Case and Person in the Direct-Inverse Agreement System of Yimas

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Abstract

Verbal agreement systems for the person/number of core arguments are often divided into types, two of which are systems in which indexing is case governed versus those in which it is person governed. But in languages like Yimas, constraints of both types of systems are present. All core arguments are signaled only by verbal indexing. These are indicated by an elaborate system of pronominal affixes aligned essentially according to a split ergative pattern: local persons, first and second, in a three way split, ERG-NOM-ACC, and the non-local third person in a different three way split, ERG-NOM-DAT. The realization of these cases is not straightforwardly linked to the core grammatical relations, as the expression of a person-based direct-inverse system is layered on top of the case marking system. This paper presents a formal Optimality Theory based analysis of Yimas verb indexing.

1. The typology of direct-inverse agreement

Direct-inverse verbal agreement systems are a not unusual feature of head marking (Nichols 1986) languages, those in which core grammatical functions, subject and object, are signaled by verbal pronominal agreement affixes or clitics. This is dubbed indexing in the terminology of Haspelmath (2013, 2019), a term I will stick to here. Direct-inverse indexing is a sub-type of verbal pronominal indexing in which the verb differentially indexes the subject or the object, depending on which is more prominent on some scale, most commonly a ranking in person so that local persons, first or second, outrank the non-local third person, or animacy, with animate referent NPs outranking inanimate ones, as in this example from the Plains Algonkian language Blackfoot (Frantz 2000):

(1) (a) *nits-ik-ákomimm-**a**-wa* *n-itan-a*
1SG-VERY-fond_of-H→L-3SG 1SG-daughter-SG
'I love my daughter'

(b) *nits-ik-ákomimm-**ok**-(w)a* *n-itan-a*
1SG-VERY-fond_of-L→H-3SG 1SG-daughter-SG
'my daughter loves me'

Both of these examples involve an interaction between a local first person interacting with a non-local third person. In Blackfoot, the higher local first person is indexed by the initial pronominal prefix *nits-* 1SG regardless of whether it functions as subject (1a) or object (1b). In addition, the verb takes a thematic suffix which indicates the relative ranking of the two core arguments, either *-a,* a higher ranking local subject acts on a lower ranking non-local object (H→L) (1a) (the direct form), or *-ok,* a lower ranking non-local subject acts on a higher ranking local object (L→H) (1b) (the inverse form). The lower ranked non-local participant in (1) is then indexed by the final suffix *-wa* 3SG. Not all direct-inverse languages are quite so elaborate as Blackfoot. Often, just the higher ranked participant is indexed, and an overt marker of relative ranking occurs only in the inverse form (INV), as in the Sino-Tibetan language Japhug (Jacques 2010) (the past tense suffix *-t* does not occur in the inverse form):

(2) (a) *pʉ-mtó-t-a*
AOR-see-PAST-1SG
'I saw him/her/it'

(b) *pʉ-ẃɣ-mto-a*
AOR-INV-see-1SG
'he/she/it saw me'

In their paper on direct-inverse verb agreement in Plains Cree, another head marking polysynthetic Algonkian language of North America, Alsina and Vigo (2017) assume a major division in verbal agreement systems between languages in which indexing is case governed versus those in which it is person governed, with Plains Cree, like related Blackfoot, an exemplar of the latter type. In case governed indexing, the grammatical relation that triggers indexing is required to be in a specific case, most commonly nominative (or absolutive in ergative languages for those who want to claim that this is distinct from nominative), which for most languages means that the grammatical relation is not overtly flagged (Haspelmath 2019) for case at all, as nominative in most languages is the zero or unmarked case, the citation form for a nominal. The upshot then is that often the only overt formal signal of the grammatical function of such a nominative NP is indexing, but indexing based on its function, not its reference. Person governed indexing, on the other hand, is determined by reference, as in the examples in (1) and (2), the prototypical direct-inverse systems. The grammatical relation that triggers indexing is always the grammatical function that ranks highest on some prominence hierarchy, most commonly that of person, local over non-local, or animacy, human over other animate over inanimate.

2. The nature of argument indexation in Yimas

If there is such a major division between these two types of verbal indexing languages, we would not expect to see languages in which constraints of both types, function and reference, are present. But languages of the Lower Sepik family in New Guinea like Yimas and Murik are precisely of this mixed typology. Here I will only deal with the facts of Yimas; I have discussed Murik briefly in a previous publication (Foley 2016). Like Blackfoot, Yimas is a head marking polysynthetic language with multiple, in fact triple, indexing, for core grammatical functions, subject, object and object$_\theta$. The core versus oblique distinction is very sharp: core functions lack case marking and can be verbally indexed, while oblique functions are case marked, usually with *-n* ~ *-nan* OBL, and can never be indexed unless promoted to core via applicativization. As in Urdu (Butt and Sadler 2003), overt nominal case, flagging, repels agreement, indexing. The following somewhat artificial yet grammatical example illustrates (the Roman numerals indicate noun class):

(3) *ŋaykum* *patn* *na-mpu-ŋa-r-akn*
woman.II.PL betelnut.V.SG V.SG.NOM-3PL.ERG-give-PFV-3SG.DAT
panmal *nam-n*
man.I.SG house-OBL
'the women gave the man the betelnut in the house'

Yimas word order is quite free, so it plays no role in signaling grammatical relations. Rather this is done by flagging for oblique functions (*-n* OBL on *nam-n* house-OBL in (3)) and indexing for core functions. The verbal indexing system is very complex and will be my focus in this paper, but to illustrate from (3): the verb has three pronominal agreement affixes, one

indexing the subject, *mpu-* 3PL.ERG, agreeing in number and person with *ŋaykum* II.PL 'women'; one for the object *na-* V.SG. NOM, agreeing in number, person and class with *patn* V.SG 'betelnut' (only the nominative affixes distinguish class in addition to number and person; the ergative and dative affixes only signal the latter two features); and one for the object$_{\theta}$, *-(n)akn* 3SG.DAT, agreeing in number and person with *panmal* I.SG 'man'. By unifying the person, number and class features of these affixes with the relevant nouns agreeing in these features, the full meaning of the clause is determined. Of course, the agreeing nouns are not needed; the indexing is strictly anaphoric, so any or all may be omitted. The verb by itself is a perfectly fine, fully specified clause, and in fact clauses in ongoing texts commonly consist of just indexed verbs like these.

The verbal indexing system of Yimas is very elaborate, and before proceeding further I need to set out the basic inventory of affixes. The system is split according to person, so that different case distinctions are made in the local first and second persons versus the non-local third person. Both the local and non-local persons distinguish three forms in the various person and number combinations, but the formal case distinctions differ (third person affixes also distinguish a paucal number that the local person affixes lack). First and second persons formally distinguish nominative from ergative from accusative case, while the third person distinguishes nominative from ergative from dative case. Tables 1 and 2 lay out the forms:

		PRONOUN	ERG	NOM	ACC
	DL	*kapa*	*ŋkra-*	*kapa-*	*ŋkra-*
1	PL	*ipa*	*kay-*	*ipa-*	*kra-*
	SG	*ama*	*ka-*	*ama-*	*ŋa-*
	DL	*kapwa*	*ŋkran-*	*kapwa-*	*ŋkul-*
2	PL	*ipwa*	*nan-*	*ipwa-*	*kul-*
	SG	*mi*	*n-*	*ma-*	*nan-*

Table 1: Yimas Indexing Affixes for Local Persons

	PRONOUN	ERG	NOM	DAT
SG	*mn*	*n-*	*na-*	*-nakn*
DL	*mrm*	*mp-*	*impa-*	*-mpn*
PC	*mŋkt*	*ŋkl-*	*kra-*	*-ŋkt*
PL	*mum*	*mpu-*	*pu-*	*-mpun*

Table 2: Yimas Indexing Affixes for Non-local Persons

As I mentioned earlier, indexing is anaphoric in Yimas, so it is possible for a core argument to lack indexing if it is not anaphoric, i.e. not already referentially established in the discourse. Consider the following dialog:

(4) Q: *wara* *ipa-n(a)-am-n?*
what 1PL.NOM-PRES-eat-PRES
'what are we (PL) going to eat'

A: (1) *numpran* *ipa-n(a)-am-n*
pig.III.SG 1PL.NOM-PRES-eat-PRES

(2) **??numpran* *na-kay-ɲ(a)-am-n*
pig.III.SG III.SG.NOM-1PL.ERG-PRES-eat-PRES
'we (PL) are going to eat pork'

Here the question word *wara* 'what' sets up the answer in the response to be focal information, new information not previously established in the discourse. Hence, the proper response is A (1), in which *numpran* pig.III.SG 'pig/pork' fails to be indexed by a verbal affix. Example A (2), in which it is indexed, is decidedly infelicitous in this context. But note the complication A (1) introduces. The verb *am-* 'eat' is transitive with two core arguments, a subject eater and object eaten thing, but here the subject is indexed by a nominative affix, not the ergative as expected. The reason here, to be developed further below, is strictly formal, the affix is on the left edge of the verb, and the language mandates (with one exception discussed below) that an affix on the left edge must be formally nominative. But note that this sets up a disjunction between grammatical relations, e.g. subject, and their formal realization, the case of indexing affixes; subject can be realized in either ergative or nominative case depending on the overall configuration of verbal affixation. Consider the following contrasting examples:

(5) (a) *ama* *arm* *tar-kwalca-k*
1SG water CAUS-rise-IRR

(b) *arm* *ama-tar-kwalca-n*
water 1SG.**NOM**-CAUS-rise-PRES

(c) *ima-ka-tar-kwalca-n*
water.NOM-1SG.**ERG**-CAUS-rise-PRES

'I'm causing the water to rise'

Example (5a) is the original example in the text. *ama* 'I' is focal and strongly contrastive here – it is I that will do this to avenge our murdered brother – and *arm* 'water' is introduced for the first time, the plan is to do magic to make the tide rise and drown the murderers of their brother. (5b) would be used if *arm* 'water' is focal, but *ama* 'I' is no longer contrastive, simply announcing my ongoing participation in an act, while (5c) would be used when both *arm* 'water' and *ama* 'I' have already been activated in the discourse *(ima-* is the nominative verbal prefix for 'water', not an incorporated form of it; hence the inflected verb is transitive with an ergative prefix for the subject). But again note that 'I' is unindexed in (5a), indexed by a nominative affix in (5b) and indexed by an ergative one in (5c).

Nor is the subject the only grammatical relation so prone to such variable realization by case. The grammatical relation of object$_{\theta}$ exhibits similar complexities. Consider these examples:

(6) (a) *na-ka-ŋa-r-mpn*
V.SG.NOM-1SG.ERG-give-PFV-3DL.**DAT**
'I gave them (DL) it'

(b) *impa-mp-ŋa-t*
3DL.**NOM**-3DL.ERG-give-PFV
'they (DL) gave them (DL) (something)'

(c) *na-mp-kra-ŋa-t*
V.SG.NOM-3DL.ERG-1PL.**ACC**-give-PFV
'they (DL) gave us it'

In (6a) the object$_\theta$ is indexed by an affix in dative case, but in (6b) the case of the index is nominative (remember an affix on the left edge must be nominative). In (6c) the case of the index is accusative, as local persons lack dative indexing affixes. Rather like French, distinct dative pronominals are only found in third person; for local persons, the accusative pronominals do double duty for both object and object$_\theta$.

3. Grammatical relations in Yimas

The straightforward conclusion to be drawn here is that grammatical relations in Yimas cannot be established on the basis of verbal indexing; their realization by case is simply too variable. The rules that determine their variable realization for case (and position, as we shall see) will be presented in detail below, but first we need to establish the diagnostics for grammatical relations in the language independently of the variable indexing patterns. Subjects are fairly easy to establish in Yimas on the basis of a few constructions that generally are diagnostic of subjects across a wide variety of languages:

1. genitivization in non-finite nominalizations

There are a number of types of non-finite nominalizations in Yimas, always marked by the non-finite nominalization suffix *-ru* ~ *-t* immediately following the verb stem plus a relevant noun class suffix. In such constructions the overt sole core argument of an intransitive verb and the actor core argument of a transitive verb must be marked by the genitive/possessive marker; the undergoer argument of a transitive verb on the other hand may never be so genitivized. This demonstrates a clear contrast between subjects being genitivized versus objects not so:

(7) (a) *ama-**na*** *tuku-t-wal*
1SG-POSS wash.sago-NFN-custom.V.SG
'my manner of washing sago'

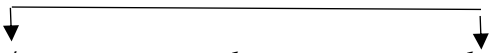
(b) *ama* *tar-kwalca-t-nti* *mpu-**na**-nti* *mama-nti* *antiak*
1SG CAUS-rise-NFN-act 3PL-POSS-act bad-act COP.act
'their (PL) waking me up was bad'

(c) *tia-ka-n(a)-aykpiŋa-n* *God-**na*** *anti*
act.NOM-1SG.ERG-PRES-know-PRES God-POSS ground
papk-t-wal
carve-NFN-custom.V.SG
'I know how God made the world'

The prefix *tia-* in (7c) is the nominative prefix form for referring to the actions or events, hence the sentence literally means 'I know the action/event, God's carving the world'

2. As in many languages the subject in non-finite complements is obligatorily controlled and unrealized in non-finite complements.

(8) (a) Ø *wa-ru-mpwi* *pia-mpu-ŋa-i*
go-NFN-talk talk.NOM-3PL.ERG-1SG.ACC-tell
'they (PL) told me to go'



(b) Ø *nam* *wark-t-nti* *tia-ka-ira-kraŋkra-t*
house.SG build-NFN-act act.NOM-1SG.ERG-ALL-be_weary-PFV
'I'm tired of building houses'

3. controlee in non-finite participial constructions. These are obliquely marked non-finite clauses used to indicate events simultaneous with the events of the main finite clause.

(9) (a) *pu-ŋa-tay* Ø *w(i)-impu-pra-ru-mat-ɲan*
3PL.NOM-1SG.ACC-see up-go_by_water-toward-NFN-M.PL-OBL
'while paddling upriver, they (PL) saw me'

(b) Ø *wark-ru-mat-ɲan* *nam* *kumpwi*
build-NFN-.M.PL-OBL house.SG boy.I.PL
mnta *numa-mpu-ntak-t*
and village.NOM-3PL.ERG-leave-PFV
'while building a house, the boys left the village'

4. binder in reciprocal constructions.
Reciprocal constructions are built by detransitivizing the verb with a prefix *t-*. The bound core argument is simply suppressed, and the remaining argument can be indexed. If the source verb is bivalent, that index will be in nominative case, so it is impossible to tell if the remaining argument is the subject or object, as nominative case can mark either. However, if the source verb is trivalent, the binder can appear in ergative case, indicating that it is indeed the non-subject argument that is bound and hence suppressed:

(10) *pia-mp-t-i-kia-k*
talk.NOM-3DL.ERG-RCP-tell-NIGHT-IRR
'they (DL) told each other'

There is also one verbal indexing trait that is restricted to only subjects; the ability to occur as an ergative prefix. If a verb bears an ergative case index, that must mark the subject. That is straightforward for verbs with multiple indexing, as in (11):

(11) *na-kay-wayk-r-ŋkt*
3SG.NOM-1PL.ERG-buy-PFV-PC
'we (PC) bought it'

But this even holds for the sole core argument of intransitive verbs. Normally such arguments are indexed with nominative case affixes, as they occur on the left edge of the verb where nominative is mandated. However, if they are no longer there because a modal prefix such as *ta-* NEG usurps that position, they now appear in ergative case. Compare these examples:

(12) (a) *ama-wa-t*
1SG.NOM-go-PFV
'I went'

(b) *ta-ka-wa-t*
NEG-1SG.ERG-go-PFV
'I didn't go'

The grammatical relation of object is much less easy to establish than subject; there are few grammatical properties that accrue exclusively to objects. One is that it is the most restricted of all three core grammatical relations according to indexing by case: for local persons it must be realized by an accusative prefix, even if on the left edge, as in (13a); and for the non-local third person, it must be realized by a nominative case affix (13b). No variation is allowed, in marked contrast to subject and object$_{\theta}$.

(13) (a) *(ama) kul-cpul*
1SG 2PL.ACC-hit
'I hit you (PL)'

(b) *pu-ka-tpul*
3PL.NOM-1SG.ERG-hit
'I hit them (PL)'

There is also one construction that is diagnostic of the grammatical function object. This shows up in modally inflected verb forms such as negated verbs as well as those in finite relative clauses, all of which share the property of a verb initial prefix that usurps the position of an erstwhile nominative case index. Here I will illustrate with *ta-* NEG. This modal prefix on usurping its position forces the nominative index to migrate to the right edge of the verb:

(14) (a) *impa-ka-tay*
3DL.NOM-1SG.ERG-see
'I saw them (DL)'

(b) *ta-ka-tay-c-rm*
NEG-1SG.ERG-see-PFV-3DL.NOM
'I didn't see them (DL)'

When the number of a third person subject is singular, there is no overt nominative index in negative verbs (the prefix *pu-* in (16b), homophonous with the third person plural nominative index, but neutralized for number and to a lesser extent person, has a complex distribution in negated verbs not relevant here):

(15) (a) *ta-ŋa-tay*
NEG-1SG.ACC-see
'he didn't see me'

(b) *ta-pu-nan-tay*
NEG-2/3-2SG.ACC-see
'he didn't see you (SG)'

(c) *ta-pu-wa-t*
NEG-2/3-go-PFV
'he didn't go'

But when the number of a third person **object** is singular, the verb takes an overt and distinctive nominative index *–(n)ak* at the right edge; compare the examples in (16) with those of (15):

(16) (a) *ta-ka-tay-c-ak*
NEG-1SG.ERG-see-PFV-3.SG.NOM.**OBJ**
'I didn't see him'

(b) *ta-pu-n-tay-c-ak*
NEG-2/3-2SG.ERG-see-PFV-3SG.NOM.**OBJ**
'you (SG) didn't see him'

This contrast only holds in the singular number; the other numbers employ a right edge nominative index neutralized for grammatical function:

(17) (a) *ta-ka-tay-c-um*
NEG-1SG.ERG-see-PFV-3PL.NOM
'I didn't see them (PL)'

(b) *ta-ŋa-tay-c-um*
NEG-1SG.ACC-see-PFV-3PL.NOM
'they (PL) didn't see me'

The grammatical function object$_\theta$, like subject, has a unique indexical signature; it and only it can be realized by a dative case suffix. While an object$_\theta$ need not be realized by a dative affix, accusative and nominative are alternatives under various conditions, it is the only grammatical function which **can** be realized by a dative index. There are also two constructions that target object$_\theta$: possessor raising and applicatives. In possessor raising, the animate possessor of an undergoer argument is realized not as an overt genitive possessor of the undergoer within an NP, but rather as a core argument of the verb as object$_\theta$; the semantic relation between the possessor and the undergoer is typically inalienable, such as body parts, or highly intimate, such as names, voice or even parasitic insects! Consider these examples:

(18) (a) *ŋarwa* *wa-kwalca-r-akn*
penis.IX.SG IX.SG.NOM-rise-PFV-3SG.DAT
'he has an erection'

(b) **ŋarwa* *wa-na-kwalca-t*
penis.IX.SG IX.SG.NOM-3SG.NOM-rise-PFV
'he has an erection'

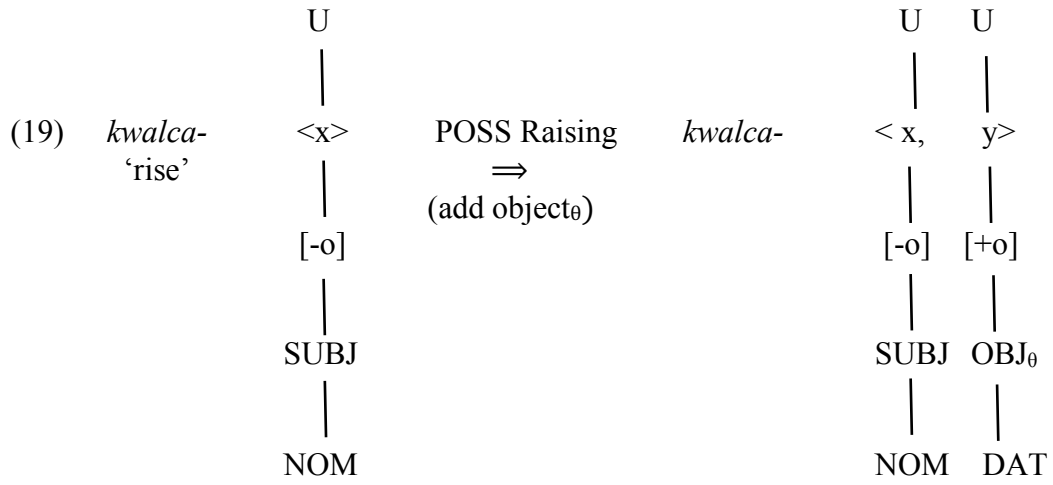
(c) *maŋkaŋkl* *kla-kpa-ŋkl-c-ntuk-nakn*
arm.VI.DL VI.DL.NOM-big-VI.DL-become-RM.PAST-3SG.DAT
'his arms have become big'

(d) *naŋkun* *na-ka-tu-r-akn*
mosquito.V.SG V.SG.NOM-1SG.ERG-kill-PFV-3SG.DAT
'I killed the mosquito on her'

(e) *ta-mpu-ant-kia-k-nak-mpwi*
NEG-3PL.ERG-hear-NIGHT-IRR-3SG.DAT-talk.NOM
'he didn't listen to her plea'

The verbs in (18a, c) are monovalent, while those in (18d, e) are bivalent, but in all cases, the raised possessor is indexed as a core argument by a dative suffix. A nominative variant as in (18b) is completely ungrammatical here, as double nominatives are never permitted. It isn't that possessor raising adds a new lower ranked argument to the argument structure of the verb, but rather it adds an object$_\theta$, which must for third person be realized by a dative indexing suffix. The derivation for (18a) is (19). I follow Alsina (1996) in permitting multiple non Actor macroroles in a clause, and employing U instead of Proto-Patient, using the Undergoer terminology of Role and Reference Grammar (Foley and van Valin 1984; van Valin 2005) in preference to that of Dowty (1991)):

(19)



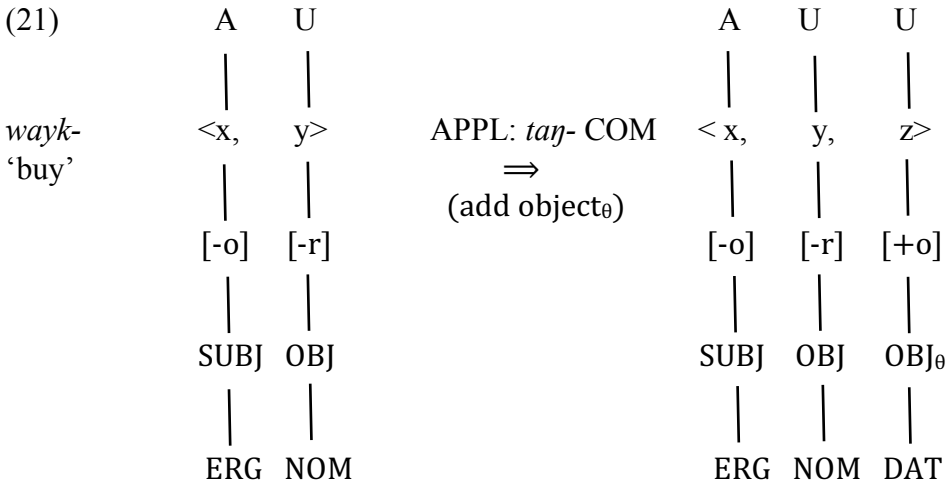
Applicative constructions parallel possessor raising; whenever a bivalent verb undergoes applicativization, the added argument is realized as an object$_\theta$, i.e. a dative suffix if the referent is third person. Yimas has a rich system of applicatives, with six distinct applicative morphemes of quite specific semantics and usages, a fact totally in keeping with the [+r] default specification of object$_\theta$. For fuller discussion of Yimas applicatives, see Foley (1991, 1997); here I will only illustrate with the applicative prefix *taŋ-* COM, which introduces comitative core arguments or benefactives where the beneficiary is co-present with the actor of the action (when the beneficiary is not co-present, a different applicative affix *-ŋa* BEN, homophonous with but distinct from the verb root 'give', is used):

(20) (a) *ura-kay-taŋ-ntak-mpi-ɲa-ntuk-mpun*
IX.PL.NOM-1PL.ERG-COM-leave-SEQ-stay-RM.PAST-3PL.DAT
'we (PL) left them (pieces of coconut) with them (PL)'

(b) *Mitchell* *kat*
PN card.V.PL
ya-ka-taŋ-wayk-r-akn
V.PL.NOM-1SG.ERG-COM-buy-RM.PAST-3SG.DAT
'I bought the (pack of) cards for Mitchell'

The derivation for (20b) is as follows:

(21)



Because of Functional Uniqueness (Bresnan, Asudeh, Toivonen and Wechsler 2016) trivalent verbs can never be derived with applicatives, as that would result in two object$_\theta$ grammatical functions in violation of that constraint. Hence (22a) is ungrammatical and the only way to say this is with (22b) in which the beneficiary participant is realized with an obliquely marking postposition *nampan* 'toward, for, because of':

(22) (a) **anti* *i-ka-pul-ŋa-r-ak-mpun*
earth.VIII.SG VIII.NOM-1SG.ERG-rub-BEN-PFV-3SG.DAT-3PL.DAT
'I rubbed dirt on him for them (PL)'

(b) *anti* *i-ka-pul-c-akn*
earth.VIII VIII.SG.NOM-1SG.ERG-rub-PFV-3SG. DST
mpu-nampan
3PL-for
'I rubbed dirt on him for them (PL)'

In line with Kibort (2007, 2008), I propose the following inventory of possible grammatical functions available to a base verb with their varying case realizations:

	<arg$_1$	arg$_2$	arg$_3$	arg$_4$ …	arg$_n$>
intrinsic	[-o]	[-r]	[+o]	[-o]	[-o]
default	[-r]	[+o]	[+r]	[-r]	[-r]
GF	SUBJ	OBJ	OBJ$_\theta$	OBL	OBL
CASE	all: ERG~NOM	1/2:ACC 3:NOM	1/2:ACC 3:DAT~NOM	Flag: *-n~-nan*	Flag: *-n~-nan*

Table 3: Grammatical Functions and Case Assignments in Yimas

Note following Kibort (2007, 2008) that object$_\theta$ outranks oblique in this hierarchy in contrast to the standard mapping theory of Bresnan, Asudeh, Toivonen and Wechsler (2016) and Börjars, Nordlinger and Sadler (2019). Further note that it is a hierarchy of increasing obliqueness as we move down the hierarchy from left to right, pretty much in a common sense

of oblique as 'to the side, slanting way'. Generally, the more to the left a grammatical function, the more the likelihood of its pronominal index to occur in a position closer to the verb complex, either derived or basic. At the far right, oblique participants are truly most off to the side and peripheral, as they are not available at all to be marked by pronominal indexation on the verb. Object$_\theta$ is the next most oblique grammatical function, as they typically occur in final position in the verb and further most of the them end in *-n,* transparently the oblique suffix diachronically, though no longer synchronically in these forms. These dative suffixes clearly were former obliquely inflected independent pronouns which have now been absorbed into the verbal complex. The object grammatical function is more oblique than the subject because almost no syntactic properties accrue to it; it is largely syntactically inert in contrast to the much more syntactically potent subject. Also, in one situation (16), its pronominal index occurs in verb final position, while the corresponding subject does not (15).

One question that Table 3 brings up concerns the alternation for person between accusative and dative for object$_\theta$ (the nominative alternation will be treated in section 4). The local persons when functioning as object$_\theta$ are realized in accusative case, while the non-local third person is realized in dative case. Could this alternation be one of dative shift as presented in Kibort (2008)? One way this Yimas alternation differs from standard dative shift is that it is obligatory for the local persons, while dative shift is normally viewed as a facultative alternation. So is passive in many languages, but in some languages like the Salish language Lummi (Aissen 1999; Bresnan, Dingare and Manning 2001) and the Tanoan language Picurís (Klaiman 1991; Mithun 1999; Zaharlick 1982), passive is obligatory if the referent of object function is a local person, just like dative shift would be here in Yimas when the object$_\theta$ is a local person. Kibort (2008) argues that the canonical non-shifted dative construction has the following structure, where **b** denotes the recipient/beneficiary, i.e. dative participant:

(23)

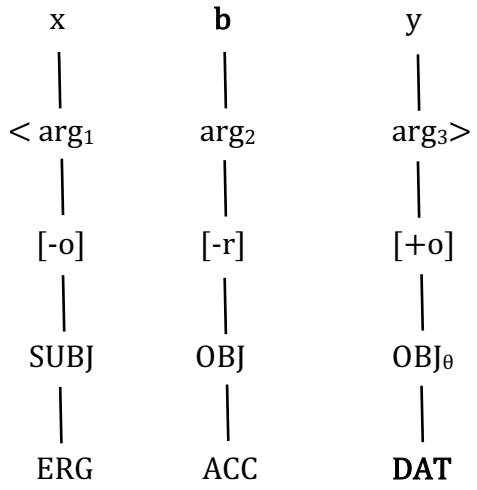
x	y	**b**
< arg$_1$	arg$_2$	arg$_3$ >
[-o]	[-r]	[+o]
SUBJ	OBJ	OBJ$_\theta$
ERG	NOM	DAT

(23) straightforwardly accounts for ditransitive verbs with a third person object$_\theta$ as in (24):

(24) *patn* *na-ka-ŋa-r-mpun*
betelnut.V.SG V.SG.NOM-1SG.ERG-give-PFV-3PL.DAT
'I gave the betelnut to them (PL)'

The structure Kibort (2008) proposes for the dative shifted construction is (25):

(25)



But this analysis makes an incorrect prediction for Yimas. The theme argument y if third person should under this analysis be realized in dative case as befits an object$_{\theta}$. But it is not: in (23) and (24), it remains in nominative case, either prefixally in (26a) or in a modally inflected verb suffixally (26b):

(26) (a) *patn* *na-mpu-kra-ŋa-t*
betelnut.V.SG V.SG.NOM-3PL.ERG-1PL.ACC-give-PFV
'they (PL) gave us (PL) the betelnut'

(b) *knŋ* *ŋa-ŋa-ya-k(a)-awt-mpi-ŋa-na-ŋ*
leaf_spine.VI.SG. IMP-1SG.ACC-come-SEQ-get-SEQ-give-IMP-VI.SG.NOM
'come and get and give me the leaf spine'

Hence the evidence disfavors a dative shift analysis for the dative to accusative alternation for object$_{\theta}$. The analysis in the following section will be able to account for this pattern successfully.

4. Accounting for case alternations of Yimas grammatical functions: the direct-inverse system

I assume here Ackerman and Moore's (2001) representation for the lexical entries of verbs and their appropriation of Dowty's notion of macro-roles. But I again adopt the Role and Reference Grammar (Foley and van Valin 1984; van Valin 2005) terms for these macro-roles, Actor (A) and Undergoer (U), rather than the Proto-Agent and Proto-Patient of Dowty (1991), but his interpretation of them rather than their reification as syntactico-semantic primitives in Role and Reference Grammar. A canonical bivalent verb's basic lexical entry has the following structure:

(27)

	A	U	macro-roles
Verb	< x	y >	valence
	[-o]	[-r]	intrinsic features
	SUBJ	OBJ	GFs

The macro-roles A and U are assigned in the familiar way from Dowty's (1991) work: by determining which semantic properties for A and U arguments x and y entail. However, rather than having two separate scales for A and U, they are combined into one, with prototypical A properties at the top and preference for A selection descending and less prototypical from there, while prototypical U properties commence at the bottom and preference for U selection ascends and is less prototypical from there. A and U selection preferences meet and overlap in the middle. This is the schema for macro-role assignment presented in Foley and van Valin (1984) and its framework mirrors closely that for split ergative case marking proposed in Silverstein (1976) and Dixon (1994). From the macro-roles and valence of a verb is assigned intrinsic features, employing either those of Lexical Mapping Theory or the role ranking features of Kiparsky (1987, 1988), and from that, the grammatical function and canonical case in Yimas realizing that function. Figure 1 illustrates the system. The notations [+/-hr] and [+/-lr] refer to the highest and lowest role respectively in the sense of Kiparsky (1987, 1988). For a canonical transitive verb, the [+hr] will be the Actor and the [+lr] will be the Undergoer. For a three argument ditransitive verb, the third dative argument is neither the highest nor lowest role and hence assigned [-hr/-lr].

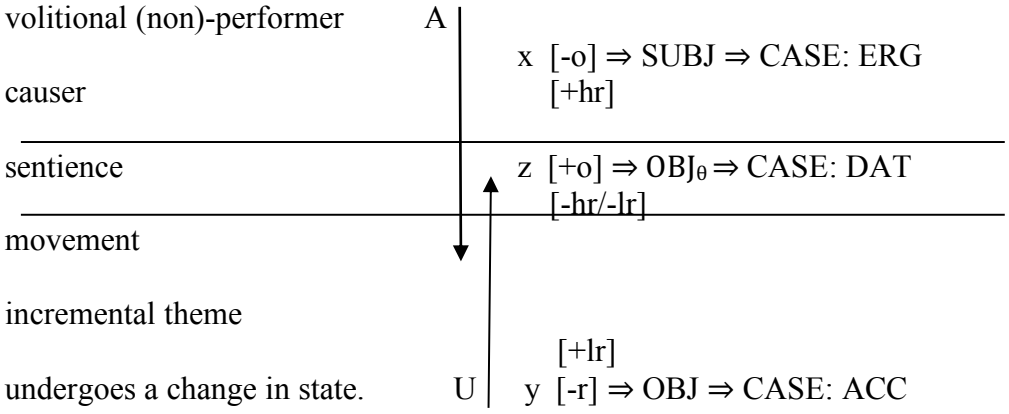


Figure 1: Canonical Case Assignment for Yimas Verbs

The claim is that if no other constraints apply, a Yimas verb would surface with exactly the case marking indexing generated by Figure 1. However, this almost never actually occurs because there are additional constraints that determine the final output. They are:

1. The Prominence Constraint. More prominent pronominal indexes occur closer to the verbal complex than less prominent ones.

2. The Person-animacy Hierarchy:

first person > second person > third human > third animate > third inanimate

3. The Case Hierarchy:

ACC > ERG > DAT > NOM > OBL

Normally nominative and dative indexes occur on different sides of the verbal complex, prefixes and suffixes respectively. However, in many modally inflected verbs, they both occur as suffixes, and the dative index is closer to the verbal complex than the nominative, establishing the ranking of DAT > NOM:

(28) *na-ŋa-mpa-na-ŋkan-mpan-ra* *amtra*
IMP.PL-give-IMM-IMP-PC-3PL.DAT-V.PL.NOM food.V.PL
'you (PC) give them (PL) food now'

4. Oblig (NOM). If a verb bears any index, there must be a nominative present and it must be on the absolute periphery of the verb, either the left or right edge of the verb depending on mood or modality.

5. Ident (ACC). The only exception to OBLIG (NOM) concerns the accusative indexes; as the highest ranked case, they can never be realized as anything other than accusative and further must be realized as a bound index. Hence a Faithfulness constraint for accusative, Ident (ACC), outranks a Markedness constraint, Oblig (NOM): Ident (ACC) > Oblig (NOM).

It needs to be pointed that contrary to the usual framework of Optimality Theory, none of these constraints of Yimas are here claimed to be universal. The strongest candidate is Oblig (NOM), although it would probably need to be restated as verbs always require an argument marked with nominative case to cover languages lacking indexing. This would of course require all erstwhile absolutive case in ergative languages to be reanalyzed as nominative. Other problematic languages would be stative active ones such as Pawnee or Mohawk in which verbs are inflected with either agentive or patientive affixes; which would be the putative nominative affix there is not obvious. Perhaps another candidate would be Person, except that in some languages such as those of the Algonkian family second person outranks first person. Others are clearly very language specific. In fact, I suspect that outside of the Lower Sepik language family, a Case hierarchy in which ACC outranks all other cases and another constraint Ident (ACC) that requires its bound realization are probably quite rare.

To see how this all works, consider first a simple ditransitive verb with only third person participants, such as (29), represented as (30):

(29) *numpran* *na-mpu-ŋa-r-akn*
pig.III.SG III.SG.NOM-3PL.ERG.-give-PFV-3SG.DAT
'they (PL) gave the pork to him'

(30)

		A	U	U
ŋa-	<	x	y	z >
‘give’		[-o]	[-r]	[+o]
		SUBJ	OBJ	OBJ_θ
		ERG	ACC	DAT
		(*mpu-)*	⇩	(*-(n)akn)*
			NOM	
			(*na-)*	

If (30) were realized with the canonical cases set out in Figure 1, it would violate constraint NOM. Further looking back at the system of indexes for non-local third persons in Table 2, note there are no accusative indexes for third person, the contrast is ergative-nominative-dative, so the only option is for the object to be realized with a nominative index. Note also the order of the two prefixes is NOM-ERG, with the ergative closer to the verb root, satisfying both the Prominence Constraint and the Case Hierarchy. If the theme object was not indexed, leaving only the subject and $object_\theta$ as affixes, the obligatory NOM constraint would still apply, this time forcing the lower ranked dative to convert to nominative and occur on the left edge, with again the order NOM-ERG by Prominence and the Case Hierarchy:

(31) *na-mpu-ŋa-t*
3SG.NOM-3PL.ERG-give-PFV
‘they (DL) gave him (something)’

Now consider cases involving local and non-local participants. First, I will treat the case of direct inflection in ditransitive verbs, in which the local participant is the actor and the non-local is the $object_\theta$ (ditransitive verbs in Yimas do not permit local objects; a sentence like ‘I gave you to them’ is not possible, and various circumlocutions are required, the most straightforward involving the postposition *nampan* ‘toward, for, because of’ exemplified in (22b)). Consider (32a) and its representation in (32b):

(32) (a) *numpran* *na-ka-ŋa-r-akn*
pig.III.SG III.SG.NOM-1SG.ERG-give-PFV-3SG.DAT
‘I gave the pork to him’

(b)

	A	U	U	
ŋa-	< x	y	z	>
'give'	[-o]	[-r]	[+o]	
	SUBJ	OBJ	OBJ_θ	
	ERG	ACC	DAT	
	(*ka-*)	⇩	(*-(n)akn*)	
		NOM		
		(*na-*)		

Again, the third person object must be realized as NOM because third person indexes lack accusative forms. But note that the NOM constraint must precede Prominence because otherwise by the Case Hierarchy the ACC index would need to be closer to the verb root than the ERG, which it clearly is not in (32a). Note that the Person-Animacy Hierarchy and the Case Hierarchy are harmonic in (32): the higher ranked local person is also the higher ranked ERG case, i.e. ERG > NOM.

Now consider the inverse form, in which a non-local participant acts on a local participant, in (33a, b):

(33) (a) *numpran* *na-n-ŋa-ŋa-t*
pig.III.SG III.SG.NOM-3SG.ERG-1SG.ACC-give-PFV
'he gave me the pork'

(b)

	A	U	U	
ŋa-	< x	y	z	>
'give'	[-o]	[-r]	[+o]	
	SUBJ	OBJ	OBJ_θ	
	ERG	ACC	DAT	
	(*n-*)	⇩	⇩	
		NOM	ACC	
		(*na-*)	(*ŋa-*)	

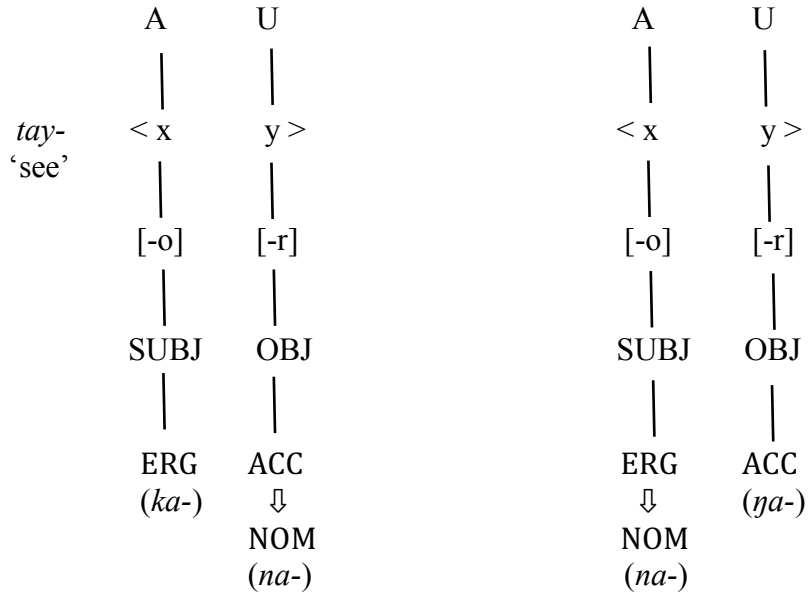
Again, and for the same reason, the theme object appears in nominative case and occurs on the left edge. But an additional complication now accrues to the dative participant. Local persons lack dative indexes. The only non-subject indexes they have are accusative in case, so here the

object$_\theta$ is accusative, the highest ranked case by the Case Hierarchy. Again the Case Hierarchy and the Person-animacy Hierarchy are harmonic: the highest ranked case, accusative is also the highest ranked local person, followed by the next highest case, ergative, a non-local third person human, followed in last place by the lowest ranked case, nominative, a non-local (formerly) animate participant, resulting in the prefixal order we see in (33a): NOM-ERG-ACC.

It is also possible for the normally ergative subject to be realized as nominative. This occurs in inverse forms of monotransitive verbs, when a non-local third person acts on a local person. The local person functioning as object will be in accusative case and by the Case Hierarchy and Person-Animacy Hierarchy closer to the verb root, banishing any ergative subject to the left edge where it must be realized in nominative case. Compare the following direct and inverse forms:

(34) (a) direct
na-ka-tay
3SG.NOM-1SG.ERG-see
'I saw him'

(b) inverse
na-ŋa-tay
3SG.NOM-1SG.ACC-see
'he saw me'



PROM: 1 > 3 ERG > NOM

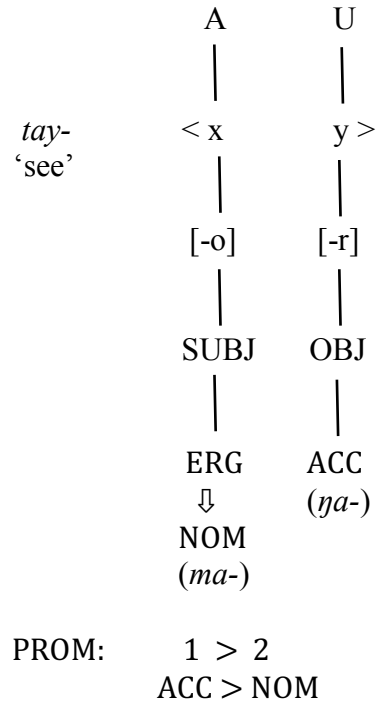
1 > 3 ACC > NOM

Things become somewhat more complicated in cases where two local participants are involved (see Heath (1997) for a crosslinguistic study of the difficulties such configurations pose): second person acting on first or first person acting on second. Let's start with the former case because here the Case Hierarchy and the Person Hierarchy are harmonic: the higher ranked person, first, is also the higher case, accusative. A second person subject acting on a first person object configuration is inverse and inflects like (35):

(35) (a) *ma-ŋa-tay*
2SG.NOM-1SG.ACC-see
'you (SG) saw me'

(b) *ipwa-ŋkra-tay*
2DL.NOM-1DL.ACC-see
you (DL) saw us (DL)'

(b)



PROM: 1 > 2
ACC > NOM

Ditransitive verbs with a second person subject and a first person object$_\theta$ are more restricted and do not permit indexing of their subject. Only the object and object$_\theta$ can be indexed; the subject if overt must occur as an independent pronoun (36a), so (36b) is ungrammatical:

(36) (a) *ipwa* *makaw* *wa-kra-ŋa-t*
2PL fish_species.IX.SG IX.SG.NOM-1PL.ACC-give-PFV
'you (PL) gave us (PL) makau'

(b) **makaw* *wa-nan-kra-ŋa-t*
makau.IX.SG IX.SG.NOM-2PL.ERG-1PL.ACC-give-PFV

Inverse verbs in which a first person subject acts upon second person object or object$_\theta$ present the greatest challenge, for in this combination the Person-Animacy Hierarchy and the Case Hierarchy are disharmonic. The first person subject is higher ranked by the Person-animacy Hierarchy, but the accusative second person object or object$_\theta$ is higher by the Case Hierarchy. The language resolves this dilemma by an absolute prohibition on overt marking of both persons by individual indexes. If the second person object or object$_\theta$ is singular, this combination is marked by a portmanteau morpheme *mpan-* ~ *kampan-*. This prefix does not indicate the number of the subject, so an independent pronoun can be used to accomplish this; otherwise, first singular is assumed:

(37) (a) *kapa* *kampan-tay*
1DL 1.SUBJ_2SG.OBJ-see
'we (DL) saw you (SG)'

(b) *makaw* *wa-mpan-ŋa-t*
makau.V.SG IX.SG.NOM-1.SUBJ_2SG.OBJ$_\theta$-give-PFV
'I gave you (SG) makau'

If the second person object or object$_\theta$ is non-singular, then it can be indexed, but the first person subject cannot. Here the Case Hierarchy trumps the Person-animacy Hierarchy, because it is the higher ranked accusative object or object$_\theta$ which can be indexed, not the higher ranked person. Normally the two hierarchies are harmonic. The only disharmonic configurations are exemplified by (37) and (38). For the singular second person objects and objects$_\theta$ of (37), the language sidesteps the issue with the portmanteau morpheme *mpan- ~ kampan-,* but in the non-singular numbers, it makes a choice, and it opts for the Case Hierarchy to take priority over the Person-animacy Hierarchy. This again demonstrates the high status the accusative case holds in this language, almost certainly the ultimate source of its inverse typology. As with the examples in (37), number of the subject can only be identified by an independent pronoun, with its lack being taken as singular:

(38) (a) *ŋkul-cay*
2DL.ACC-see
'I saw you (DL)'

(b) *kapa* *makaw* *wa-kul-ŋa-t*
1DL makau.IX.SG IX.SG.NOM-2PL.ACC-give-PFV
'we (DL) gave you (PL) makaw'

The constraints which generate the pronominal indexation on Yimas indicative verbs and presented in this section are listed here:

1. Block. A first person subject index cannot be realized in the presence of a second person non-singular object or object$_\theta$ prefix.
2. Port (1/2SG). If the second person object or object$_\theta$ is singular, it and the first person subject are realized by a portmanteau prefix *kampan- ~ mban.*
3. Ident (ACC). Accusative must always be realized as a bound index.
4. Person. first person > second person > third human > third animate > third inanimate
5. Oblig (NOM). If a verb bears any index, there must be a nominative present and it must be on the absolute periphery of the verb, either the left or right edge of the verb depending on mood or modality.
6. Case. ACC > ERG > DAT > NOM > OBL
7. Prom. More prominent pronominal indexes occur closer to the verbal complex than less prominent ones, and in order of decreasing prominence if more than two prefixes.

These seven constraints are ordered as follows:

(39) Block (ex 38) V Port (1/2SG) (ex 37) > Ident (ACC) (exs 34b, 35a, b, 36a, 38a) > Person (exs 32a, 33a, 34, 35) > Oblig (NOM) (exs 31a, 34b, 35a, b) > Case (exs 38, 29a, 32a, 33a, 34) > Prom (all examples)

I illustrate the operation of these constraints in the evaluation of candidates for (38a) in Table 2:

SUBJ = 1SG.ERG OBJ = 2DL.ACC

PERS: 1 NUM: SG CASE: ERG	PERS: 2 NUM: DL CASE: ACC

	Block	Ident (ACC)	Person	Oblig(NOM)	Case	Prom
ama kapwa V 1SG 2DL		!*				
kapwa ka-V 2DL 1SG.ERG-	!*	!*		*		
kapwa ama-V 2DL 1SG.NOM-	!*	!*				
ka-ŋkul-V 1SG.ERG-2DL.ACC-	!*		*	*		
ŋkul-ka-V 2DL.ACC-1SG.ERG-	!*			*	*	
ama-ŋkul-V 1SG.NOM-2DL.ACC-	!*		*			
ŋkul-ama-V 2DL.ACC-1SG.NOM-	!*			*	*	
☞ *ŋkul-V* 2DL.ACC-			*	*		

Table 2: Constraint Evaluation of Example (38a)

5. Conclusion

Direct-inverse systems represent a rather unusual type for the expression of grammatical relations, and while attested on all continents, they are mostly restricted to heavily head marking languages. They also as a class exhibit great typological diversity, for the direct-inverse system described here for Yimas is quite different from those of Algonkian languages. Most languages have some version of the Person constraint, but that does not make them direct-inverse languages. What seems crucial to direct-inverse systems of the type exemplified by Yimas and other languages of the Lower Sepik family, is the Case constraint, and a particular instantiation of this which ranks an ACC [+lr] or [-r] argument over an ERG or NOM [+hr] or

[-o] argument. This seems counterintuitive, and in fact in many other areas of Yimas morphosyntax, e.g nominalization and control, the [+hr]/[-o] does outrank the [+lr]/[-r]. But for purposes of the morphological expression of arguments by indexing, it is indeed the situation that the [+lr]/[-r] outranks the [+hr]/[-o], and it is this which determines in particular the inverse alignment. Our grammatical theories, whether formal or functional, have largely assumed, or explicitly posited as universal, a ranking of actor > undergoer, or rephrased in the terms used here, [+hr]/[-o] > [+lr]/[-r], but these data from Yimas demonstrate that such a ranking cannot be universally upheld, at least not for all aspects of the morphosyntax of languages, as indeed data from deeply ergative languages like Dyirbal or Mam also challenge this ranking. These Yimas data and rara from other 'exotic' languages show that our theorizing needs greater nuancing, not only to account for the typological diversity across the languages of the world, but also for the variable principles of grammar that differ across constructions within a single language. Data from exotic corners of the world such as this small and now vanishing language of New Guinea are essential to such a task, but, unfortunately, these are fast disappearing before our very eyes. Sadly, Yimas is already very moribund, and will certainly no longer be spoken in the near future. Who knows what other wonders await us in the jungles of New Guinea or the Amazon, but these treasures may be lost before we stumble upon them.

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