Ilja A. Seržant*, Sergey Say, Andreas Hölzl, Aigul Zakirova, Xinyi Gao and Andreas Pregla

A typology of positional differential argument marking

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Abstract: In this paper, we introduce the notion of positional differential argument marking, a pattern in which the use of argument-coding devices, such as flags or indexes, is contingent upon the linear position of arguments in the clause. Compared to factors such as animacy and referentiality, the impact of word order on differential argument marking is understudied. In order to fill this gap, we compiled and annotated a dataset of 93 PDAM patterns, identified in a genealogically and areally diverse convenience sample of 70 languages. Most patterns involve a competition between a default, or zero, form and a non-zero form, but word order was found to affect argument indexing and argument flagging in a non-identical way. Non-zero indexing is more likely in the case of preverbal arguments. Non-zero flagging is favored in verb-edge orders and also when the argument is used in a non-default position. We hypothesize that this distinction reflects avoiding higher costs in processing referents in the discourse in the case of indexing, but more efficient comprehension of the clause in the case of flagging.

Keywords: differential marking; word order; argument marking

1 Introduction

This paper examines changes in argument marking—understood as the combination of flagging and/or indexing—that accompany alternations in word order. A flag is "a bound form that occurs on a nominal and that indicates the semantic or syntactic role of the nominal with respect to a verb (in a clause) or with respect to a possessed

***Corresponding author: Ilja A. Seržant [ɪlʲja sʲɪrʐant]**, Institute of Slavic Studies, University of Potsdam, Potsdam, Germany, E-mail: ilja.serzant@uni-potsdam.de
Sergey Say [sʲɪrʲgʲej saj] and Aigul Zakirova [ai̯ʲgulʲ zɐˈkʲirəvə], Institute of Slavic Studies, University of Potsdam, Potsdam, Germany. https://orcid.org/0000-0001-8066-9166 (S. Say)
Andreas Hölzl [ʔanˈdʁeːas ˈhœltsʰl̩] and Andreas Pregla [ʔanˈdʁeːas pχeːgla], Department of Linguistics, University of Potsdam, Potsdam, Germany
Xinyi Gao [kɑʊ˨˩ɛɪn˨˩í˥], Centre de recherches linguistiques sur l'Asie orientale, École des hautes études en sciences sociales, Paris, France

noun (in a complex nominal)." (Haspelmath 2019: 96). A person index is "a bound form denoting a speech role or a highly accessible third person referent that occurs on a verb <...> to indicate a verb's argument, or on a noun to indicate its possessor." (Haspelmath 2019: 96). We focus on positional differential argument marking (PDAM), defined in (1).

(1) **Definition of the positional differential argument marking**
By positional differential argument marking we refer to a situation when two word order patterns are possible in a particular clause and both word order patterns allow for the same (pro)nominal elements with the same semantic roles, but one of the two word order patterns requires a specific argument-coding strategy (involving indexing, flagging, any combination of these, or no marking), whereas the other requires or permits a different argument-coding strategy. This excludes any valency-changing operations.

With the definition in (1), we remain agnostic with respect to the direction of the causal link between the two dimensions, viz. word order and indexing/flagging. For practical purposes, we will present word order as a conditioning factor and the observed differences in the use of flags and indexes as an outcome. This will put word order in a wider perspective of factors affecting the choice between argument-coding devices. However, some of the PDAM patterns have been or can be analyzed in a different perspective, whereby differently coded arguments display non-identical constraints on their linear position.

Differential argument marking at large is known to be a pervasive typological phenomenon: languages generally tend to avoid across-the-board marking of P arguments (Sinnemäki 2014) and, more generally, of core arguments (Haspelmath 2021); sometimes languages also display non-uniform encoding of some non-argumental NPs (Stolz et al. 2014, 2006). This said, PDAM is a special and arguably underdescribed subtype of differential marking. Differential marking is known to be mostly constrained by various types of "prominence" scales such as the animacy, definiteness, and topicality scales (Aissen 2003; Dalrymple and Nikolaeva 2011; Witzlack-Makarevich and Seržant 2018). By contrast, word order is only rarely mentioned in typological studies as a direct constraint on differential argument marking (e.g. in Haig 2018: 790; Sinnemäki 2014).[1] For example, in his extensive discussion of alignment splits, Dixon (1994: 70–110) mentions a large array of attested

1 In the generative literature, many authors posit that marked objects in DOM necessarily involve "movement" of the object as reflected by word order (cf. Bárány and Kalin 2020 for an overview). However, these studies rely on theory-internal definitions and do not provide a typological overview. The typology presented here thus also bears on predictions within generative theory not elaborated further here.

factors such as tense-aspect-mood and semantic properties of arguments, but not word order (an exception is Derbyshire 1987 for Amazonian languages). This conditioning factor is also only indirectly mentioned – via information structure – in the overview of different factors conditioning differential argument marking (Witzlack-Makarevich and Seržant 2018). Sinnemäki (2014: 304) is an exception: in addition to more prominent factors such as animacy and definiteness, he also explores the effect of word order on differential object marking and finds that differential marking (referred to as "restricted" in his terminology) primarily occurs in non-default object positions, a finding that we confirm below. Our goal is to establish PDAM as a regularly occurring typological phenomenon, which has escaped general attention, and to demonstrate that it exhibits systematic cross-linguistic patterns.

Below, we argue that, when PDAM occurs, it primarily follows two pressures: the pressure to index preverbal arguments and to avoid indexing post-verbal arguments (15), and the pressure for zero flagging of arguments in their default linear position (24), as noted by Sinnemäki (2014: 304), while non-zero flagging is favored in verb-edge orders (28).

The paper is structured as follows. In the next section, we explore the nuances of the concept of PDAM, outline the alternations that were excluded and provide the rationale behind these exclusions. Section 3 presents our sample. Sections 4 and 5 focus on positional differential argument indexing and flagging, respectively. Section 6 presents the conclusions.

2 The concept of PDAM and its limits

In this section, we describe the phenomenon of PDAM in more detail. Paumarí's (Arawan,[2] Brazil) basic word order is VS in intransitive clauses (2) and AVP (3) in transitive clauses.

(2) Paumarí (Derbyshire 1983: 12)
asara-ha *ada* *isai*
cry-M.S/P DEM.M child
'The child cried.'

(3) *Dono-a* *bi-ko'diraha-'a-ha* *ada* *isai* *hoariha*
Dono-ERG/OBL 3SG.A-pinch-COMPL-M.S/P DEM.M child other
'Dono pinched the other boy.'

2 Distinct from Arawakan according to the cautious genealogy of Glottolog (Hammarström et al. 2024). Traditionally, Paumarí is classified as an Arawakan language.

If word order in the transitive construction is AVP, PAV or VP, argument coding displays ergative alignment: the A is indexed by an ergative prefix on the verb and, if lexical, also marked with the ergative case (3), whereas the S/P bears no flagging but is indexed on the verb via a suffix (2–3). VAP and VPA orders do not occur at all. Yet, the two alternative and quite frequent transitive word orders, APV (4) and PVA, show accusative alignment (Derbyshire 1983: 13). Here, the A is neither flagged nor indexed while P is both flagged and indexed on the verb (4). Thus, in all word order patterns of Paumarí, the flagging signaling the macrorole appears on the core argument immediately preceding the verb.

(4) Paumarí (Derbyshire 1983: 13)
bano *pa'isi* *'o-sa'a-ra* *anani-hi*
piranha small my-finger-ACC bite-F.P
'A small piranha bit my finger.'

The alternation exemplified in (3) and (4) is a clear case of PDAM. In fact, ditransitive constructions of Paumarí also display an alternation that is contingent upon word order and affects all core arguments. Contrast the ergative, indirect-object construction observed with the AVTR word order pattern (5) and the accusative, secondary-object construction in ARVT word order (6).[3]

(5) Paumarí (Derbyshire 1983: 14)
Maria-a *bi-soko-hi* *ida* *makari kodi-moni*
Mary-ERG/OBL 3SG.A-wash-F.P DEM.F clothes 1SG-for
'Mary washed the clothes for me.'

(6) *Maria* *ho-ra* *ko-soko-hi-vini* *hi-ki* *kodi-makari-a*
Mary 1SG-ACC DITR-wash-DITR-DEP.TR AUX-NONTHEME my-clothes-OBL/ERG
'Mary washed my clothes for me.'

However, in this alternation, the change in argument-coding is accompanied by valency-related marking on the verb, cf. *ko-...-hi* in (6). Because of this verbal marking, the alternation in (5) versus (6) does not meet our definition of PDAM (1).

Alternations conditioned by word order sometimes affect indexing. We will refer to this pattern as DIFFERENTIAL ARGUMENT INDEXING (in accordance with Iemmolo and Klumpp's 2014 DIFFERENTIAL OBJECT INDEXING, see recently Just 2022), but this phenomenon has been reported under other labels as well, cf. AGREEMENT SUSPENSION, OPTIONAL AGREEMENT in Bickel et al. (2007) with reference to Kiranti languages, ANTI-AGREEMENT EFFECT in

3 The two types of ditransitive alignments are labelled here following Haspelmath (2013): indirect-object constructions are constructions where the theme, but not the recipient aligns with the P argument of the transitive construction; secondary-object constructions are constructions where the recipient aligns with P while the theme does not.

Ouhalla (1993), or AGREEMENT ASYMMETRY in Corbett (2006: 180). A frequent configuration features an AVP language in which the indexing of the postverbal plural A/S is illicit, as in Florentine Italian (7), or optional, as in European Portuguese (8). This is in contrast with subject-initial constructions in the same languages, where plural indexing is obligatory.

(7) Florentine (Romance, Indo-European; Iemmolo 2020: 2)
Arriva */* **arrivano* ***tante*** ***persone*** *dal* *Marocco.*
arrive.3SG arrive.3PL many people from.the Morocco
'Many people are arriving from Morocco.'

(8) European Portuguese (Romance, Indo-European; Costa 2001: 2)
Chegaram */ chegou* *as* *cadeiras.*
arrived.3PL / arrived.3SG DEF.PL chairs
'The chairs arrived.'

Note that for the purpose of annotation (see Section 3 for details), we treated constructions with singular verbal forms in examples like (7) and (8) as instances of zero indexing as contrasted with non-zero indexing in constructions with plural forms. The rationale behind this decision is that singular forms are used by default and do not index (the number value of) the plural subject.

The definition of PDAM in (1) stipulates that in at least one of the two competing word order patterns the choice of argument marking should be mandatory. For both substantial and practical reasons, we did not include differential marking systems where the choice between two argument marking possibilities statistically correlates with word order, but both are grammatically possible with any word order pattern. The substantial reason is that DAM systems are primarily driven by factors such as animacy and definiteness. Since these features statistically interact with word order, it is almost inevitable for any DAM system to display some statistical correlation with word order, even if this correlation is entirely epiphenomenal. Our goal, however, is to explore those systems in which word order is one of the main factors. The practical reason is that grammatical descriptions, which we used as our source of data, very rarely contain information on proven statistical preferences related to DAM. In this sense, relying on explicit constraints related to word order is more reliable.

Our definition of PDAM portrays this phenomenon as, at the very least, a semi-obligatory rule. However, as with many other linguistic phenomena, it is often difficult to draw a clear-cut boundary between categorical grammatical rules and (strong) statistical preferences. For example, many Semitic, Iranian and Turkic languages of Western Asia display differential object flagging or differential object indexing (or even a combination of the two) where preverbal objects display some differences from postverbal objects in terms of their encoding. When such

differences are viewed from a corpus perspective, they usually yield a statistical correlation. A typical example comes from Dohok, a Jewish North-Eastern Neo-Aramaic dialect: here, indexing is "significantly more likely for preverbal objects" (Noorlander and Molin 2022: 242), i.e., 63 % of all preverbal objects are indexed whereas this value is only 13 % for the postverbal objects. Clearly, this specific pattern does not meet our definition of PDAM even though it may be based on the same types of mechanisms.

However, quantitative biases in the distributions of indexing or flagging patterns might be very strong, to the effect that in one of the rival conditions, one of the encoding patterns becomes virtually unattested. This is the case of Persian (Karimi 2003): here, unflagged objects are typically judged possible only if they are preverbal and adjacent to the verb. In other words, objects that do not occupy the default position immediately preceding the verb are (thought to be obligatorily) marked by the marker *=rā*. However, even here, empirical counts from larger corpora show that the tendency is not exceptionless: very rarely in texts, P arguments remain unmarked even if they are separated from the verb by some intervening material, e.g. a recipient noun phrase (Faghiri 2016: 133–154). A simplified account of the same system presents the same split as a rule of grammar (there is no doubt though that in the canonical position, objects can be both flagged and unflagged).

In a parallel vein, accounts of Turkic languages differ in whether they regard the tendency to mark objects in non-canonical linear positions as an absolute rule or a statistical tendency (Böhm 2015; Heusinger and Kornfilt 2005). Similar "near-absolute" rules are also sometimes observed with A or A/S arguments in the languages of Western Asia. In Turoyo (Neo-Aramaic, Afro-Asiatic), for example, postverbal A arguments are almost always marked by the ergative flag (*l-*), whereas preverbal A arguments can be both marked and unmarked (Kuzin 2018). However, even here, the rule banning unflagged postverbal A arguments is not exceptionless (Coghill 2016: 87). In any event, the pattern that seems to be omnipresent in Western Asia is that core arguments are more likely to be explicitly marked as such when they do not occupy their default linear position, a generalization that is in line with the data from the languages for which no corpus counts are available (see Section 5).

In essence, our rule of thumb was to include all systems that align with our definition of PDAM in at least some sources, even when we were aware of quantitative accounts revealing minor inaccuracies in rule-based accounts. The reason behind this strategy was to avoid a dataset limitation that would have been primarily contingent on the availability of corpora and quantitative corpus-based studies, a dimension that is fully orthogonal to our actual goals.

Unlike genuine cases of positional differential argument indexing, exemplified in (7) and (8), we do not include in our dataset instances where indexing alternations are only observed with conjoint and/or disjoint indexing-triggering arguments

depending on their linear position, although the two phenomena are superficially similar. By way of illustration, conjoined preverbal subjects in European Portuguese are indexed by the plural marker on the verb, whereas with conjoined postverbal subjects, the verb is used in the singular form (9).

(9) European Portuguese (Romance, Indo-European; Costa 2001: 8)

brincou	*o*	*Paulo*	*e*	*o*	*Pedro*
played.3SG	DEF	Paulo	and	DEF	Pedro

'Pedro and Paulo played.'

Similarly, if a disjoint noun phrase in the role of P precedes the verb in Archi, then the verb obligatorily bears a plural index (10a). If the disjoint P argument follows the verb, the verb either indexes the first disjunct (singular) or both disjuncts (plural), as in (10b):

(10) Archi (Lezgic, East Caucasian; Chumakina and Bond 2016: 83)

a. *wa-ra-k Rasul=i Pat'i=ri χir *u‹w›-qi /a‹b›u-qi*
2SG-CONT-LAT Rasul(I)=or Pati(II)=or behind ‹I.SG›do-POT ‹I/II.PL›do-POT
'Should (I) bring you Rasul or Pati?'

b. *wa-ra-k χir u‹w›-qi / a‹b›u-qi Rasul=i Pat'i=ri?*
SG-CONT-LAT behind ‹I.SG›do-POT ‹I/II.PL›do-POT Rasul(I)=or Pati(II)=or
'Should (I) bring you Rasul or Pati?'

The rationale behind excluding instances where indexing alternations are only observed with conjoined or disjoined arguments is that, in such scenarios, the two alternants arguably obey the same indexing rule. The main difference between the alternants lies rather in the structure of the argument NP itself, namely, whether it encompasses only one of the conjoined/disjoined noun phrases (typically the one closest to the verb) or both of them. This analysis is further corroborated by instances where the choice of the index is dependent on the relative order of components within the conjoint/disjoint structure. In Nepali, for instance, the verb bears the gender index of the closest disjunct of the preverbal S argument:

(11) Nepali (Indo-Aryan, Indo-European; Hölzl and Dhakal manuscript)

a. *bhai wa bəhini a-i?*
younger_brother or younger_sister come-PST.3SG.F.NH
'Did the younger brother come or the younger sister?'

b. *bəhini wa bhai a-jo?*
younger_sister or younger_brother come-PST.3SG.M.NH
'Did the younger sister come or the younger brother?'

We do not include instances in which different positions change the argument-internal marking, as our focus is not on NP-internal coding but rather on the marking

of arguments of a verb. For example, some so-called non-configurational languages (see Hale 1983) of New Guinea display differential encoding within their arguments (Donohue 2005). To illustrate this, in Kanum (Yam; New Guinea), some modifiers, such as adjectives and numerals, are unmarked if they canonically precede the noun they modify, but they must be case-marked if separated from the noun by (parts of) other constituents (Donohue 2011).

Furthermore, we limited the scope of our discussion to main clauses, thus excluding all PDAM patterns that can only be observed in dependent clauses and/or main versus dependent clauses.[4] The main reason for this is that dependent clauses very often deviate from main clauses in terms of argument flagging/indexing (e.g., Turkish) and sometimes also in terms of word order (e.g., German). Even if a dependent clause differs from main clauses in both argument flagging/indexing and word order simultaneously, it is risky to establish any direct link between these two dimensions; it is very possible that they are independently triggered by the very contrast between main versus dependent clauses.

A special subtype of PDAM that is also outside the scope of this study is the ALLOMORPHIC PDAM, whereby linear order affects the choice of the allomorph of an argument-coding marker. Thus, particularly the sentence-final position may have a (morpho)phonetic effect on the shape of markers, see examples from Datooga (Nilotic), for example in Kiessling (2007: 158). Another instance of allomorphic PDAM is found with orthotonic versus clitic pronoun sets, which are typically associated with distinct linear positions. For example, in Shilluk (Nilotic), preverbal independent pronouns occur in the short form and the same postverbal independent pronouns occur in the long form (König 2008: 125; Miller and Gilley 2001: 38). While such instances logically meet the definition of PDAM, we did not include them for practical reasons since most languages will have two distinct variants for discursively stressed and discursively backgrounded pronouns, be it orthotonic versus clitic or orthotonic versus ellipsis or a combination thereof.

Finally, for purely head-marking languages, it is sometimes difficult to distinguish alternating voice markers from differential indexing markers. The situation in Karitiana is the case in point:

(12) Karitiana (Tupian; Everett 2006: 257)

a. *na-irit-o* *sopam*
VOICE1-arrive-NFUT sopam
'Sopam arrived.'

b. *sopam* *ta-irit-o*
sopam VOICE2-arrive-NFUT
'Sopam arrived.'

4 Likewise, our definition (1) excludes instances in which differential marking is concomitant to dislocation of the argument outside its clause.

The contrast between (12a) and (12b) was not included in our dataset of PDAM phenomena due its analysis involving contrasting voices. However, according to Everett (2006: 423), the *ta*-voice is used "when an event terminates in an SAP or, more generally, the discourse scene" and the *na*-voice is used with referents that are not speech-act participants (Everett 2006: 414). In this respect, the *na*- marker functionally comes close to a third person index and the whole contrast exhibits some similarities with authentic PDAM phenomena.

3 The dataset

As we noted above, PDAM as defined in (1) is not a typologically widespread phenomenon. For this reason, the main method we employed in this exploratory paper was a grammar survey: we searched reference grammars and, when available, specialized accounts of argument-coding devices trying to identify as many patterns meeting our definition of PDAM as possible. As a result, our sample is very much a convenience sample: due to the relative rarity of PDAM phenomena, we included in the dataset all instances that we were able to identify with no control for possible genealogical and areal biases.

Individual entries in our dataset represent individual PDAM patterns, not languages. There are languages where word order simultaneously affects indexing and flagging, as discussed for Paumarí (Arawan) in Section 2. In such cases, we created separate entries for the two phenomena (and annotated the presence/absence of the concomitant change in the other domain as a separate variable in the dataset). Likewise, if a language has distinct PDAM rules for different macroroles such as A, S, and P, they were represented by separate entries. As a consequence, the number of entries in our dataset (93) is greater than the number of languages (70).

As shown on the map in Figure 1, the languages in our dataset represent all macroareas except Australia, for which we were not able to obtain relevant instances. The majority of the data comes from Eurasia (50 entries from 35 languages), especially from the Sino-Tibetan family (22 entries from 17 languages). Eurasia is followed by Africa with 23 entries from 19 languages, Papunesia with 10 entries from nine languages, South America with eight entries from five languages, and North America with two entries from two languages.

Based on available descriptions, we annotated the entries in the dataset for more than 20 parameters. The two most important parameters are (i) the macrorole of the argument whose coding is affected by the alternation (A, S, P, etc.) and (ii) the "locus" of the alternation, viz. indexing versus flagging. For each alternant we also annotated six parameters (iii)–(viii), including (iii) its word order pattern (e.g. APV, AVP, etc.), (iv) the observed coding strategy (e.g., an accusative flag), and (v) whether the coding

Figure 1: Map of the languages of the sample © The authors.

strategy is obligatory for the given word order pattern. The annotations in (iii)–(viii) were made independently for each of the two competing word order patterns. When annotating the coding strategy (iv), we paid special attention as to whether there was a contrast between zero (either zero flagging or zero indexing) and non-zero strategies versus alternations involving two distinct markers. We furthermore annotated each language for its basic word order according to the descriptions we were using.

According to the working definition of PDAM, in at least one of the two word order patterns, the use of the relevant strategies had to be marked as obligatory (parameter v). Further parameters included genealogical and areal information about the language, the type of motivation behind the word order alternation, etc. Our entire dataset is available on zenodo.org (Seržant et al. 2025).

Before we turn to the discussion of our data and results an important disclaimer is in order. Since our sample is genealogically and areally biased and the number of entries does not allow for any rigorous statistical procedures, our results laid out below should be taken as preliminary and must be confirmed in a more detailed study on the basis of an expanded dataset.

4 Positional differential argument indexing

In this section, we discuss positional differential indexing as observed in 26 entries of our dataset. Although there are a few complicated cases (briefly mentioned below),

all of these entries can be interpreted as the competition between an overt meaningful index with the default, non-indexing form of the verb (as discussed above, we treated such forms as "zeros").

(13) Generalization 1: Preference for asymmetry in differential argument indexing[5]
Positional differential argument indexing tends to involve zero indexing as one of the competing options.

Straightforward patterns conforming to our Generalization 1 constitute the majority of cases in our dataset (21 instances out of 26). The less straightforward patterns are observed in three East Caucasian languages (Godoberi, Tsakhur, Lak), in Modern Standard Arabic and in Neapolitan. In the three East Caucasian languages, the linear position of P conditions the presence versus absence of P indexes on the auxiliary, which occurs alongside the P indexing on the main verb that remains unchanged in all linearizations. Modern Standard Arabic suspends number but not gender indexing with A, S and P in the postverbal position. Finally, in Neapolitan, word order determines the indexing pattern for the recipient, but this is arguably accompanied by its promotion to direct object status (Ledgeway 2003). Thus, even in these languages, the PDAM does not condition an alternation of two different meaningful indexes for the same syntactic argument.

Similarly to the Florentine pattern in (7) above, preverbal, topical A/S (14a) arguments in a number of Southern Bantu languages with the basic AVP word order trigger full-fledged indexing on the verb (14), whereas in constructions with the postverbal, non-topical A/S indexing is "suspended" in the sense that the index used is expletive, default and non-referring (14b).

(14) Northern Sotho (Atlantic-Congo, Bantu; Zerbian 2006: 361, 365)
a. *Ba-sadi* *ba* *apea* *di-jo.*
2-woman 2 cook 8-food
'(The) women are cooking food.'
b. *Go bina* *ba-sadi.*
17 dance 2-woman
'Women are dancing.' (17 is a locative class; here used as an expletive)

5 We do not follow the traditional terminology of indexing SUSPENSION here because the notion of suspension might misleadingly suggest that the zero indexing option is somehow secondary both historically and synchronically. This is not always the case. Sometimes indexing emerges only in a subset of potentially relevant contexts and remains to be differential. This is especially true of differential P indexing (Haig 2018).

Depending on the language, locational phrases may be indexed on the verb if preverbal (locative inversion), for example, in the locative inversion of Chichewa/Nyanji (Bresnan and Kanerva 1989) or in Otjiherero/Herero (Marten 2006).

Non-topical, postverbal A/S arguments have often been found to fail to be indexed on the verb, sometimes optionally (inter alia Corbett 2006: 180; Creissels 2010; Givón 2001: 260; Siewierska 2004: 159–161 on French; Malchukov and Ogawa 2011: 30). This is the strongly preferred scenario in our dataset, which is operationalized in terms of word order.

We can thus make the following generalization based on the observed data, drawing on the similar Universal 33 about A/S arguments established in Greenberg (1966: 94).

(15) Generalization 2
If the position of the A, S or P argument relative to the verb affects indexing, then this argument is less likely to be indexed when it occurs in the postverbal position.

In total, 25 entries in our database concern positional differential indexing of A, S or P. Out of these, 12 entries fully conform to Generalization 2 in that a certain argument is obligatorily indexed when used before the verb but cannot be indexed (nine entries) or is only optionally indexed (three more entries) when used after the verb.[6] There are only two entries, both coming from Yagua (discussed in the text below), that do not conform to Generalization 2. Finally, the 11 remaining entries exhibit indexing alternations that cannot be captured in terms of the contrast between pre- and postverbal positions (e.g. if the relevant argument is placed on the same side of the verb in both alternant word orders). These 11 entries are irrelevant for Generalization 2 and other factors such as the immediate adjacency to the verb play the primary role.

Both previous accounts in the literature and our examples above have been mainly concerned with the indexing of S and A arguments. However, Generalization 2 in (15) also finds support in the indexing of P. An example illustrating this scenario can be found in Kabyle: here, the P argument is indexed on the verb only if it is

6 The nine patterns with two obligatory rules come from Florentine Italian (Indo-European), Päri (Nilotic), Northern Sotho, Herero, Tswana, Swahili (all Atlantic-Congo), Modern Standard Arabic (two patterns) and Kabyle (both Afro-Asiatic). The three patterns where the indexing of the postverbal argument is optional come from Albanian, European Portuguese and Xhosa (Atlantic-Congo).

topicalized into the preverbal position, as in (16b), whereas P arguments in their default postverbal position are not indexed (16a).

(16) Kabyle (Berber, Afro-Asiatic; König 2008: 261–262)
a. *inya* *wərgaz* *aqfif.*
3.SG.M.PERF.kill man.NOM boy.ACC
'A man killed a boy.'
b. *aqfif* *inya-t* *wərgaz.*
boy.ACC 3.SG.M.PERF.kill-3SG.M.P man.NOM
'A boy, a man killed him.'

The situation in Kabyle partially discredits the notion of "indexing suspension" (see also fn. 5): here, the default pattern is the lack of P indexing, and the P arguments are indexed only when moved into the preverbal position, thus conforming to our Generalization 2 in (15). Even more importantly, the situation in Kabyle is revealing in that the conditions on indexing involve both word order and information structure, with indexing being triggered by the topical status of the P argument. A similar situation is found in Barwar (North East Neo-Aramaic, Afro-Asiatic) (Schnell and Haig 2014: 113).

The role of information structure is probably even more important for Yagua, the only language in our dataset where we observe the mirror image of the situation predicted by our Generalization 2. The default word order in Yagua is VS, and in this word order pattern, S arguments are indexed by the Set I prefixes as in (17a). However, if the S argument is fronted (not dislocated), indexing is suspended (17b).

(17) Yagua (Peba-Yagua; Payne 1990: 30)
a. *Sa-júɻy* *Anita.*
3SG-fall Anita
'Anita falls.'
b. *Anita* *júɻy.*
Anita fall
'Anita falls.'

The same type of contrast is also observed with P arguments. Thus, Yagua stands out as a clear exception to our Generalization 2, which was formulated in terms of word order. However, from a different perspective, Yagua can in fact conform to the gist of the generalization. Importantly, Payne (1990: 199) mentions that fronting in Yagua is related to focus. In this respect, Yagua resembles many other languages with positional differential argument indexing, although in those languages, focus is instead associated with postverbal positions.

5 Positional differential argument flagging

Our dataset features 67 instances of positional differential flagging. Of these, seven entries involve differential flagging of recipients, and two further entries concern goals and predicative nominals (one entry for each case), but the vast majority of differential flagging affects A, S or P arguments (58 entries), and below we mainly focus on these scenarios.

Many languages in the northeastern and central Africa exhibit PDAM with A/S. This is a manifestation of a broader phenomenon known as the "no case before the verb" constraint (inter alia König 2007, 2008). Many languages of the area belong to the so-called "marked-nominative" type (inter alia Handschuh 2014 on marked S), in which A and S arguments contain a nominative marker, while P arguments are morphologically unmarked. Logically, such zero marked forms should be analyzed as accusatives, but they are sometimes also referred to as "absolute case" in the specialist literature, partially because these forms often cover a number of further functions apart from coding P arguments in the transitive clause.

In any event, argument coding in the languages of the marked-nominative type is often contingent upon word order. Thus, most of the South Nilotic and some East Nilotic languages (e.g. Maa, Teso-Turkana) allow nominative marking of the A/S only in the postverbal position, whereas in the preverbal position, these arguments are used in the unmarked form (Creider 1989: 67; Dimmendaal 2014; Tucker and Mpaayei 1955: 175–187). Likewise, in Coptic, only postverbal A/S are case-marked (Grossman 2015: 207). The same holds also for some Berber languages (Afro-Asiatic), Kuliak, Surmic and Eastern Sudanic languages which allow for the nominative marking of A/S only in the postverbal position (Dimmendaal 2011: 33; König 2008: 261–264; see exceptions in Casaretto et al. 2020: 121–122; König 2008: 250ff; Mettouchi and Fleisch 2010). Here, Surmic and Nilotic constitute the expansion zones (Dimmendaal 2014: 13–14).

The origin of these alternations is rooted in the distinction between extraclausal (unmarked) versus intraclausal (case-marked) status of the A/S argument, from earlier cleft-like or topic-dislocation constructions. At the same time, numerous languages clearly exhibit the development towards monoclausation, ultimately resulting in the positional differential flagging of the A/S argument (Handschuh 2014; Harris and Campbell 1995: 151–68; Heine and Reh 1984; König 2008: 257–8). By way of illustration, the Datooga structure in (18b) displays no morphological traces of the erstwhile dislocation, although its sentence-initial S argument is used in the unmarked form (labeled "absolutive" in the source and in this paper). This coding contrasts with the non-zero explicit nominative case-marking found with postverbal A/S arguments (Kiessling 2007: 152, 160).

(18) Datooga, Gusamjanga variety (Nilotic, Tanzania; Kiessling 2007: 171)

a. *gwándà gádéemgá jèedá dûgwạ*
s3.be.there woman.NOM among cattle.ABSL
'The women were among the cattle.'

b. *gádéemgà gwándà jèedá dûgwạ*
woman.ABSL s3.be.there among cattle.ABSL
'As for the women, they were among the cattle.'

Sometimes specific traces of the former extraclausal status are left behind in the monoclausal structure. For example, the focal A/S argument in the "absolute" case requires the so-called "restrictive" form of the verb in Somali instead of the regularly indexing form, that is, the form that is normally used in relative clauses and that does not show the full indexing paradigm (Antinucci and Publielli 1984: 19; Harris and Campbell 1995: 159; Heine and Reh 1984: 172, 175). This observation highlights the biclausal, cleft-like origin of the subject-focus constructions illustrated in (19).

(19) Somali (Cushitic, Afro-Asiatic; Heine and Reh 1984: 175)

*nin-ka-**a*** *imanaya*
man-DET.M.ABSL-NF is.coming
'THE MAN is coming.'

Heine and Reh (1984: 175) argue that the construction in (19) emerged from a cleft consisting of a copular main and a subordinate, relative clause (hence, the restrictive paradigm of the verb).

Similar contrasts in the verbal domain are sometimes observed in other languages of the area. For example, Maa retains the relative clause marker as part of the structure where the focused subject is used in the clause-initial position (König 2008: 262). In Arbore (Cushitic, Ethiopia), the verbal selector/auxiliary *ʔíy* is not found with focal subjects (Hayward 1984: 114). Thus, concomitantly to the positional differential marking of the A/S argument, there are sometimes also morphological alternations in the predicate or properties of the clause. However, the shift of focus and changes in word order usually do not affect the coding of the P argument in the African languages of the marked-nominative type, for the simple reason that P arguments remain unmarked in all positions.

Some further languages of the same area exhibit a superficially similar type of alternation, whereby PDAM affects only A, but not S arguments. This is observed in a few Nilotic languages where argument flagging displays ergative alignment, for example, in Shilluk (Miller and Gilley 2001: 36), as illustrated in (20a) and (20b):[7]

7 With intransitive verbs, the word order is exclusively SV (Miller and Gilley 2001: 37).

(20) Shilluk (Nilotic; Miller and Gilley 2001: 36)

a. *byél* *á-ˈrākk`* *yī* *ɲān* *ḍájɔ̀*
grain.PL PST-grind.TR.ITER ERG person female
'The woman ground the durra.'

b. *ɲān* *ḍájɔ̀* *á-ˈrākk`* *byél*
person female PST-grind.TR.ITER grain.PL
'The woman ground the durra.'

Another example is Tima (Katla-Tima[8]). Here, the basic word order is AVP in which the A argument remains unmarked. In turn, in the marked PVA or PAV, the A is marked by the ergative morpheme *ŋ-* (Dimmendaal 2014: 13; Schneider-Blum 2023: 88–89).[9]

Although synchronically similar to the languages of the marked-nominative type where PDAM affects both A and S arguments, the languages with the "no-ergative-before-the-verb" constraint seem to have a different historical source: constructions like (20b) probably do not go back to constructions involving an extraclausal A. The likeliest source of contrasts like (20a) versus (20b) is instead the active-passive alternation as found in, e.g., Dinka, where the A argument is assigned the genitive case in the postverbal position of the passive construction while no case is found in the preverbal position of the active construction (Andersen 1991: 272–273; see also Andersen 2015 on Kurmuk). Since the P argument does not receive any marking in any of the constructions discussed, the only difference between the active-passive alternation in Dinka, on the one hand, and the PDAM in Shilluk, on the other hand, is the change in the verb voice marking and subject indexing observed in the genuine voice alternation. However, these coding properties of the erstwhile active-passive alternation can be lost in the course of the historical development. This scenario is a likely source of PDAM in Shilluk, since the ergative marker in Shilluk (also in Tima) is related to the oblique and even instrumental case (Dimmendaal 2014: 13; see also König 2008: 119–120). Likewise, Casaretto et al. (2020) suggest an active construction with reduced transitivity and the agent marked by the instrumental (>ergative) marker for Tima. A different scenario of the emergence of PDAM can be hypothesized for Päri, also a Nilotic language. Here, the ergative marker, which is also restricted to the postverbal position of A in main declarative clauses, stems probably from a definiteness marker that was confined to the A argument only (König 2008: 119). Crucially, none of these sources involves an extraclausal origin of the A.

Beyond Africa, a similar phenomenon is found in some Polynesian outlier languages such as Vaeakau-Taumako/Pileni, Futuna-Aniwa, West Uvean and Anuta,

8 Mostly considered to be part of the Atlantic-Congo family, e.g., Schneider-Blum (2023).

9 PAV also requires the presence of the focus marker.

which also do not allow for flagging of the preverbal A or A/S (Anuta) argument (Næss 2012). In Vaeakau-Taumako, the ergative marking (via the preposition *e*) is required only if the agent phrase is in the atypical, postverbal position (this language is AVP, Næss 2012: 571). Næss (2012: 575) hypothesizes that all these languages developed from the original VAP word order into AVP via fronting of the A, thus similar to AVP configurations in the languages of Northeastern and Central Africa where this configuration is historically secondary. Thus, there are different pathways leading to the emergence of marking of A/A=S in the non-default position.

When it comes to the differential flagging of P arguments, a number of Southeast Asian and Kwa languages require a P marker in the APV order while the P argument in the default AVP word order often remains unmarked.[10] Differential P markers in Sinitic languages typically develop from serial verb constructions. The following markers of verbal origin have been reported in the literature: *kā* 'to gather, to share' (Southern Min), *bāng* 'to help' (Huizhou and Wu dialects) and *bǎ* 'to hold' (Mandarin), analogically *yǐ* in Medieval Chinese (Chappell 2013). Similar patterns are also observed in Baic languages (e.g., Hölzl 2024). Furthermore, Bisang (1992) suggests the same path for Hmong, Vietnamese, Thai and Khmer, however, with different degrees of grammaticalization of a serial verb construction into an object marker, as, for example, in Vietnamese (discussed in detail in Kuhn 1990):[11]

(21) Vietnamese (Austroasiatic; Kuhn 1990: 263)
o:ng thu'-kÿ lá:y tay thọc vào túi áo
secretary TAKE hand put enter pocket jacket
'The secretary put his hand into the jacket pocket.'

In Thai, the verb *?aw* 'take' may also be used in order to free up the postverbal position (when moving the P into the preverbal position) (Bisang 1992: 373):

(22) Thai (Tai-Kadai; Bisang 1992: 373)
naaj khăaw ?aw hŭa chon kamphɛɛŋ.
mister Khaaw TAKE head bump wall
'Mister Khaaw bumps his head against the wall.'

10 Related languages such as Baule (Volta-Congo, Atlantic-Congo) exhibit a similar, but less grammaticalized contrast (Creissels and Kouadio 2010: 172).

11 Many of these constructions do not qualify as classical instances of grammaticalization. They may retain selectional restrictions typical for an event of taking (such as the exclusion of animate object NPs or large referents such as 'house') and/or exhibit few properties of a functional word and may retain verbal properties. At the same time, Vietnamese, for instance, does not have a distributionally and/or morphologically clear-cut category of prepositions so that a full grammaticalization in the sense of a transition of a lexical verb 'take' into an unequivocal (object) preposition as a function word might not even be expected here (Kuhn 1990: 99ff).

Likewise, Kwa languages acquire differential object markers on the basis of serial verb constructions, grammaticalized to different extents. The development of deverbal prepositions such as *kɛ* 'with' in Ga and *lah* 'with' in Fe'fe' from 'to take' supports this development (Lord 1993: 108). Both in the Kwa languages and in the Sinitic languages discussed above the newly grammaticalized markers are only used with preverbal objects, whereas postverbal objects remain unmarked (Chappell 2013: 786).

There are also languages beyond these two areas in which differential P marking may be restricted by word order (in addition to other factors not to be discussed here). Thus, in Kotiria (Tucanoan), the P argument is obligatorily marked by the object marker *-re* in all possible linear positions (23a) except for its basic position immediately preceding the verb, where it may remain unmarked, as in (23b) (Stenzel 2008: 161).

(23) Kotiria (Tucanoan; Stenzel 2008: 160–161)

a. *wisõa* *chʉ-ka* *bʉti-a* *dita-re*
squirrel.PL eat-IMPF be.hard.PL SOL-**DOM**
'Squirrels eat hard things only.'

b. *khʉbokʉ-ri* *yoa*
soaked.manioc-PL make
'We make soft manioc flatbread.'

Stenzel (2008: 173) mentions further Eastern Tucanoan languages that can differ in their basic word order but all display positional restrictions on the use of object markers, including Waikhana/Piratapuyo (APV), Tukano (APV), Kubeo (PVA) and Barasana/Eduuria (PVA). All these languages are similar to Kotiria in that they allow for zero marking of the object only in the immediately preverbal position, whereas all other positions require the direct object marker *-re*. This pattern is strikingly similar to the situation observed in a number of well-described languages of Eurasia that also allow for zero-marked objects only in the immediately preverbal position, such as South Sámi (Uralic) or Turkish (Turkic) and further Western Asian languages such as Persian. Likewise, in Japanese, another APV language, the focal postverbal object must be obligatorily marked by the accusative marker *-o*, whereas this marker is optional elsewhere (Frajzyngier and Shay 2016: 99).

In summary, 55 out of 58 entries involving positional differential argument flagging of A, S and P arguments can be captured in terms of the contrast between the default word order pattern and some non-default patterns. The breakdown of this subset in terms of whether the flagging under these two conditions is obligatorily overt, optionally overt or obligatorily zero is shown in Table 1.

Table 1 contains two cells with impossible combinations of features (the competition of two zero markers does not meet any definition of DAM, and the

Table 1: Overt versus zero flagging in PDAM patterns: default versus non-default word order patterns.

		Non-default word order		
		Obligatorily overt	**Optionally overt**	**Obligatorily zero**
Default word order	Obligatorily overt	2	0	10
	Optionally overt	11	n/a	1
	Obligatorily zero	26	5	n/a

competition of two flags that are optional in both of the two alternative word order patterns does not meet our definition of PDAM). Two entries featuring competition between two overt flags are not very revealing for our goals. The main contrast that can be seen in Table 1 is that there are more patterns in the lower left-hand side part of table (42 patterns) as opposed to patterns in the upper right-hand side of table (11 patterns). While, as we have stressed above, it is not possible to apply statistical tests to our data, the observed distribution shows the high prevalence of PDAM patterns where zero marking is more common under the default word order than in constructions with non-default word orders. The opposite PDAM configurations are almost four times less frequent in our dataset. Based on this observation, we propose the following tentative generalization.

(24) Generalization 3
Under PDAM, A, S and P arguments tend to remain unflagged in their default (more frequent) linear position.[12]

Generalization 3 is intended to cover various configurations of obligatory versus optional marking, including languages where marking is obligatory in non-default positions and optional in the default position (as in the case of P coding in Kotiria) and languages where marking is optional in non-default positions and impossible in the default positions (as in the case of A coding in Futuna-Aniwa). Generalization 3 is supported by the evidence on objects presented in Sinnemäki (2014: 304).

As we have seen above, Generalization 3 accounts for some 42 out of the total of 58 entries in our dataset that contain information on positional differential flagging of A, S or P arguments. At first glance, the figure might not look very impressive. However, its importance is strengthened by the fact that in many languages, Generalization 3 captures the contrast between one default position and several

12 When determining the default word order in the language, we simply relied on the descriptions provided by the authors. However, in most languages, the default word order amounts to, or is even determined by, the most frequent word order. We did not rely on any corpus counts, however.

possible alternative positions. This can be illustrated by the data from Nama (Khoe-Kwadi): here, subjects (A/S) remain unmarked in the clause-initial position (25a). In any other position, subjects receive an "oblique" marker, which is also used with direct and indirect objects (Witzlack-Makarevich 2006: 18). For example, subjects receive this oblique marker even if they are only preceded by a conjunction and a tense-aspect marker, as in (25b).

(25a) Nama (Khoe-Kwadi, Witzlack-Makarevich 2006: 18)

honder-gu	*go*	*ā*
hen-3M.PL.SBJ	REC.PST	cry

'Hens cried.'

(25b)

tsī-b	*go*	*ǁnā*	*khoe-b-a*			
and-3M.SG.SBJ	REC.PST	that	man-3M.SG-OBL			
!nona	*apel-de*		*ǁkhaba*	*ǁnā*	*khoe-b-a*	*mā*
three	apple-3F.PL.OBL		again	that	man-3M.SG-OBL	give

'And that man gave that man again three apples.'

In a nutshell, the contrast between default and non-default positions is intrinsically asymmetric. In this sense, all things being equal, a single pattern that provides support for Generalization 3 outweighs a single pattern that does not conform to it.

However, many patterns of positional argument flagging in our dataset are not captured by Generalization 3, either because the alternation in question does not operate in terms of the contrast between the default position and non-default positions at all (three instances) or because the zero flagging is favored by some non-default pattern, as observed in 11 patterns constituting true counterexamples to Generalization 3.

As we mentioned at the beginning of the paper, our definition of PDAM excludes cases where a marking of an argument is optional regardless of the position. This said, there are languages that show a bias in the probability of non-zero marking that matches the essence of Generalization 3 in (24). This is, for example, the case in Fur (Sudanic), a language with the basic APV order. Here, if the object is placed in some non-default, i.e. infrequent, position, e.g. in the PAV pattern, it is usually flagged by the differential object marker *-sí*, e.g., in PAV (Waag 2010: 206). In still another APV language, Yongning Na (Sino-Tibetan), the ergative postposition *nɯ* occurs primarily in non-canonical word orders (Lidz 2011: 56); similarly in Slave (Sinnemäki 2008: 76).

Although Generalization 3 in (24) captures the coding of S, A and P arguments only, the few instances of differential flagging of other arguments in our dataset can be viewed in the same perspective. This is the case of coding some non-core roles in Northern Kurdish dialects (West Iranian; Indo-European), such as spatial goals (with such verbs as 'go', 'put', 'fall', 'bring'), recipients (in most dialects) and addressees (in

some dialects). Typically, such noun phrases occupy the postverbal position and are flagged by the oblique case and/or by a preposition (Asadpour 2022: 64, 2023; Haig 2022: 358). The preposition can further fuse with the verb, as in (26):

(26) Şemzînan (Northern Kurdish; Iranian, Indo-European; Haig 2022: 356)

ewê	*got=e*	*min*
3SG.OBL.F	tell.PST.3SG=DRCT	1SG.OBL

'She said to me.'

If the noun phrase with the same role of addressee is used preverbally, which occurs very rarely, it must be marked by the postposition, often in combination with a preposition, as in (27).

(27) Bingöl (Northern Kurdish; Iranian, Indo-European; Haig 2022: 356)

min	*ji*	*wî=**ra***	*go*
1SG.OBL	ADP	3SG.OBL.M=**ADP**	tell.PST.3SG

'I said to him.'

Differently from other cases discussed in this paper (and therefore not included in our database), this generalization applies primarily cross-dialectally, whereas specific dialects or even particular speakers allow for just one option in their idiolect (Haig, pers. comm.). Apart from this, the contrast is not always quite sharp in the sense that adpositional flagging is sometimes also found in the postverbal position, although this pattern is constrained in various ways (Haig 2022).

Thus, we observe a contrast in which the addressees of the verb *gotin* 'to tell' in Northern Kurdish dialects are more likely to receive a more complex flagging (postpositions or circumpositions) if they are preverbal (Haig 2022: 362). Crucially, Generalization 3 in (24) holds also for these arguments such that the infrequent, non-default (preverbal) position of the recipient requires a more complex flagging than the more frequent (postverbal) position.[13] Likewise, Asadpour (2022: 74–76) mentions that the zero marking of the Goal with the verb 'to fall' may occur only in the postverbal position in Mukri (Central Kurdish) while the preverbal position requires a preposition

13 Haig (2022: 356) states that there are four marking options found across different dialects for the addressee of *gotin* 'say': (i) bare NP (often with a directional particle on the verb) or (ii) prepositional marking for the SV-Addressee order, and circumpositional (iii) or postpositional (iv) marking for the S-Addressee-V order. While the preposition (ii) is often reduced to a directional particle, thus, yielding (i), the postpositional marking (iv) is allomorphic to the circumpositional marking (iii) when the prepositional part *ji* of the circumposition is not realized phonetically: "In rapid speech, it may assimilate to the initial segment of the noun, thus making the distinction difficult to draw" (Haig 2022: 356). Thus, even though, in fact, there are four options, the heavier marking is still found in the unusual, less frequent preverbal position of the addressee.

or a circumposition. Yet, it is the postverbal position that is the most frequent option in Mukri (Asadpour 2022: 64).

Apart from the generalization in (24), we observe a bias in our data conditioned by the contrast between VERB-EDGE (APV, VAP, VPA, PAV and similar non-transitive patterns) and VERB-MEDIAL patterns (AVP, PVA and similar non-transitive patterns). Out of 67 cases of positional differential argument flagging in our dataset, 30 entries can be captured in terms of the verb-edge versus verb-medial contrast. Table 2 shows how these 30 entries are distributed in terms of the use of overt versus zero flags.

The design of Table 2 follows that of Table 1, including the cells with impossible combinations of features. The main takeaway in the observed distribution is that again, there are much more patterns in the lower left-hand side part of the table than in the upper right-hand part. Substantially, this means that zero flags are favored in verb-medial configurations, as captured in the following generalization.

(28) Generalization 4
If a verb-medial word order alternates with a verb-edge word order under PDAM then the differentially marked argument is more likely to exhibit zero flagging with the verb-medial word order.

There is only one true counterexample to Generalization 4 in our entire dataset. This counterexample comes from Päri (Nilotic), where A arguments are flagged by the ergative marker under PVA order, which is a verb-medial order, but remains unflagged in the APV order, which is a verb-edge pattern (Andersen 1988; König 2008: 98). Curiously, Päri is also typologically unusual in a more straightforward way as a language where the basic word order in the transitive clause is PVA and the AVP order with nominal arguments is not licit at all.

As there is only one true counterexample to Generalization 4 in our dataset, it might seem that it has a stronger explanatory power than Generalization 3, captured in terms of the contrast between default and non-default word order patterns. Note, however, that there are many positional differential argument flagging patterns that are not represented in Table 2 at all, simply because they cannot be captured in terms

Table 2: Overt versus zero flagging in PDAM patterns: default versus non-default word order patterns.

		Verb-edge word order		
		Obligatorily overt	**Optionally overt**	**Obligatorily zero**
Verb-medial word order	Obligatorily overt	0	0	1
	Optionally overt	1	n/a	0
	Obligatorily zero	24	4	n/a

of the contrast between verb-edge and verb-medial patterns (this is a case of any alternations involving monovalent constructions, contrasts between the construction where the object immediately precedes the verb and all other types of order, etc.). In this respect, Generalization 3 can have a broader scope than Generalization 4, even if it also displays more counterexamples.

Our Generalization 4 is very well predicted based on what is already known about the general typological distribution of coding devices: verb-medial languages tend to have less or no flagging of A, S and P whereas verb-edge languages tend to have at least some flagging of these macroroles; see Sinnemäki (2010), who observed a strong universal correlation between zero argument marking and SVO word order. Thus, our Generalization 4 in (28) is an intralinguistic replica of the well-known typological correlation: by displaying PDAM, languages allowing competing word order patterns reproduce, as it were, the contrast observed between languages with different basic word order patterns.

Generalization 4 in (28) looks promising from the diachronic point of view. Indeed, we often observe that the change towards verb-medial basic word order goes hand in hand with the loss of core cases and, vice versa, a development from SVO to SOV is often accompanied by the rise of some flagging (e.g., Shcherbakova et al. 2024), as is the case for postnominal flags and, in conjunction with this, differential object marking in Sinitic languages (Hölzl 2024; Zhou 2020). From this perspective, PDAM is often a transitional stage in the change of the basic word order. Thus, while most Nilotic languages have PDAM alternating between the basic VS(O) and the rarer SV(O) such that the A/S argument is unmarked only in the preverbal position but marked in the postverbal, Bari generalized the verb-medial word order and, accordingly, lost any case distinctions (König 2008: 250, 256–257). The same is reported for Dajuic and Temeinic languages[14] that have shifted to the verb-medial type and lost case (Casaretto et al. 2020: 117). Another example is Berta (listed as an isolate in Hammarström et al. 2024 or as Nilo-Saharan in Neudorf 2008: 4). In Berta, the A argument is identified as such with no marking given the SVO word order; however, if it is postverbal, it is marked by the nominative case (realized by tone change) (Neudorf 2008: 15).

All of these scenarios lend additional diachronic support for the generalization in (28), although some of them are also compatible with Generalization 3 in (24).

14 A separate family in the conservative genealogy of Glottolog (Hammarström et al. 2024), possibly related to East Sudanic (see Casaretto et al. 2020: 116–117).

6 Conclusions

The main goal of our paper was to sketch a preliminary typology of positional differential argument marking, a pattern in which the use of argument-coding devices, such as flags or indexes, is contingent upon the linear position of arguments in the clause.

To that end, we have compiled and analyzed a convenience dataset containing 93 PDAM patterns attested in languages from five macroareas. In some respects, the generalizations we arrived at should be taken with caution. For one thing, our dataset is not balanced genealogically and areally and is therefore not representative statistically. In addition, we did not try to control our dataset for the specific factors that are responsible for the word order alternations per se. In the vast majority of languages of our sample, the word order alternations are conditioned by information-structural factors or, more rarely, by the arguments' definiteness status. For Paumarí (Arawan) and Päri (Nilotic), word order alternations have been reported to represent a change of the basic word order. More generally, we left the systematic exploration of factors conditioning word order alternations for further research, and focused on the observed correlations between word order and differential argument marking.

With all these reservations in mind, we were nevertheless able to arrive at four empirical generalizations based on our dataset of PDAM patterns. Generalizations 1 and 2 concern indexing, whereas Generalizations 3 and 4 concern flagging.

First, we claimed that positional differential argument indexing always involves non-indexing as one of the two competing coding options (13). Indeed, we did not come across a single PDAM pattern involving two morphologically distinct indexing sets for different word orders. Secondly, for all core macroroles, A, S, and P, indexing was found to be dispreferred in the case of postverbal arguments as compared to preverbal arguments (15).

Thirdly, when it comes to positional differential argument flagging, we claimed that the most frequent, default position tends to be associated with no flagging, whereas flagging is attracted by a non-default position (24). While our finding relates to preferences within each particular language in a differential argument marking system, similar suggestions have been made before on language types (cf. Sinnemäki 2008). Functionally, this finding may be explained as follows: syntax, i.e. word order, provides "misleading" cues on role identification for the comprehender which, in turn, is counterbalanced by an explicit marker. This is in line with findings from psycholinguistic literature which show that non-default word orders tend to be misinterpreted by comprehenders (Ferreira 2003; see also Kurumada and Jaeger 2015).

Finally, we stated that if PDAM is found in the alternation of a verb-medial and a verb-edge word order then it is the verb-medial word order that tends to bear no flagging whereas the verb-edge order is more likely to have a non-zero flag of the argument in question (28). This generalization for differential systems is supported by earlier findings from the typological language comparison. Here, SVO languages were found to have a lower probability of having argument marking (Sinnemäki 2010) and SOV languages to have a higher probability of having argument marking (Greenberg's Universal 41, Greenberg 1966: 96; see also Gibson et al. 2013 who study argument marking in SOV vs. SVO in sign languages).

It seems that there is some interaction between Generalizations 3 and 4. Thus, verb-edge orders may violate Generalization 3 and show flagging despite being default due to the pressure by Generalization 4. For example, many languages in Northeast Africa with the no-case-before-the-verb rule (see above) have marked A or A/S in the default VSO order. And, vice versa, verb-medial word orders which are non-default may nevertheless rarely attract marking despite Generalization 4. However, if both conditions of Generalizations 3 and 4 apply at the same time (verb-edge & non-default or verb-medial & default) then the predictions are even more probable such that default verb-medial orders are least likely and non-default verb-edge order are most likely to have at least A or P marked.

If the generalizations listed above are correct, then our overarching finding is that differential argument indexing and differential argument flagging interact with word order in significantly different ways. Non-zero flagging is favored by the non-default linear position of an argument, whereas non-zero indexing is favored if the argument in question is used preverbally and, ultimately, due to its topical status or, more precisely, due to its higher accessibility (see Ariel 1988, 2000 for the notion).

Although the primary goal of our article was to introduce the relatively poorly studied phenomenon of PDAM and to identify empirical patterns in the distribution of its properties, as a preliminary hypothesis, we can propose a tentative functional explanation for the fundamental difference we observed between differential argument indexing and differential argument flagging. Our conclusion that the two phenomena are different echoes some previous research (Haspelmath 2021; Schikowski and Iemmolo 2015). Thus, Schikowski and Iemmolo (2015) argue that various types of less expected combinations of the macrorole with referential properties, word order or discourse properties are typical conditions for differential object flagging. To this we can add that argument flagging is by definition a local phenomenon in the sense that for both the speaker and the hearer the use of an optional flag can be immediately associated with the role of the noun phrase to which it is attached. In this respect, the restricted use of explicit flags only in the contexts that are most ambiguous with regard to role identification is a step towards enhancing efficient communication (cf. Bornkessel-Schlesewsky and Schlesewsky 2015: 323;

Seržant forthc.). And indeed, both verb-edge configurations and any non-default word orders can be more confusing in terms of establishing role-referent associations than verb-medial and default orders respectively.

By contrast, differential object indexing is a non-local phenomenon: the use of verb indexes requires the retrieval of the relevant referent in the clause or wider discourse, and this provides a natural explanation for the observed left-right asymmetry: while the indexing of preverbal arguments is essentially an anaphoric phenomenon, the indexing of postverbal arguments inevitably involves the cognitively demanding processing of cataphoric relations.

One may look at our finding also from the production versus comprehension perspective (audience design). Zero indexing of postverbal referents is easier for production (the speaker) because it allows postponing the activation of the referent up until the nominal is uttered.

Finally, we have only examined languages where word order imposes hard constraints on differential argument marking. As a reviewer notes, our findings may be corroborated by languages in which word order is only a soft constraint on DAM. However, this is an empirical question for future research on PDAM.

Abbreviations

A	A argument
ABS	absolutive
ABSL	absolute
ACC	accusative
ADP	adposition
COMPL	completive
CONT	cont-localization/continuous
COP	copula
COP.AGR	copular agreement
DEM	demonstrative
DEP	dependent (clause)
DITR	ditransitive
DOM	differential object marking
DRCT	directive
IMPF	imperfect
ITER	repeated action
LAT	lative
M	masculine
NFUT	non-future
NH	non-honorific
NOM	nominative
OBL	oblique

P	P argument
PERF	perfect
PDAM	positional differential argument marking
PL	plural
POT	potential
PST	past
REC.PST	recent past
S	S argument
SBJ	subject
SG	singular
SOL	solitary
TR	transitivity marker

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