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Differential argument marking: Why is indexing different?

MARTIN HASPELMATH

Max Planck Institute for Evolutionary Anthropology (Leipzig)

0. Take-home message

Why does differential indexing behave differently from differential flagging?

I don't know, and I'm worried by this. I would like to know.

1. Two surprising generalizations

differential object flagging:

(1) Zhoutun Mandarin (Zhou 2022: 117, 24)

- a. 你苹果吃了么?
Ni phĩkuɾ tʃhi=lɔ mɾ?
 you apple eat=PFV Q
 'Did you eat apples?'

- b. 苹果哈我一个吃了。
Phĩkuɾ=xɑ ηɾ i=kɾ tʃhi=lɔ.
 apple=ACC I one=CLF eat=PFV
 'An apple I ate.'

differential subject flagging:

(2) Central Tibetan (Tournadre 1995: 264)

- a. *khōng khāla' so-kiyo:re'*
 he food make-IPFV.GNOM
 'He prepares the meals.' (no flag on topical A-argument)

- b. *khōng-ki' khāla' so-kiyo:re'*
 he-ERG food make-IPFV.GNOM
 'HE prepares the meals.' (ergative flag on focused A-argument)

(3) **Generalization 1**

Lower-ranked roles (P, T) tend to get **extra flagging** when the nominal is referentially **prominent** (definite, animate, topical, ...), and **higher-ranked** roles (A, R) tend to get **extra flagging** when the nominal is **non-prominent** (indefinite, inanimate, focal, ...)

(4) **Generalization 2**

All arguments tend to get **extra indexing** when the nominal is referentially prominent.

differential object indexing:

(5) Mauwake (Trans-New Guinea; Berghäll 2015: 97; 216)

- a. *Emeria* **wia**=*amukar-e-k*.
 woman **3PL.ACC**=scold-PST-3SG
 'She scolded the women.'
- b. *Bom=iya kateres=iya fuurk-a-mik*.
 bomb=COM cartridge=COM drop-PST-3PL
 'They dropped bombs and cartridges.'

differential subject indexing:

(6) Awing (Bantu; Fominyam & Georgi 2021: 84)

- a. *Alombah (a) nə n-náŋnə məzǐə əzooné*.
 Alombah **3SG** PST N-cook food yesterday
 'Alombah cooked the food yesterday.'
- b. *Wə (*a) nə n-náŋnə məzǐə əzooné*.
 who (3SG) PST N-cook food yesterday
 'Who cooked the food yesterday?'

The universal trends of asymmetric differential flagging are explained by **frequency-based predictability**: only atypical objects and subjects tend to be flagged, because they need it more (Haspelmath 2021a).

This explanation does not seem to work for differential indexing – **but why not?**

2. A bit of history

differential object marking (= flagging):

differential object marking has been prominent
 since Bossong (1982; 1985), and especially Aissen (2003)

see Bossong (2021) for a personal account

but actually, the term “differential marking of objects” was first used by
 Moravcsik (1978),

and she was the first to state the universal clearly:

“If there is any semantic difference between an accusative marking and ... a nominative marking (to the exclusion of passivization), this semantic difference will be related ... to definiteness, or to animacy, or humanness ..., with the accusative ... marking the more definite (rather than the less definite), [and] the animate or human (rather than the inanimate or non-human), ... noun phrase.”

(see blogpost <https://dlc.hypotheses.org/2764>)

differential subject marking (= flagging):

prominent since Aissen (2003), de Hoop & de Swart (2009)

(alternatively: *differential P flagging*, *differential A flagging*)

differential object indexing:

“clitic doubling” (since Jaeggli 1982); also called “variable object agreement”

“differential object agreement” (Lazard 2001)

treated as a kind of differential object marking since Morimoto (2002)
cf. Kallulli (2016), Kalin (2018)

called *differential object indexing* since lemmolo (2011),
lemmolo & Klumpp (2014)

“differential argument marking” Arkadiev (2009)
Witzlack-Makarevich & Seržant (2018)

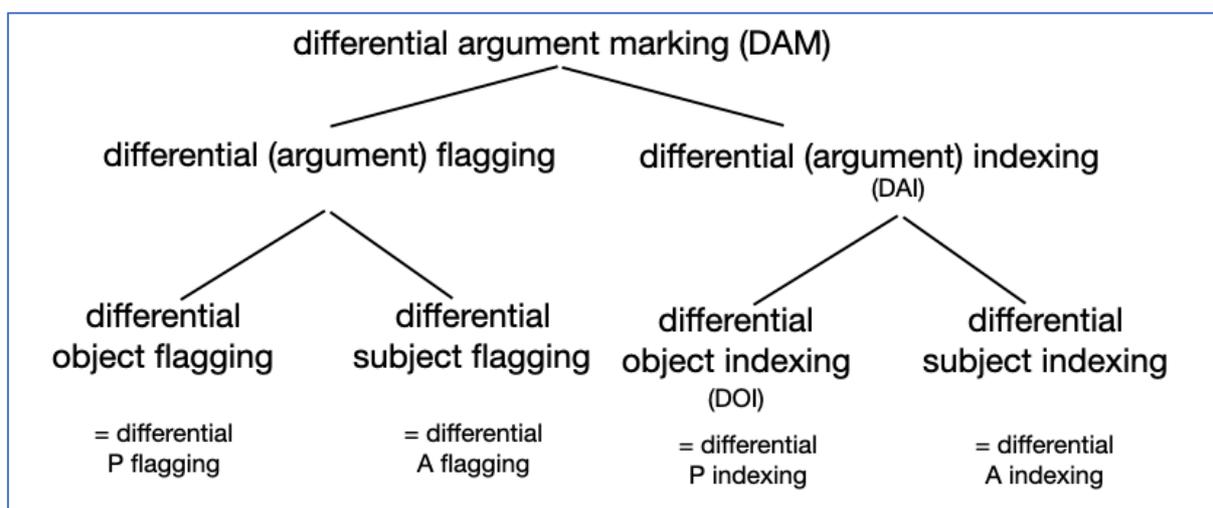
“differential argument indexing”: Faghiri et al. (2022)

differential subject indexing:

perhaps not attested before Just (2022)

much better known (in generative circles):
anti-agreement (Ouhalla 1993; Baier 2018)

(alternatively: *differential A indexing*, *differential P indexing*)



3. Is differential object indexing a kind of DOM?

Some authors do not hesitate to subsume DOI under DOM, e.g.

Morimoto (2002: 294)

“In this paper, I present data from Bantu languages, which are primarily head marking, and argue that DOM in case marking languages and previously observed variation in the use of object agreement in some Bantu languages are one and the same phenomenon conditioned by the single generalization in (1).

(1) The higher in prominence a direct object the more likely it is to be overtly case marked—where the dimensions along which prominence is assessed include animacy ... and definiteness ... “

Dalrymple & Nikolaeva (2011: 1-2):

“We understand DOM as covering both **agreement** and **casemarking** (case or adpositional marking on the object). Though we recognise that agreement and casemarking differ both historically and synchronically, as noted by Comrie (1979) and Croft (1988:167–168), among many others, we believe that they share commonalities in the context of DOM, and we will use the cover term (**grammatical**) **marking** to refer to them.”

Kalin (2018: 113):

“On an inclusive conception of DOM, which I adopt here, marking may take the form of **case** (e.g., Persian, Turkish), an **adposition** (e.g., Spanish, Hindi), **agreement** (e.g., Swahili, Ostyak), or **clitic doubling** (e.g., Macedonian, Catalan).”

But other authors do not so so:

Iemmolo (2011) contrasts DOI with DOM (= DOF)

“Overt coding on topical direct objects is indeed **motivated by the unexpectedness** of highly topical/topic-worthy lexical direct objects, because of the low frequency of such NPs in direct object position. By contrast, indexation is **correlated with a high degree of topicality** of the referent it indexes. In other words, overt coding serves to signal that a lexical NP fulfilling the role of direct object is highly topical, while indexation is naturally associated with topical NPs and signals the discourse prominence of such direct objects.” (Iemmolo 2011: 268)

Witzlack-Makarevich & Seržant (2018: 25-26):

prefer the cover term DAM (differential argument marking) for all of DOM/DSM (= DOF/DSF, DOI/DSI)

“While agreement or indexing is “a topic related phenomenon” as Givón (1976: 185) puts it (cf. also Kibrik 2011), flagging is not related to topichood or information-structure in general, but rather to semantic argument roles and various dependency relations between a head and its dependent (cf. Iemmolo 2013a).”

4. Differential indexing does not generally behave like differential flagging

Differential object indexing is indeed conditioned by similar factors as differential object flagging:

various dimensions of **referential prominence**:

(7) scales of inherent prominence

person scale:	locuphoric (1st/2nd) > aliophoric (3rd person)
full nominality scale:	person form (independent or index) > full nominal
animacy scale:	human (> animal) > inanimate

(8) scales of discourse prominence

specificity scale:	definite (> specific indefinite) > indefinite nonspecific
givenness scale:	discourse-given > discourse-new
focus scale:	background > focus

more examples of DOF:

(9) Turkish (von Heusinger et al. 2019)

- a. *Ben elma ye-di-m.*
 I apple eat-PST-1SG
 'I have eaten an apple.' (non-specific object nominal)
- b. *Ben elma-yı ye-di-m.*
 I apple-ACC eat-PST-1SG
 'I ate the apple.' (specific object nominal)

(10) Spanish

- a. *Veo la casa.*
 I.see the house
 'I see the house.'
- b. *Veo a Pedro.*
 I.see ACC Pedro
 'I see Pedro.'

More examples of DOI (differential object indexing):

(11) Bulgarian (cf. Compensis 2022: 30)

- a. *Kuče-to goni kotka.*
 dog-DEF.N chases cat-DEF.F
 'The dog chases a cat.'
- b. *Kuče-to ja goni kotka-ta.*
 dog-DEF.N 3SG.F.OBJ chases cat-DEF.F
 'The dog chases the cat.'

definiteness-conditioned

(12) Oneida (Iroquoian; Koenig & Michelson 2015: 6) **animacy-conditioned**

a. *khe-nú·weh-se?*
 I SG>3-like-HAB
 'I like her (or them).'

b. *k-nú·weh-se?*
 I SG.A-like-HAB
 'I like it.'

(13) Spanish **pronominality-conditioned**

a. **Lo** veo a él.
3SG.OBJ I.see ACC him
 'I see him.'

b. Veo a Pedro.
 I.see ACC Pedro
 'I see Pedro.'

(14) Sanvalentinense (Abruzzo) (D'Alessandro 2017: 7) **topicality-conditioned**

a. *Ajə ccisə li pəllistrə.*
 I.have **killed.M.PL** the chickens.M.PL
 'I have killed the chickens.'

b. *Ajə cciosə li pəllistrə.*
 I.have killed.M.SG the chickens.M.PL
 'I have been killing chickens.'

(15) Pangkhua (Kuki-Chin, Trans-Himalayan; Akter 2022: 300) **animacy-conditioned**

a. *Ramŋai vək t̪amkan ə=mu=ei.*
 Ramŋgai pig many 3SG.SBJ=see=OBJ.PL
 'Ramŋgai saw many pigs.'

b. *Ramŋai p̪ar t̪amkan ə=mu?*
 Ramŋgai flower many 3SG.SBJ=see=OBJ.PL
 'Ramŋgai saw many flowers.'

But: Differential subject indexing is generally **conditioned by the same prominence factors!**

(4) Generalization 2

All arguments tend to get **extra indexing** when the nominal is referentially prominent.

DOI is often seen as “additional indexing”, but differential subject indexing (DSI) tends to be taken as “absent indexing”, because the presence of indexing is seen as the default,

cf. Lambrecht's (2000: §3.2) “suspended subject-verb agreement“

(16) English

- a. *The three women* **are** *IN THE ROOM.*
 b. *There's three WOMEN* *in the room.*

topicality-conditioned

(17) French

- a. *Les trois femmes* **sont** (*est) *venues.*
 the three women are (is) come:PP:FEM:PL.
 'The three women CAME.'
- b. *Il* **est** (*sont) *venu trois femmes.*
 it is (*are) come:PP:MASC:SG three women
 'There came three WOMEN.'

topicality-conditioned

(18) Welsh (Borsley et al. 2007: 199)

- a. *Gwelo-n nhw ddraig.*
 saw-3PL they dragon.
 'They saw a dragon.'
- b. *Gwel-odd y bechgyn ddraig.*
 saw-3SG the boys dragon
 'The boys saw a dragon.'

pronominality-conditioned

(19) Tsez (Polinsky & Comrie 1999: 120, 124)

- a. *Eni-r [už-ā magalu b-āc'-ru-λin] b-iy-xo.*
 mother-DAT boy-ERG bread:ABS:3 CL3-eat-PSTPRT-COMP cl3-know-PRS
 'The mother knows that the boy ate bread.' (long-distance agreement)
- b. *Eni-r [už-ā magalu b-āc'-ru-λin] r-iy-xo.*
 mother-DAT boy-ERG bread:ABS:3 CL3-eat-PSTPRT-COMP cl4-know-PRS
 'The mother knows that the boy ate bread.'
- c. *Eni-r [už-ā magalu-kin b-āc'-ru-λin] *b/r-iy-xo.*
 mother-DAT boy-ERG bread:ABS:3 CL3-eat-PSTPRT-COMP cl3/cl4-know-PRS
 'The mother knows that the boy ate BREAD.'

topicality-conditioned

(20) Garifuna (Barchas-Lichtenstein 2012: 167-168)

- a. *Éiha n-umu-ti óunli.*
 see PISG-AUX.TR.NFUT-T3M dog
 'I saw the dog' (*I saw the dogs.)
- b. *Éiha n-umu-tiyan óunli.*
 see PISG-AUX.TR.NFUT-T3PL
 'I saw the dogs.'
- c. **Éiha n-umu-tiyan fulúri.*
 see PISG-AUX.TR.NFUT-T3PL flower
 ('I saw the flowers.')

animacy-conditioned

That discrimination is not the key factor becomes clear when we consider still further phenomena, such as **differential place marking** (Haspelmath 2019):

Special place marking when the place is not inanimate:

(23) Italian

- a. *Vado a-lla chiesa.* vs.
 'I go to the church.'
- b. *Vado da-l poliziotto.*
 'I walk up to the policeman.'

Differential zero-marking when the place is expressed by a place-name, e.g. in Maltese
 e.g. in Maltese (Stolz et al. 2017: 463)

- (24) a. *Jgħallem Għawdex.*
 3SG.M.IMPFV.teach Gozo
 'He teaches on Gozo (an island).'
- b. *Jgħallem f-l-iskejjel ta-l-Gvern.*
 3SG.M.IMPFV.teach in-DEF-schools of-the government
 'He teaches in the schools of the government.'

Place-names do not seem to be **less** confusable with subjects than common place nouns.

What explains all cases of differential flagging is **expectation sensitivity**:

Speakers add **extra coding material** when a meaning is **unexpected** in its context, and this may be grammaticalized.

Actually, this explanation has long been advocated, e.g.

"[...], the most **natural kind of transitive construction** is one where the A is high in animacy and definiteness, and the P is lower in animacy and definiteness; and any **deviation** from this pattern leads to a more **marked** construction." (Comrie 1989: 128)

"**disagreement** of slot and filler properties favors markedness, **harmony** favors unmarkedness." (Bossong 1991: 163)

"the need for overt coding of topical direct objects is not due to the fact that a topical direct object is cognitively more marked per se. Rather, I have argued that **it is the lower frequency of topical/topicworthy referents in direct object position** that explains why these direct objects are less easy to process. In addition, we have seen that language processing is based on the **expectations and predictability** of the language user. ... Since the most frequent situation seems to be one in which agents are human, definite and topical and direct objects are less human, definite and/topical than agents, the reversal of this situation would be likely to be harder to process." (Iemmolo 2011: 268-269)

- Thus:
- referentially prominent P-arguments tend to get extra flagging (because P-arguments are usually **non-prominent**)
 - referentially **non-prominent** A-arguments tend to get extra flagging (because A-arguments are usually **prominent**)
 - we do not need the terms/concepts “markedness”, “naturalness”, and “iconicity” (*pace* Aissen 2003 etc.)

6. Differential indexing is puzzling

Differential indexing does not show the mirror-image pattern seen in differential flagging, but obeys a surprisingly uniform generalization:

(4) Generalization 2

All arguments tend to get **extra indexing** when the nominal is referentially prominent.

This was formulated clearly by Siewierska (2004: 149):

(25) Siewierska’s indexing universal

“If person agreement is not obligatory in a language, it will occur with controllers displaying the characteristics on the left-hand side of the hierarchies [of referential prominence; see (7)-(8) above]”

This is a major exception to Haspelmath’s (2021b) generalizations about asymmetric coding in grammar. Something about indexing seems to favour its association with referentially prominent arguments.

Iemmolo (2011: 268) said it clearly:

“Overt coding on topical direct objects is indeed **motivated by the unexpectedness** of highly topical/topic-worthy lexical direct objects, because of the low frequency of such NPs in direct object position. By contrast, indexation is **correlated with a high degree of topicality** of the referent it indexes. In other words, overt coding serves to signal that a lexical NP fulfilling the role of direct object is highly topical, while indexation is naturally associated with topical NPs and signals the discourse prominence of such direct objects.” (Iemmolo 2011: 268)

And as early as in 1979, Comrie argued against conflating differential flagging (“case marking”) and differential indexing (“agreement”):

“Thus we can say, more generally, that **verbs tend to agree with those arguments that are, or at last: are typically, definite, animate, and thematic**. One might therefore be tempted to subsume both case-marking and verb-agreement under the same unified general explanation. We suggest that this cannot be done, although the fact that subjects tend to be definite, animate and thematic is no doubt an integral part of the explanation for both phenomena. The crucial difference, however, lies in the *discriminatory* role of case-marking of definite/animate objects: they are marked differently from subjects, although they share certain semantic features in common, indeed *because* they share certain features in common, as the function of this case-marking is to keep them apart overtly. **Verb-agreement, however, has little or no discriminatory function, indeed it serves to unite definite/animate direct objects and subjects.**” (Comrie 1979: 20)

And quite recently, Just (2023: 272) notes that differential indexing cannot be explained in the same way as differential flagging:

“The account also highlights the functional difference between indexing and case marking and points out how **differential indexing is different from other coding splits in that it cannot be explained in terms of frequency of use and coding efficiency.**”

But what explains Siewierska’s (or Comrie’s) indexing universal?

I don’t know, and I’m worried by this. I would like to know.

Three more thoughts:

(i) The preference for indexing referentially prominent arguments seems to extend to **adpossessionive indexing** and adpositional indexing:

(26) Khanty (Nikolaeva 1999: 14; 52; cited by Siewierska 2004: 152)

- a. *luw xo:t-əl-na* pronominality-conditioned
 he house-**3SG**-LOC
 ‘in his house’
- b. *Juwan xo:t-na*
 Juwan house-LOC
 ‘in Juwan’s house’

(27) Welsh (Roberts 1999: 622; cited by Siewierska 2004: 153)

- a. *ei=wraig o* pronominality-conditioned
3SG=wife he
 ‘his wife’
- b. *(*ei=wraig Gwyn*
(3SG=)wife Gwyn
 ‘Gwyn’s wife’

(ii) Quite generally, there is a strong tendency for first and second person to be indexed on the verb, sometimes regardless of the role – and topicality seems to play a role in this.

(28) Itelmen (Bobaljik & Wurmbrand 2002: 2; Comrie 2003: 324)

- a. *Isx-enk n-zəl-ət-in* *kza kəna-nk?*
 father-ERG IPRS-give-FUT-**2SG.OBJ** you me-DAT
 ‘Will father give you to me?’ (addressee topic)
- b. *Isx-enk n-zəl-ət-um* *kza kəna-nk?*
 father-ERG IPRS-give-FUT-**1SG.OBJ** you me-DAT
 ‘Will father give you to me?’ (speaker topic)

(iii) Many of the examples of differential indexing concern (third person) **number indexing**, which is not the clearest case of indexing (in fact, in Haspelmath (2013), I defined index as ‘bound **person(-number)** form’) – and there are not so many examples of clear **person indexing** disappearing.

Number marking is well-known to be **often dependent on animacy and/or definiteness** (e.g. Corbett 2000; Haspelmath 2005), and this appears to be a related phenomenon.

7. Concluding remarks

- **differential object marking (=flagging)** is a success story for general linguistics:
 - a novel concept (and technical term) has led to a robust generalization, with a plausible functional-adaptive explanation
- **differential subject flagging** seems to allow an extension of the success story, yielding a mirror-image pattern that can be explained in the same way (but some skepticism remains, cf. Fauconnier & Verstraete (2014), with some comments here: <https://dlc.hypotheses.org/770>)
- **differential object indexing** and **differential subject indexing** are a mixed success
 - on the one hand, there seems to be a robust generalization (Siewierska’s indexing universal), but on the other, we do not seem to have a good general explanation

Finally:

Much of the literature on DAM is concerned with identifying the **language-particular conditioning factors** that explain the behaviour of particular languages – these factors may go beyond the generalizations that I focused on here, and the match between the comparative concepts used here and the particular categories or factors may be only partial.

– Thus, linguists who focus on particular languages (i.e. most linguists) can ignore what I said here, but I still find it interesting to ask general questions and to provide tentative general answers.

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