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TAM splits in conditional argument indexing

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A common type of split ergativity is conditioned by tense and/or aspect in that an ergative-absolutive system occurs in the past tense or perfective aspect and a nominative-accusative system occurs in the non-past tense(s) or imperfective aspect (DeLancey 1982, Payne 2006). This finding, however, pertains to case marking only. Using a genetically diverse typological sample on conditional argument indexing in 83 languages (Walker 2024, Walker & Van Lier under review), the present study explores if a similar tendency can be found for indexing. Within the database, 22 languages display indexing conditioned by TAM (tense, aspect, mood) factors. Across 17 languages, a clear trend regarding aspect and indexing was found: imperfective, progressive, and non-completive aspect condition a nominative-accusative system while perfective, terminative, and completive aspect condition an ergative-absolutive system. For tense and mood, however, no such clear relationship was found. For the remaining 5 languages, the TAM split applied to a specific person/number value only. We conclude that for aspect, but not for tense and mood, our findings correspond with previous literature on split-ergativity in case marking.

Keywords: typology, alignment, argument indexing, split ergativity, TAMEP, tense, aspect

1. Introduction

Indexing and case marking are both means by which languages can mark arguments (Payne 2006). The core arguments are S, A, and P: S being the "sole argument of an intransitive verb", A being the "most actor-like argument in a transitive verb", and P being the "not most actor-like argument in a transitive verb" (Bickel 2010: 3). These core arguments and their coding patterns enter into alignment patterns: if S and A align in a language, we speak of a nominative-accusative system (and/or a subject relation). If, conversely, S and P align in a language, we speak of

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an ergative-absolutive system. Alternatively, S, A, and P can all either receive the same marking (including zero-marking), which is called a neutral system, or they can all be marked differently from one another, which is called a tripartite system (Payne 2006).

Often, however, such alignment systems are further 'complicated' by splits, i.e. a language displays different alignment patterns depending on specific conditions. Related to this is the notion of Differential Argument Marking (DAM), which is broadly defined by Seržant and Witzlack-Makarevich (2018: 3) as "any kind of situation where an argument of a predicate bearing the same generalized semantic argument role may be coded in different ways, depending on factors other than the argument role itself, and which is not licensed by diathesis alternations". Such splits or differential argument marking can happen on the basis of a wide variety of factors or conditions. Following the framework of Seržant and Witzlack-Makarevich (2018), these conditions may relate to properties of the argument (including intrinsic semantic properties, like person and animacy, and discourse-dependent properties like definiteness and topicality) or to the predicate. This paper focuses on the latter, in particular on conditions based on tense, aspect, mood (TAM) as well as evidentiality and polarity, jointly referred to as TAMEP.

A well-known form of split alignment in case marking — also called 'flagging' to include adpositional marking (Haspelmath 2019) — is split ergativity based on tense and/or aspect. Split ergativity is a term that denotes a split between an ergative-absolutive system on the one hand and a nominative-accusative on the other (Dixon 1994). In languages with case marking and tense/aspect-based split ergativity, the distribution of TAM values and alignment type shows a clear tendency, such that the ergative-absolutive system occurs in the past tense(s) or perfective aspect, while the nominative-accusative system occurs in the non-past tense(s) or imperfective aspect (Payne 2006: 227, cf. DeLancey 1982).

Case marking, is however just one side of the coin.[1] As mentioned above, argument marking can also be achieved through indexing on the predicate. Currently, the question of whether the generalizations regarding tense/aspect-based split ergativity also apply to indexing has been left unanswered.

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1. One possible reason why case marking (or flagging) has been more prominent in this type of research relates to the functional explanation that has traditionally been offered to account for tense/aspect-based split ergativity, namely that present/imperfective focuses on agentivity and hence increases the semantic similarity of S and A (mirrored by their alignment), whereas past/perfective highlights the effect of the event, enhancing similarity of S and P instead. Perhaps, this functional explanation connects more straightforwardly to the primary function of flagging, to express semantic roles, rather than to the supposed primary function of indexing, to track (prominent) referents in discourse.

A first step towards answering this question is found in the work of Walker (2024) and Walker and Van Lier (under review), in which the authors offer a typological overview of conditional indexing.[2] Conditional indexing "refers to a system in which a particular argument is not indexed, or is indexed differently (i.e., with an index from a different paradigm) under certain conditions" (Walker 2024: 20). Walker and Van Lier use a genealogically diverse sample of 83 languages.[3] All of these languages exhibit conditional indexing for at least one of their core arguments: S, A, and/or P. For each of the attested conditional indexing systems, Walker and Van Lier code the relevant condition types and their specific values.

As mentioned above, conditions on indexing can relate to the (indexed) argument or to the predicate. Predicate-based conditions may include those based on tense, aspect, mood, evidentiality and/or polarity ('TAMEP conditions' for short). Walker and Van Lier show that TAMEP conditions are among the three most frequently attested condition types, together with conditions based on referential properties of the indexed argument and lexical conditions (i.e., conditions based on verb classes). Also, such conditions are more strongly associated with S- and A-indexing systems than with P-indexing systems. Finally, the study shows that the majority of conditional indexing systems are multiconditional, i.e., the distribution of indexing is dependent on a combination of multiple conditions. Importantly, Walker and Van Lier considered argument roles (S, A, and P) separately, that is, no alignment information was recorded. The reconstruction of such alignment information is (partly) the aim of the present study. In particular, this study attempts to map what kind of indexing alignment systems (i.e., nominative-accusative, ergative-absolutive, neutral, or tripartite) are triggered by what TAMEP values. Thus, we address the following research questions:

- *Typologically, how do TAMEP factors condition alignment splits in terms of indexing?*
- *Does the common type of split-ergativity found in case marking pertaining to tense and aspect also apply to indexing? (i.e., past tense and/or perfective aspect triggering an ergative-absolutive system and non-past tense(s) and/or imperfective aspect triggering a nominative-accusative system.)*

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2. These authors introduce the term 'conditional indexing' to include a wide variety of distinct condition types; wider than conditions based on referential properties of the indexed arguments, which is typically done in earlier studies on 'differential argument indexing' or DAI, as a subtype of DAM as defined above.

3. The sample is based on the open access typological database AutoTyp (Bickel & al. 2022). See also Walker 2024 for details on the makeup of this sample.

The rest of the paper is built up as follows: Section 2 outlines the method; we present the materials, inclusion and exclusion criteria, and the analysis steps. Section 3 contains the results, which are then discussed in Section 4.

2. Data and method

The materials and data consulted for the present paper are all based on Walker and Van Lier's conditional indexing sample (Walker 2024, Walker & Van Lier, under review).[4]

First, the sample was filtered to find all languages that show indexing conditioned by any, or a combination of, TAMEP factor(s). Languages in which indexing is conditioned by polarity *only* were excluded. A second screening of the resultant dataset took the following exclusion criteria into account:

Languages showing an indexing split amounting to a "paradigmatic zero" were excluded. An example of this is the indexing system of Armenian. In the present, the durative perfect, and in the dynamic future, the 3SG S and A are indexed with a zero. Strictly speaking, this results in neutral alignment, since P is never indexed in Armenian. However, rather than saying that Armenian shows neutral alignment for the 3SG of these tense values (as opposed to nominative-accusative alignment elsewhere), we say that these (non-)indexes are paradigmatic zeroes. The reason for this is that for these same tense values, other person/number combinations get a different suffix. In other words, the zero indexing for 3SG S and A is simply part of a paradigm.

Languages in which a split in indexing conditioned by (a) TAMEP factor(s) only occurs within a specific person/number combination were analyzed separately. An example of this is Yauyos Quecha. In Yauyos Quecha, just as in Armenian, P is never indexed as opposed to S and A, which are indexed the same way. In the simple and narrative past, third-person S and A are indexed with a zero (as opposed to other tense values). The other person values get the same index as they would for tense values other than the simple and narrative past. This shows how the zero in third-person S and A for simple and narrative past is *not* part of a paradigm.

This selection procedure resulted in a set of 22 languages with conditional indexing based on (a) TAMEP factor(s) (among others). This subset was analyzed further, as discussed in the next section.

4. This database is expected to be available open access once the study has been published.

3. Results

First, in Table 1, we present an overview of the relevant sample languages, and the alignment type associated with each TAMEP value.[5] Two things are important to notice: First, the labels for the TAMEP values were adopted directly from the descriptive sources. Below we specify how these labels are categorized with respect to tense/aspectual 'super-categories', in order to check the predictions regarding split-ergativity. Note that, based on existing literature, no clear prediction can be made for mood and polarity regarding the distribution of alignment type.

Table 1. Languages from Walker and Van Lier's study for which indexing is condition by (a) TAMEP factor(s) and the alignment pattern associated with each TAMEP value

	Language	NOM/ACC	ERG/ABS	Neutral	Additional conditions
1.	Alto Perené	NEG.REAL, NEG.IRR	STAT.IPFV, STAT.PFV, PFV, TER		Applies to first and second person only
2.	Anamuxra	AFF, NEG.FUT		NEG.PRS, NEG.PST	–
3.	Awa Pit	NEG, IRR		AFF, REAL	Applies to second and third person only
4.	Cajul Ixil	IPFV	non-IPFV		–
5.	Chechen		non-PROG	PROG	Neutral alignment is only triggered by the bi-absolutive construction with PROG auxiliaries. This is optional for many verbs, though some don't allow it. A is preferably human.
6.	Chol	IPFV (, PFV)	(PFV)		In the PFV, fluid-S verbs pattern with A or with P
7.	Chukchi	active (FUT, non-FUT, PROG)		STAT (PFV)	–
8.	English	non-FUT		FUT	–
9.	Itzá	non-completive	completive		

5. Genealogical information of these 22 languages and the sources Walker and Van Lier based themselves on can be found in the Appendix.

Table 1. *(continued)*

	Language	NOM/ACC	ERG/ABS	Neutral	Additional conditions
10.	Kamang		more affected, end-point focus	less affected	Only applies to verb class 1
11.	Koiari	REAL		IRR	–
12.	Kotiria	realis visual and irrealis		realis non-visual	–
13.	Mbodomo	simple PST, PST.PFV		PRS, FUT	–
14.	Nungon	other		recent PST	Applies to the majority of verbs, partially also conditioned by unknown factors
15.	Oksapmin	other		recent PST	–
16.	Palula	non-PFV	PFV		–
17.	Southern Aymara	non-simple tenses, simple tenses		simple tenses +inferential evidentiality	–

The final column of Table 1 contains additional conditions on indexing in the relevant language. Such conditions can be lexical in nature (i.e., related to specific verb classes), or can be based on person/number features. This table contains only those languages in which the TAMEP split applies to more than one person(/number/gender) value. There are also languages in which TAMEP splits are relevant for a single value; these are discussed separately below.

In English, for example, S and A are, depending on the person/number combination, indexed on the verb for non-future tenses but not for future tenses.[6] As P is never indexed, English exhibits nominative-accusative alignment in the non-future tenses and neutral alignment in the future tenses. Examples 1a and 1b show

6. As an anonymous reviewer pointed out, English has other, periphrastic constructions to express future tense. Since we take our data from Walker and Van Lier's database, and they do not include such periphrastic constructions (other than those based on a single auxiliary plus a lexical verb form), we do not take these into account either.

that in English A, depending on the person/number combination, is indexed in the present tense and that P is not:[7]

(1) a. *He see-**s** them*
3MSG.NOM see.PRS-**3SG** 3PL.ACC
b. *They see him*
3PL.NOM see.PRS 3MSG.ACC

Examples 2a and 2b show that in English both A and P are not indexed in the future tense:

(2) a. *He will see them*
3MSG.NOM FUT.AUX see 3PL.ACC
b. *They will see him*
3PL.NOM FUT.AUX see 3MSG.ACC

Second, we merged all the TAMEP values occurring in Table 1, according to the alignment pattern that is associated with each value. The result is displayed in Table 2.

Table 2. Overview of TAMEP values and the respective alignment pattern(s) they trigger

	NOM/ACC	ERG/ABS	Neutral
Aspect	IPFV, PROG, non-completive, non-PFV	PFV, TER, STAT.PFV, STAT.IPFV, completive, more affected, end-point focus	PROG, STAT (PFV)
Tense	FUT, non-FUT, simple PST		FUT, PRS, recent PST
Mood	IRR, REAL		IRR, REAL
Evidentiality	Visual		Non-visual, inferential
Polarity	AFF, NEG, NEG.REAL, NEG.IRR, NEG.FUT		AFF, NEG.PRS, NEG.PST

The overview in Table 2 shows a clear contrast between aspect and the other factors, (tense, mood, evidentiality,[8] and polarity), as only aspectual values seem

7. English examples are constructed based on the authors' own knowledge.

8. Regarding evidentiality, Kotiria (Tucanoan) and Southern Aymara (Aymaran) suggest that the more 'direct' values of evidentiality (e.g., 'visual' in Kotiria) are associated with nominative-accusative alignment, whereas 'indirect' values ('non-visual' in Kotiria and 'inferential' in Southern Aymara) trigger neutral alignment. However, the evidence is too scarce to draw any conclusions.

to make a clear distinction between the different alignment patterns they condition: The values *imperfective, progressive, non-completive* and *non-perfective* group together as they all were found to trigger nominative-accusative alignment. All four of these language-specific labels straightforwardly qualify as belonging to a general (cross-linguistically applicable) category of imperfective aspect. On the other hand, the values *perfective, terminative, completive, more affected*, and *end-point focus* were all found to trigger ergative-absolutive alignment. These language-specific values are all easily connectable to a general notion of perfective aspect. Hence, the expected pattern is attested, as far as aspect is concerned.

Consider as an example Palula (Indo-European), where non-perfective values (including imperfective) trigger nominative-accusative alignment (Liljegren 2016). Example 3a illustrates how S is indexed for person and number. Example 3b illustrates how A, just like S, is also indexed for person and number, while P is not indexed:

(3) a. *Ak praší phará se b-**éen** de*
INDF slope along 3PL.NOM go.**IPFV-3PL** PST
'They were moving along a slope.' (Liljegren 2016: 292)

b. *So múṛee ǰand-**óo** de*
3MSG.NOM dead.person.PL make.alive.**IPFV-3SG** PST
'He was resurrecting the dead.' (Liljegren 2016: 50)

Perfective aspectual values, however, trigger ergative-absolutive indexing alignment (Liljegren 2016). Example 4a illustrates how S is indexed for gender. Example 4b illustrates how P, just like S, is also indexed for gender, while A is not indexed:

(4) a. *Čhéeli eetáa the gíi de ta*
goat[FSG] there to go.**PFV.F** PST SUB
'The goat had gone there.' (Liljegren 2016: 292)

b. *Taápaṛ-a túuri íṇç-a čhéeli ghašíl-**i** hín-**i***
hill-OBL below bear[MSG]-OBL goat[F] catch.**PFV-F** be.PRS-**F**
'Below the hill, the bear has captured the goat.' (Liljegren 2016: 50)

In contrast to aspect, however, for the other three types of TAMEP factors (tense, mood, and polarity), each value is found to trigger both nominative-accusative alignment as well as neutral. Notably, for these factors, no ergative alignment pattern was found at all, which is unsurprising in light of the overall low frequency of ergative alignment in indexing (see Siewierska 2013). Thus, for the languages in our study, no pattern can be established regarding the relation between the values of tense, mood, and polarity and the indexing alignment type triggered by them.

As mentioned above, for an additional five languages in our sample, TAMEP factors were found to condition a split within a single person/number combination only. Table 3 shows these TAMEP values and the specific person/number combination that is affected per language. Notably, this involves third-person arguments only. It is worth noting that for each of these specific combinations, a certain TAMEP value triggers neutral alignment, as opposed to nominative-accusative alignment.

Table 3. Languages with a TAMEP split for third persons only

	Language	Person/number/ noun.class	NOM/ ACC	Neutral
1.	Gyeli	3.nounclass.A	other	PRS, recent PST*
2.	Ik	3SG	other	REAL
3.	Kakataibo	3	other	IPFV
4.	Udihe	3SG	other	permissive, subjunctive, PFV, conditional
5.	Yauyos Quecha	3	other	simple PST, narrative PST

* optional

Consider as an example Kakataibo (Pano-Tacanan). In this language, where P is never indexed, third-person S/A is indexed when the verb is marked for non-imperfective aspect, but not when the verb is marked for the imperfective aspect (Zariquiey 2018). For the third-person, Kakataibo shows neutral alignment of indexing in imperfective aspect and nominative-accusative alignment in non-imperfective aspect ('other'). Example 5a illustrates how third-person S is indexed on a verb marked for the perfective aspect. Example 5b, on the other hand, shows how third-person S is *not* indexed on a verb marked for the imperfective aspect:

(5) a. *Anu ka pakét-**a**-**x**-a*
there NAR.3 fall.down-**PFV**-**3**-NON.PROX
'He fell down there.' (Zariquiey 2018: 346)

b. *A=kupí ka=is=a atu=x upit-i xukut-**i**-a*
that=REAS NAR=REP=3 3PL=S good-S/A>S peel-**IPFV**-NON.PROX
'It is said that, for that reason, they peel well.' (Zariquiey 2018: 346)

4. Discussion and conclusion

This study set out to study the alignment patterns triggered by TAMEP factors/values in terms of indexing. More specifically, it aimed to test if the general tendency regarding case marking/flagging, tense/aspect, and alignment patterns also holds for indexing: in terms of case marking/flagging, existing literature shows that imperfective aspect and present tense condition nominative-accusative alignment, while perfective aspect and past tense condition ergative-absolutive alignment (DeLancey 1982, Payne 2006).

Out of Walker and Van Lier's conditional indexing sample, 22 languages were found to have indexing conditioned by (a) TAMEP factor(s). Within 17 languages, a clear tendency was found concerning aspect.[9] Aspectual values like imperfective, non-completive, and non-perfective were found to trigger nominative-accusative alignment only, while aspectual values such as perfective, terminative, completive, and end-point focus were found to trigger ergative-absolutive alignment only. This is in line with the tendency found for case marking/flagging. Such a pattern was, however, not found for the other factors (tense, mood, evidentiality, and polarity). Additionally, none of these factors were found to trigger ergative-absolutive alignment. Future studies, based on larger amounts of data, should be conducted in order to further test this preliminary generalization.

In conclusion, this paper contributes to the typology of conditional indexing by looking at the alignment patterns triggered by TAMEP factors. It suggests that the common type of split ergativity that is related to aspect found for case marking/flagging can be extended to indexing: in particular, values belonging to the category of imperfective aspect were associated solely with nominative-accusative alignment, while values belonging to the category of perfective aspect were associated solely with ergative-absolutive alignment. Unlike for case marking/flagging, tense did not trigger the expected association between values associated with present versus past tense and nominative-accusative versus ergative-absolutive alignment of indexing.

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9. For the remaining five languages, the conditional indexing pertains to a specific combination of person (and number) only (e.g., only for third person, as in Kakataibo) (see Section 3).

Abbreviations

In addition to the glosses included in the Leipzig glossing rules, we have used the following abbreviations:

AFF	affirmative
NAR	narrative register
NON.PROX	non-proximal to the addressee
REAL	realis
REAS	reason
STAT	stative
SUB	subordinator
TER	terminative

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Appendix

The table below presents a list of the 22 languages that were included in the present study. For each language, its genetic information is listed (Glottolog Ancestry (3 levels)) as well as the source(s) used.

Language	Genetic information	Source(s) used
Alto Perené	Arawakan > Southern Maipuran > Kampa-Amuesha	Mihas (2015)
Anamuxra	Nuclear Trans New Guinea > Madang > Kalamic-South Adelbert	Ingram (2001)
Awa Pit	Barbacoan > Awa-Southern Barbacoan	Curnow (1997)
Cajul Ixil	Mayan > Core Mayan > Quichean Mamean	Adell (2019)
Chechen	Nakh-Daghestanian > Nakh > Chechen-Ingush	Komen, Molochieva & Nichols (2021); Molochieva, Faghiri & Van Lier (2022)
Chol	Mayan > Core Mayan > Western Mayan	Álvarez (2011)
Chukchi	Chukotko-Kamchatkan > Chukotian	Dunn (1999)
English	Indo-European > Classical Indo European > Germanic	Huddleston & Pullum (2002)
Gyeli	Atlantic-Congo > Volta-Congo > Benue-Congo	Grimm (2021)
Ik	Kuliak	Schrock (2014)
Itzá	Mayan > Core Mayan > Yucatecan	Hofling (2000)
Kakataibo	Pano-Tacanan > Panoan > Mainline Pano	Zariquiey (2018)
Kamang	Timor-Alor-Pantar > Alor-Pantar > Nuclear Alor-Pantar	Schapper (2014); Fedden et al. (2013); Fedden et al. (2014)
Koiari	Koiarian > Koiaric > Koita-Koiari	Dutton (2003)

Appendix. *(continued)*

Language	Genetic information	Source(s) used
Kotiria	Tucanoan > Eastern Tucanoan > Eastern Eastern Tucanoan	Stenzel (2013); Stenzel (2015)
Mbodomo	Atlantic-Congo > Volta-Congo > North Volta-Congo	Boyd (1997)
Nungon	Nuclear Trans New Guinea > Finisterre-Huon > Finisterre Saruwaged	Sarvasy (2017)
Oksapmin	Nuclear Trans New Guinea > Asmat Awyu-Ok > Awyu-Ok	Loughnane (2009)
Palula	Indo-European > Classical Indo European > Indo-Iranian	Liljegren (2016)
Southern Aymara	Aymaran > Central-Southern Aymara	Coler (2014)
Udihe	Tungusic > Northeastern Tungusic > Central-Eastern Tungusic	Nikolaeva & Tolskaya (2001)
Yauyos Quecha	Quechuan > Quechua I > Yauyosic	Shimelman (2017)

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