Taiwanese VP Ellipsis and the Progressive Prohibition[1]

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1. Preview

- Observations:
  - Taiwanese and English exhibit the same surface ordering of "auxiliary"-like elements
  - Likewise, the two languages exhibit the same patterns of VP ellipsis (VPE)
  - Neither language tolerates the "stranding" of progressive morphology following VPE
- Claims:
  - The common pattern of VPE in the two languages is not coincidental
    - It is a side effect of their shared syntactic properties
  - VPE is targeting the same size of structure in the two languages: ProgP
- Consequences:
  - An affix-hopping approach to English makes the wrong predictions
  - Comparisons to Taiwanese suggest inflectional morphology is spelled out in-situ
- Open question:
  - What is the source of the Progressive Prohibition?

2. A picture of the Taiwanese clause

Taiwanese (Southern Min: Sino-Tibetan) is an isolating language with a highly articulated pre-verbal domain of modals and aspect markers. Modals precede perfective auxiliaries:[2]

(1) A-Ying kho-leng u chhih kau *modal > PERF*
A-Ying might PERF feed dog
"A-Ying might have fed the dog"

Likewise, the perfective auxiliary (and negation before it) precedes the progressive:

(2) A-Ying b-o teh chhih kau *NEG > PERF > PROG*
A-Ying NEG-PERF PROG feed dog
"A-Ying hasn't been feeding the dog."

[1] We employ a Romanized orthography for Taiwanese based on Cheng & Cheng (1977). The Taiwanese judgments in this paper come from three native speakers from Tainan, Taiwan, one of whom is the second author. The English judgments come from several American speakers, one of whom is the first author. We thank Peter Hallman, Anoop Mahajan, Hilda Koopman, Carson Schütze, and Harold Torrence for their helpful comments.

[2] We refer to *u* as a marker of perfective aspect, but it clearly has other functions in the grammar as well (marking e.g. emphasis, possession, existence, etc.: cf. Cheng 1997, Lu 1991, and Tsai 2006 (and references therein)). We attempt to control for these other readings in our examples, but in some cases the emphatic reading is the dominant one (governed perhaps by telicity: Lu 1991). That being said, emphatic *u* behaves the same as perfective *u* in all the relevant structural ways (e.g. by strictly preceding *teh* 'PROG'), so we conflate them (as PERF) throughout.

Finally, the progressive auxiliary precedes the passive marker *hoo*:[3]

(3) A-Ha u teh hoo mama pak thau-chang *PROG > PASS*
A-Ha PERF PROG PASS mother put.up hair
"A-Ha is having her hair put up (on her) by her mother"

Putting things together transitively, we get the rigid surface order of these elements in (4):[4]

(4) *Modals > negation > perfective > progressive > passive > verb*

This corresponds exactly to the universal hierarchy of functional projections (e.g. Cinque 1999; cf. Appendix for a more detailed view of the Cinquean hierarchy in Taiwanese with adverbials):

(5) TP (modals) > NegP (NEG) > PerfP (PERF) > ProgP (PROG) > PassP (PASS) > VP

This also corresponds exactly to the state of affairs in the English extended verbal projection:[5]

(6) Max shouldn't have been being criticized
modal > negation > perfective > progressive > passive > verb

Thus, these two unrelated languages exhibit same fixed order of "auxiliary"-like elements.

3. VP Ellipsis in Taiwanese and English

- Establish that Taiwanese has a VP ellipsis (VPE) operation – a novel claim
- Lay out direct parallels between the behavior of VPE in Taiwanese and English

In certain environments, the Taiwanese verb and its object(s) can be silent:[6]

(7) gua chang b-o khi hak-hau, tan-si i u
1p yesterday neg-PERF go school but 3p PERF
"I didn't go to school yesterday, but he did"

The second conjunct is interpreted as though it contains the VP in the first conjunct (*khi hak-hau* 'go to school'). This is a VP ellipsis (VPE) configuration: the silenced constituent can be recovered under a mutual entailment relation to a discourse-salient antecedent (Merchant 2001).

Taiwanese VPE "strands" certain elements in the extended verbal projection, meaning they remain outside of and adjacent to the ellipsis site. This is true of (im)perfectives:

[3] Like *u*, *hoo* is known to have several functions in Taiwanese (Cheng et al. 1999), one of which is the (adversative) passive. Given that its interpretation and distribution are entirely consistent with passive markers in other languages, we assume (at least one realization of) *hoo* is merged as the head of PassP.
[4] The order of negation is the only variable here, as it always appears in its surface scope position (e.g. *NEG.modal > PERF* order is possible). As this has no bearing on the present discussion, we leave it aside.
[5] The only environment in which English progressive morphology can appear away from the main verb is passive voice. Progressive morphology in active clauses *always* appears on the main verb.
[6] Taiwanese also allows main verbs to survive while only the object(s) disappear; see Appendix A.

Stranding (im)perfectives

(8) a. A-Ying u pha-kha-chhiuN, A-Ha ma **u** [~~pha-kha-chhiuN~~]
A-Ying PERF sneeze A-Ha also PERF **sneeze**
"A-Ying has sneezed, and A-Ha has too."
b. A-Ying e hio-khun, A-Ha ma **e** [~~hio-khun~~]
A-Ying IMPF rest A-Ha also IMPF **rest**
"A-Ying will rest, and A-Ha will too."

Modals can also be stranded, either by themselves or alongside a stranded (im)perfective:

Stranding modals

(9) a. A-Ying thang sai chhiah, A-Ha ma **thang** [~~sai chhiah~~]
A-Ying may drive car A-Ha also may **drive car**
"A-Ying may drive, and A-Ha also may."
b. A-Ying ai u sai chhiah, A-Ha ma **ai** **u** [~~sai chhiah~~]
A-Ying should PERF drive car A-Ha also should PERF **drive car**
"A-Ying should have driven, and A-Ha also should have."

Taiwanese VPE also elides VP adjuncts, which are obligatorily recovered:

Recovering antecedent VP adjuncts

(10) a. A-Ying u ti toh-ah ting thiau, A-Ha ma u [~~ti toh-ah ting thiau~~]
A-Ying PERF on table top jump A-Ha also PERF **on chair top jump**
"A-Ying has jumped on the table, and A-Ha has (jumped on the table) too."
b. #A-Ying u ti toh-ah ting thiau, A-Ha u ti i-a ting
A-Ying PERF on table top jump A-Ha PERF on chair top
≠"A-Ying has jumped on the table, and A-Ha has (jumped) on the chair."
="A-Ying has jumped on the table, and A-Ha has been (sitting) on the chair."

Besides coordinated clauses like (7)-(10), this operation applies to the full range of canonical VPE environments – across clause, sentence, and speaker boundaries (cf. Johnson 2001):

Taiwanese VP ellipsis: Across clause boundaries

(11) A-Ying b-o chhih kau, tansi gua sioN [$_{CP}$ A-Ha u [~~chhih kau~~]]
A-Ying NEG-PERF feed dog, but 1p think A-Ha PERF **feed dog**
"A-Ying hasn't fed the dog, but I think A-Ha has."

Taiwanese VP ellipsis: Across sentence boundaries

(12) A-Ying ming-a-chai be-tang chhih kau. Li kam e-sai [~~chhih kau~~]
A-Ying tomorrow cannot feed dog 2p Q can **feed dog**
"A-Ying can't feed the dog tomorrow. Can you?"

Taiwanese VP ellipsis: Across speakers

(13) Q: siaN-mi lang u siah kong-khe
what person PERF write homework
"Who's done the homework?"

A: gua sioN A-Ha u [~~siah kong-khe~~]
1p think A-Ha PERF **write homework**
"I think A-Ha has."

As the translations for (7)-(13) indicate, English VPE is functionally identical to Taiwanese VPE with respect to its distribution and the stranding of preverbal elements.

4. The Progressive Prohibition in VP Ellipsis

The similarities between Taiwanese and English VPE extend beyond what can strand: they also include what cannot strand. Consider the English VPE pattern in (14) (Sag 1976: 27):

(14) a. John was being criticized, but Mary wasn't (***being**) [~~criticized~~].
b. …but Mary hadn't been (*being) [~~criticized~~].
c. …but Mary shouldn't have been (*being) [~~criticized~~].

Ellipsis cannot strand the auxiliary bearing the progressive (*-ing*): it must delete.

Taiwanese exhibits a pattern that is obviously similar: the progressive particle *teh* cannot strand:

(15) A-Ying b-o teh chhih kau, tan-si A-Ha u (***teh**) [~~chhih kau~~]
A-Ying NEG-PERF PROG feed dog, but A-Ha PERF (*PROG) **feed dog**
"A-Ying hadn't been feeding the dog, but A-Ha had been."

Yet adverbs can appear between *teh* and the main verb, indicating *teh* is a free morpheme:

(16) A-Ying chim-ma **teh** man-man-a **thiah** chhu
A-Ying now PROG slowly destroy house
"A-Ying is now slowly destroying the house."

So the behavior of *teh* in (14) is not due to an adjacency/morphological requirement: it can be separated from V. Instead, its behavior must be due to a structural property of VPE, which we state as a universal in (17):

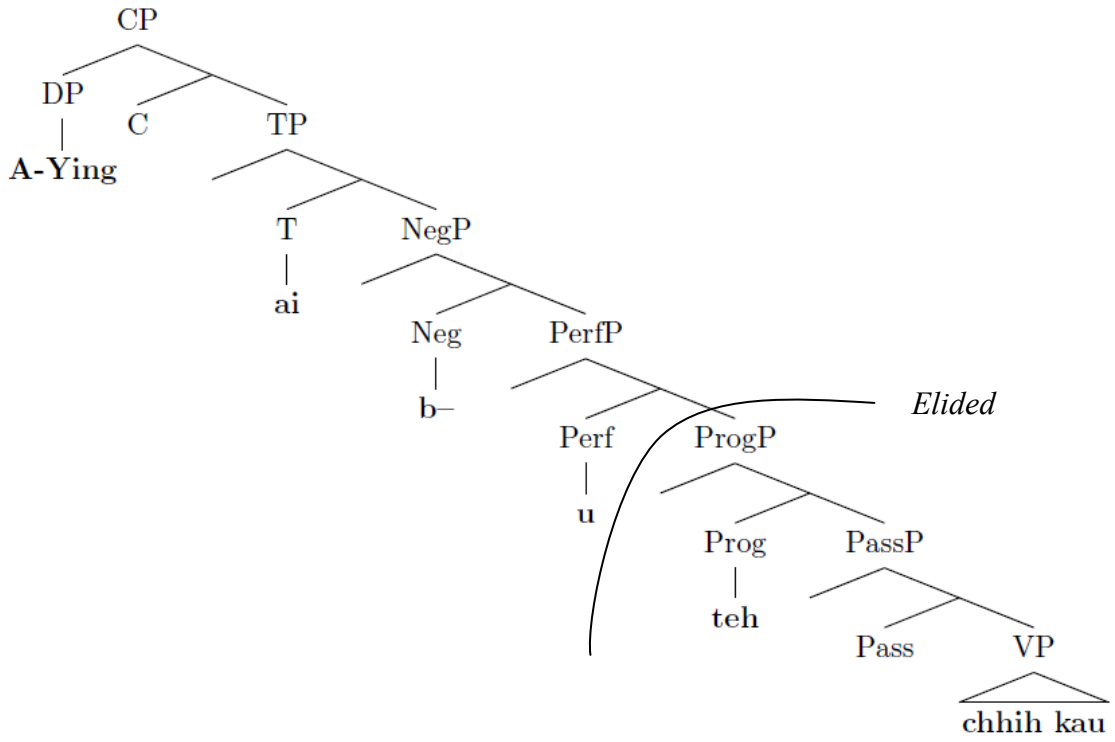
(17) *The Progressive Prohibition*
VP Ellipsis necessarily elides at least the maximal projection of progressive morphology.

That is, VP ellipsis is actually at least *ProgP* ellipsis.

5. Consequences for the analysis of English auxiliaries

With the morphology in-situ in Taiwanese (cf. Appendix), VPE applies straightforwardly:

(18) A-Ying ai b-o teh chhih kau[7]
A-Ying should NEG-PERF PROG feed dog
"A-Ying shouldn't have been feeding the dog."

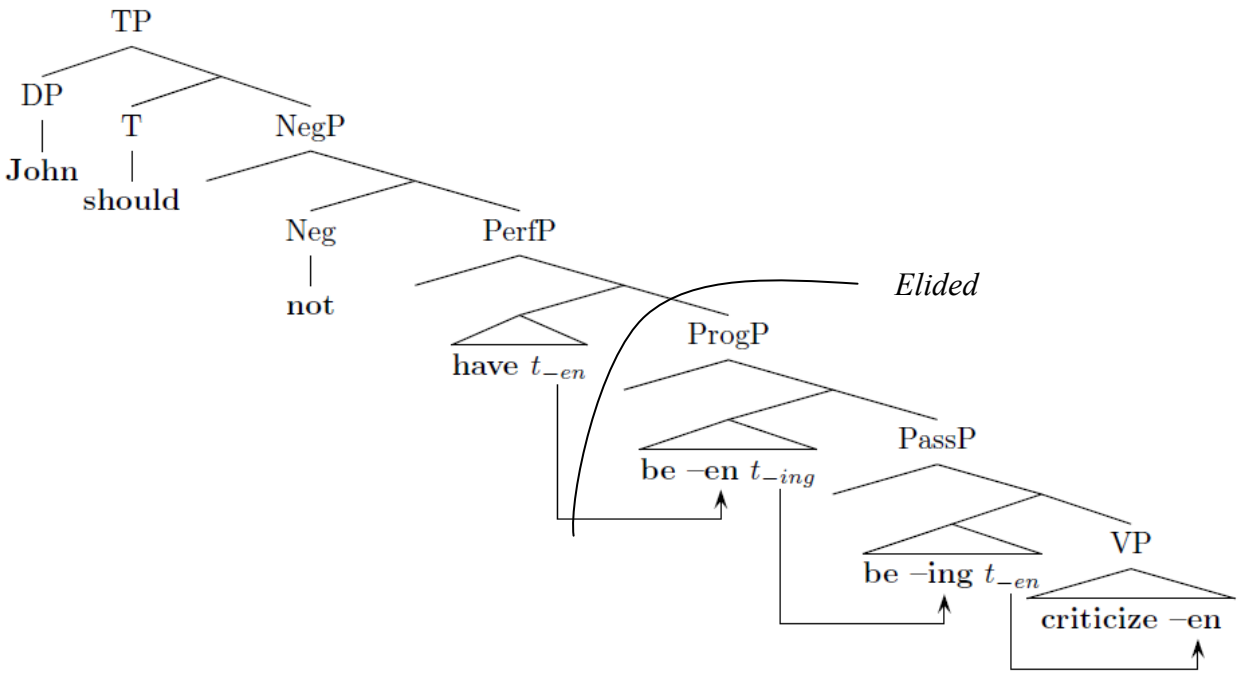


The situation is not so neat in English. Since Chomsky (1957), the standard analysis of English inflectional morphology involves affix lowering or "hopping". Implemented in modern terms:

- Inflectional suffixes are generated as heads of functional projections (e.g. *–ing* in $Prog^0$)
- These morphemes each "hop" down to the next auxiliary (e.g. *–ing* into *be* in PassP)

[7] Taiwanese subjects in root declaratives are structurally very high: they always precede the Q particle *kam*, TP-level adverbials, etc. Assuming they are topics, we put them in [Spec, CP] ([Spec, TopP] in a more articulated periphery).

(19) John should not have been being criticized



But this analysis yields the wrong VPE pattern, illustrated above:

Predicted maximal output of VPE:

(20) …but John should not have [$_{\text{ProgP}}$ (***been being**~~) criticized~~]

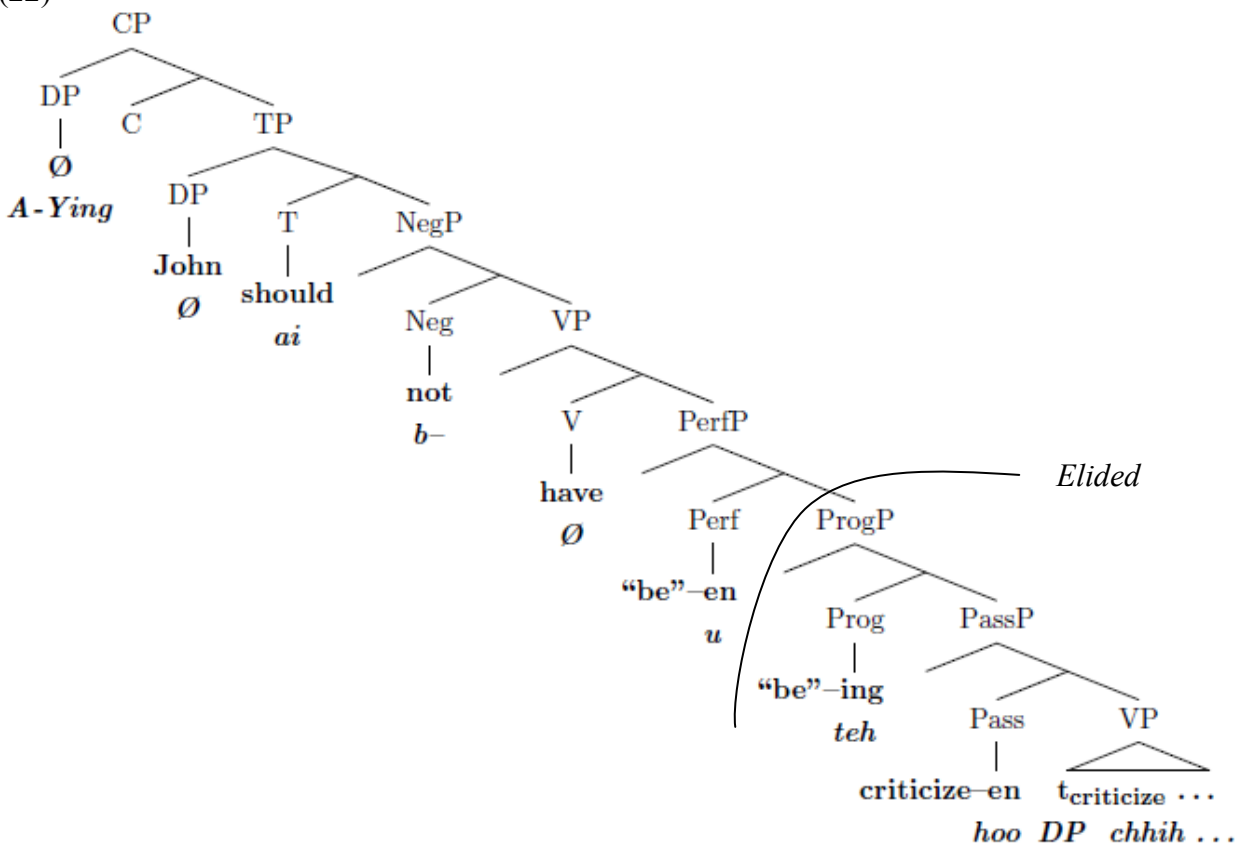
The auxiliary bearing perfective morphology (*been*) obligatorily deletes in this structure, but this is empirically false:

(21) Mary should have been listening, but John should not have **been [**~~listening~~]

Instead, we propose an in-situ approach to the spellout of English inflectional morphology, along the lines of Schütze (2003): *be*, as a semantically-empty verbal element, is inserted as a last resort to host bound participial morphology (à la *do*-support wrt Tense).

Bringing this together with Taiwanese, the structure in (22) shows an overlay of the preverbal domain in both languages (and not of an actual sentence):[8]

(22)



6. Conclusion

With the English inflectional morphemes spelled-out in-situ, the preverbal domains of Taiwanese and English are basically identical. Their primary differences then lie in the nature of the participial morphemes themselves, bound vs. free:

- The free morphemes of Taiwanese require no special attention
- The bound morphemes of English require verbal hosts: *be*-support

But crucially, adopting this proposal over an affix-hopping one like (19) allows us to unify our analysis of VPE in these languages, capturing its undeniable similarities.

[8] We assume that these projections are only present in the derivation when necessary. For ease of exposition, we leave out certain structural details that Schütze (2003) proposes (e.g. modals merging above TP, short movement of the main verb to the lowest participial projection, etc.).

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APPENDIX
A. Related data
1. "si"-ellipsis

Taiwanese has at least two other ellipsis-like phenomena that we do not treat in detail here. The first involves the appearance of the copula, *si*, adjacent to an ellipsis site:

(23) A-Ying chang chhih hit-chah kau, A-Ha ma si
A-Ying yesterday feed that-CL dog, A-Ha also COP
"A-Ying fed that dog yesterday, and A-Ha did too."

A superficial investigation suggests that this behaves identically to the *shi*-ellipsis construction in Mandarin Chinese (Soh 2007, among others).

2. V-stranding VPE or object drop?

The second ellipsis-like construction involves a repetition of the main verb from the antecedent:

(24) A-Ying e chhih kau, A-Ha ma e **chhih** [~~kau~~]
A-Ying IMPF feed dog, A-Ha also IMPF feed **dog**
"A-Ying will feed the dog, and A-Ha will too" (lit., "A-Ha also will feed")

There are at least two possible sources for the missing object in (24):

- object drop
- "V-stranding VPE" (Goldberg 2005)
  - this describes languages in which the main verb survives (is "stranded" by) VPE
  - In each case (Irish, Swahili, Hebrew, etc.) V-to-T occurs independently
  - Thus, V raises out of the ellipsis site, and does not get deleted

Taiwanese is a V-in-situ language, so we do not expect V-stranding VPE to be available. Instead, we expect (24) to be derived by object drop.

We can test this using verbs whose complements independently cannot drop. If they also cannot occur in configurations like (24), then VPE is unlikely: it is not sensitive to *pro*-drop constraints.

We see that Taiwanese non-finite complements cannot drop:

(25) A-Ying chang beh guan li-kui, sou-i A-Ha iau-kiu guan *(li-kui)
A-Ying yesterday want 1pl to.leave so A-Ha ask 1pl to.leave
"Yesterday A-Ying wanted us to leave, so A-Ha asked us *(to leave)"

Creating a V-stranding VPE environment does not improve the judgment:

(26) A-Ying chang iau-kiu guan li-kui, A-Ha ma iau-kiu guan *(li-kui)
A-Ying yesterday ask 1pl to.leave A-Ha also ask 1pl to.leave
"Yesterday A-Ying asked us to leave, and A-Ha also asked us *(to leave)"

However, the standard auxiliary-stranding VPE method is allowed:

(27) A-Ying chang u iau-kiu guan li-kui, A-Ha ma u [~~iau-kiu guan li-kui~~]
A-Ying yesterday PERF ask 1pl to.leave A-Ha also PERF **ask 1pl to.leave**
"Yesterday A-Ying asked us to leave, and A-Ha did too."

This suggests that Taiwanese does not have V-stranding VPE, as expected.

B. Toward a Cinquean hierarchy for Taiwanese

The following is an initial attempt to establish the fundamental ordering of preverbal elements in the Taiwanese clause following Cinque (1999). The results are highly tentative, but strongly indicate an absence of movement in the preverbal domain.

Pairwise orderings have been established among the following elements, each of which linearly precedes the ones below it (with certain exceptions). The approximate number in Cinque's universal hierarchy is given on the leftmost side, and corresponds directly to our findings.

2	"honestly"	laosi-kong
3	"unfortunately"	chin-pu-heng
4	"obviously"	chiaN-beng-hen
5	"probably"	(u) ko-leng
8	"perhaps" / "now"	ko-leng
10	"possibly"	bo-it-teng
14	"often"	chhiang-chai
17	"already"	i-keng
18	"no longer"	be-ko
20	"always"	chong-si
21	"just"	tu-a-ho
19	"continuously"	it-ti
24	Progressive	teh
25	"prepare"	chun-pi
32	"completely"	wan-chuan
34	"(very) well"	chin-ho

C. Typological predictions of the *Progressive Prohibition*

- V-raising languages can have VPE (cf. Goldberg 2005 and references therein)
- Under standard assumptions, the V^0 undergoes head-movement out of the ellipsis site
  - Obeying the Head Movement Constraint, it must raise through $Prog^0$ (assuming the language has progressive verbal morphology)
  - If (17) is right, verbs bearing progressive morphology would obligatorily elide
  - This seems unlikely,[9] and would force the size of VPE to vary wildly

[9] To this point, we have been unable to test this prediction; however, Swahili seems like a promising candidate.