

Hixkaryana and a Typology of OVS Word Order*

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1 Introduction

In this talk, I propose an account of one unifying syntactic feature across Object Verb Subject (OVS) languages, the syntactic hierarchy $AGR_O > AGR_S$, and show how this hierarchy explains other syntactic phenomena in one particular OVS language, Hixkaryana.

A little background on OVS word order:

- OVS languages are incredibly rare, with only 17 OVS languages attested worldwide.¹
 - The World Atlas of Language Structures (WALS; Dryer (2008)) documents only eleven OVS languages (out of 1,377 languages sampled), which are spoken in South America, the Sudan, Australia, and Polynesia.
 - Derbyshire (1987) and Derbyshire and Pullum (1981) cite six more OVS languages, all of which are spoken in South America.
- The number 17, however, is very generous.
 - For most of these languages, OVS coexists with other frequent word orders, and there is not enough data available to determine which word order (if any) is the most basic.
- Despite the scarcity of available data for many OVS languages, OVS word order is real/provable in some of the alleged OVS languages.
 - One such language is Hixkaryana, a Carib language spoken in the Amazon in Brazil (Lewis 2009).

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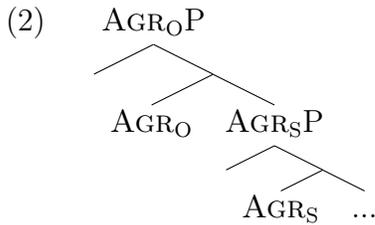
¹See Appendix A for a complete list of OVS languages with examples from each language.

– A canonical OVS sentence in Hixkaryana is given in (1):²

- (1) kana y-anim-no biryekomo
fish 3S.3O-catch-IMPST boy
'The boy caught a fish.' (Derbyshire and Pullum 1981:p. 194)

My proposal:

- The syntactic feature common across (at least some) OVS languages is the hierarchy $AGR_O > AGR_S$, as represented in (2).



- This is a marked hierarchy compared to its counterpart $AGR_S > AGR_O$, which is generally assumed to be the default underlying order, following Chomsky (1991), based on the predominant position/behavior of object agreement crosslinguistically.
- Unlike certain easily-evidenced marked properties, the hierarchy $AGR_O > AGR_S$ is only posited by a language learner given a complex set of elements in the input.

Structure of the talk:

- Section 2: A morphosyntactic commonality across OVS languages
- Section 3: Hixkaryana: a case study of $AGR_O > AGR_S$
- Section 4: Conclusion and further directions

2 A morphosyntactic commonality across OVS languages

12 out of the 17 attested OVS languages mark both subject and object agreement on V.

- Of these 12 languages, there are certain recurring morphological orderings involving the subject and object agreement morphemes, and certain morphological orderings that are unattested.
- Looking at which morphemes orders do and do not occur can illuminate what may be the underlying syntactic commonality across OVS languages.

²I will use the following abbreviations: 1, 2, 3 = first, second, third person, 1+3 = first person exclusive, A = adjective/adverb, AGR = agreement, COLL = collective, IMPST = immediate past, O/OBJ = object, S/SUBJ = subject, TOP = topic, V = verb.

2.1 Attested and unattested morpheme orders

The following elements enter into the relevant morphological ordering:

- The verb stem (V)
- A morpheme agreeing with the subject (AGR_S)
- A morpheme agreeing with the object (AGR_O)
- The possibility of a *portmanteau* agreement morpheme (*port*)

→ This generates 8 logically possible morpheme orders.

Attested morpheme orders in OVS languages:

- AGR_O-AGR_S-V
- AGR_S-AGR_O-V
- AGR_O-V-AGR_S ★
- V-AGR_S-AGR_O ★
- *port*-V

Unattested morpheme orders in OVS languages:

- V-AGR_O-AGR_S
- AGR_S-V-AGR_O
- V-*port*

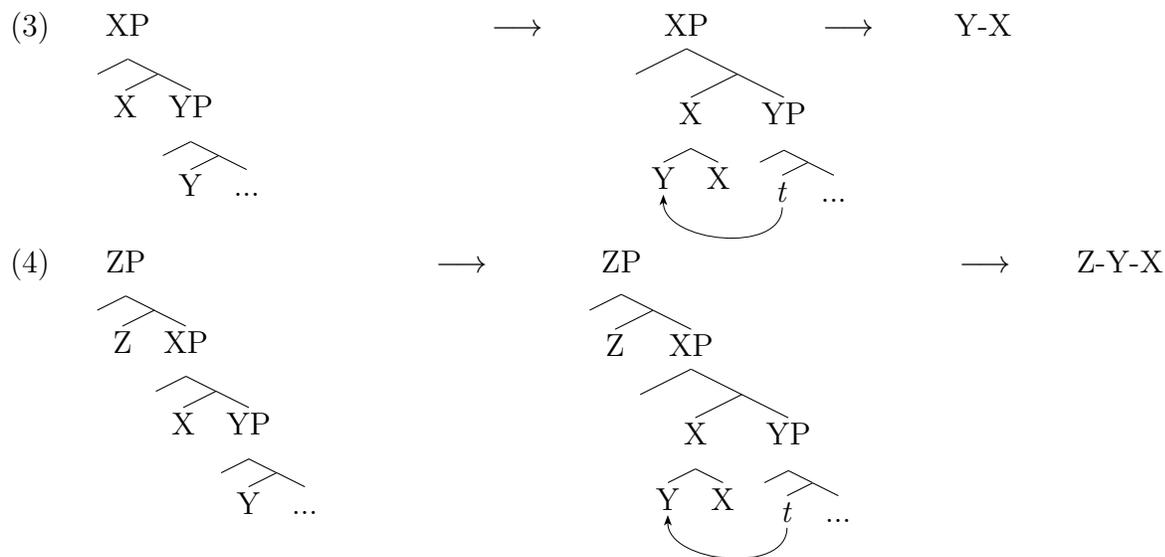
Can these data be unified?

2.2 Assumptions

Before diving into the analysis, some assumptions about the syntax/morphology interface:

- The Mirror Principle (Baker 1985:p. 375): “morphological derivations must directly reflect syntactic derivations (and vice versa)”.
- Head movement derives suffixes, shown in (3), whereas phonological adjacency derives prefixes, shown in (4) (Kayne 1994).
- *Portmanteau* morphemes result from concatenation of features under one syntactic unit, with an idiomatic/unpredictable spell-out of these features (along the lines of, e.g., Bobaljik and Branigan (2006)).³

³This statement merits much further research; it is an intuition (about morphology acting only on constituents) that has been echoed in at least some other literature.



2.3 Agreement projections

With this background, we can now endeavor to pin down the reason for the appearance of certain morpheme orders and the absence of others.

→ The logical place to look is at the agreement projections, of which there must be two in all of these languages, as the verb bears agreement with both a subject and an object.

- We have two projections, then: $AGR_S P$ and $AGR_O P$
 - By virtue of the subject and object sitting in the specifiers of these projections, respectively, the heads AGR_S and AGR_O are valued according to the person of the verb's arguments.⁴
- The next step is to determine the relative ordering of the agreement projections.
 - Traditionally, AGR_S is above AGR_O (Chomsky 1991).
 - However, the opposite ordering, AGR_O above AGR_S is also logically possible.

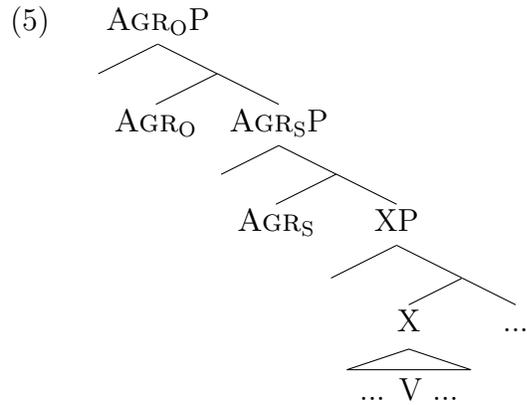
Are there reasons to prefer one of the orderings over the other in OVS languages?

- Yes!
- I will show below that the hierarchy $AGR_O > AGR_S$ makes correct predictions about possible morpheme orders, whereas the converse hierarchy makes incorrect predictions.

⁴This follows the spirit of Koopman (2006) in reducing all agreement to purely local spec-head configurations. There are certain compelling reasons to believe that something more than spec-head is sometimes needed (see, e.g., Schütze (2011)), but there are no (obviously) non-local phenomena involved in these matrix clause agreement phenomena, so I do not make use of the more powerful mechanism AGREE here.

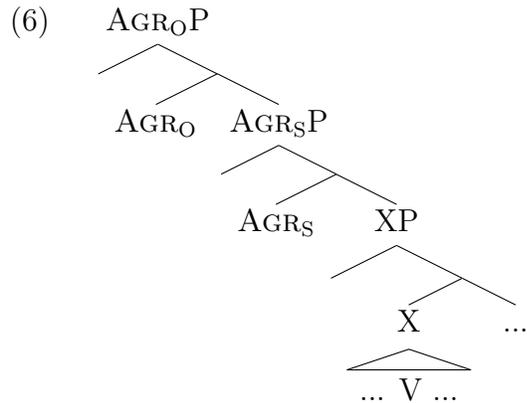
2.4 $AGR_O > AGR_S$

The underlying structure:



- To use minimal machinery (to see how far this can go), only head (non-)movement will be appealed to in generating morpheme orders.

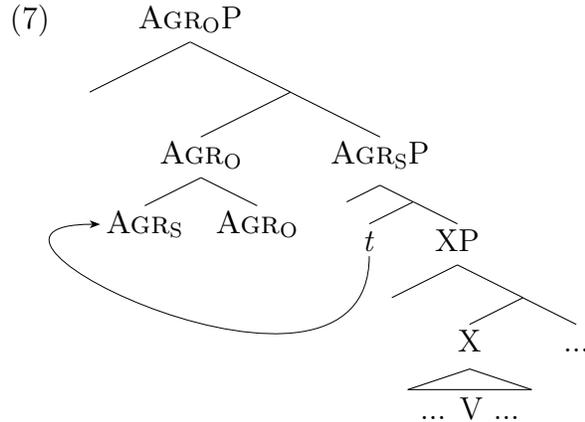
Possibility 1: there is no head movement; the verb stays in a projection below both agreement projections, and both agreement heads are realized separately as their own morphemes.



→ Resulting morpheme order: AGR_O - AGR_S - V

- ◇ Attested in **Ungarinjin**, an OVS Worrortan language spoken in Australia (Dixon 2002, Dryer 2008, Rumsey 1982), as well as for third person subjects and objects in **Mangarayi**, an OVS Gunwingguan language spoken in Australia (Dryer 2008, Merlan 1982). (Other subject/object combinations are discussed for Mangarayi below.)

Possibility 2: The verb stays low, but AGR_S moves into AGR_O :



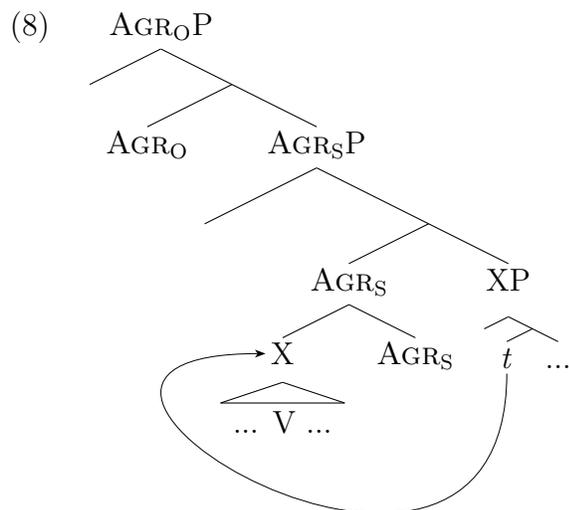
→ Resulting morpheme order, possibility 2a: AGR_S - AGR_O - V

- ◇ Attested for first and second person subjects and third person objects in **Mangarayi**, an OVS Gunwingguan language spoken in Australia (Dryer 2008, Merlan 1982).

→ Resulting morpheme order, possibility 2b: *port*- V

- ◇ Attested in six OVS Carib languages: **Apalaí**, spoken in Brazil (Derbyshire 1987, Koehn and Koehn 1986), **Bacairí**, spoken in Brazil (Derbyshire and Pullum 1981, Meira 2003), **Hianacoto-Umaua**, spoken in Colombia (Derbyshire and Pullum 1981), **Hixkaryana**, spoken in Brazil (Derbyshire 1979), **Panare**, spoken in Suriname (Derbyshire and Pullum 1981, Gildea 1989), and **Tiriyó**, spoken in Venezuela (Dryer 2008, Meira 1999). **Asuriní**, an OVS Tupi language spoken in Brazil (Derbyshire and Pullum 1981), also has a *portmanteau* prefix.

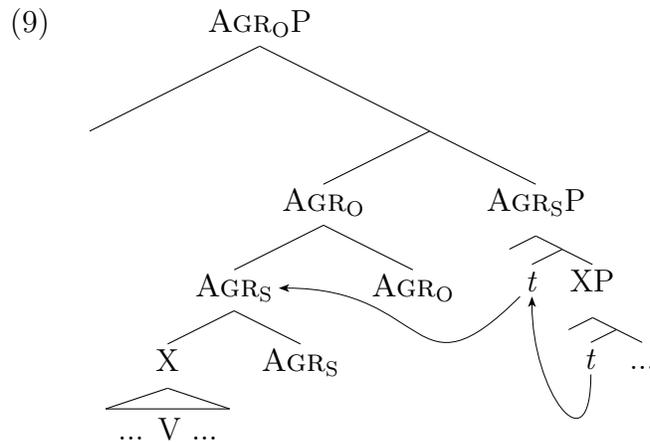
Possibility 3: the verb (or the complex containing the verb) moves up one head position, into AGR_S , such that AGR_O is a prefix while AGR_S is a suffix:



→ Resulting morpheme order: AGR_O -V- AGR_S

- ◇ Attested in **Päri**, an OVS Nilo-Saharan language spoken in Sudan (Andersen 1988, Dryer 2008), as well as **Makushi** and **Arekuna-Taulipang** (also known as Pemon), OVS Carib languages spoken in Brazil and Venezuela, respectively (Derbyshire 1985, Derbyshire and Pullum 1981).

Possibility 4: the verb raises all the way up to AGR_O :



→ Resulting morpheme order, possibility 4a: V- AGR_S - AGR_O

- ◇ Attested in Äiwoo, an OVS Austronesian language spoken in the Temotu Province on the Solomon Islands (Åshild Næss, p.c.).

→ Resulting morpheme order, possibility 4b: V-*port*

- ◇ Not attested in any OVS language.

Impossible morpheme orders:

→ *V- AGR_O - AGR_S

→ * AGR_S -V- AGR_O

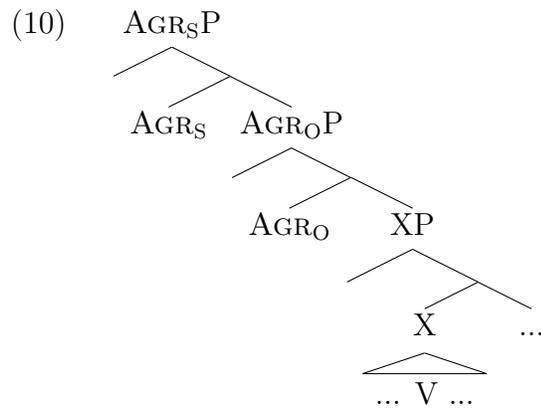
- ◇ Neither of these morpheme orders is attested in any OVS language.

In sum:

- The hierarchy $AGR_O > AGR_S$ **overgenerates** (it predicts the unattested order V-*port*).
- The hierarchy $AGR_O > AGR_S$ **does not undergenerate** (it doesn't fail to predict an attested morpheme order).

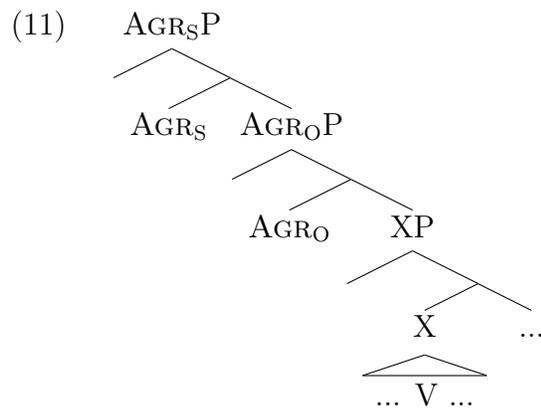
2.5 $AGR_S > AGR_O$

The underlying structure:



- Again, only head (non-)movement will be appealed to in generating morpheme orders.

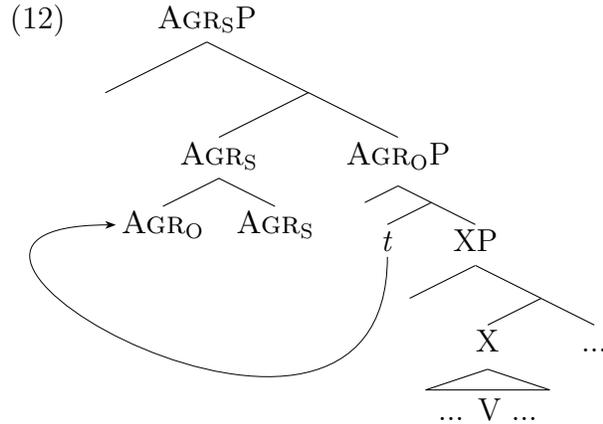
Possibility 1: there is no head movement; the verb stays in a projection below both agreement projections, and both agreement heads are realized separately as their own morphemes.



→ Resulting morpheme order: AGR_S - AGR_O - V

- ◇ Attested for first and second person subjects and third person objects in **Mangarayi**.

Possibility 2: The verb stays low, but AGR_O moves into AGR_S:



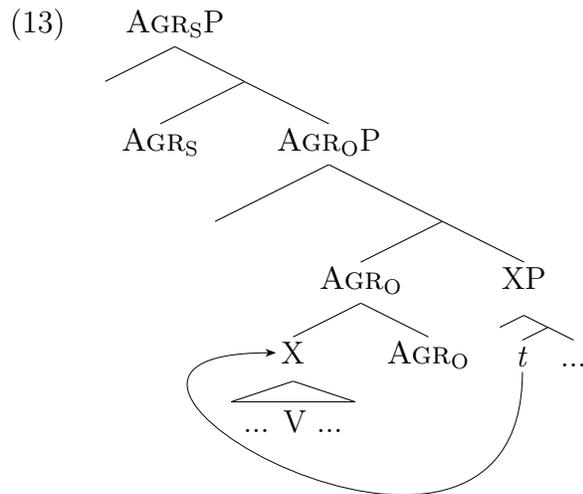
→ Resulting morpheme order, possibility 2a: AGR_O-AGR_S-V

◇ Attested in **Ungarinjin** and for third person subjects and objects in **Mangarayi**.

→ Resulting morpheme order, possibility 2b: *port*-V

◇ Attested in **Hixkaryana**, **Apalaí**, **Asuriní**, **Bacairí**, **Hianacoto-Umaua**, **Panare**, and **Tiriyó**.

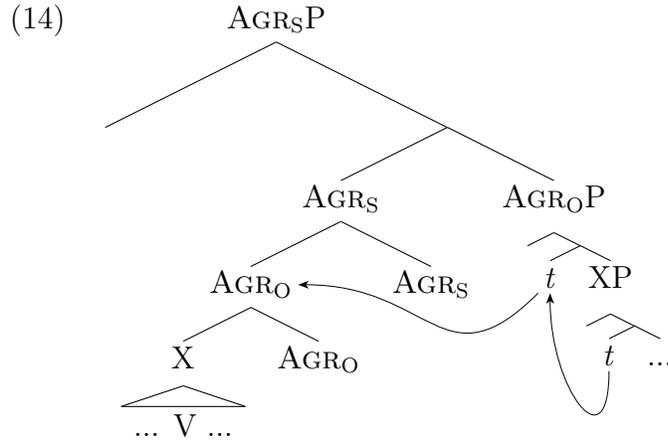
Possibility 3: the verb (or the complex containing the verb) moves up one head position, into AGR_S, such that AGR_S is a prefix while AGR_O is a suffix:



→ Resulting morpheme order: AGR_S-V-AGR_O

◇ This morpheme order is not attested in any OVS language.

Possibility 4: the verb raises all the way up to AGR_S:



→ Resulting morpheme order, possibility 4a: V-AGR_O-AGR_S

→ Resulting morpheme order, possibility 4b: V-*port*

◇ Neither of these morpheme orders is attested in any OVS language.

Impossible morpheme orders:

→ *V-AGR_S-AGR_O ★

◇ **Attested in Äiwoo (Austronesian).**

→ *AGR_O-V-AGR_S ★

◇ **Attested in Päri (Nilo-Saharan), Makushi (Carib), and Arekuna-Taulipang/Pemon (Carib).**

In sum:

- The hierarchy AGR_S > AGR_O **overgenerates** (it predicts V-AGR_O-AGR_S, AGR_S-V-AGR_O, and V-*port*, none of which are attested).
- The hierarchy AGR_S > AGR_O **also undergenerates** (it fails to predict the ordering AGR_O-V-AGR_S, which is attested in three OVS languages, and the ordering V-AGR_S-AGR_O, which is attested in one OVS language).

2.6 Summary

We have established that, given certain assumptions about the interaction of morphology and syntax, the hierarchy $AGR_O > AGR_S$ comes out on top.

- The ‘standard’ hierarchy $AGR_S > AGR_O$ crucially fails to predict two attested morpheme orders in OVS languages: AGR_O -V- AGR_S and V- AGR_S -V- AGR_O .

The empirical results of this section are summarized in the table in (15).

(15) Predicted and attested morpheme orders, crucial rows bolded

Hierarchy	Predicted by $AGR_O > AGR_S$	Predicted by $AGR_S > AGR_O$	Attested?
AGR_O - AGR_S -V	yes	yes	yes
AGR_S - AGR_O -V	yes	yes	yes
AGR_O -V- AGR_S	yes	no	yes
AGR_S -V- AGR_O	no	yes	no
V- AGR_S - AGR_O	yes	no	yes
V- AGR_O - AGR_S	no	yes	no
<i>portmanteau</i> -V	yes	yes	yes
V- <i>portmanteau</i>	yes	yes	no

3 Hixkaryana: a case study of $AGR_O > AGR_S$

In this section, we take a closer look at another argument for the hierarchy $AGR_O > AGR_S$ in one particular language: Hixkaryana.

As mentioned in the introduction, Hixkaryana is unique among OVS languages in that it has been amply shown to have OVS as its basic word order (Derbyshire, 1979, 1985, *inter alia*).

(16) kana y-anim-no biryekomo
 fish 3S.3O-catch-IMMPST boy
 ‘The boy caught a fish.’ (Derbyshire and Pullum 1981:p. 194)

- That OVS word order in Hixkaryana is basic and unmarked is evidenced by the fact that O, V, and S together form a **single intonational phrase** and, when both S and O are overt, OVS order is **preferred by speakers**, both statistically (from texts and recordings) and based on speakers’ intuitions (Derbyshire 1985:p. 97-99).

We will see here that Hixkaryana’s syntax is best modeled with the hierarchy $AGR_O > AGR_S$ for a reason other than morphological unity with other OVS languages.

- The reason: It can explain an observed phenomenon of ‘agreement interruption’.

While Hixkaryana is solidly OVS, there is one exceptional instance of OSV word order:

- When the subject of a clause is the first person exclusive (1+3) pronoun *amna*, this subject must appear left-adjacent to the verb:

→ (O)SV word order, as seen in (17).

(17) a. *amna n-omok-no* (Derbyshire 1985:p. 9)
 1+3 3S-come-IMPST
 ‘We came.’

b. *kanawa amna n-a-no* (Derbyshire 1985:p. 10)
 canoe 1+3 3S-take-IMPST
 ‘We took the canoe.’

- Other anomalous things about *amna*:
 - It triggers third person agreement (could be a single conjunct agreement effect).
 - Unlike all other pronouns, it cannot be dropped.
 - It causes **agreement interruption**: even when the verb is transitive with an overt object, the agreement on the verb is intransitive.

→ (18a) shows the expected agreement morpheme *y-* for a third person subject and third person object; (18b) shows the morpheme that surfaces in the presence of *amna*, *n-* (intransitive third person subject agreement):

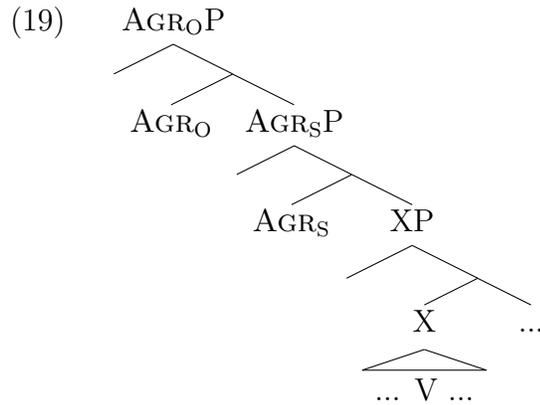
(18) a. *kanawa y-a-no* toto (Derbyshire 1985:p. 10)
 canoe 3S.3O-take-IMPST person
 ‘The man took the canoe.’

b. *kanawa amna n-a-no* (Derbyshire 1985:p. 10)
 canoe 1+3 3S-take-IMPST
 ‘We took the canoe.’

What does this phenomenon tell us about the clause structure of Hixkaryana?

1. There must be a subject position between the object and verb (because this is where *amna* surfaces).
2. This subject position must be the position where the subject values AGR_S (because subject agreement is successfully valued).
3. This subject position must somehow ‘interrupt’ object agreement (because the *port-manteau* prefix reflects only agreement with the subject).

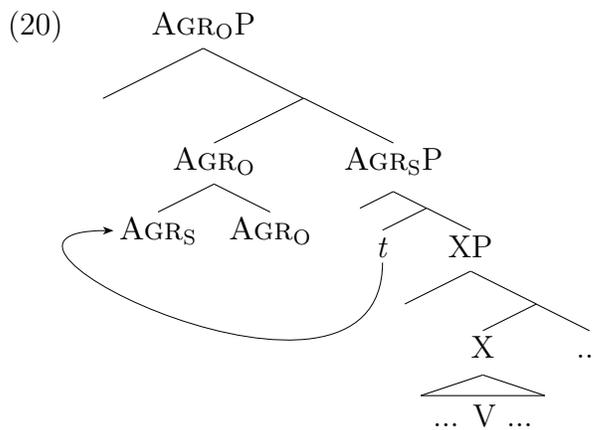
The underlying structure proposed above for OVS languages (repeated from (5)):



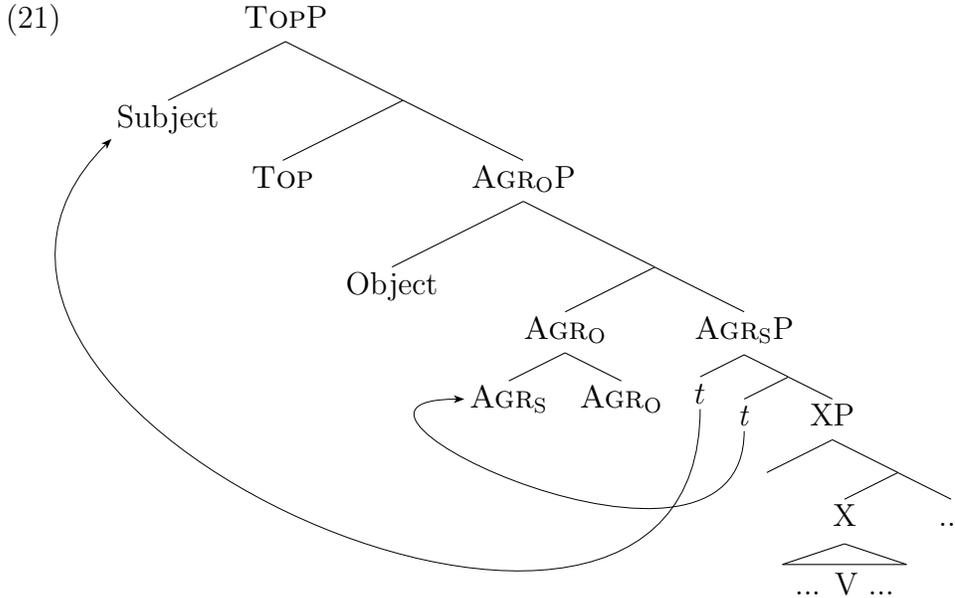
- This satisfies both 1 and 2 above: there is a subject position (spec-AGR_SP) between the landing site of the object (spec-AGR_OP) and the verb, and this subject position is the one where AGR_S is valued.
- It also satisfies 3 above, though this is less obvious and is laid out below.

Agreement interruption:

- Hixkaryana is canonically a *portmanteau* agreement morpheme language (shown in (20), repeated from (7)):



- Normally, the subject moves into spec-AGR_SP but then topicalizes to a higher position (spec-TOPP), allowing the *portmanteau* agreement morpheme to phonologically attach to the verb, schematized in (21), as argued in Kalin (2011):

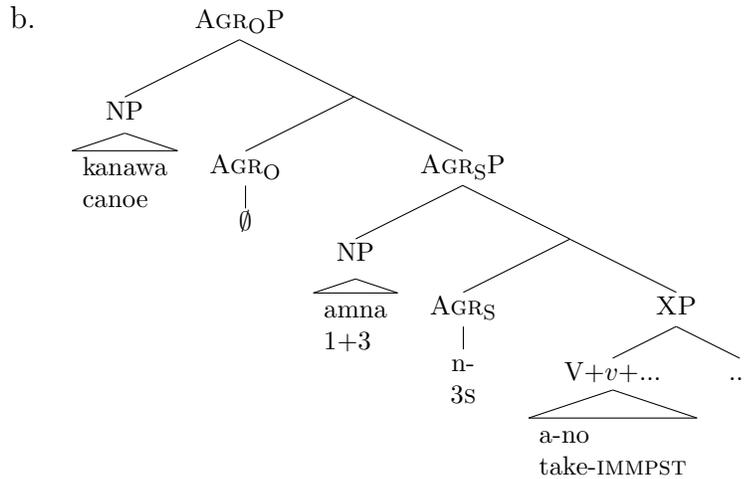


- (21) shows a typical derivation. *Amna*, however, is a deficient subject in the sense that it cannot topicalize. As a result, *amna* is stuck in spec-AGR_SP.

→ From this position, *amna* interrupts the agreement morphology because, if AGR_S were to raise to AGR_O (as needed for the proper *portmanteau*), then this agreement prefix would not be able to phonologically attach to the verb.

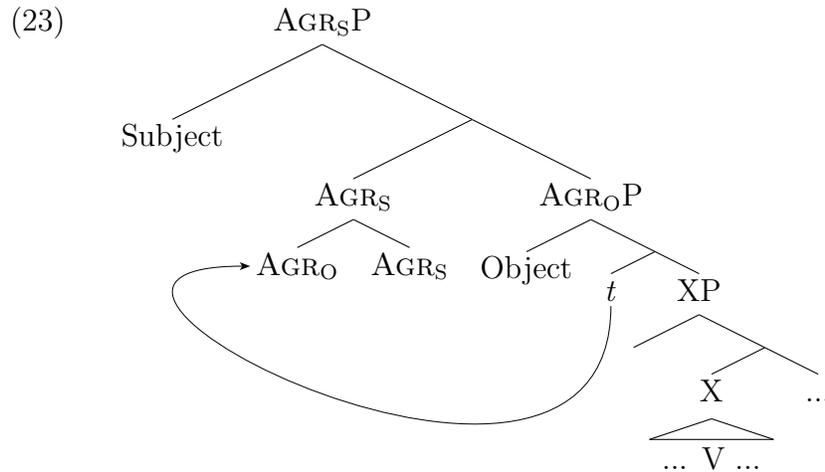
- As a repair to this scenario (possibly ruled out by a surface filter *STRAYAFFIX), the language allows AGR_S to remain low, and as a result the agreement that appears on the verb reflects only agreement with the subject.

(22) a. kanawa amna n-a-no (Derbyshire 1985:p. 10)
 canoe 1+3 3S-take-IMMPST
 ‘We took the canoe.’



- Thus, positing a lower position of subject agreement as compared to object agreement can explain why the object does not get marked on the verb when the subject stays low, in spec-AGR_SP, as *amna* does.

Crucially, if AGR_S were above AGR_O, shown in (23), there is no explanation for *amna*:



- There is no position for the subject between the subject agreement morpheme and the object; hence, OSV word order cannot be derived.
- Further, the position of the subject (a high spec-AGR_SP) would never block the attachment of the *portmanteau* morpheme to the verb, so there should be no ‘agreement interruption’.

In sum, then, the hierarchy AGR_O > AGR_S captures idiosyncratic properties of Hixkaryana that the hierarchy AGR_S > AGR_O cannot.

4 Conclusion and further directions

- I have argued that the syntax of at least some OVS languages (and of Hixkaryana in particular) is best modeled with AGR_O above AGR_S.
- If this marked hierarchy is indeed one of the main paths to OVS word order, then this might explain why this word order is so rare:
 - While certain marked properties are easily acquirable through a single piece of positive evidence (e.g., preposition stranding can be acquired by hearing a single token of such stranding), AGR_O over AGR_S is not as straightforwardly evidenced in the input, because many of the individual properties of OVS languages will be compatible with AGR_S over AGR_O (e.g., *portmanteau*-V morpheme order).

- However, certain other properties of a language may indicate to the learner that the more marked structure needs to be posited. For example, this could be the effect of Hixkaryana’s exceptional OSV word order with intransitive agreement on the verb with *amna*.
 - If such subtle data turns out to be crucial to learning the marked hierarchy AGR_O over AGR_S , then this might explain why this ordering of projections (one of the paths to OVS word order) is crosslinguistically rare.
- There are many directions for future research:
 - Is it only OVS languages that have AGR_O above AGR_S ? Or do other languages (perhaps, the ones that evolve into OVS, or syntactically ergative languages) have this ordering of agreement projections as well?
 - Do all OVS languages (importantly, those without subject and object agreement) have AGR_O above AGR_S ? If not, what are the other paths to OVS word order?
 - What are the language-specific traits of other OVS languages (aside from Hixkaryana) that result in the triggering of the marked hierarchy $AGR_O > AGR_S$?

Appendix: A list of OVS languages with examples

The following list of OVS languages comes from The World Atlas of Language Structures (Dryer 2008) and studies by Derbyshire and Pullum (Derbyshire 1987, Derbyshire and Pullum 1981).

(24) OVS languages and agreement types in transitive clauses

REGION	AGR TYPE	FAMILY	COUNTRY	LANGUAGE	EX	SOURCE
South America	<i>Portmanteau</i> prefix	Carib	Brazil	Apalaí	(25)	Koehn and Koehn 1986
		Carib	Brazil	Bacairí	(26)	Meira 2003
		Carib	Brazil	Hixkaryana	(27)	Derbyshire 1977
		Carib	Colombia Carib	Hianacoto-Umaua	(28)	Gildea 1998
		Carib	Venezuela	Panare	(29)	Gildea 1989
		Carib	Suriname	Tiriyó	(30)	Carlin 2004
		Tupi	Brazil	Asuriní	(31)	Derbyshire and Pullum 1981
	AGR _O -V-AGR _S	Carib	Brazil	Makushi	(32)	Abbott 1991
		Carib	Venezuela	Pemon	? ⁵	Derbyshire 1985
	V-AGR _S	Tucanoan	Colombia	Cubeo	(33)	Morse and Maxwell 1999
		n/a (isolate)	Peru	Urarina	(34)	Olawsky 2006
	AGR _O -V	Chon	Argentina	Selknam	(35)	Najlis 1973
		Carib	Brazil	Kuikuro	(36)	Franchetto 2002
Africa	AGR _O -V-AGR _S	Nilo-Saharan	Sudan	Päri	(37)	Andersen 1988
Australia	AGR _O -AGR _S -V	Worrorran	W. Australia	Ungarinjin	(38)	Rumsey 1982
		Gunwingguan	Northern Territory	Mangarayi (type I)	(39)	Merlan 1982
	AGR _S -AGR _O -V	Gunwingguan	Northern Territory	Mangarayi (type II)	(40)	Merlan 1982
Polynesia	V-AGR _S -AGR _O	Austronesian	Solomon Islands	Äiwoo	? ⁶	Næss p.c.
	none	Austronesian	Tuvalu	Tuvaluan	(41)	Besnier 2000

⁵I have not able to find an example from Pemon (also known as Arekuna-Taulipang) showing subject agreement as a suffix and object agreement as a prefix, though Derbyshire (1985:p. 109) explicitly states that this is the configuration in the language.

⁶I do not yet have an example from this language.

- (25) u-kurika-no Apalaí; Koehn and Koehn (1986:p. 108)
 1S.3O-wash-IMMEDPST
 ‘I washed it.’ 7
- (26) s-ene-d Bacairí; Meira (2003)
 1S.3O-bring-IMMEDPST
 ‘I brought it.’
- (27) kuraha y-onyhorye-no b̄iryekomo Hixkaryana; Derbyshire (1985:p. 31)
 bow 3S.3O-make-IMPST boy
 ‘The boy made a bow.’
- (28) əwi ki-hinə-yae Hianacoto-Umaua; Gildea (1998:p. 63)
 1SG 1S.2O-kill-TAM
 ‘I’m gonna kill you.’
- (29) yawanë m-ikiti-ya’ amën Panare; Gildea (1989:p. 16)
 iguana 2S.3O-cut-PST 2SG
 ‘You cut the iguana.’
- (30) w-enee-ja-e Tiriyó; Carlin (2004:p. 480)
 1S.3O-bring-PRES-CERT
 ‘I’m bringing it.’
- (31) cánee c-enerecáŋta áʔee Asurini; Derbyshire and Pullum (1981:p. 204)
 1+2 3S.1O-see.FUT 3
 ‘He will see us.’
- (32) i-koneka-’p̄i-i-ya Makushi; Abbott (1991:p. 24)
 3O-make-PST-3S-ERG
 ‘He made it.’
- (33) ’ke-Rõ-RA ’dã-RE ’kaju-wA-RE buba-karã j̄ixã
 thus-IN.SG.NOMZR-UNIQ 3PL-O chicken-PL-O finish-N/H.1PL.EXCL 1PL.EXCL
 ‘That’s all, we finished (with) the chickens.’
 Cubeo; Morse and Maxwell (1999:p. 142)
- (34) enejtɕu su-a Urarina; Olawsky (2006:p. 488)
 monkey kill-3S
 ‘He killed the monkey.’
- (35) sorèn k-èrnn nèj jah Selknam; Najlis (1973:p. 41)
 bag O.NEUT-move.closer ? 1
 ‘I’m moving closer to the bag.’

⁷New abbreviations for this section (in addition to those used throughout the paper): ABS = absolutive; CERT = certainty; CONTR = contrastive; DU = dual; ERG = ergative; FUT = future; IN = inanimate; MS = multiplicative suffix; MULT = multiplicative; N/H = nonrecent past/present habitual; NARR = narrative suffix; NEUT = neuter; PL = plural; PRES = present; PST = past; PSTCONTIN = past continuative; PSTPUNCT = past punctual; PUNCT = punctual; SG = singular; TAM = tense/aspect/mood; UNIQ = unique; ? = unknown (not glossed in the source).

- (36) e-ingi-lü-ko leha u-heke Kuikuro; Franchetto (2002)
 2O-see-PUNCT-PL COMPL 1-ERG
 ‘I saw you all.’
- (37) á-yáŋg’-ì yàŋg-ó Päri; Andersen (1988:p. 297)
 1O.SG-skin-MULT.2S.SG skin-MS
 ‘You will knife me.’
- (38) bu-na-iyá-yila Ungarinjin; Rumsey (1982:p. 88)
 3O.PL-2S.PL-FUT-hold
 ‘You (pl.) will hold them.’
- (39) ŋayaŋayag wuyan-ba-bu-ni-wa Mangarayi; Merlan (1982:p. 96)
 some 3O.PL-3S.PL-kill-PSTCONTIN-NARR
 ‘Some ran and crossed over.’
- (40) landi-yara-ŋan ŋa-wuran-galañjawu-b Mangarayi; Merlan (1982:p. 85)
 tree-DU-ACC 1S.SG-3O.DU-pass-PSTPUNCT
 ‘I passed by/through two trees.’
- (41) a Niu ne taa a ia loa Tuvaluan; Besnier (2000:p. 209)
 CONTR Niu PST strike ABS 3 indeed
 ‘Niu indeed killed him.’

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