

Contributions to the typology of split intransitivity⁰

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1 Introduction

(1) **Split intransitivity**: phenomena where different classes of intransitive verbs in a language show different syntactic behaviours.

- unaccusativity; split-S.

(2) **Unaccusativity**: phenomenon/a where the arguments of some intransitive verbs have some properties in common with transitive objects, while others behave more consistently like transitive subjects: see section 3.

(3) **Split-S**: morphosyntactic alignment where case/agreement/(word order) differs between intransitive verb classes.

- Basque (Aldai 2009, pp. 785–6):

(a) *Peru-k dantzatu du*
Peter-ERG danced has
'Peter has danced'

(b) *Peru-Ø erori da*
Peter-ABS fallen is
'Peter has fallen'

⁰Thanks to Michelle Sheehan and Ian Roberts for constructive comments on this work.

- (4)
- Harris (1981, 1982), Rice (1991), Legendre and Rood (1992): split-S split reduces to unaccusativity.
 - But this may be too simplistic:
 - J. Baker (2013) finds the verb classes picked out by split-S patterns in many languages do not correlate particularly closely with those suggested by auxiliary selection facts in European languages.
 - M. Baker (1996, pp. 213–4): split-S classes in Mohawk do not line up with classes picked out by other unaccusativity diagnostics.

2 Typology of split-S languages

- (5) *Split-S, active(-inactive), stative-active, agentive(-patientive), split intransitive, semantic alignment ...*
- (6) Database of (currently) 98 languages with split-/fluid-S patterns; however, availability of data limited so for each individual property considered number of languages is smaller. Not controlled for areal/genetic factors.
- (7)
- Typical split-S pattern:
 - one case/agreement marking for S_a/A^1 (*agentive*²);
 - another case/agreement marking for S_p/P (*patientive*³).
 - But some languages may have variant systems, e.g.
 - separate marking for $S_a, A, S_p=P$ (Nasioi⁴);
 - separate marking for $S_a=A, S_p, P$ (Yawa).

(8) Split- vs. fluid-S:

- *Fluid-S* systems: those in which a substantial number of intransitive verbs can appear with *either* agentive *or* patientive marking.

¹I use the following standard abbreviations: A—most agent-like transitive argument, P—most patient-like transitive argument, S—intransitive argument, S_a —more agent-like S, S_p —more patient-like S.

²The literature for individual languages may use other terms, e.g. ‘*ergative*’, ‘*subjective*’, ‘*narrative*’

³Aka ‘*absolute*’, ‘*objective*’, ‘*nominative*’

⁴To avoid clutter, I have relegated most individual references for split-S languages, together with information on their genetic affiliation and geographical location, to the Appendix.

- Eastern Pomo—split based on volitionality (McLendon 1978, p. 3):

(a) *há· ba·técki*
 1SG.AGT got_bumped
 ‘I got bumped (on purpose)’

(b) *wí ba·técki*
 1SG.PAT got_bumped
 ‘I got bumped (accidentally)’

- Dixon (1994, p. 82) stresses ‘fundamental difference’ between split-/fluid-S types.

- But many ‘split-S’ languages have at least some ‘fluid’ verbs:

e.g. a few Central Pomo verbs exhibit a controlled/uncontrolled case alternation similar to that seen in Eastern Pomo above (Mithun 1991, p. 520).

- In ‘fluid-S’ languages some verbs never show fluid behaviour.

- So may be best to see fluidity as a continuum. I include fluid-S languages in the broader split-S type.

(9) Split-S seems to be rather more commonly manifest in *agreement* (41 languages in sample) than in *case* (18 languages).

- These figures include some doubtful cases, e.g. where the distinction between agreement and case-marked pronouns is unclear.
- A small number of languages have split-S patterns in both case and agreement, see (13).
- Also 3 languages with split-S manifest in word order (Ambonese Malay, Tolai, Waurá).
- There are a number of languages which are reported to have split-S alignment for which I have not yet been able to determine how this is manifest.

(10) Split-S languages vary widely as to the **conditioning factors** of the split:

- ‘*Unaccusativity*’: Basque, Chol, Georgian, Larike, Slave;
- *Control*: Eastern Pomo;
 - Also *volitionality*: Tabassaran, Tsova-Tush;

– Are control and volition distinct?

- *Eventivity/stativity*: Galela, Guaraní, Haida, Kurripako, Looma;
- \pm *Performed/effected/instigated* (Mithun 1991): Lakhota;
- A few other less widespread patterns.

(11) Split-S patterning is often reported to be sensitive to multiple factors working together.

- This is true for another 10 or so languages out of those I have looked into.
- Additional factors in these languages that have not been listed above include *affect/affectedness* and *viewpoint/perspective*.
- Central Pomo (Mithun 1991, pp. 518–524)—bolded forms are case-marked pronouns:
 - (a) [+event, +control]: agentive, e.g. **ʔa** swélan ‘I play’
 - (b) [+event, –control]: patientive, e.g. **to** ʔésʔesya ‘I sneezed’
 - (c) [–event, –affect]: agentive, e.g. **ʔa** ʔe qól ‘I’m tall’
 - (d) [–event, +affect]: patientive, e.g. **to** kasíla ‘I’m cold’
- Sometimes individual lexical items show idiosyncratic behaviour, to varying degrees in different languages (see e.g. Mithun 1991).
 - e.g. Mohawk verb meaning ‘throw’ takes patientive marking even though it denotes a controlled event which would normally be associated with the agentive (Mithun 1991, p. 534).

2.1 Split-S and other types

(12) Split-S languages are often treated as if in some sense a subtype of ergative.

- But what about properties which are known to exhibit different typological patterns in different alignment types, e.g. case-agreement mismatches, basic word order, overt morphology, voice alternations? Do split-S languages pattern with ergative ones in terms of these properties?

(13) Split-S systems often co-exist with other alignment types in the same language.

- *Case-agreement mismatches*: 29 languages in database with data on both case and agreement alignments:

Case	Agreement	Number languages
Split-S	Neutral	5
Split-S	Nom-acc	2
Erg-abs	Split-S	3
Erg-abs/tripartite	Split-S	1
Neutral	Split-S	11
Nom-acc	Split-S	3
Split-S	Split-S	3
Neutral	Neutral	1 (split-S word order)

- Split-S case occurs with both nom-acc and erg-abs agreement.
 - Cf. absence/extreme rarity of erg-abs agreement with nom-acc case (Anderson 1977, Woolford 2006). This suggests split-S does not pattern with erg-abs in this regard.
- No language in sample with split-S case and erg-abs agreement.⁵
 - Hence the generalisation that erg-abs agreement cannot occur with (overt) non-erg-abs case may still hold, even once split-S systems are considered. Note however the small number of languages considered—this result may simply be an artefact of the sample.
- Alignment splits also exist according to person (e.g. Tsova-Tush) and aspect (e.g. Basque, Georgian, Mohawk), but I have not yet systematically studied cross-linguistic patterns here.

(14) *Basic word order*:

- 52 split-S languages in sample for which information on order of subject/object/verb available (mostly from WALS).
- No dominant order or two dominant orders: 16

⁵Cf. WALS on this point. WALS appears to be in error owing to using different sources for Basque case and agreement, one of which analyses Basque as a split-S language and the other as an ergative one.

- SOV: 31
- SVO: 7 (13%)
 - Compare the absence or extreme rarity of ergative languages with this last basic order (Trask 1979, Maharajan 1994).
 - Note, however, that it still seems to be much less common in these languages than in nominative-accusative ones, roughly half of which have this basic order (see e.g. Hawkins 1983).

(15) *Overt morphology:*

- 27 languages in database known to have overt marking of both agentive and patientive arguments. In all but 3 of these split-S is manifest in agreement, not case.
- 6 languages in database have overt marking only of agentives: 3 case-marking (Laz, Lezgian⁶, Lhasa Tibetan) and 3 agreement-marking languages (Kewa, Taba, Tsou).
- Other languages:
 - Basque: case overtly marks only agentives, while agreement overtly marks both;
 - only Imonda has overt marking only of patientives (case-marking);
 - Yawa overtly marks Sa and Sp/P but not A (agreement-marking).
- By comparison, if a language has overt case-marking for only one of ergative or absolutive case, it will normally be ergative that is overtly marked (Blake 1994, p. 91), whereas accusative languages are more likely to have overt marking only of the accusative.
 - Split-S case-marking languages pattern more with the ergative type, with overt morphology for the case which includes A.
 - But Imonda is an exception, and numbers are very small.
- Apparent bias towards agreement with A over P in nom-acc but not erg-abs languages:
 - WAL: combined features 100A/102A:
 - * Erg-abs agreement: 3 languages with marking only of A, 5 marking only of P.
 - * Nom-acc agreement: 64 marking only of A, 18 marking only of P.

⁶Split-S patterns marginal.

- Woolford (2000) argues that agreement with only an ergative argument is ruled out entirely.
- Split-S systems thus pattern more like nom-acc systems in this regard, therefore.

(16) *Passives and antipassives:*

- Data mostly from WALS.
- Passives: reported present in 10 languages, absent in 19—present in 34%
 - (cf. WALS: passives in about 22% of ergative languages and 71% of accusative languages⁷)
- Antipassives: reported present in 4 languages, absent in 16—present in 20%
 - (cf. WALS: antipassives in about 42% of ergative languages and 7% of accusative languages)
 - Split-S languages seem to pattern somewhere in between ergative and accusative languages in terms of frequency of both passives/antipassives.
 - Caveats: this analysis is not particularly systematic; issues with correct identification of ‘passive’.

(17) *Conclusion:* Split-S languages do not pattern clearly with either accusative or ergative languages in terms of the criteria considered.

- Cf. Nichols (2008) who finds similar on the basis of the proportions of verbs in languages of different types which show ‘agent’ or ‘patient’-like coding. Nichols identifies a continuum; split-S languages are typically the languages in the middle part of this continuum but do not seem to form a strongly defined cluster.
- Is split-S in some sense an ‘intermediate’ type? How might this be formalised?
- Are there different subtypes of split-S system?
 - (i) ‘Ergative-type split-S’, where agentive is an ‘extended ergative’;
 - Georgian: aspect-based split between nom-acc and split-S. Morphologically nominative=patientive, accusative and ergative are separate cases (Harris 1981, pp. 243–4).

⁷Here and immediately below—alignment refers to case marking patterns of full noun phrases

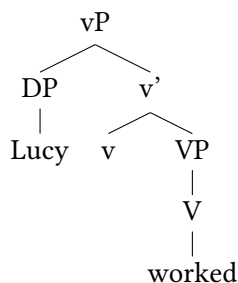
- In languages with an nom-acc/erg-abs split, nominative=absolutive.
- This suggests Georgian at least agentive is akin to ergative⁸.

(ii) 'Accusative-type split-S', where patientive is an 'extended accusative'.

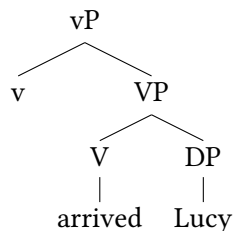
3 Remarks on unaccusativity

(18) Difference between unergatives/unaccusatives often conceived in terms of the structural position of the argument (after Perlmutter 1978, Burzio 1986):

(a) Unergatives:



(b) Unaccusatives:



(19) **Unaccusativity diagnostics** are supposed to provide ways of distinguishing unergative from unaccusative verbs.

- Diagnostics which can be related to the argument structure of verbs in other ways perhaps particularly useful.
 - e.g. those where unaccusatives pattern with passives which also (standardly) lack an external argument.

⁸Indeed it is more often known by the 'ergative' label.

3.1 The Auxiliary Selection Hierarchy

(20) **Auxiliary selection** in the periphrastic perfect is a major purported diagnostic of unaccusativity in many languages.

- Unaccusatives: auxiliary BE, e.g. German *Er **ist** gegangen* ‘He has gone’.
- Unergatives: auxiliary HAVE, e.g. German *Er **hat** gespielt* ‘He has played’.

(21) Sorace’s (2000) **Auxiliary Selection Hierarchy** (ASH):

Change of location	<i>come, arrive, leave, fall ...</i>
Change of state	<i>rise, become, decay, die, be born, happen, grow ...</i>
Continuation of a pre-existing state	<i>stay, remain, last, survive, persist ...</i>
Existence of state	<i>be, belong, sit, seem, be useful, please, depend on ...</i>
Uncontrolled process	<i>tremble, catch on, skid, cough, rumble, rain ...</i>
Controlled process (motional)	<i>swim, run, walk ...</i>
Controlled process (non-motional)	<i>work, play, talk ...</i>

(22) Auxiliary selection in 5 European languages, based on Sorace (2000) (bracketed forms are marginal):

	English	French	Dutch	German	Italian
Change of location	(BE)/HAVE	BE	BE	BE	BE
Change of state	HAVE	BE/HAVE	BE/(HAVE)	BE	BE/(HAVE)
Continuation of state	HAVE	HAVE	BE/HAVE	BE/HAVE	BE/(HAVE)
Existence of state	HAVE	HAVE	(BE)/HAVE	(BE)/HAVE	BE/(HAVE)
Uncontrolled process	HAVE	HAVE	HAVE	HAVE	(BE)/HAVE
Controlled pr. (mot.)	HAVE	(BE?)/HAVE	BE/HAVE	BE/HAVE	(BE)/HAVE
Controlled pr. (non-mot.)	HAVE	HAVE	HAVE	HAVE	(BE)/HAVE

(23) Prediction (following Sorace 2000, p. 887): other diagnostics of unaccusativity will show the same patterns: unaccusatives will pattern toward the top end of the hierarchy and unergatives toward the bottom.

3.2 The ASH and English unaccusativity diagnostics

(24) Purported unaccusativity diagnostics for English: *there*-insertion, locative inversion, the resultative construction (Levin and Rappaport-Hovav 1995); cognate objects, *V-ing away*, *Someone's way into*, *out-* prefixation, agentive *-er* (Ian Roberts, p.c.); 'for hours' (Schoorlemmer 2004); prenominal present participles, suffix *-able* (Shardl 2010)⁹.

(25) (a) ***there*-insertion**, e.g. *There came a man*.

(b) **locative inversion (LI)**, e.g. *Into the room came a man*.

- Acceptability does not seem to show much correlation with the ASH at all. Compare the following with prototypically 'unergative' forms:

(c) *There worked a man*.

(d) *In the room played a man*.

- Cf. Levin and Rappaport-Hovav (1995) (hereafter L&RH) who reject LI as an unaccusativity diagnostic and attribute it instead to discourse function (found in 'contexts where the verb describes a characteristic activity or process of the entity it is predicated of', p. 276). L&RH do not systemically discuss *there*-insertion, though they speculate (p. 277) that as a manifestation of 'surface unaccusativity' it may not be a true diagnostic either.

(26) ***V-ing away***: e.g. *Jessica was working away happily*.

- works with all of Sorace's 'process' verbs (controlled/uncontrolled, motional/non-motional): *talking away*, *swimming away*, *trembling away* ...;
- also seems permitted with some continuation of state verbs: *surviving away*, *lasting away*, *?remaining away*;
- mixed behaviour with change of state verbs: *decaying away*, *?growing away*, **happening away*;
- ruled out with the change of location and existence of state categories: **arriving away*, **being away* etc.

⁹References do not necessarily cite the earliest proposed use of these diagnostics.

- Correlation with the ASH is pretty approximate therefore.

(27) **V one's way into**, e.g. *Harry worked his way into the upper echelons of university administration.*

- also works with all of Sorace's 'process' verbs (controlled/uncontrolled, motional/non-motional): *talk one's way into, swim one's way into, cough one's way into ...*;
- generally ungrammatical or doubtful otherwise: **belong one's way into, ?survive one's way into, *arrive one's way into* etc. etc. Exception: *grow*.
- \implies Quite strong correspondence with ASH.

(28) **Resultatives** e.g. *She grew tall, The lake froze solid*: (usually post-verbal) adjective expresses a state of the subject brought about by the process described by the verb.

- Basically limited to verbs which undergo the anticausative alternation, i.e. which have a transitive alternant expressing causation, e.g.:

(a) *Lucy grew the cabbages.*

(b) *Imhotep froze the fish fingers.*

- This alternation provides good evidence that these verbs *are* all unaccusative: both transitive and intransitive forms have an internal argument but differ in the presence/absence of an external argument; the alternation consists of adding (Davis and Demirdache 2000, Ramchand 2008) or taking away (L&RH, Reinhart and Siloni 2004, Chierchia 2004) that external argument.
- But this diagnostic does not seem to capture the whole unaccusative class. L&RH (section 2.3) analyse this in terms of two groups of systematic exceptions (verbs of inherently directed motion, statives) where the construction is blocked. But see below for an arguably simpler analysis drawn from Ramchand (2008).

- Possibly a few non-anticausative forms allow the resultative construction also: *The light blinked off, The tree blossomed white, The leaves sprouted green.*

(29) **Cognate objects**:

- Work pretty well with motional processes: *swim a swim, run a run, walk a walk.*

- More restrictedly with other controlled processes: *work a work, play a play, talk a talk* only in restricted senses.
- Uncontrolled processes mixed/uncertain: *cough a cough, ?tremble a tremble, *skid a skid*.
- Don't generally work otherwise: **come a come/coming, *arrive an arrival, *grow a growth, *survive a survival, *belong a belonging* etc.
 - Exception: *die a death*
- Fairly good correspondence with the ASH but perhaps not so neat as we might like.

(30) **for hours**, e.g. *The student worked for hours on the morphology problems*.

- Possible with nearly all verb classes, but ruled out with change of location verbs: **arrive for hours* etc.
- Also impossible with a few other verbs: *die for hours, be for hours*.
- Good correspondence with the ASH overall.

(31) **Prenominal past participles**: e.g. *the recently arrived recruits, fallen leaves, a decayed corpse, a grown woman*.

- Limited to Sorace's 'change of location' and 'change of state' categories—i.e. only found at the top end of the hierarchy (as predicted).
- *But* various complications:
 - not all verbs in these categories seem to allow this construction: **the came man, *the happened event* etc.;
 - others are restricted in use: *the recently arrived recruits* but **the arrived recruits, fallen leaves* but **the fallen cat* etc. *the fallen man* is acceptable only in a metaphorical sense.
- Clearly complex interactions with other factors not captured by the hierarchy, therefore.

(32) **Suffix -er**: *swimmer, worker, talker* etc.

- Basically restricted to process verbs—i.e. to the unergative end of the hierarchy.
- But a few exceptions: *survivor*; *all comers*, *early riser*, *late riser*, *stayer at home*, *long laster* (e.g. of vegetables).
- OED lists: *comer*, *arriver*, *leaver*, *faller*, *dier*, *riser*, *stayer*, *remainder*, *laster* (obsolete), *persister*, *beer* (obsolete), *belonger*, *sitter*, *seemer*. But these seem marginal at best.

(33) **Suffix -able** is of dubious value as a diagnostic altogether; mostly if not entirely it seems to pick out transitive verbs.

(34) **Prefix out-**:

- Acceptable with most process verbs (especially controlled processes): *outtalk*, *outswim*, *outcough* etc.
 - Though ?*outskid*, ?*outrumble*
- Not possible with change of location verbs: **outcome* (v.), **outarrive*, **outfall* etc.
- More mixed behaviour with intermediate categories—though this is more-or-less as Sorace would predict.

(35) **Conclusion:** leaving aside constructions that are perhaps not valid unaccusativity diagnostics at all, generally we find quite strong support for the ASH, though various minor complications to be accounted for.

- Some variation in the ‘cut-off point’ between the two classes depending on the diagnostic. Might a two-way distinction between unaccusatives and unergatives be too simplistic?
 - There does not seem to be any pair of diagnostics which select two mutually exclusive sets of verbs without leaving a significant number of verbs unclassified.

(36) Further research: consider more diagnostics from a wider range of languages in relation to the ASH.

	<i>there</i> -insertion	locative inversion	<i>V-ing away</i>	<i>V one's way into</i>	resultative	cognate object	<i>for hours</i>	prenom. past. part.	<i>-er</i>	<i>-able</i>	<i>out-</i>
<i>come</i>	✓	✓	*	*	*	*	*	*	(✓)	*	*
<i>arrive</i>	✓	?	*	*	*	*	*	(✓)	*	*	*
<i>leave</i>	*	?	*	-	*	*	*	*	*	*	*
<i>fall</i>	*	✓	*	*	*	*	*	(✓)	*	*	*
<i>die</i>	?	*	*	*	*	✓	*	*	*	*	*
<i>rise</i>	✓	✓	?	?	*	*	✓	(✓)	(✓)	*	?
<i>become</i>	✓	✓	*	*	*	*	*	*	*	*	*
<i>decay</i>	?	✓	✓	?	*	*	✓	✓	*	?	?
<i>happen</i>	✓	*	*	*	*	*	✓	*	*	?	*
<i>grow</i>	✓	✓	?	✓	✓	*	✓	✓	*	*	✓
<i>stay</i>	✓	✓	?	-	*	*	✓	*	(✓)	*	✓
<i>remain</i>	✓	✓	?	-	*	*	✓	*	*	*	*
<i>last</i>	?	*	✓	*	*	*	✓	*	(✓)	*	✓
<i>survive</i>	✓	✓	✓	?	*	*	✓	*	✓	?	?
<i>persist</i>	?	*	✓	?	*	*	✓	*	*	?	*
<i>be</i>	✓	✓	*	*	*	*	*	*	*	*	*
<i>belong</i>	✓	?	*	*	*	*	?	*	*	*	*
<i>sit</i>	✓	✓	*	*	*	*	✓	*	*	*	?
<i>seem</i>	✓	✓	*	*	*	*	✓	*	*	*	*
<i>tremble</i>	?	*	✓	✓	*	?	✓	*	✓	*	✓
<i>cough</i>	?	*	✓	✓	*	✓	✓	*	✓	*	*
<i>skid</i>	?	✓	✓	✓	*	?	✓	*	✓	*	✓
<i>rumble</i>	?	*	✓	✓	*	?	✓	*	✓	*	*
<i>swim</i>	✓	✓	✓	✓	*	✓	✓	*	✓	*	✓
<i>run</i>	✓	✓	✓	✓	*	✓	✓	*	✓	*	✓
<i>walk</i>	✓	✓	✓	✓	*	✓	✓	*	✓	*	✓
<i>work</i>	✓	✓	✓	✓	*	(✓)	✓	*	✓	*	✓
<i>play</i>	✓	✓	✓	✓	*	(✓)	✓	*	✓	*	✓
<i>talk</i>	?	*	✓	✓	*	(✓)	✓	*	✓	*	✓

4 Modelling split intransitivity

4.1 Towards a model of unaccusativity

(37) Legendre (2007a, 2007b) recasts the ASH in terms of a ‘universal set-inclusion hierarchy of eventive features’:

- (a) inherent volitionality;
- (b) state;
- (c) directed change;
- (d) telicity;
- (e) inhomogeneity;
- (f) inherent displacement.

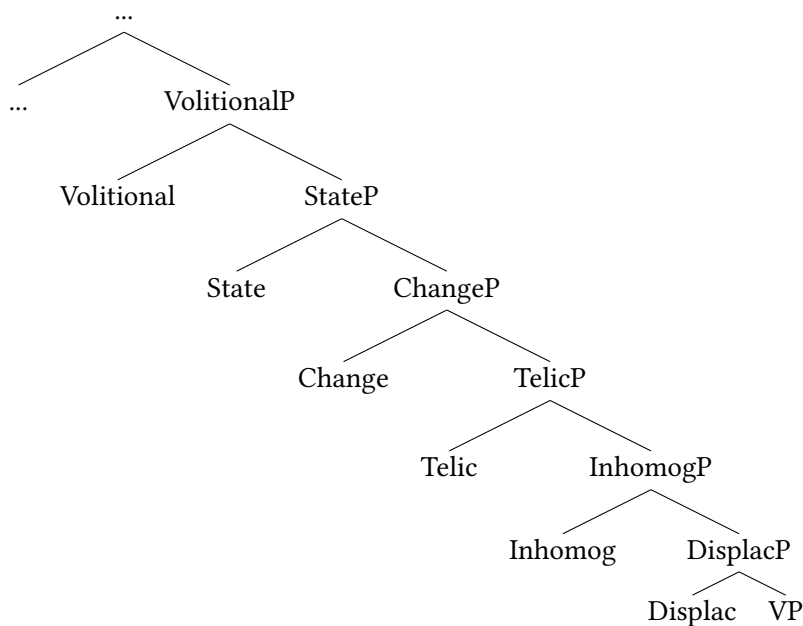
- If an intransitive verb expresses a positive value for one feature on the hierarchy, it also possesses positive values for all those above it (except for inherent volitionality, which is negative if lower features are positive);
- Additional [motion] feature which picks out different classes of [+inherently volitional] verbs.

	+dis	+inhom	+tel	+dir	+st	-vol	+mo
<i>arrive</i>	+	+	+	+	+	+	-
<i>die</i>	-	+	+	+	+	+	-
<i>go up, disappear</i>	-	-	+	+	+	+	-
<i>worsen, last, exist</i>	-	-	-	-	+	+	-
<i>shiver, resound, sweat</i>	-	-	-	-	-	+	-
<i>run</i>	-	-	-	-	-	-	+
<i>yell</i>	-	-	-	-	-	-	-

(Legendre 2007a, table 2; adapted slightly)

- A few issues with the details of Legendre’s categories—will overlook these here.
- Legendre uses an OT formalisation of these features to derive the ASH.

(38) **Proposal:** Legendre’s features (or an adaptation of them) can be configured as a hierarchy of functional heads:



- What about Motion? Could be a higher head in the region of Volitional, or might be the same head as Displac.
- Some variation in Italian is subject to affectedness (Sorace 2000, pp. 874–5)¹⁰, which is an argument for an extra Affect head somewhere in the structure (probably near the top).
- No absolute requirement that a positive value for a feature entails a positive value for the features above it:
 - this gets rid of some difficulties with Legendre’s scheme, e.g. defining ‘Change’ and ‘State’ so as to include *arrive*, and allowing for languages (Dutch in particular) where telicised (thus [+telic]) predicates may take BE even with positive values of higher features otherwise associated with HAVE;
 - we can get rid of the specification of some features as ‘inherent’.
- But how then do we derive the ASH?

(39) Informal statement: if one head in the structure in (38) is associated exclusively with auxiliary BE, all heads below it will be also.

¹⁰e.g. *Il pavimento ha / è ceduto all'improvviso* ‘the floor yielded suddenly’, where either auxiliary may be found with an affected, non-human subject (Sorace 2000).

- Similarities to the **Final-over-Final Constraint** (FOFC) (Biberauer et al. 2007): informally, *if a phrase is head-final all phrases below it in the same extended projection will also be head-final*.
- Might the ASH be subject to a ‘generalised FOFC’?

(40) **Generalised FOFC:** if α and β are heads of the same type, and α is dominated by β , then if β possesses a *marked feature* F, α must also possess F.

- F might be: a feature which moves the complement of X to its specifier; a feature which results in the spell-out of the auxiliary as BE; ...
- To what classes of heads/features might this apply?
- Issue: is BE really the marked auxiliary?
 - Should the hierarchy be inverted so HAVE is marked? Other reasons not to want to do this.
 - Perhaps head-final order is unmarked (!), and (40) can be rewritten to refer to the *absence* of F?
 - * On an analysis which derives head-final ones from head-initial ones via movement, this implies that Comp-to-Spec movement (= merger of the same YP in both the Spec and the Comp of X) is perhaps computationally more basic than only merging YP once.
 - * Note that head-final orders are very frequent.
 - Or maybe if BE is the marked option this isn’t really so much of a problem.

(41) Further discussion:

- as regards auxiliary selection, (39) and (40) apply at least generally only to ‘positively valued’ heads: [+state] State, [+change] Change, etc. (though possibly to [–volitional] Volitional).
- *Variable behaviour* within certain verbal categories may be captured by positing both a head associated with BE and a head associated with HAVE at the relevant levels in the languages in question.

- e.g. some German ‘continuation of state’ verbs like *halten* ‘last’ and *verweilen* ‘stay’ show variable auxiliary selection behaviour (Sorace 2000, p. 868), suggesting the appropriate head (State) can be associated with either BE or HAVE in German.
 - Any non-variable heads above the variable region would have to select HAVE; any below it would have to select BE.
 - Lexical idiosyncrasies would be restricted to the variable region.
 - This correlates well with Sorace’s observations.
- Certain issues with the passive which need working out.

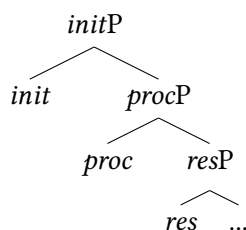
(42) What about manifestations of ‘unaccusativity’ beyond auxiliary selection?

- More research needed.
- Different diagnostics may have cut-off points at different points on the hierarchy (as seems to be seen in English).
- As heads may perhaps not be subject to ‘generalised FOFC’ in regard to other features, it isn’t necessarily predicted that all unaccusative-like behaviours will show sensitivity to the ASH.
 - Cf. the patterns observed with English resultatives and perhaps other diagnostics which exhibit less of a correlation with the ASH.
 - Split-S patterns in many (though not all) languages show limited correlation with the ASH (Baker 2013).

4.2 The hierarchy and thematic roles

(43) The hierarchy in (38) may provide a starting point for a more general way of capturing **thematic roles**.

(44) Cf. Ramchand’s (2008) ‘first phase’:



- Arguments gain their thematic roles from the positions in this hierarchy in which they are (internally/externally) merged.

(45) Given the elaborate structures proposed in the cartographic approach for the discourse (e.g. Rizzi 1997) and temporal domains (e.g. Cinque 1999), we might reasonably expect a similarly elaborate structure in the thematic domain.

(46) Dowty's (1991, p. 572) contributing properties for proto-roles:

- Proto-Agent:
 - (a) volitional involvement in the event or state;
 - (b) sentience (and/or perception);
 - (c) causing an event or change of state in another participant;
 - (d) movement (relative to the position of another participant);
 - (e) (exists independently of the event named by the verb).
- Proto-Patient:
 - (a) undergoes change of state;
 - (b) incremental theme;
 - (c) causally affected by another participant;
 - (d) stationary relative to the movement of another participant;
 - (e) (does not exist independently of the event, or not at all).

(47) Many of Dowty's properties already correspond to heads proposed in (38), especially once the parts explicitly referring to the role of 'another participant' are removed:

- 'volitional involvement' = Volitional;
- 'movement' or lack thereof = Displacement/Motion;
- 'change of state' = Change;
- 'incremental theme' \approx Inhomog?;
- 'causally affected' \approx Affect.

(48) Dowty's other properties may be related to additional heads:

- ‘causing an event or change of state’ → a Cause head, or more generally Instigation?
 - This may well correspond to Ramchand’s (2008) *init*. This provides a nice way of capturing the anticausative alternation: it is an addition of [+instigation] Instigation/*init* to a projection which otherwise lacks it; verbs which allow the alternation are those which lack instigators in their intransitive forms (Ramchand 2008, p. 86).
 - The (intransitive) resultative construction can hopefully be linked to the lack of Instigation somehow or other ...
 - Ramchand’s *proc* corresponds at least roughly to State.
 - What about Ramchand’s *res*? – Telic??
- Sentience/Perception (cf. Reinhart’s (2002) $\pm m$ [ental state]) and Independent Existence heads?

4.3 Extending the approach to split-S systems

Some rather preliminary thoughts.

(49) ‘Ergative-type’ split-S languages: agentive is an inherent case (like ergative—Legate 2004, Aldridge 2004) assigned by a combination of one or more of the heads proposed above in conjunction with an Agent theta-role.

- Which head(s) varies between languages. There is a good correspondence between the heads proposed in the preceding subsections and the factors which condition the split-S split in different languages discussed in (10) and (11).
 - Telicity = Telic
 - Control/volition = Volitional
 - Performed/effected/instigated = Instigation
 - Events vs. states = State
 - Mithun’s (1991) [affect] is a bit different from Sorace’s (2000) ‘affecting’, but the two could potentially be unified → Affect
 - Perspective/viewpoint?

(50) Languages with ‘accusative-type’ split-S agreement: ‘object agreement’ is extended to eligible arguments in intransitive contexts¹¹.

- Cf. past participle agreement in Romance, which occurs with (some) transitive objects and unaccusative arguments, but never with unergatives (Belletti 2001, p. 17, cited in D’Alessandro and Roberts 2008, pp. 478–9).
- This type of agreement is compatible with any type of case alignment, unlike ergative-absolutive agreement which is only compatible with ergative-absolutive case (or an absence of overt case).

(51) What about languages which potentially have ‘accusative-type’ split-S *case*, e.g. Imonda?

- Some intransitive arguments can receive ACC??

5 Conclusions and prospects

(52) Split-S languages do not clearly pattern with either accusative or ergative languages.

(53) Sorace’s (2000) Auxiliary Selection Hierarchy seems to apply quite well to English unaccusativity diagnostics, though it does not capture the whole story.

(54) Variation in auxiliary selection can potentially be captured in terms of a hierarchy of functional heads.

(55) Can this functional hierarchy also be used to capture other behaviours linked to unaccusativity and split-S patterns?

¹¹By ‘object agreement’ and ‘eligible arguments’ I mean what are standardly conceived of as v-agreement and internal arguments respectively. Either or both of these standard conceptions may require revision on the approach to unaccusativity proposed here, however.

Appendix: split-S languages referenced

Language	Family	Location	Source
Ambonese Malay	Creole	Malaysia	Creissels 2008
(Western) Basque	Isolate	Spain, France	de Rijk 2008
Chol	Mayan	Mexico	Coon 2010
Eastern Pomo	Pomoan	California	Mithun 1991
Galela	West Papuan	Papua New Guinea	Creissels 2008
Georgian	Kartvelian	Georgia	Harris 1981
Guaraní	Tupi-Guaraní	Paraguay and region	Mithun 1991
Haida	Isolate	Canada; Alaska	Mithun 1999
Imonda	Border	Papua New Guinea	WALS
Kewa	Trans-New Guinea	Papua New Guinea	WALS
Kurripako	Arawakan	Columbia; Venezuela; Brazil	Danielson and Granadillo 2008
Lakhota	Siouan	North/South Dakota	Mithun 1991
Larike	Austronesian	Indonesia	Laidig 1993
Laz	Kartvelian	Turkey; Georgia	Harris and Campbell 1995
Lezgian	NE Caucasian	Russia; Azerbaijan	Haspelmath 1993
Lhasa Tibetan	Sino-Tibetan	Tibet	DeLancey 1984
Looma	Mande	Liberia; Guinea	Arkadiev 2008
Mohawk	Iroquoian	New York state; Ontario; Quebec	Mithun 1991
Nasioi	South Bougainville	Papua New Guinea	Hurd and Hurd 1970
Slave	Athabaskan	NW Territories	Rice 1991
Taba	Austronesian	Indonesia	WALS
Tabassaran	NE Caucasian	Russia	Arkadiev 2008
Tolai	Austronesian	Papua New Guinea	Dixon 1994
Tsou	Austronesian	Taiwan	WALS
Tsova Tush	NE Caucasian	Georgia	Arkadiev 2008
Waurá	Arawakan	Brazil	Dixon 1994
Yawa	Isolate	Indonesia	Jones 1986

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