Timing the Escape:
Verbal Identity in Uyghur Verb-Stranding Ellipsis

Robin Jenkins

1. Introduction

This paper investigates verb stranding ellipsis (VSE) patterns in Uyghur, focusing on the identity conditions imposed on stranded elements. As shown in (1), Uyghur exhibits VSE where predicate-internal elements are elided but the main V survives, i.e. it is stranded.[1]

(1) Zemire Ayghülga sowghatni etigende **berdi**, lëkin Nilufar
Zemire Ayghül.DAT gift.ACC morning.LOC give.PST.3SG but Nilufar
~~Ayghülga sowghatni etigende~~ **ewetti**.
send.PST.3SG
'Zemire gave Ayghül a gift in the morning, but Nilufar sent <Ayghül a gift in the morning>.'

As (1) shows, in VSE contexts where just the main V is stranded, the stranded V can be lexically distinct from the V in the antecedent clause (*berdi* vs. *ewetti*). Interestingly though, Uyghur does not always allow lexically distinct Vs in stranding enviroments. In contexts involving V+AUX-stranding ellipsis, as in (2a), the stranded V must be lexically identical to its antecedent. Mismatching Vs are ungrammatical (2b).

(2) a. Zemire tapshurupini etigende **yëzip** turiwatidu. Nilufar=mu
Zemire homework.3POSS.ACC morning.LOC write.IP AUX.CONT.PROG.NPST.3SG Nilufar=also
~~tapshurupini etigende~~ **yëzip** turiwatidu.
write.IP AUX.CONT.PROG.NPST.3SG
'Zemire keeps writing her homework in the morning. Nilufar keeps writing <her homework in the morning> too.'

b. *Zemire öyige xet **yëzip** turiwatidu. Nilufar ~~öyige xet~~ **qayturup**
Zemire home.3POSS.DAT letter write.IP AUX.CONT.PROG.NPST.3SG Nilufar return.IP
turiwatidu.
AUX.CONT.PROG.NPST.3SG
'Zemire keeps writing letters to her home. Nilufar keeps returning < letters to her home>.'

The goal of this paper is to account for the contrast in identity observed between main V-stranding (1) and V+AUX-stranding (2a,2b) ellipsis contexts. I argue that this difference in identity conditions on stranded Vs is an effect of whether V undergoes syntactic or post-syntactic head-movement to an affixal head. Specifically, I argue that in contexts like (1), V undergoes syntactic head-movement. But in contexts like (2a) V undergoes head-movement in PF. This difference, I argue, results in a difference in identity conditions on stranded Vs. Further, I show that the relevant factor which determines the type of head-movement V undergoes is the head V-movement targets, namely, while some heads trigger syntactic V-movement others trigger PF V-movement.

The main contributions of this paper are the following. First, Uyghur VSE provides evidence that V-stranding can involve at least two different types of head-dependencies, each with characteristic effects

* Robin Jenkins, University of Connecticut, robin.jenkins@uconn.edu. Thanks to Željko Bošković, Vera Gribanova, and Adrian Stegovec for discussion and suggestions. I also would like to thank the audiences at PLC47, University of Toronto Linguistics Department's Syntax Project, and WCCFL41 for their feedback. Finally, I also would like thank Subhi Tarim and Shaida David for their judgements and discussion of Uyghur.

[1] ~~Strikethough~~ is used to indicate elided material and < · · · > for the intended interpretation of the ellipsis site.

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regarding identity conditions on stranded elements. Additionally, Uyghur's VSE patterns show that within a single language both types of head-dependencies can be available and that which type is employed is determined by the syntactic context.

The paper is structured as follows. In §2 I distinguish Uyghur VSE from other VSE-like phenomena, and in §3 I show that VSE involves vP-ellipsis. §4.1 concerns main V-stranding, where I show that in this context, V undergoes syntactic head-movement. I turn to V+AUX-stranding in §4.2, which, unlike main V-stranding ellipsis, I argue involves PF V-movement. I also argue that what determines what type of V-movement occurs is the head that V targets and suggest that the relevant split in Uyghur closely parallels a case from English. §5 discusses some consequences of Uyghur's VSE patterns.

2. Distinguishing VSE from *pro*-drop and argument ellipsis

As shown below, Uyghur is both a *pro*-drop language (3) and allows object argument-drop (4).

(3) *pro* kitapni okudim.
1SG book.ACC read.PST.1SG
'I read the book.'

(4) Zemire bezi kitaplar Ayghülga berdimu? Yaq, Nilufar *e* Ayghülga berdi.
Zemire some book.PL Ayghül.DAT give.PST.3SG.Q no Nilufar Ayghül.DAT give.PST.3SG
'Did Zemire give Ayghül some books? No, Nilufar gave Ayghül some books.'

Given this, it may be suggested that Uyghur VSE is the result of object *pro*-drop (5) or (multiple) argument ellipsis (AE) (6), both of which have been proposed to account for VSE-like phenomena (for *pro*-drop accounts see Kuroda 1965, Hoji 1985, *i.a.*; for AE accounts see Oku 1998, Şener & Takahashi 2010, Landau 2020, Sakamoto 2020, *i.a.*).

(5) [… [$_{vP}$ [$_{VP}$ *pro* V] v] …]

(6) [… [$_{vP}$ [$_{VP}$ ~~DP~~ V] v] …]

However, Uyghur VSE can be distinguished from both *pro*-drop and AE. It is well-known that while elided DPs can support both strict/sloppy readings, *pro* only allows strict readings. As (7) shows, Uyghur VSE permits both strict/sloppy readings of elided DPs, indicating the null DP isn't *pro*.

(7) Ayghül$_i$ somkisini$_i$ qachilaydu, lëkin Zemire$_j$ ~~somkisini~~$_{i/j}$ qachilamaydu.
Ayghül bag.3POSS.ACC pack.PRS.3SG but Zemire pack.NEG.NPST.3SG
'Ayghül$_i$ packs her$_i$ bag, but Zemire$_j$ won't pack <her$_{i/j}$ bag>.'

Uyghur VSE is also distinct from (multiple) AE. Only arguments can be elided under AE (Oku 1998, Gribanova 2020, Sakamoto 2020, Landau 2020). This is the case in Uyghur as well. As shown below, adjuncts (8a) and (secondary) predicates (8b,8c) cannot undergo AE.

(8) a. *Zemire Ayghülga da'im alma berdi. Nilufar=mu Ayghülga ~~da'im~~ alma
Zemire Ayghül.DAT often apple give.PST.3SG Nilufar=also Ayghül.DAT apple
berdi.
give.PST.3SG
'Zemire often gave apples to Ayghül. Nilufar <often> gave apples to Ayghül too.'

b. *Zemire kiyimni yengi aldi. Nilufar=mu kiyimni ~~yengni~~ aldi.
Zemire dress.ACC new buy.PST.3SG Nilufar=also dress.ACC buy.PST.3SG
'Zemire bought a dress new. Nilufar bought a dress <new> too.'

c. *Zemire mektepte xapa bolidu lëkin Nilufar mektepte ~~xapa~~
Zemire school.LOC angry become.PRS.3SG but Nilufar school.LOC
bolmaidu.
become.NEG.NPST.3SG
'Zemire gets irritated at school but Nilufar doesn't get <irritated> at school.

But in VSE contexts, adjuncts (9a), (secondary) predicates (9b,9c) can be elided.

(9) a. Zemire Ayghülga da'im alma berdi. Nilufar=mu ~~Ayghülga da'im alma~~
Zemire Ayghül.DAT often apple give.PST.3SG Nilufar=also
berdi.
give.PST.3SG
'Zemire often gave apples to Ayghül. Nilufar <often> gave <apples to Ayghül> too.'

b. Zemire kiyimni yengi aldi. Nilufar=mu ~~kiyimni yengni~~ aldi.
Zemire dress.ACC new buy.PST.3SG Nilufar=also buy.PST.3SG
'Zemire bought a dress new. Nilufar bought <a dress new> too.'

c. Zemire mektepte xapa bolidu lëkin Nilufar ~~mektepte xapa~~
Zemire school.LOC angry become.PRS.3SG but Nilufar
bolmaidu.
become.NEG.NPST.3SG
'Zemire gets irritated at school but Nilufar doesn't get <irritated at school>.

That these elements cannot be independently elided, i.e. cannot undergo AE, but can be elided in VSE contexts, indicates that Uyghur VSE is a phenomenon distinct from AE.

3. Uyghur VSE involves vP ellipsis

As just shown, Uyghur's phenomenon under consideration is distinct from both *pro*-drop and (multiple) AE. Therefore, it must involve VSE, i.e. elision of an XP which is large enough to contain predicate-internal material, e.g. internal arguments, adjuncts. I argue that the XP VSE targets is vP. That vP is the ellipsis target is supported by the observations that vP-adjoined elements may be contained in the ellipsis site and the impossibility of voice morphology mismatches under VSE.

As (10) shows, agent-oriented adverbs like *qesten* ('intentionally') can be elided under VSE. Assuming that such adverbs adjoin to a position above VP, i.e. vP (Cinque 1999, *i.a.*), the possibility of eliding such elements under VSE indicates that VSE targets vP, so that vP-adjoined elements are inside the ellipsis site.

(10) Zemire Ayghülni qesten qorqutti, Nilufar=mu ~~Ayghülni qesten~~
Zemire Ayghül.ACC intentionally fear.CAUS.PST.3SG Nilufar=also
qorqutti.
fear.CAUS.PST.3SG
'Zemire intentionally frightened Ayghül, Nilufar <intentionally> frightened <Ayghül> too.'

That VSE targets the vP is further confirmed by the impossibility of mismatching voice morphology under VSE. While VSE is possible when both Vs are passivized (11), it is not when the antecedent and target Vs mismatch in voice morphology (12a,12b)). In (12a), the antecedent V is active and the stranded V is passivized (as indicated by the presence of the passive voice morpheme *-il*), and VSE is impossible.

(11) Manta tëz yeildi, lëkin polu ~~tëz~~ yeilmadi.
Manta quickly eat.PASS.PST.3SG but pilaf eat.PASS.NEG.PST.3SG
'The manta was quickly eaten, but the pilaf wasn't <quickly> eaten.

(12) a. *Nilufar tëz manta yedi, lëkin polu ~~tëz~~ yeilmadi.
Nilufar quickly manta eat.PST.3SG, but pilaf eat.PASS.NEG.PST.3SG
'Nilufar quickly ate manta. but the pilaf wasn't <quickly> eaten.

b. *Manta tëz yeildi, lëkin Nilufar ~~tëz manta~~ yemadi.
Manta quickly eat.PASS.PST.3SG but Nilufar eat.NEG.PST.3SG
'The manta was quickly eaten. but Nilufar didn't eat <the manta quickly>.

Chung 2013 and Merchant 2013, 2008 show that, quite generally, ellipsis that targets an XP at least as large as vP must have identical argument structure to the antecedent XP. E.g., English VP-ellipsis tolerates an active antecedent with a passivized ellipsis target (13a) but sluicing (i.e. TP-ellipsis) doesn't (13b).

(13) a. The janitor must remove the trash whenever it is apparent that it should be.
b. * Someone murdered Joe, but we don't know who by. (Merchant 2013: 78,81)

I interpret the impossibility of voice mismatches in (12a,12b) as indicating that Uyghur VSE targets vP and, therefore, requires that the antecedent and ellipsis target vPs have identical argument structure. Concretely, in (12a) the antecedent vP projects with a v_{ACT} and selects for an AGENT in Spec,vP, whereas the ellipsis target vP projects with a v_{PASS} and does not project an AGENT in Spec,vP (or *vice versa* in the case of (12b)). Thus, due to this argument structure mismatch, where an AGENT projects in Spec,vP of the antecedent but not the elided vP, vP-ellipsis is not possible under voice mismatches.[2,3]

I conclude that availability of eliding vP-adjoined adverbs (10) and the impossibility of voice mismatches under VSE (12a,12b), indicates that Uyghur VSE involves vP-ellipsis.

4. Uyghur stranding

4.1. Main V-stranding

As shown in (1) (repeated below), in VSE contexts where just the main V is stranded, the stranded V can be lexically distinct from the antecedent V.

(1) Zemire Ayghülga sowghatni etigende **berdi**, lëkin Nilufar
Zemire Ayghül.DAT gift.ACC morning.LOC give.PST.3SG but Nilufar
~~Ayghülga sowghatni etigende~~ **ewetti**.
send.PST.3SG
'Zemire gave Ayghül a gift in the morning, but Nilufar sent <Ayghül a gift in the morning>.'

It is well-known that ellipsis in general requires identity between the elided and antecedent XPs (Sag 1976, Chung et al. 1995, Merchant 2001, *i.a.*) and that movement of an element outside the ellipsis target can ameliorate what otherwise would be an identity failure (Merchant 2001, *i.a.*), e.g. in (14a), cf. (14b).

(14) a. Bob loves dogs, but cats$_i$ he doesn't ~~love t_i~~.
b. Jane loves dogs and Bob does ~~loves dogs/*cats~~ too.

Chung 2006 observes that ellipsis obeys the structural identity condition in (15), which states that for any element within the elided XP that is not a trace, there must be an overt matching element in the antecedent XP (see Chung 2006 and Merchant 2010 for further discussion).

(15) **No New Words:** Any non-trace morpheme *m* that occurs in the elided XP must have an equivalent overt correlate *m′* in the elided XP's antecedent. (Merchant 2010)

I propose that the availability of mismatching Vs in cases like (1), indicates that V has undergone syntactic head-movement outside of the vP. Concretely, in (1) V raises to a head above vP and leaves a trace in its launch position (i.e. VP). Since traces do not induce identity violations, i.e. (15), the vP can be targeted for ellipsis (despite non-identity between the antecedent and stranded Vs). Consequently, due to V raising outside the vP, when vP is elided V is stranded in the higher position.

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[2] This point would also apply if Uyghur has a dedicated Voice^0 immediately above vP, which hosts voice morphology (see e.g. Legate 2014, for a proposal along these lines). If this is the case, Uyghur VSE would target VoiceP (rather than vP). However, given that this difference would not affect anything here, I put it aside.

[3] In Merchant 2013 the argument structure condition is stated in in terms of a structural identity with respect to the voice-specifying head. That is, ellipsis licensing requires the antecedent and elided voice-specifying head to match in terms of [ACT] and [PASS]. I will remain neutral regarding the exact underlying reason for the argument structure condition on vP-ellipsis.

As for the head that V raises to, I suggest that V raises to the inflectional domain at least as high as Asp. As (16) shows, mismatching inflectional elements are quite generally possible in Uyghur VSE. In (16), the antecedent V is inflected with *-ghan* (PERF.PST) and the stranded V with *-(i)wat-idu* (PROG-NPST.3SG). I take this to indicate that such elements are outside the ellipsis target and V undergoes syntactic head-movement at least as high as Asp.

(16) Zemire tünügün texseni üstelde yu-**ghan**. Nilufar bügün ~~texseni üstelde~~
Zemire yesterday dish.ACC table.LOC wash-PERF.PST Nilufar today
yu-**wat-idu**.
wash-PROG-NPST.3SG
‘ Yesterday, Zemire had washed the dish on the table. Today, Nilufar is washing <the dish on the table>.’

Thus, I propose that cases of Uyghur VSE where just the V is stranded involve the configuration in (17).

(17) [$_{\text{AspP}}$ ~~[$_{\text{vP}}$ [$_{\text{VP}}$ DP *t*] *t*]~~ V+v+Asp]

4.2. V+Aux-stranding ellipsis

I now turn to Uyghur’s V+AUX-stranding ellipsis pattern. Recall from §1, in contrast to main V-stranding ellipsis, in cases of V+AUX-stranding ellipsis identity is enforced between the stranded V and its antecedent (2a,2b) (repeated below).

(2a) Zemire tapshurupini etigende **yëzip** turiwatidu. Nilufar=mu
Zemire homework.3POSS.ACC morning.LOC write.IP AUX.CONT.PROG.NPST.3SG Nilufar=also
~~tapshurupini etigende~~ **yëzip** turiwatidu.
write.IP AUX.CONT.PROG.NPST.3SG
‘Zemire keeps writing her homework in the morning. Nilufar keeps writing <her homework in the morning> too.’

(2b) *Zemire öyige xet **yëzip** turiwatidu. Nilufar ~~öyige xet~~ **qayturup**
Zemire home.3POSS.DAT letter write.IP AUX.CONT.PROG.NPST.3SG Nilufar return.IP
turiwatidu.
AUX.CONT.PROG.NPST.3SG
‘Zemire keeps writing letters to her home. Nilufar keeps returning < letters to her home>.’

Interestingly, while identity is enforced for the main V, no identity conditions are imposed on the AUX—i.e. mismatching AUXs are possible (18).

(18) ?Zemire tapshuruqini yëzip **qoydi**, lëkin Nilufar ~~tapshuruqini~~ yëzip
Zemire homework.3POSS.ACC write.IP AUX.COMPL.PST.3SG but Nilufar write.IP
turiwatidu.
AUX.CONT.NPST.3SG
‘Zemire wrote her homework up, but Nilufar keeps writing <her homework>.’

Further, as (19) shows, the V+AUX must be stranded together and AUX-stranding ellipsis is impossible.

(19) *Zemire tapshuruqini etigende yëzip turiwatidu. Nilufar=mu
Zemire homework.3POSS.ACC morning.LOC write.IP AUX.CONT.NPST.3SG Nilufar=also
~~tapshuruqini etigende yëzip~~ turiwatidu.
AUX.CONT.NPST.3SG
‘Zemire keeps writing her homework in the morning. Nilufar keeps <writing her homework in the morning> too.’

I will now argue that both observations (i.e. matching effects and no AUX-stranding) can be traced to the same source, namely, the presence of the non-finite affix *-ip*, which attaches to the main V when an AUX is present.

4.2.1. Why No Aux-stranding

In Uyghur V+AUX constructions aspectual AUXs host inflectional morphology and the main V is marked with the non-finite affix *-ip*. This is illustrated in (20), where the aspectual AUX *tur* hosts the progressive and non-past tense affixes (*-iwat* and *-idu*), and the main V *yëz* hosts non-finite *-ip*.

(20) Zemire tapshuruqini yëz-ip tur-iwat-idu.
Zemire homework.3POSS.ACC write-IP AUX.CONT-PROG-PRS.3SG
'Zemire keeps writing her homework.'

Following Sugar 2019, I assume that the *-ip* head projects a phrase (*ip*P) immediately above vP, but, crucially, below AUXP. Evidence for this being the position of *ip*P comes from morpheme ordering. As shown in (21), the passive morpheme *-n* must precede *-ip* on the main V.

(21) Poyizning awazi angli-**n**-ip turdi.
train.GEN sound.3POSS hear-PASS-IP AUX.REP.PST.3SG
'The sound of the train kept being heard.' (Sugar 2019: 190)

Assuming that the passive *-n* is hosted by v, I interpret the above facts to indicate that V+AUX constructions involve the functional sequence in (22), where the *-ip* head merges above vP but below AUXP.[4]

(22) [$_{\text{AspP}}$ [$_{\text{AuxP}}$ [$_{ip\text{P}}$ [$_{\text{vP}}$ [$_{\text{VP}}$ . . . V] v] *-ip*] Aux] Asp]

Consider now how the position of *ip*P bears on ellipsis. Previous works have shown that ellipsis can target phase complements (Gengel 2007, van Craenenbroeck 2010) and also full phases (e.g. Japanese CP-ellipsis (23)) (Bošković 2014, Lewis 2022).

(23) Hanako-wa [$_{\text{CP}}$ zibun-no teian-ga saiyoosareru to] omotteiru ga, Taroo-wa [$_{\text{CP}}$ Δ]
Hanako-TOP SELF-GEN proposal-NOM accepted.be C think though Taro-TOP
omotte inai.
think not
'Hanako$_i$ thinks that her$_i$ proposal will be accepted, but Taro$_j$ doesn't think <that her$_i$/his$_i$ proposal will be accepted>. (Saito 2007: 209)

Moreover, Bošković 2014 shows that, in principle, ellipsis can target either as options. As shown in §3, Uyghur VSE contexts involve vP-ellipsis, i.e. full phase ellipsis. Consider now Uyghur's functional sequence (22). In order for the AUX to be stranded, ellipsis must target an XP at least as large as *ip*P. But *ip*P immediately dominates the vP phase, and, thus, is neither a phase itself nor a phase complement. Thus, due to *ip*P's position it cannot be targeted for ellipsis and AUX-stranding is impossible.

4.2.2. Obligatory matching effects

It has been observed for a number of VSE languages that stranded Vs must be lexically identical to the V in the antecedent clause, e.g. Brazilian Portuguese VSE (24) (Cyrino & Matos 2002).[5]

[4] As discussed in fn. 2, I assume that voice morphology is hosted by v. However, nothing would change if voice morphology is hosted by a VoiceP projection immediately above vP but below *ip*P.

[5] Other languages that have been argued to have this type of matching effect under VSE include: Irish (McCloskey 1991, 2017), Japanese (Funakoshi 2014), Turkish (Fenger 2020), Uzbek (Gribanova 2020), among others.

(24) Quando a Ana **pôs/*colocou** os óculos na mesa, a Maria também
when the Ana put.PST.3SG/put.PST.3SG the glasses on.the table, the Maria also
pôs ~~os óculos na mesa.~~
put.PST.3SG
'When Ana put the glasses on the table, Maria did too.' (Cyrino & Matos 2002: 182)

Schoorlemmer & Temmerman 2012, McCloskey 2017, Gribanova 2020, among others, propose that this obligatory matching effect— termed the *Verbal Identity Requirement* (VIR) (Goldberg 2005)— is due to V undergoing PF head-movement to the inflectional head in such contexts. That is, in cases of VSE where the VIR is imposed, e.g. (24), V does not undergo syntactic raising but remains syntactically *in situ*. Rather, V only undergoes raising post-syntactically in PF (25). Since V raises after identity is calculated for ellipsis (cf. (15)), the VIR is enforced.

(25) a. Syntax: $[_{IP}\ I\ [_{VP}\ V\ ]\ ]$ b. PF: [I [V]] ⇒ [I+V [ ]]

I propose that the presence of VIR effects on the stranded V in (2a) indicates that in Uyghur's V+AUX-stranding ellipsis, V raises in PF here too. In V+AUX constructions, the AUX undergoes syntactic head-movement to the inflectional domain, e.g. Asp, and V remains syntactically *in situ*. Thus, when the vP is targeted for ellipsis, since V is vP-internal when identity is calculated, it must be identical to its antecedent (as in (26a)). Only after identity is calculated, does V raise outside the vP-ellipsis target to *ip*P in PF (as in (26b)). Since raising occurs after identity calculation, the VIR is enforced on the stranded V in, e.g., (2a). Further, since the AUX is anyways above vP, mismatches with the antecedent AUX (e.g. (18)) are possible.[6]

(26) a. Syntax: $[_{AspP}\ [_{AUXP}\ [_{ipP}\ [_{vP\ =\ \textbf{ellip. tgt.}}\ [_{VP}\ \ldots\ V\ ]\ v\ ]\ \textit{-ip}\ ]\ t_i\ ]\ AUX_i\text{+Asp}\ ]$
b. PF: [[[V] v] *-ip*] ⇒ [[[ ]] V+v+*ip*]

To summarize, what the contrast regarding the VIR in (1) and (2a,2b) indicate is that in Uyghur V can undergo movement in the syntax or in PF depending on the head that V movement targets. When V targets a head in the inflectional domain, e.g. Asp, it undergoes syntactic head-movement to it. But when V targets *-ip*, it undergoes PF head-movement to that head. Due to this difference, in VSE contexts where just the main V is stranded, the VIR is not in effect. But in V+AUX-stranding contexts, the VIR is enforced.

4.3. A parallel case: English be-shift

Interestingly, this split regarding how V combines with heads in Uyghur (i.e. syntactic or PF head-movement) parallels another well-known case: English *be*-shift. It has been long observed that non-finite *be* in English does not uniformly undergo syntactic movement to affixal heads (Akmajian & Wasow 1975, Iwakura 1977, Akmajian et al. 1979, Lobeck 1987, Bošković 2004, 2014, Thoms 2010). Rather, in some contexts *be* undergoes syntactic movement to the affixal head; in other contexts it does not. In particular, in context where *be* combines with the perfect participle *-en*, *be* undergoes syntactic movement to *-en*. But in contexts where it combines with the progressive *-ing*, *be* no such movement occurs.

This difference regarding *be* movement can be observed regarding ordering of *be* relative to VP-adjoined adverbs. While *be-en* can precede VP-adjoined adverbs, e.g. *often*, as in (27a); *be-ing* must follow such adverbs, as in (27b).

(27) a. They have been often terrorized by prejudice.
b. ?* They are being often terrorized by prejudice. (Bošković 2014: 61)

[6] It is typically thought that head-movement requires strict locality between the moving and target heads (Travis 1984) (see also Harizanov & Gribanova 2019 for discussion specifically regarding PF head-movement and locality). Thus, an issue arises regarding V undergoing PF head-movement to *-ip* in (26) due to the intervening v. I suggest that V quite generally undergoes syntactic head-movement to v and, in (26) it is the V+v complex that undergoes PF head-movement to *-ip*.

The above contrasts indicates that *be* must have undergone syntactic movement, past the VP-adjoined adverb, to the *-en*-hosting head, as in (28a) (c.f. (28b)).

(28) a. [They have [$_{enP}$ be$_i$+en [$_{AuxP}$ often t_i [$_{VP}$ terrorized . . .]]]]
b. [They are [$_{ingP}$ -ing [$_{AuxP}$ often be [$_{VP}$ terrorized . . .]]]]

Further evidence for this split can be observed with the distribution of floating quantifiers (Bošković 2014). There is a sharp contrast in grammaticality between *all* floated after *been* in (29a) and after *being* in (29b).

(29) a. ? The student have been all arrested by the police.
b. * The students are being all arrested by the police. (Bošković 2014: 60,61)

Bošković 2014 interprets this contrast as indicating a difference in quantifier float positions in (29a) and (29b), namely, that the ungrammaticality of (29b) indicates that *all* cannot be floated in the main verb domain, i.e. (30a). But given that floating *all* between *been* and the main V is grammatical, i.e. (29a), this indicates that *all* must have been stranded in a higher Spec than in (30a). Therefore, in order for there to be position for *all* to be floated (while still maintaining the linear order in (29a)), *be* must raise. Thus, the above contrast indicates that *be* undergoes movement to *-en*, with *all* stranded in the Spec of the phrase above the main VP, as in (30b).

(30) a. * The students$_i$ are being [$_{VP}$ all t_i arrested t_i] by the police.
b. The students$_i$ have been$_j$ [$_{AuxP}$ all t_i [$_{Aux'}$ t_j [$_{VP}$ arrested t_i]]] by the police.

For present purposes, the key point is that what the above data show is that whether *be* combines with the affixal head in the syntax or in PF is determined by the target head. With *-en*, *be* undergoes syntactic movement to *-en*. But with *-ing*, it does not. Instead, *be* combines with *-ing* through PF mechanisms (Bošković 2014— note that this does not, involve, PF V-movement). In this respect, English *be*-shift patterns are parallels with Uyghur's VSE patterns. As was shown for Uyghur, in some contexts V combines with a head in the syntax (where VIR violations are possible). But in others V combines with a head in PF (where the VIR is imposed).

5. Further consequences and conclusion

We have see that Uyghur's VSE patterns show that V can raise to a head in either the syntax or in PF. Moreover, depending on which type of head-movement V undergoes, we see a difference in VIR effects.

That head-movement can occur in either the syntax or in PF, with corresponding VIR effects for each type, has been proposed in several works (see, e.g. Gribanova 2013, 2017 for discussion on this point regarding VIR effects in Russian VSE contexts; see also McCloskey 2017, Harizanov & Gribanova 2019). In this respect, Uyghur's VSE patterns further support this claim.

Further, what Uyghur's VSE patterns showed is that what determines whether V raises in the syntax or in PF is the head that V targets. As was shown, when V targets, e.g. Asp, V syntactically raises to that head. But when V targets *-ip*, it raises through PF head-movement. Thus, it is the target head that determines the type head-movement that V undergoes.

I suggest that this split observed regarding types of V-movement in Uyghur VSE contexts, in fact, indicates a more general split regarding the conditions for when V undergoes head-movement in the syntax or in PF. In cases of syntactic V-movement, V moves for the usual, syntactic reasons, i.e. feature-checking (Lasnik 1995). If the target head requires PF-support, i.e. it is an affixal head, then the raised V will be able to support it (though, crucially, this is not the reason for syntactic V-movement). In contrast, when V combines with a head through PF operations, it must be for PF-related reasons, i.e. to provide PF-support for a head. Thus, I suggest that with respect to syntactic and PF head-movement, while syntactic head-movement can target affixal heads (e.g. French V-raising (Pollock 1989, Lasnik 1995, *i.a.*)) as well as non-affixal ones (e.g. I-to-C inversion, V2 movement (Holmberg 2015), V-to-V restructuring (e.g. in Rizzi 1978, Keine & Bhatt 2016, *i.a.*), PF head-movement can only target affixal heads. That is, PF head-movement may only occur in environments where it is required to provide PF-support for a head.

In regards to VSE, if VIR-obeying VSE is due to V combining with a head through PF head-movement, given PF head-movement only targets affixal heads, then VIR-obeying VSE will only occur in environments where V targets an affixal head. In this respect, I suggest that VIR-obeying V-stranding contexts are akin to *do*-support contexts. E.g. in English *do*-support occurs to support an affix that otherwise would be stranded due to ellipsis. In Uyghur (and VIR-obeying VSE more generally), PF V-raising occurs to support an affix that otherwise would be stranded as well.

5.1. Conclusion

In this paper, I argued that the VIR contrasts observed in Uyghur VSE constructions indicates that in Uyghur V can undergo head-movement in either the syntax and in PF, which is reflected in the contrasts observed. Further, I argued that that what type of head-movement V undergoes is determined by the syntactic context. Specifically, I proposed that whether V undergoes syntactic or PF head-movement is determined by the head V targets. More generally, I proposed that this split regarding types of head-movement in VSE indicates a general condition on when syntactic or PF head-movement occurs, namely, that PF head-movement only occurs in contexts where V undergoes raising to support an affixal head.

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