VP Ellipsis in Tag Questions: a Typological Approach*

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1. Introduction

I argue that dependent tag questions involve VP ellipsis (henceforth, "VPE") in their derivation. Evidence for this conclusion comes from a novel crosslinguistic study revealing several distributional and behavioral similarities between VPE clauses and tag question clauses across languages. Thus, this study expands the empirical domain of ellipsis phenomena to include tag questions (which has been previously assumed, but never supported), and it also expands the empirical domain of tag questions to include languages other than English.

2. Background

2.1. Background on tag questions

Pre-theoretically, the term "tag question" refers to any sentence-final, prosodically-distinct utterance whose presence minimally transforms a non-interrogative clause into an interrogative one.[1] Under this definition, two basic types of tag questions exist: the *dependent* type and the *invariant* type. The content of the former type co-varies with the content of the sentence that "hosts" it, as in (1), while the form of latter type is insensitive to the content of its host, as in (2):

(1) *Dependent tag questions*
   a. [Sharon]$_i$ could$_j$ probably pull a muscle doing that, couldn't$_j$ she$_i$?
   b. [Jeremy's restraining order]$_i$ hasn't$_j$ already expired, has$_j$ it$_i$?

(2) *Invariant tag questions*
   a. Sally can't come because she's busy cleaning her dungeon, right?
   b. Ron will be here soon with the crackers and spreadable meat, yeah?

*This work stems from my Master's thesis (Sailor 2009a). For all their help, I would like to thank Tim Stowell, Anoop Mahajan, Carson Schütze, and the rest of my UCLA colleagues, as well as Jason Merchant, Kyle Johnson, Jim McCloskey, and the audience of CLS46 for discussion. Abbreviations: C 'complementizer', CL 'classifier', DEF 'definite', DIST 'distal', INT 'interrogative', NEG 'negative', OBJ 'object', PAST 'past tense', PART 'partitive', PERF 'perfect', POSS 'possessive', Q 'question-particle'.

[1]This distinguishes tag questions from sentence-final question particles (in e.g. Chinese): the former, but not the latter, are prosodically separated from the rest of the clause; and, clause-initial Q-particles exist in some languages (e.g. Yiddish), whereas initial tag questions are unattested.

I restrict my discussion entirely to the *dependent* type (henceforth simply "tags"),[2] a phenomenon which some have claimed to be unique to English (Culicover 1992, a.o.). This is empirically false, as I show in §4..

Descriptively, tags typically contain: (i) a subject pronoun, coreferential with the host clause's subject, (ii) a "copy" of any modal or tensed auxiliary from the host (otherwise, *do*-support occurs), and (iii) reversed polarity from the host clause.[3] For discussion of (i)-(ii), see Culicover (1992) and Sailor (2009a), a.o., and for discussion of (iii), see Klima (1964), Huddleston (1970), Bublitz (1979), a.o. We return to each of these properties later.

2.2. Background on VPE

Ellipsis is a crosslinguistic phenomenon in which a syntactic constituent is rendered unpronounced (Merchant 2001, a.o.; see Merchant 2009 for a survey of the literature). VPE is a type of ellipsis that silences a verbal projection, leaving adjacent functional material (in bold in (3)) "stranded" outside of the ellipsis site:[4]

(3) *VPE*

a. Chris threatened to [come to the party], but thankfully he **didn't** [~~come to the party~~].
b. Doug should [take a vow of silence], and Nick **should** [~~take a vow of silence~~], too.

Lobeck (1995) formalizes this observation as a necessary condition on the *licensing* of ellipsis: VPE must be licensed by phonologically-overt material in T^0 (including tensed auxiliaries, modals, and infinitival *to*). At the same time, ellipsis is also subject to an *identity* condition, which Merchant (2001) characterizes as a relationship of mutual entailment between the elided material and a contextually-salient antecedent (*e*-GIVEN*ness*: ibid. p. 26). I adopt these proposals here.

3. VPE in tag questions: evidence from American English[5]

In this section, I systematically compare English tag questions to regular VPE clauses, and I conclude from the preponderance of their similarities that VPE is a necessary component in the derivation of tags.

The general intuition behind this – that tags are separate, 'reduced' interrogative clauses – is hardly new, going back to at least Huddleston (1970),[6] and is essentially taken for granted in the few works treating tags since then. Its theoretical implementation is usually achieved by fiat:

[2] See e.g. Moravcsik (1971 p. 131) for detailed discussion of the invariant type.

[3] While [POS-POS] is widely attested, its usage and interpretation differ broadly from the [POS-NEG] and [NEG-POS] type, so I leave it aside here. [NEG-NEG] is crosslinguistically unattested, likely for semantic reasons (e.g. a presupposition failure); I leave this aside as well.

[4] The precise size of structure that goes unpronounced in English VPE is somewhat controversial, though the general consensus is *v*P. See e.g. Johnson (2001, 2004), Merchant (2007, 2008), and Aelbrecht (2009) for much discussion. Throughout, elided (unpronounced) material is struck through.

[5] Other dialects of English (Canadian, British, etc.) exhibit different syntactic and interpretational patterns in auxiliary stranding, which I set aside here. See Sailor (2009b) for discussion.

[6] Klima (1964) and den Dikken (1995) propose an alternative in which the tag question is essentially built within the host clause, but see Sailor (2009a) for extensive counterarguments.

it is hard-coded in the grammar as an operation unique to tag questions (Culicover 1992,[7] a.o.). However, the need for a tag-specific operation is obviated if tags acquire their reduced stature simply as the result of VPE, as the data below suggest.

Lobeck (1987: p. 68-94) describes patterns of modal/auxiliary stranding in English VPE clauses. Below, we see these same patterns consistently arising in tags, as well. Specifically, the full battery of finite VPE-licensing heads – heads occupying T^0, adjacent to the ellipsis site – are also found at the edge of the tag clauses (prior to T-to-C movement[8] for question formation), indicating a VPE site. Additionally, these heads *cannot* be elided by VPE, nor can they go missing in tags.

First, consider the modals:

(4) *Modals*

a.	Mister Ed couldn't read, but Arnold Ziffel sure **could** [~~read~~].	*VPE*
b.	*Mister Ed couldn't read, but Arnold Ziffel [~~**could** read~~].	*VPE*
c.	Mister Ed couldn't read, **could**$_i$ he t_i [~~read~~]?	*Tag*
d.	*Mister Ed couldn't read, (did) he [~~**could** read~~]?	*Tag*

Here, tags and VPE pattern alike: if there is a modal in the antecedent, it cannot be elided in the second clause. We can tell that the trace of the modal (in T^0, before moving to C^0) is not deleted in the tag clause in (4c) because modals are higher than uncliticized negation (5a), and in tag questions, this negation survives (5b):

(5)

a.	Most dogs can smell fear, but Sparky could **not** [~~smell fear~~].	*VPE*
b.	Most dogs can smell fear, can$_i$ they t_i **not** [~~smell fear~~]?	*Tag*

Thus, tags and VPE clauses pattern the same with respect to stranded modals.

The same reasoning can be applied to the remaining set of finite VPE licensing heads, all of which behave the same in tag contexts. Even the aspectual shift induced by eliding non-finite perfect *have* (in American English) persists in tags (6), as does the apparent optionality of eliding non-finite *be* (7):

(6) *Perfect "have"*

a.	Boober should have eaten, and Squeaker should'**ve** [~~eaten~~], too.	*VPE*
b.	#Boober should have eaten, and Squeaker should [~~**have** eaten~~] too.	*VPE*
c.	Boober should have eaten, shouldn't he **have** [~~eaten~~]?	*Tag*
d.	#Boober should have eaten, shouldn't he [~~**have** eaten~~]?	*Tag*

(7) *Non-finite "be"*

a.	Barry could be drinking, but he shouldn't (**be**) [~~drinking~~].	*VPE*
b.	Barry could be drinking by now, couldn't he (**be**) [~~drinking~~]?	*Tag*

[7] Although Culicover (1992) argues that tags are *not* grammatical primitives, his analysis involves ad hoc mechanisms that are apparently unique to tags.

[8] Assuming that T^0 is the VPE licenser in English (Lobeck 1995, a.o.), and that ellipsis obeys cyclic Spell-Out (cf. Gengel 2007), it is worth pointing out that head movement of the licenser has no obvious effect on VPE; i.e., the constituent being elided is the same whether T^0 moves or not. This is a simple point, but one that deserves more attention in light of ongoing debate over the nature of head movement (PF vs. non-PF). See Aelbrecht (2009) for arguments that constituents elide immediately when their ellipsis licensers are merged, meaning VPE would occur before T-to-C.

Furthermore, both VPE and tags allow multiple modals/auxiliaries to be stranded (in which case the optionality of non-finite *be* persists):

(8) *Multiple stranded modals/auxiliaries*

a. Judy should have been fired, but I shouldn't have (been) [~~fired~~]. *VPE*

b. Judy should have been fired, shouldn't she have (been) [~~fired~~]? *Tag*

The data in (4)-(8) show that VPE and tags treat modals/auxiliaries uniformly: they either strand in both environments, or they *optionally* strand in both environments.

This uniformity persists with progressive *be* – it strands in *neither* environment:[9]

(9) *Progressive "be"*

a. Pizza Hole is being inspected, but Crab4U isn't [**~~being~~** ~~inspected~~]. *VPE*

b. *Pizza Hole is being inspected, but Crab4U isn't **being** [~~inspected~~]. *VPE*

c. Pizza Hole is being inspected, isn't it [**~~being~~** ~~inspected~~]? *Tag*

d. *Pizza Hole is being inspected, isn't it **being** [~~inspected~~]? *Tag*

In sum, we see that English tags (i) are reduced, (ii) contain at least one VPE licenser, and (iii) lack the same 'size' of constituent as the corresponding declarative VPE clause (see fn. 4). We must conclude that VPE is present in the derivation of English tag questions (and see Sailor 2009a for additional arguments to this end).

4. VPE in tag questions: evidence from a crosslinguistic survey

The literature on tag questions is rife with the notion that dependent tag questions are unique to English. This is stated explicitly in some cases, despite the dubious status of language-specific grammatical processes and "constructions" in UG. Incidentally, VPE was also thought to be an English-only phenomenon for decades until work in the early 90s began to reveal its effects in other languages (see Goldberg 2005 for references and discussion). Below, I present a novel crosslinguistic survey of tags in various languages, showing that they are *not* unique to English.[10]

Now, if the conclusion we reached for English tag questions generalizes to other languages, then two predictions follow; these can be framed as universals:

(10) *Tag Question Implication*
If a language L has tag questions, then L also has VPE independently.[11]

(11) *Tag Question Generalization*
Tag questions in L pattern like VPE in L with respect to the type(s) of stranded material in each.

We need a few words on how VPE is realized in other languages before we can test these predictions with non-English tags.

[9] See Sailor and Kuo (2010) for discussion of these facts in both English and Taiwanese.

[10] To my knowledge, only Moravcsik (1971) has considered tag questions from a crosslinguistic perspective, and her survey focuses almost entirely on the invariant type.

[11] Crucially, this is a *one-way* implication: VPE is not a sufficient condition for tags to exist.

As I noted briefly in §2.2., Lobeck's (1995) theory of VPE licensing is based on the observation that VPE only occurs when overt phonological material occupies T^0.[12] In English, only modals/auxiliaries can satisfy this condition on T^0 (in finite, affirmative clauses) because English is a *V-in-situ* language: V cannot raise to T^0.

The situation is very different for *V-raising* languages with VPE.[13] In such languages, the verb raises out of the ellipsis site to T^0, a position from which it survives the deletion of its remnant (adapted from McCloskey 1991 #29):[14]

(12) *Irish Gaelic*

a. ar **cheannaigh**$_i$ [t$_i$ said teach]?
C.INT buy.PAST they house
Q: "Did they buy a house?"

b. creidim gur **cheannaigh**$_i$ [~~t$_i$ said teach~~]
I-believe C.PAST buy.PAST they house
A: "I believe they did." (lit. "I believe that bought")

This "V-stranding" VPE pattern has been established for several languages, including Irish Gaelic, Swahili, Hebrew, and others (see Goldberg 2005 for extensive discussion and references). This is a non-trivial departure from the familiar "aux-stranding" pattern of e.g. English. To reflect these different patterns, a typology of VPE must include a binary V-raising parameter ([+/- V-raising]).

Having established the behavior of VPE in other languages, we can now consider the behavior of tags in other languages. I conducted a small crosslinguistic study[15] (n≈25) and found five other languages with dependent tag questions: Taiwanese, Danish, Persian, Scottish/Irish Gaelic, and Brazilian/European Portuguese.[16] Given the relevance of [+/- V-raising] to the behavior of VPE, I group these languages accordingly, and systematically investigate the accuracy of the predictions laid out in (10)-(11). As we will now see, these predictions are entirely fulfilled: tags look like the products of VPE in all languages that have them.

4.1. Aux-stranding tags: English, Taiwanese, and Danish

Besides English, the present study contains two languages whose tags *always* and *only* strand modal/auxiliary material (as opposed to main verbs). Given the implication in (10), we expect

[12] This is a crude simplification, but one that will suffice for our purposes; see Lobeck (1995) for the complete analysis, which likens ellipsis sites to empty categories, making them subject to the ECP.

[13] Lobeck (1995) actually rules out the possibility of such languages, drawing on French and German (both V-raising), two languages that happen to lack VPE. However, VPE can and does occur in other V-raising languages (see above), which presents a problem: we currently have no theory of the sufficient conditions for VPE in a language. See Goldberg (2005) for some discussion.

[14] This is superficially identical to object drop: see Goldberg (2005) for tests to distinguish them.

[15] The data I present here are from original elicitations, which are, unfortunately, extremely narrow in their scope. Most of these languages have other acceptable (sometimes even preferable) tag formation strategies; however, I only report those that fall into the "dependent" type defined in §2.1.. Similarly, I do not provide analyses of the syntax of these languages, as doing so would far exceed the scope of this paper. Such work would be quite valuable, though, since various language-specific factors can directly affect the material that undergoes ellipsis and, by hypothesis, tag questions.

[16] A cursory examination of the following languages strongly suggests that they exhibit tags as well: Welsh, Meithei, Tarao, Chothe, Eastern Armenian, (Lebanese) Arabic, and Samoan. Discussion in Moravcsik (1971) suggests other possible candidates, as well. More investigation is warranted.

these languages to have VPE. More specifically, given the generalization in (11), we expect VPE in these languages to be of the aux-stranding type, consistent with the pattern seen in their tags.

4.1.1. Taiwanese[17]

Taiwanese (Sino-Tibetan: Min Nan) is an SVO language with an articulated hierarchy of modal and aspectual projections very similar to English. A basic declarative is in (13a), and (13b) contains the corresponding yes/no question, formed using the Q-particle *kam*:[18]

(13) *Taiwanese declaratives and yes/no questions*

a. A-Ying u thak cit-pun che
A-Ying PERF read one-CL book
"A-Ying has read the book"

b. A-Ying kam u thak cit-pun che
A-Ying Q PERF read one-CL book
"Has A-Ying read the book?"

Taiwanese has tags of the aux-stranding variety. They minimally contain the Q-particle *kam* and a modal/auxiliary (identical to the host clause):

(14) *Taiwanese tag questions*

a. A-Ying u thak cit-pun che, (i) kam b-o
A-Ying PERF read one-CL book s/he Q NEG-PERF
"A-Ying has read the book, hasn't he?"

b. A-Ying b-o thak cit-pun che, (i) kam u
A-Ying NEG-PERF read one-CL book s/he Q PERF
"A-Ying hasn't read the book, has he?"

Given that tags are present in Taiwanese, we expect VPE to be possible (cf. (10)), and we expect the two to pattern alike (cf. (11)). These expectations are met:

(15) *Taiwanese VPE*

a. A-Ying u thak cit-pun che, A-Ha ma u
A-Ying PERF read one-CL book A-Ha also PERF
"A-Ying has read the book, and A-Ha has too"

b. A-Ying u cim i e mama, A-Ha ma u
A-Ying PERF kiss s/he POSS mother A-Ha also PERF
"A-Ying$_i$ has kissed his$_i$ mother, and A-Ha$_j$ has kissed {his$_i$ / her$_j$} mother too"

In (15), everything below the aspectual auxiliary *u* is elided.[19] The same amount of material is missing from the tags in (14). Moreover, as a licenser of VPE, *u* cannot be omitted from the tags

[17] Linguistic resources for Taiwanese are not widespread. As a result, the transliterations (which omit tonal information, as it is not crucial here) as well as the glosses throughout this subsection should be taken tentatively. Thanks to Grace Kuo for the data.

[18] Taiwanese is a topic-drop language. This helps explain the curious position of the Q-particle *kam* in yes/no questions: topics are higher in the structure than the position of Q-particles.

[19] See Sailor and Kuo (2010) for more on Taiwanese VPE and its behavior with other auxiliaries.

in (14). I take this as evidence that Taiwanese tags are derived by VPE, and that Taiwanese accords with both the Tag Question Implication in (10) and the Tag Question Generalization in (11).

4.1.2. Danish[20]

Danish (Indo-European: Germanic) is a language that, like Taiwanese and English, uses a set of preverbal auxiliaries to mark e.g. aspect. When present, these auxiliaries raise to T^0 to express tense, as expected (see Houser et al. 2009 for a summary of the Danish verbal system; example adapted from their #27):

(16) *Danish declarative (with auxiliary)*
Mona og Jasper havde vask-et bilen
Mona and Jasper have.PAST wash-PART car.DEF
"Mona and Jasper had washed the car"

In yes/no questions, these auxiliaries undergo T-to-C movement, similar to English (but unlike Taiwanese). Consider (17) (Houser et al. 2009 #31):

(17) *T-to-C in Danish yes/no questions (with auxiliary)*
havde Jasper vask-et bilen
have.PAST Jasper wash-PART car.DEF
"Had Jasper washed the car?"

This also occurs in Danish tags, which use the same auxiliary as their host clauses:

(18) *Danish tag question (with auxiliary)*
Jasper havde vask-et bilen, havde han ikke
Jasper have.PAST wash-PART car.DEF have.PAST he NEG
"Jasper had washed the car, hadn't he?"

Given the existence of tag questions in Danish, we expect to see evidence of VPE (given the implication in (10)). Houser et al. (2008, 2009) list several examples, as well as supporting diagnostics (ibid. 2009 #27):

(19) *Danish VPE (with auxiliary)*
Mona og Jasper havde vask-et bilen, eller rettere Mona havde
Mona and Jasper have.PAST wash-PART car.DEF or rather Mona have.PAST
"Mona and Jasper had washed the car, or rather Mona had"

Consistent with our predictions, the material stranded in VPE clauses (19) is the same as the material stranded in the corresponding tag (18), modulo T-to-C.

The Danish picture is not quite this simple, however. All of the above examples involve clauses with inflected auxiliaries. Mentioned previously, these auxiliaries move to T^0 to express tense, while the main verb stays in-situ, just like in English. When no auxiliaries are present, however, Danish begins to look very different from English in certain environments, such as yes/no questions (Houser et al. 2009 #5b):

[20]Thanks to Line Mikkelsen and Troels Knudsen for the data.

(20) *Danish yes/no questions (without auxiliary)*
vaskede Jasper bilen
wash.PAST Jasper car.DEF
"Did Jasper wash the car?" (lit. "Washed Jasper the car?")

Example (20) suggests that main verbs undergo movement to C^0 in yes/no questions in the absence of an auxiliary (cf. (17)). Given that such movement is traditionally thought to target T^0, this appears to be evidence that Danish verbs raise to T^0. Danish, then, appears to be a V-raising language: the highest verbal element – whether it is an auxiliary or a main verb – raises to T^0.

If this conclusion is correct, then we expect Danish to exhibit V-stranding VPE in clauses lacking auxiliaries, because the main verb will have raised outside the ellipsis site to interface with tense morphology in T^0. Surprisingly, V-stranding is *impossible* in Danish (in both VPE and tag clauses):

(21) *No V-stranding VPE in Danish*

a. *Mona og Jasper **vask-et** bilen, eller rettere Mona **vask-et**
Mona and Jasper wash-PART car.DEF or rather Mona wash-PART
"Mona and Jasper washed the car, or rather Mona did" *VPE*

b. *Jasper **læste** ikke bogen, **læste** han?
Jasper read.PAST NEG book.DEF read.PAST him
"Jasper didn't read the book, did he?" *Tag*

In Danish clauses lacking auxiliaries in the syntax, the only licit VPE/tag strategy is the use of a pleonastic verb, *gøre* 'to do', which expresses tense (see Houser et al. 2009 for extensive discussion of "*gøre*-support"):

(22) *Danish tag questions (without auxiliary: gøre-support)*

a. Jasper læste bogen. **Gjorde** Mona også
Jasper read.PAST book.DEF did.PAST Mona also
"Jasper read the book. Did Mona?" *VPE*

b. Jasper læste ikke bogen, **gjorde** han
Jasper read.PAST NEG book.DEF did.PAST he
"Jasper didn't read the book, did he?" *Tag*

Summarizing the relevant observations so far:

(23) a. Danish is V-raising: aux moves to C^0: (17), otherwise V^0 does: (20)
b. Danish has both tags *and* VPE, satisfying the implication in (10)
c. Danish upholds the generalization in (11) – its tags and VPE clauses:
(i) Always strand aux when one is present in the syntax: (18)-(19)
(ii) Never strand V^0: (21)
(iii) Trigger *gøre*-support in the absence of an aux: (22)

If (23a) and Houser et al. (2009) are correct – that is, if Danish is really a V-raising language – then (23c-ii) and (23c-iii) are entirely unexpected. Given the derivation of the V-stranding VPE pattern described earlier, any V-raising language with VPE should be capable of stranding main verbs.

Rather than arguing that Danish VPE somehow exceptionally blocks V-raising, I assume that Danish main verbs do *not* undergo V-to-T movement *independent of movement to* C^0. In other words, the above contradiction is resolved if Danish has V-to-C in questions, but V-in-situ otherwise. The Danish V^0 can only move to T^0 on its way to C^0, and not otherwise. Assuming T^0 as the VPE licenser, the verb will still be in-situ at the point at which VPE applies (merger of T^0: Aelbrecht 2009),[21] correctly deriving the aux-stranding/*gøre*-support pattern. This analysis no doubt raises several problems (not the least of which is deriving the language's various V2 patterns), but the above facts leave few obvious alternatives.

4.1.3. Summary of aux-stranding tag question languages

Taiwanese and Danish both pattern quite similarly to English: each must strand modal/auxiliary material (and cannot strand main verbs) in VPE and tag questions. Thus, our predictions are attested for V-in-situ languages: the presence of tag questions indicates the presence of VPE, and the former patterns with the latter in every relevant way. We turn our attention now to the V-raising languages, where the data look different, but the results are the same.

4.2. V-stranding tags: Gaelic, Persian, and Portuguese

In what follows, I show that Scottish (and Irish) Gaelic, Persian, and Brazilian (and European) Portuguese have dependent tag questions, and they all exhibit VPE. Crucially, the tag question and VPE clauses in these languages exhibit the same V-stranding pattern, consistent with their syntax in non-VPE/tag contexts. I take this to be the final piece of evidence for a VPE analysis of tag questions.

4.2.1. Scottish Gaelic[22]

Scottish Gaelic (Indo-European: Celtic) exhibits VSO order in root declaratives. Corresponding yes/no questions are formed using a clause-initial particle *an*:[23]

(24) *Scottish Gaelic declaratives and yes/no questions*

a. leugh Calum an leabhar sin
read Calum the book DIST
"Calum read that book"

b. an do leugh Calum an leabhar sin
Q PAST read Calum the book DIST
"Did Calum read the book?"

Scottish Gaelic tags minimally contain the *an* particle and the verb from the host:

(25) *Scottish Gaelic tag questions*

a. leugh Calum an leabhar sin, nach do leugh
read Calum the book DIST NEG.Q PAST read

[21] If, however, VPE does not apply until T^0 is sent to Spell-Out (cf. Gengel 2007), and there are no other phase heads between C^0 and v^0, then V-to-C and VPE would be assessed within the same Spell-Out domain. Presumably, this is also the case for VPE and V-to-T movement, and yet V-to-T clearly applies, given V-stranding VPE. I leave these interesting issues for future research.

[22] Thanks to Andrew Carnie and Muriel Fisher for the data.

[23] The past tense marker *do* only appears in negative and question clauses in the data I elicited.

"Calum read that book, didn't he?"

b. cha do leugh Calum an leabhar sin, an do leugh
NEG PAST read Calum the book DIST Q PAST read
"Calum didn't read that book, did he?"

The only difference between these tags and those we saw in §4.1. is the presence of the main verb, which is required in the former but impossible in the latter. Crucially, Scottish Gaelic tags look exactly like regular yes/no questions in the language, only smaller. To that end, we expect VPE to be available in this language, and it is. Andrew Carnie (p.c.) notes that Scottish Gaelic VPE behaves very similarly to a closely related language, Irish Gaelic (McCloskey 2005 #3):

(26) *Irish Gaelic VPE*

A: sciob an cat an teireaball de-n luch
snatched the cat the tail from-the mouse
"The cat cut the tail off the mouse"

B: a-r sciob
Q-PAST snatched
"Did it?"

See McCloskey (1991) and Goldberg (2005) for tests verifying V-stranding VPE in Irish Gaelic, including the VPE environments shared by Scottish Gaelic. Incidentally, Irish Gaelic also has tags of the V-stranding type (McCloskey 1991 #28):

(27) *Irish Gaelic tag question*
cheannaigh said teach, nár cheannaigh
buy.PAST they house NEG.Q buy.PAST
"They bought a house, didn't they?"

We conclude from (24)-(27) that Scottish and Irish Gaelic are both in keeping with the Tag Question Implication (10) and the Tag Question Generalization (11).

4.2.2. Persian[24]

Persian (Indo-European: Iranian) exhibits SOV word order in unmarked declarative clauses. Yes/no questions are indicated with rising intonation:

(28) *Persian declaratives and yes/no questions*

a. Naysan ketaab-o khoond
Naysan book-OBJ read
"Naysan read the book"

b. Naysan ketaab-o khoond *(rise)*
Naysan book-OBJ read
"Did Naysan read the book?"

[24]Persian has a rich written tradition, and its formal register varies greatly with its colloquial form. The data I present here are strictly from the latter. Thanks to Pariya Tehrani, Sahba Shayani, and Henry Tehrani for their judgments, and to Maziar Toosarvandani for extensive discussion.

Persian tags, which also have rising pitch, contain the same verb as their hosts:[25]

(29) *Persian tag questions*

a. Naysan ketaab-o khoond, na-khoond *(rise)*
Naysan book-OBJ read NEG-read
"Naysan read the book, didn't he?"

b. Naysan ketaab-o na-khoond, khoond *(rise)*
Naysan book-OBJ NEG-read read
"Naysan didn't read the book, did he?"

Persian tag questions appear to strand the main verb. Given (10), we expect to see evidence of VPE, and given (11), we expect it to also strand the main verb – a surprising expectation, for reasons I discuss below. These predictions are correct:[26]

(30) *Persian VPE*
Naysan ketaab-ro ba-deghat khoond, Nasim ham khoond
Naysan book-OBJ with-caution read Nasim also read
"Naysan read the book carefully, and Nasim did too (read it carefully)"

The V-stranding pattern we see in Persian VPE/tags is a hallmark of VPE in V-raising languages. Crucially, though, Persian exhibits none of the telltale signs of V-raising: for example, both adverbs and negation necessarily *precede* the verb.[27] We are forced to conclude that Persian verbs do *not* occupy T^0 in declarative clauses. This leaves us with a paradox: (29)-(30) suggest that Persian has V-stranding VPE (in both canonical and tag question contexts), yet it apparently lacks a necessary derivational component – V-raising – to derive the phenomenon.

A possible solution emerges when we consider Persian VPE involving complex predicates (cf. fn. 25). Toosarvandani (2009) shows that Persian VPE targets big-VP, stranding any light verbs in little-v^0. The net effect is that these light verbs mimic English auxiliaries in being generated outside the ellipsis site. The crucial difference between Persian and English VPE reduces simply to the size of the ellipsis site, rather than to the behavior of the verb: English elides nothing smaller than little-*v*P, whereas Persian apparently elides nothing larger than big-VP.

Assuming ellipsis of big-VP is also available with simplex predicates (which Toosarvandani does not discuss), then we can derive the stranded main verb data in (29)-(30) straightforwardly: the main verb survives deletion of big-VP by way of V-to-*v* movement, needed independently. Empirical support for this analysis can be found in Persian tags: when the host clause is a complex predicate, the tag clause contains a stranded light verb (Toosarvandani, p.c.). In other words, main verbs pattern like light verbs just in case little-v^0 would otherwise be empty.

A non-trivial consequence of this reasoning is that Persian tags do not involve the same ellipsis operation seen in the other languages we have considered (VP ellipsis vs. *v*P ellipsis: cf. fn. 4). They do, however, involve precisely the same ellipsis operation seen elsewhere *in Persian*. This

[25] Persian makes robust use of light verbs to form complex predicates. I focus mostly on simplex predicates here, but see below for some discussion.

[26] The second conjunct *cannot* be interpreted as simply "Nasim read it too" – the adverb *ba-deghat* 'carefully' is obligatorily interpreted, as well. This rules out an object drop analysis in favor of VPE for (30): the obligatory recovery of VP modifiers is a known property of VPE (Goldberg 2005, a.o.).

[27] I am not aware of any SOV languages in which the unmarked position for adverbials is postverbal.

bears on the formulation of the Tag Question Implication and Generalization stated earlier in (10)-(11): there, "VPE" must be interpreted as ranging over different language-specific strategies for verbal ellipsis, rather than a single operation (i.e., a unified size of elided structure). With this revision, tags in a language L are indeed still derived by "VPE" in L.

4.2.3. Brazilian Portuguese[28]

Brazilian Portuguese (Indo-European: Romance; henceforth "BP") is an SVO language whose yes/no questions are also formed with rising intonation:

(31) *Brazilian Portuguese declaratives and yes/no questions*

a. o Bruno leu o livro
the Bruno read the book
"Bruno read the book"

b. o Bruno leu o livro *(rise)*
the bruno read the book
"Did Bruno read the book?"

Tags in BP can be of the V-stranding type, in which case they bear rising intonation, and minimally contain a verb from the host clause:

(32) *Brazilian Portuguese tag questions (without auxiliary)*

a. o Bruno leu o livro, não leu *(rise)*
the Bruno read the book NEG read
"Bruno read the book, didn't he?"

b. o Bruno não leu o livro, leu *(rise)*
the bruno NEG read the book read
"Bruno didn't read the book, did he?"

Given that tags are attested in the language, we expect VPE to be attested as well, and it is (Santos 2009 p. 27, confirmed in BP):[29]

(33) *Brazilian Portuguese VPE (without auxiliary)*
a Raquel não deu o livro para a mãe no Natal, mas a Ana deu
the Raquel NEG gave the book to the mother on Christmas, but the Ana gave
"Raquel didn't give the book to her mother on Christmas, but Ana did (give the book to her mother on Christmas)"

Thus, BP has V-stranding VPE, consistent with its V-raising syntax. This is not a necessary condition on VPE in BP, however – it can also be of the aux-stranding variety ((34)a from Santos 2009 p. 22, confirmed for BP):

(34) *Brazilian Portuguese VPE (with auxiliary)*

[28]The relevant patterns pointed out here also exist in European Portuguese (EP), whose ellipsis properties have been well-noted in the literature: see Santos (2009 p. 21-112) for discussion and references. Thanks to Tatiana Libman and Will Machado for the data.

[29]This example is equivalent to (30), ruling out object drop: see fn. 26.

a. a Joana não tinha acabado o artigo mas a Teresa tinha
the Joana NEG had finished the paper but the Teresa had
"Joana hadn't finished the paper, but Teresa had"

b. a Joana não vai ler o livro mas a Teresa vai
the Joana NEG will read the book but the Teresa will
"Joana won't read the book, but Teresa will"

Fortunately, tags can also strand auxiliaries, further verifying universals (10)-(11):

(35) *Brazilian Portuguese tag questions (with auxiliary)*

a. a Joana não tinha acabado o artigo, tinha? *(rise)*
the Joana NEG had finished the paper had
"Joana hadn't finished the paper, had she?"

b. a Joana vai ler o livro, não vai *(rise)*
the Joana will read the book NEG will
"Joana will read the book, won't she?"

This is precisely the pattern we expect of a V-raising language with auxiliaries: the highest verbal element – auxiliary or main verb – is attracted to T^0, and then stranded there following VPE. The same is also true for EP (Santos 2009 p. 146 fn. 6 and p. 161). The fact that tags in both languages also show generalized stranding of material in T^0 is the final piece of evidence that their derivation involves VPE.

5. Closing remarks and conclusion

A lingering consequence of the implication in (10) is that languages lacking VPE must also lack tags. This holds completely: across dozens of languages without VPE (French, German, Hindi, etc.), none exhibits dependent tags. Thus, I have established that VPE is a necessary condition for the existence of tags in a language.

I have said nothing, however, about the *sufficient* conditions for tags to exist. VPE is clearly *not* sufficient, since several languages with VPE do not have tags (Swahili, Hebrew, etc.). I leave this question open, noting only that the sufficient conditions for VPE to exist are also unknown (see Goldberg 2005 for discussion).

To conclude, the data presented here all point the same way: tags are derived by VPE. This conclusion is fairly modest, but it has broader consequences. Specifically, it recommends an analysis of tags further reducing them to independent principles, doing away with the need for other special machinery (e.g. "copying" of material from the host). See Sailor (2009a) for an attempt along those lines.

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