**gei** wo/women/ni/nimen/ta/tamen] xie-le yi-feng xin.
Akiu to me/us/you/you(pl.)/him/them write-Prf one-CL letter
'Akiu wrote a letter to me/us/you/you(pl.)/him/them.' [goal]

For one thing, it is impossible to topicalize the outer Affectee along with *gei* to the sentence-initial position, as evidenced by the contrast between (22a,b). By contrast, there is no such restriction for benefactive and goal construals, which can be made clear by comparing (21a,b) with (23a,b) respectively:

(22) a. Akiu juran [gei wo] na-le qian jiu pao.
Akiu unexpectedly AFF me take-Prf money then run
'Unexpectedly, Akiu took the money and ran away on me.'

b. * [gei wo], Akiu juran na-le qian jiu pao.
AFF me Akiu unexpectedly take-Prf money then run
'Unexpectedly, Akiu took the money and ran away on me.'

(23) a. ? [gei tamen], Akiu kao-le yi-kuai dangao.
for them Akiu bake-Prf one-Cl cake
'Akiu baked a cake for them.'

b. [gei tamen], Akiu xie-le yi-feng xin.
to them Akiu write-Prf one-CL letter
'Akiu wrote a letter to them.'

This indicates that *gei* may well serve as a true applicative head in outer affective construals, while it is merely a preposition forming a constituent with the Beneficiary/Goal argument.

For anther thing, it is possible to distinguish the outer Affectee in question from a Beneficiary argument by their word ordering relative to a manner adverb such as *manmandi* 'slowly'. As illustrated in (24a), the reading is affective when the *gei*-phrase precedes the manner adverb, and we may change it into benefactive by placing the *gei*-phrase after the manner adverb, as in (24b):

(24) a. Akiu juran [gei wo] **manmandi** ca diban.
Akiu unexpectedly AFF me slowly wipe floor
'Unexpectedly, Akiu slowly wiped the floor on me.' [affective]

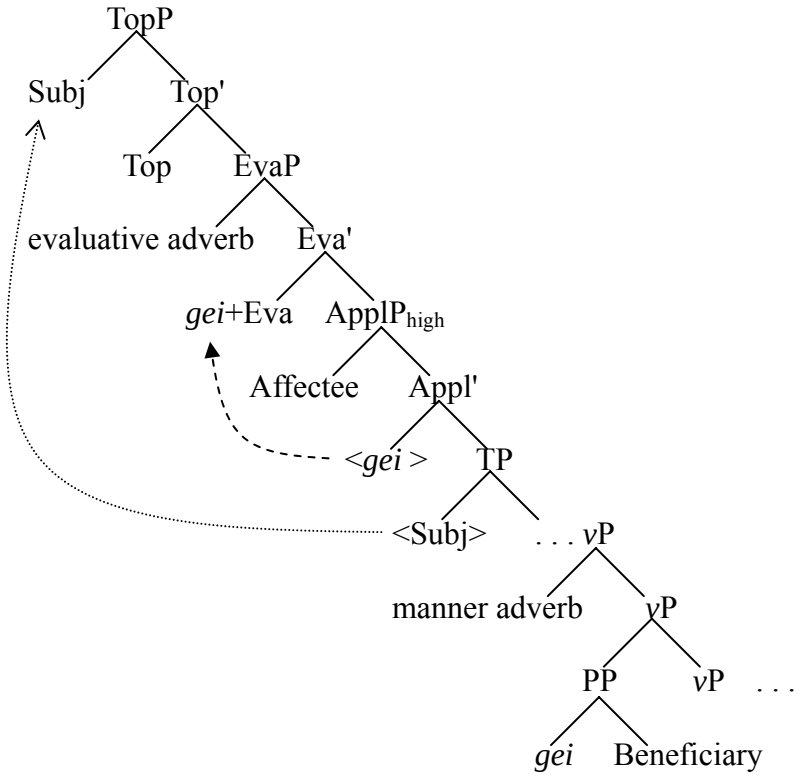
b. Akiu juran **manmandi** [gei renjia] ca diban.
Akiu unexpectedly slowly for people wipe floor
'Unexpectedly, Akiu slowly wiped the floor for others.' [benefactive]

In fact, the two construals can marginally co-occur in the same sentence, separated by the manner adverb, as evidenced by (25):

(25) ? Akiu juran [gei wo] **manmandi** [gei renjia] ca diban.
Akiu unexpectedly AFF me slowly for people wipe floor
'Unexpectedly, Akiu slowly wiped the floor for others on me.'

The intuition explored above can then be implemented under the split-CP approach pioneered by Rizzi (1997), as visualized in the following diagram (irrelevant details omitted):

(26) The topography of Mandarin outer affectives and benefactives



Here we envision the affective *gei* to be a high applicative head, which hosts the outer Affectee. It raises to the evaluative head subsequently to licenses the peripheral construals of outer affectives. As for the benefactive (and goal) PP, we place it at the peripheral area of *v*P as a working hypothesis (also cf. Cinque 1999), separated from the inflectional layer only by the manner adverb, presumably a delimitator for the *v*P phase.

For one thing, it may seems a bit overstretched to place an applicative projection as high as the complementizer layer. Nevertheless, given the definition that a high applicative dependency holds between an individual and an event, we should expect a natural extension

to the left periphery if the applied argument is involved in a speaker/addressee-oriented construal. In fact, it has been suggested by Buell (2003) that DP locative applicatives in Zulu must merge above the Agent (hence outside *v*P). A similar proposal is also made by McGinnis & Gerdts (2003) for Kinyarwanda benefactives, based on the locality effects observed in various types of multiple applicatives. It is thus not unimaginable that, through the process of grammaticalization along the line of Roberts & Roussou (1999), an applicative can evolve a step further into the domain of peripheral construals.

Our treatment may also account for the fact that the passivization test turns out to be inconclusive in Mandarin. This is because the affectivity involved is far beyond the core argument structure associated with *v*P, and therefore does not observe the usual morpho-syntax of passives.

3. Applicatives at the Edge of *v*P

3.1. Inner Affectives vs. Inner Benefactives

The next logical question to ask is how the inner affectives in Mandarin fair with their outer counterparts in terms of applicativity. As mentioned above, here we have another breed of affectives which are not marked by *gei* (cf. Zhang 1998, among many others), forming the now familiar pseudo double object constructions (pseudo-DOCs). Like high applicatives, inner affectives involve a relation between an individual and an event, as in (27):

(27) Akiu he-le Xiaodi san-ping jiu.
Akiu drink-Prf Xiaodi three-CL wine
'Akiu drank three bottles of wine on Xiaodi.'

Unlike high applicatives, the Affectee (IO) can undergo passivization, as in (28a), whereas the same construal is not available for the Theme (DO), as evidenced by (28b). Moreover, the inner affective construal is incompatible with unergatives, as illustrated by the contrast between (29a,b). So they fail both the passivization and transitivity tests, and should not be analyzed as high applicatives:

(28) a. Xiaodi bei Akiu he-le san-ping jiu. [IO passivized]
Xiaodi BEI Akiu drink-Prf three-CL wine
'Xiaodi underwent the event Akiu drank three bottles of wine on him.'

b. * you san-ping jiu bei Akiu he-le Xiaodi. [*DO passivized]
have three-CL wine BEI Akiu drink-Prf Xiaodi
'Three bottles of wine were drunk on Xiaodi by Akiu.'

(29) a. Akiu he-zui le.
Akiu drink-drunk Inc
'Akiu got drunk.'

b. * Akiu he-zui Xiaodi le.
Akiu drink-drunk Xiaodi Inc
'Akiu got drunk on Xiaodi.'

In terms of pragmatics, inner affectives do not observe the speaker-oriented restriction, as we have already seen above. Moreover, the evaluative adverb *juran* 'unexpectedly' can certainly

be omitted in a pseudo-DOC construal such as (27). So there is no reason to place them in the left periphery. In terms of semantics, the Affectee does maintain some form of possessive relation to the Theme argument, which presents a sharp contrast to their counterparts in outer affectives. On the other hand, it is not the kind of directional possession typically found in DOCs either (cf. McGinnis 2001; Harley 2002; Pylkkänen 2002). We may characterize it either as a "from-the-possession-of" relationship in Pylkkänen's terms, or as a possessive relation implied by the affectedness of the wine-drinking event.

At this stage, it may seem reasonable to identify Mandarin inner affectives with low applicatives, while analyzing the IO as a Source rather than an Affectee. However, there are also reasons to believe otherwise. As pointed out by Huang (2008), not all the Affectee in pseudo-DOCs can be said to take part in the "from-the-possession-of" relationship: As shown below, the IO is in no sense a Source for the DO *wanxiao* 'joke':

(30) laotian kai-le Xiaodi yi-ge da wanxiao.
heaven play-Prf Xiaodi one-CL big joke
'Heaven played a big joke on Xiaodi.'

It is also instructive to note that, the semantics of inner affectives is very much in line with Spanish affected datives such as (31a), where the possessive relation between the Affectee and the Theme can be cancelled (cf. Cuervo 2003), as in (31b):

(31) a. Emilio le rompió la radio a Carolina.
Emilio Cl.Dat broke the radio Carolina.Dat
'Emilio broke the radio on Carolina.'

b. Emilio le rompió [la radio de la vecina] a Carolina.
Emilio Cl.Dat broke the radio of the neighbor Carolina.Dat
'Emilio broke the neighbor's radio on Carolina.'

In other words, we can add a possessor distinct from the Affectee to the Theme of (27), and the sentence is still grammatical, as exemplified below:

(32) Akiu he-le Xiaodi [san-ping Zhao-jia de jiu].
Akiu drink-Prf Xiaodi three-CL Zhao-family Poss wine
'Akiu drank three bottles of Zhao family's wine on Xiaodi.'

This means that the possession between the two internal arguments of the pseudo double object construction is only implied, and can therefore be cancelled. It follows that the possessive relation in question is not part of the structural semantics of Mandarin inner affectives, where the IO should be analyzed as an Affectee rather than a Source.

Furthermore, there is another class of benefactives which arguably situates even lower in the syntactic hierarchy, bearing some resemblance to English low applicatives: There is a possessive relation between the Beneficiary (IO) and the Theme (DO), but it is by no means directional (cf. Lu 2002), as in (33a):

(33) Akiu xiu-le Zhao-jia san-shan men.
Akiu fix-Prf Zhao-family three-CL door
'Akiu fixed three doors for the Zhao family.'

With respect to the transitivity test, this Mandarin "inner" benefactive is incompatible with

unergative predicates like *ku* 'cry', siding with English low applicatives, as illustrated below:

(34) * Akiu ku-le Zhao-jia.
Akiu cry-Prf Zhao-family
'Akiu cried for the Zhao family.'

On the other hand, neither IO nor DO may undergo passivization, as evidenced by the ungrammaticality of (35a,b):

(35) a. * Zhao-jia bei Akiu xiu-le san-shan men. [*IO passivized]
Zhao-family BEI Akiu fix-Prf three-CL door
'Akiu fixed three doors for the Zhao family.'

b. * san-shan men bei Akiu xiu-le Zhao-jia. [*DO passivized]
three-CL door BEI Akiu fix-Prf Zhao-family
'Akiu fixed three doors for the Zhao family.'

Interestingly enough, it seems that inner benefactives also have a counterpart in Spanish, i.e., a special kind of low applicatives where the possessive relation between IO and DO is static rather than directional, as in (36a):

(36) a. Emilio le lavó el auto a Carolina.
Emilio Cl.Dat washed the car Carolina.Dat
Lit. 'Emilio washed Carolina the car.'

b. * Emilio le lavó [el auto de la vecina] a Carolina.
Emilio Cl.Dat washed the car of the neighbor Carolina.Dat
Lit. 'Emilio washed Carolina the car of the neighbor.'

As Cuervo (2003) points out, here the possession cannot be cancelled, as in (36b), and should belong to the structural semantics of the dative construction. Likewise, Mandarin inner affectives show the same trait: The possessive relation between the Beneficiary and the Theme of (33) is entailed, and hence uncancelable, as shown by the deviance of (37):

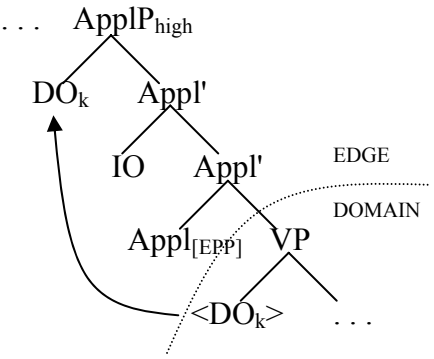
(37) * Akiu xiu-le Zhao-jia [san-shan Xiaodi de men].
Akiu fix-Prf Zhao-family three-CL Xiaodi Poss door
'Akiu fixed Xiaodi's three doors for the Zhao family.'

So the question boils down to how inner affectives should be distinguished from inner benefactives in a principled manner. One way to think of this issue is to suggest that they both involve an applicative projection of some sort, but differ in their structural height: Namely, inner affectives merge above VP, while their benefactive counterparts embed within VP.

3.2. A Phase-theoretic Account of Applicatives

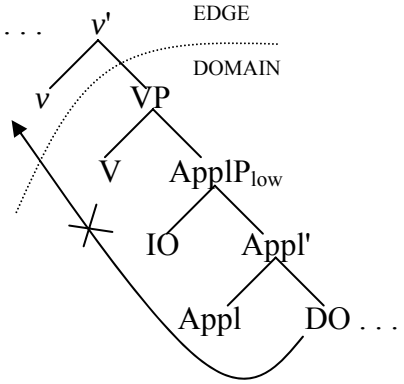
To work out the details of our proposal, first consider the following phasal analysis of the high-low dichotomy of applicatives entertained in McGinnis (2001, 2003): Given that VP constitutes the domain of a phase (cf. Chomsky 2001), a high applicative projection counts as a phase by virtue of hosting a phasal EPP feature, as illustrated in (38):

(38)



The IO is already on the edge of the ApplP phase, so it is free to raise further. The DO, on the other hand, can check an optional EPP feature, as is the case with Kinyarwanda benefactive applicatives in (11a,b), hence gaining access to the "escape hatch" on the edge position. As a result, both IO and DO may undergo passivization. By contrast, a low applicative projection merges below VP, and is never phasal, as visualized below:

(39)



In this scenario, only the IO may be passivized by raising to the edge of *v*P phase, as is the case with Kinyarwanda instrumental applicatives in (12a,b). This is because there is no escape hatch on the low applicative projection, and it is impossible for the DO to cross over the IO due to the Minimal Link Condition.

This phase-theoretic account of applicatives, however, do not readily explain the asymmetry between Mandarin inner affectives and benefactives. To do this, we have to look into a more complicated case of multiple applicatives discussed in McGinnis & Gerdts (2003): They point out that, when a locative applicative combines with an instrumental applicative in Kinyarwanda, as in (40), it is the locative argument, but not the Theme and the Instrument, that is subject to passivization, as evidenced by the contrast between (41a) and (41b,c):

(40) úmwáalímu y-a-andik-iish-ijé-ho ikíbáho imibáre íngwa.
teacher he-Pst-write-Inst-Asp-Loc board math chalk
'The teacher wrote math on the blackboard with chalk.'

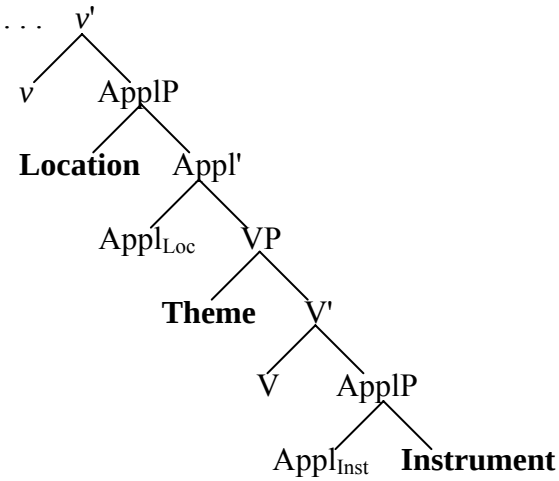
(41) a. **ikíbáho** cy-a-andik-iish-ij-w-é-ho imibáre íngwa.
blackboard it-Pst-write-Inst-Asp-Pass-Asp-Loc math chalk
'On the blackboard was written math with chalk.' [Location passivized]

b. * **imibáre** y-a-andik-iish-ij-w-é-ho ikíbáho íngwa.
math it-Pst-write-Inst-Asp-Pass-Asp-Loc blackboard chalk
'Math was written on the blackboard with chalk.' [*Theme passivized]

c. * **íngwa** y-a-andik-iish-ij-w-é-ho ikíbáho imibáre.
chalk it-Pst-write-Inst-Asp-Pass-Asp-Loc blackboard math
'Chalk was used to write math on the blackboard.' [*Instrument passivized]

The assumption is that the locative argument *ikíbáho* 'blackboard' merges above VP, and is thus able to escape from the edge of *v*P. Crucially, here the locative applicative differs from its benefactive counterpart in not possessing a phasal EPP feature. By contrast, the Instrument *íngwa* 'chalk' merges below the Theme *imibáre* 'math' within VP. Both arguments are prevented from raising further, since the locative applicative projection above VP is not phasal, providing no escape hatch to this end, as illustrated in the following diagram:

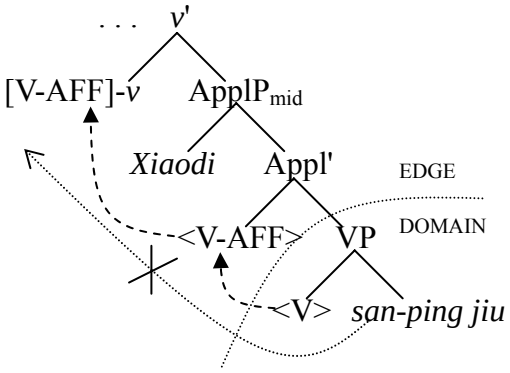
(42)



3.3. Inner Affectives as Middle Applicatives

In light of the phase-theoretic account, one may well assimilate Mandarin inner affectives to Kinyarwanda locatives in syntactic terms: They are not high applicatives, as the real one is upstairs in the inflectional layer, as is the case with Kinyarwanda benefactives, or even higher up in the left periphery, as is the case with outer affectives. On the other hand, they are not low applicatives, either. In the case of Kinyarwanda, it is instrumental applicatives that reside at the bottom of the syntactic hierarchy. In the case of Mandarin, the inner benefactive construction may fill the gap, where neither IO nor DO may undergo passivization. We may therefore place inner affectives such as (27) in a "middle" applicative projection in-between *v* and V, which is non-phasal and headed by an implicit light verb AFF, as sketched below:

(43)



Consequently, it is possible to passivize the Affectee *Xiaodi* in the Spec position, as we have seen in (28a). On the other hand, the Theme *san-ping jiu* 'three bottles of wine' can neither cross over the Affectee argument, nor find an escape hatch on $ApplP_{mid}$. (28b) is thus correctly ruled out.

4. Double Unaccusatives as Middle Applicatives

Given our classification of applicativity, it would be interesting to see if it has a wider range of application. For one thing, there is yet another kind of "concealed" affectives in Mandarin, which are often dubbed as double unaccusatives (cf. Chappell 1999), as exemplified by (44):

(44) Akiu pao-le laopo.
Akiu run-Inc wife
'Akiu's wife ran away on him.'

It has long been established in the literature that the double accusative construction involves affectedness of some sort (cf. Pan 1997, Tsai 2007, among others). Under this view, (44) would mean 'Akiu was affected by the event (his) wife ran away', and the subject is characterized as an Affectee accordingly.[1]

To dig out the underlying properties of this peculiar construal, let's apply the usual applicativity tests first: First, double unaccusatives fail the transitivity test in not being able to take an unergative predicate, as in (45):

(45) * Akiu zai-pao laopo.
Akiu Prg-run wife
'Akiu's wife is running away on him.'

Moreover, both the Affectee and the Theme *laopo* cannot undergo passivization, as in (46a,b), behaving more or less in line with low applicatives:

(46) a. * laopo bei Akiu pao-le.
wife BEI Akiu run-Inc

b. * Akiu bei pao-le laopo.
Akiu BEI run-Inc wife

This similarity, however, could result from the fact that passives and unaccusative share the same characteristics of not having an external argument. As a result, no argument in a double unaccusative can be further passivized.

In terms of semantics, the affectivity is by nature a relation holding between an individual and an event. Furthermore, the possession between the Affectee *Akiu* and the Theme *san-tou niu* 'three cows' is static rather than directional, as in (47a), and it can be cancelled in appropriate contexts (e.g., Akiu is only a cowboy rather than the owner of the three cows),[2] as evidenced by (47b):

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[1] Alternatively, (44) can also be understood something like 'Akiu underwent the event (his) wife ran away', where the subject is identified as an Experiencer. See Huang (2008) for an lexical analysis of double unaccusatives along this line.

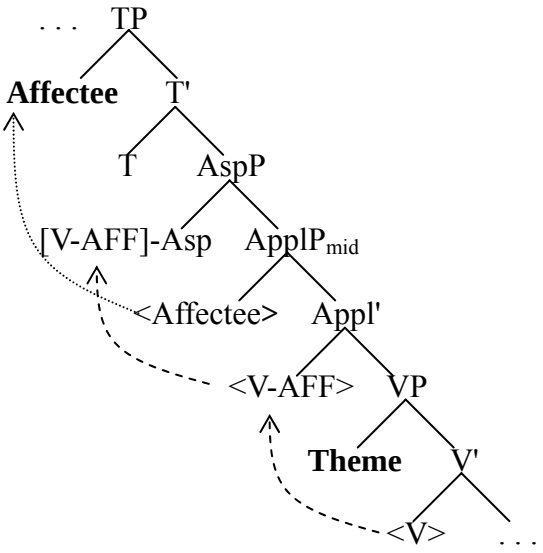
[2] There is an exception to our observation above: That is, when the Affectee and the Theme are in an inalienable or kinship relation, as in (ia) and (iia), the static possession cannot be cancelled, as illustrated by (ib) and (iib):

(47) a. Akiu pao-le san-tou niu.
Akiu run-Inc three-Cl cow
'(His) three cows ran away on Akiu.'

b. ? Akiu pao-le [san-tou Xiaodi de niu].
Akiu run-Inc three-Cl Xiaodi Poss cow
'Xiaodi's three cows ran away on Akiu.'

We can thus conclude from the mixed test results presented above that double unaccusatives are actually middle applicatives in disguise, whose derivation can be visualized in the following diagram:

(48)



5. The Topography of Mandarin Applicatives

So far we have a three-way distinction of Mandarin affectives and benefactives in terms of their syntactic distribution and semantic/pragmatic interpretations, as summarized in Table 1:

(i) a. Wuzixyu bai-le toufa.
Wuzixyu white-Inc hair
'(His) hair became white on Wuzixyu.'
b. * Wuzixyu bai-le [Fuchai de toufa].
Wuzixyu white-Inc Fuchai Poss hair
'Fuchai's hair became white on Wuzixyu.'

(ii) a. Akiu si-le laopo.
Akiu die-Inc wife
'(His) wife died on Akiu.'
b. * Akiu si-le [Xiaodi de laopo].
Akiu die-Inc Xiaodi Poss wife
'Xiaodi's wife died on Akiu.'

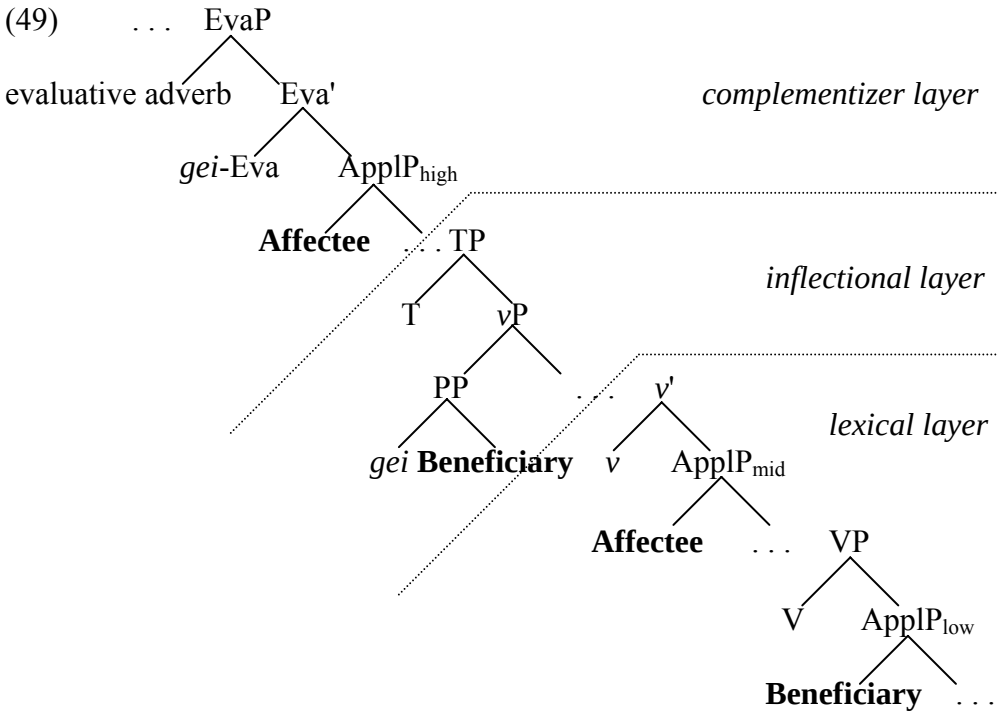
There are two factors to consider here: First, (ib) and (iib) may be ruled simply because the object position of an unaccusative cannot host a definite DP. Secondly, it may also be the case that the possession in question is intrinsic to a body-part or husband-wife relation, and has nothing to do with the entailment associated with the structural semantics of applicatives.

Table 1.

Mandarin applicatives		exclamative force	speaker-orientedness	unergative predicate	Pass. of IO	Pass. of DO	static possession
high	affective	ok	ok	ok	*	*	*
middle	benefactive	*	*	*	*	ok	*
	affective	*	*	*	ok	*	ok (implied)
low	benefactive	*	*	*	*	*	ok (entailed)

That is, high applicatives are associated with the CP phase, and they are involved in the arrangement of the information structure. Middle applicatives are associated with the vP phase, They are therefore involved in the arrangement of the event structure. Finally, low applicatives are associated with the lower VP shell, which are involved in the arrangement of the argument structure. The topography of Mandarin applicatives can then be visualized as in the following topography of Mandarin applicatives (irrelevant details omitted):

(49)



According to this view, *gei*-benefactives merge to the peripheral area of *v*P as a PP adjunct (cf. (23a,b)). They may in turn evolve into *gei*-affectives on the complementizer layer. The lexical layer, on the other hand, contains an implicit applicative head which can either merge above VP, introducing inner affectives and double unaccusatives, or merge below VP, licensing the inner benefactive construals.

Note that it is also possible to implement our insight in a slightly different way: One may think of the distribution of Chinese applicatives as two layers of affective-benefactive construals: Each layer involves a high-low pair of applicatives, as illustrated in Table 2:

Table 2.

Mandarin applicatives		exclamative force	speaker-orientedness	unergative predicate	Pass. of IO	Pass. of DO	static possession
marked	high: affective	ok	ok	ok	*	*	*
	low: benefactive	*	*	*	*	ok	*
unmarked	high: affective	*	*	*	ok	*	ok (implied)
	low: benefactive	*	*	*	*	*	ok (entailed)

Here the distinction cuts across *gei*-applicatives above *v*P and unmarked applicatives down below. Consequently, middle applicative are split into two classes: The unmarked one is situated below *v*P, hosting an Affectee argument, whereas the marked one projects above *v*P, hosting a Beneficiary argument. This alternative runs into difficulties when we take seriously the PP status of *gei*-benefactives (which therefore should not have an independent applicative projection), but has the advantage of accommodating a variety of applicative construals from Chinese dialects which does not allow the pseudo double object construction (cf. Tsai et al. 2008). Since the analysis of dialectal variations is well beyond the scope of this paper, we will leave the choice open here.

6. Concluding Remarks

All the findings presented above point to the conclusion that we need at least a three-way distinction of applicatives in terms of their structural height, as sketched below:

I. High applicatives: associated with the CP phase/left periphery
→ involved in the arrangement of the information structure.

II. Middle applicatives: associated with the *v*P phase/*v*P periphery
→ involved in the arrangement of the event structure.

III. Low applicatives: associated with the lower VP shell
→ involved in the arrangement of the argument structure.

A cross-linguistic study of Chinese dialects further reveals three things: First, there is a clear path for high applicatives to develop even higher applicatives along syntactic projections, all the way to the left periphery. There is also a strong tendency for a Beneficiary to evolve into an Affectee when the applied relationship has shifted from the individual level to the eventual or even propositional level. Secondly, there is a plethora of "concealed" affective construals which border on the syntax of low applicatives, while patterning with high applicatives with respect to their thematic-semantic properties. This hybrid nature is not at all surprising from our view on middle applicatives, since they indeed stand in-between outer affectives and inner benefactives. Finally, the syntax-semantics mapping responsible for shaping the topography of Mandarin affectives/benefactives thus presents a compelling argument for our three-way distinction of applicatives, which in turn provides a cartographic perspective into the theory of argument introduction in general.

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