TOWARDS A TYPOLOGY OF CASE IN HEAD-MARKING LANGUAGES

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1. Goals
An investigation of the relations between clause-level dependent-marking (flagging) and head-marking (indexing) attested in the languages of the world.
Some particular questions:
- ➤ how frequent are languages with both head- and dependent-marking?
- ➤ which types of distribution of flagging and indexing recur cross-linguistically and with which frequency?
- ➤ what are (if any) general tendencies in the ways languages align and distribute flagging and indexing?

2. Definitions
Case: "a system of marking dependent nouns for the type of relationship they bear to their heads" (Blake 2001: 1)
- ➤ preferably expressed by bound morphemes, but not necessarily: languages with grammaticalized adpositions also considered (though not systematically enough);
- ➤ need not necessarily express core syntactic relations (S, A, P): 'peripheral' case systems are of particular interest.

Head-marking: indexing of such properties of arguments as person/number/gender/class on their syntactic heads (cf. Nichols 1986)
- ➤ only verbs are considered;
- ➤ no less than two arguments must be indexed;
- ➤ at least some 3rd person Objects (i.e. transitive Patients, ditransitive Themes or Recipients etc.) must be indexed by <u>overt</u> (non-zero) morphemes;
- ➤ preferably expressed by affixes on the verb, but pronominal clitics are also considered;
- ➤ pronominal indices must be able to co-occur with overt NP arguments (grammatical, but not anaphoric, agreement (Bresnan & Mchombo 1986), or 'clitic doubling').

3. What is known and being claimed?
- ➤ In languages with split ergativity, flagging tends to be ergative while indexing tends to be accusative (Dixon 1979, 1994 etc.).
- ➤ "NPs do not have grammatical Case in any polysynthetic language" (Baker 1996: 132).
- ➤ In ditransitive constructions, flagging tends to be indirective while indexing tends to be primative (Siewierska 2003; Haspelmath 2006).
- ➤ Bakker & Siewierska (2009: 300) hierarchy of double marking:

$$A > P > R$$

"[O]vert case and agreement marking of both A and P is quite exceptional. Overt marking by case and agreement of each of the three arguments in a ditransitive clause does not seem to be attested" (ibid.: 302);

"[T]he likelihood of an argument displaying both overt case and agreement marking declines as we progress down the argument hierarchy" (ibid.).

4. The database and the sample

The sample (genetically stratified: one family — one language):

Eurasia (11): Adyghe (North-West Caucasian), Alutor (Chukotko-Kamchatkan), Basque, Belhare (Sino-Tibetan), Burushaski, Georgian (Kartvelian), Hungarian (Uralic), Ket (Yenisseyan), Modern Greek (Indo-European), Mundari (Munda), Sumerian

Africa (2): Amharic (Semitic), Kabyle (Berber)

North and Meso America (9): Choctaw (Muskogean), Coahuilteco, Diegueño (Yuman), Karok (Karok-Shasta), Southern Paiute (Uto-Aztecan), Siuslaw, Southern Tiwa (Kiowa-Tanoan), Tarascan, West Greenlandic (Eskimo-Aleut)

South America (3): Mapudungun (Araucanian), Yanesha' (Arawakan), Yanomami (Yanomam)

Australia (5): Alawa (Gunwingguan), Gooniyandi (Bunaban), Malakmalak (Daly), Nyigina (Nyulnyulan), Ungarinjin (Wororan)

New Guinea and Oceania (9): Bargam (Madang), Bilua (Central Solomon), Hua (Gorokan), Kaki Ae, Kwomtari (Arai-Kwomtari), Manambu (Sepik), Menya (Angan), Sentani (East Bird's Head-Sentani), Yimas (Ramu-Lower Sepik)

Data from the languages genetically related to those included into the sample is also considered.

5. General overview

Table 1. Number of cases[1]

No. of cases	No. of langs.	Example
2	9	Burushaski, Kabyle, Yimas, Mapudungun, Choctaw
3–4	5	Modern Greek, Coahuilteco, Kaki Ae, Yanomami
5–8	10	Mundari, Alawa, Tarascan, West Greenlandic, Kwomtari
> 8	14	Alutor, Manambu, Gooniyandi, Siuslaw

➤ Head-marking languages favour moderate and rich case systems.

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[1] Not for all languages the data is uncontroversial.

Table 2. Number of participants indexed on the verb[1]

No. of indices	No. of langs.	Example
2	25	Amharic, Alawa, Burushaski, Diegueño, Manambu, Mapudungun
3	8	Basque, Yimas, Southern Tiwa, Ungarinjin
> 3	3	Adyghe, Sumerian, Choctaw

➢ Among the rich agreement languages (3 or more arguments cross-referenced on the verb) there are both languages with poor (Yimas) and rich (Basque, Sumerian) case systems.

Table 3. Alignment of core case-marking

Alignment	No. of langs.	Example
Accusative	11	Amharic, Hungarian, Southern Paiute, Manambu,
Ergative	13	Adyghe, Gooniyandi, Yanomami, Karok
Marked-nominative[2]	3	Kaki Ae, Diegueño, Choctaw
Neutral	8	Ket, Ungarinjin, Yimas, Southern Tiwa, Mapudungun
Active	1	Nyigina
Split[3]	3	Georgian, Kabyle, Alawa

➢ Among the head-marking languages ergativity seems to be more frequent than in the world in general, cf. the WALS data (Comrie 2008):

accusative: 46   marked-nominative: 6   ergative: 32

Table 4. Basic word order

Basic order	No. of langs.	Example
V-final	21	Amharic, Basque, Malakmalak, Hua, Southern Paiute
V-medial	4	Alutor, Tarascan, Yanesha', Ungarinjin (object-initial)
V-initial	1	Kabyle
no dominant order	13	Hungarian, Nyigina, Yimas, Southern Tiwa, Mapudungun

➢ Consistent with the general observation that case languages tend to be verb-final (Greenberg 1966: 96; Bakker & Siewierska 2009: 295–296).

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[2] See König 2006, Handschuh in prep.
[3] Splits based on person or definiteness are not considered.

6. The typology

Three major types of distribution of case marking and verb agreement:

Type A: (almost) complementary distribution of flagging and indexing, i.e. if a NP bears overt case marker it cannot be cross-referenced on the verb (in some languages the reverse implication is also true).

Type B: (almost) exact matching of flagging and indexing, i.e. particular case on the NP corresponds to a dedicated type of verbal pronominal markers.

Type C: systematic mismatches between flagging and indexing (e.g. splits of well-known types).

Table 5. Distribution of the types

Type	No. of langs.	Example
A	8	Ket, Ungarinjin, Bargam, Southern Tiwa, Mapudungun
B	11	Amharic, Hungarian, Menya, Coahuilteco
C	20	Georgian, Gooniyandi, Sentani, Choctaw, Yanomami

7. Type A languages

7.1. Overview

Eurasia: Ket
Australia: Ungarinjin
Oceania: Bargam, Bilua, Yimas
North America: Southern Tiwa
South America: Mapudungun, Yanesha'

Core alignment: neutral (other types logically excluded)

7.2. Type of case-system

➢ One general oblique case used in a wide variety of functions (Bargam, Yimas, Mapudungun) vs.

➢ A more or less rich system of peripheral case-markers (e.g. 8 cases in Ungarinjin, 9 cases in Ket and Bilua, ca. 10 cases in Yanesha', a not very well determined number of postpositions in Southern Tiwa)

YIMAS (Ramu-Lower Sepik, Papua New Guinea)

Core participants (including ditransitive Themes and Recipients) are indexed on the verb and bear no case-marking:

(1) $ŋaykum_1$ $makaw_2$ $panmal_3$ wa_2-mpu_1-$ŋa$-r-akn_3.
     woman(PL)   fish   man   3SG.P-3PL.A-give-PRF-3SG.IO
     'The women gave the man makau.' (Foley 1991: 228)

Oblique case marker $-n/-ɲan$ can encode instrument (2a), location (2b), time (2c), and is used with postpositions (2d):

(2) a. $kaŋk$-$ɲan$ na-ka-$warapa$-kia-k.
       shell(PL)-OBL   3SG.P-1SG.A-cut-TNS-IRR
       'I cut him with shells.' (ibid.: 166)

b. *ŋaŋk-ɲan   ama-na-irm-n.*
  grass(PL)-OBL   1SG.S-DFV-stand-PRS
  'I am standing in the grass.' (ibid.)

c. *tmat-ɲan   nma-kay-wark-wat.*
  day-OBL   house:P-1PL.A-build-HAB
  'We always build a house during the day.' (ibid.: 169)

d. *irpm-un   akpɲan   na-na-irm-n.*
  coconut.palm-OBL   behind   3SG.S-DFV-stand-PRS
  'He is standing behind the coconut palm.' (ibid,)

BILUA (Central Solomon, Solomon Islands)
8 peripheral postpositions (Obata 2003: 177)
  kasi 'locative', *vasi* 'vicinity', *azo* 'ablative', *keru* 'temporal', *sate* 'comitative', *kaqe* 'benefactive', *pide* 'privative', *jari* 'similative'.

7.3. Number of verbal indices and non-cross-referenced core arguments
  3 participants indexed on the verb (normally including both ditransitive Theme and Recipient): Yimas, Southern Tiwa, Ungarinjin
  2 participants indexed on the verb, agreement with the Recipient but not with the Theme: Ket, Bargam, Bilua, Mapudungun[4].

BARGAM (Madang, Papua New Guinea)
(3) *ya   **onmin**   wagam   kabemmo   **gi**-bilen-∅-∅.*
  I   child(PL)   story   many   3PL.OBJ-speak-PST-1SG.SBJ
  'I told the children many stories.' (Hepner 2006: 106)

MAPUDUNGUN (Araucanian, Chile)
(4) *Maria   pūto-l-**fi**-y   ko   **Rosa.***
  Maria   drink-CAUS-3SG.OBJ-3SG.SBJ   water   Rosa
  'Maria made Rosa drink water.' (Smeets 2008: 349)

➢ Theme is neither cross-referenced nor case-marked. Marking of Theme as an oblique participant (cf. the situation in the Salish languages, Kroeber 1999: 43) is so far unattested.
➢ In languages with only two indices on the verb, more than one NP in the clause may be both non-cross-referenced and non-case-marked.

ALAMBLAK (Sepik, Papua New Guinea)
"The outer object, the non-coreferenced and non-case-marked noun phrase, functions to designate the non-agentive object which can be thought of as an important participant in the situation predicated by the clause, although of comparatively less prominence than the undergoer" (Bruce 1984: 220)

(5) *yima-r   yën-f₁   **yemrë-m   nëngay-t**   këmbri-hay-më-r-f₁.*
  person-3SG.M   child-3DU meat-3PL   dish-3SG.F   put.in-BEN-PST-3SG.M.SBJ-3DU.OBJ
  'A man put meat into a dish for children.' (ibid.: 221)

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[4] Situation in Yanesha' is not clear, Duff-Tripp (1997) being not explicit on this matter.

7.4. Argument structure alternations may be especially revealing:

Promotion to core involves simultaneous dropping of case marking and appearance of verbal indexing; when demoted, NPs are no longer cross-referenced but get case marking.

SOUTHERN TIWA (Kiowa-Tanoan, USA)

(6) a. *seuan-ide   i-musa-wia-ban   hliawra-de-ʔay.*
      man-SG   3SG.A/3.P-cat-give-PST   woman-SG-ALL
      'The man gave cats to the woman.' (Frantz 1995: 80)

   b. *hliawra-de   am-musa-wia-che-ban   seuan-ide-ba.*
      woman-SG   3.S/3SG.IO-cat-give-PASS-PST   man-PL-INS
      '=5a' (ibid.)

> Type A languages show the most straightforward division of labour between head- and dependent-marking: indexing relates to the core syntactic arguments, whereas flagging is restricted to adjuncts. The rarity of such systems is probably explained by the inherent differences in the functions of head- and dependent-marking (cf. Bakker & Siewierska 2009).

8. Type B languages
8.1. Overview

   Eurasia: Adyghe, Basque, Hungarian, Modern Greek, Mundari
   Africa: Amharic
   Oceania: Manambu, Kwomtari, Menya, Kaki Ae
   North America: Coahuilteco

Core alignment:
   accusative: Hungarian, Modern Greek, Mundari, Amharic, Coahuilteco, Manambu, Kwomtari, Menya
   marked-nominative: Kaki Ae
   ergative: Adyghe, Basque

   ➢ The predominance of nominative-accusative type-B systems is not surprising: in this type verbal and nominal alignments must be identical, and ergativity in the verbal domain is rare (Siewierska 2008)

Number of cases:
   2: Amharic (but prepositions are also relevant)
   3: Adyghe, Modern Greek, Kaki Ae, Coahuilteco
   6–8: Mundari, Kwomtari
   >8: Basque, Hungarian, Manambu, Menya

Number of participants indexed on the verb:
   2: Hungarian, Mundari, Kaki Ae, Manambu, Coahuilteco, Amharic
   3: Basque, Modern Greek
   >3: Adyghe

➢ How and to what degree is the matching between case marking and verb agreement realized?

ADYGHE (North-West Caucasian, Russia, Turkey): Absolutive vs. Oblique case (marks all kinds of non-absolutive arguments) corresponds to the Absolutive vs. Agent vs. Indirect Object series of verbal agreement prefixes (3rd pers. Absolutive and 3Sg Indirect Object prefixes are zero). Note that all oblique arguments (up to three) are introduced by applicative prefixes.

(7) a. *pŝaŝe-m$_1$*   *č'ale-r$_2$* $\varnothing_2$-*j$_1$-e-λeʁ^w.*
    girl-OBL   boy-ABS   3.ABS-3SG.A-PRS-see
    'The girl sees the boy.' (fieldwork notes)

   b. *č'ale-xe-m$_1$*   *pŝaŝe-xe-m$_2$*   *txəλə-r$_3$* $\varnothing_3$-*a$_2$-r-a$_1$-tə-ʁ.*
     boy-PL-OBL   girl-PL-OBL   book-ABS   3.ABS-3PL.IO-APPL-3PL.A-give-PST
     'The boys gave the book to the girl.' (fieldwork notes)

   c. *wəne-m$_1$* $\varnothing$-$\varnothing_1$-*jə-s-šə-š't.*
     house-OBL   3.ABS-3SG.IO-LOC-1SG.A-lead.out-FUT
     'I will lead him out of the house.' (based on Smeets 1992: 111)

   d. *ʔ^{w}efə-r$_1$*   *č'ale-xe-m$_2$* $\varnothing_1$-*a$_2$-fe-s-ŝə-ʁ.*
     work-ABS   boy-OBL   3.ABS-3PL.IO-BEN-1SG.A-do-PST
     'I did the work for the boys.' (based on Smeets 1992: 124)

Whenever any valency changing operation affects the syntactic roles of the arguments, this is reflected both in flagging and in indexing, cf. two different transitive/antipassive pairs: in (8) the former Absolutive P is demoted to the oblique argument, whereas in (9) it is expressed as an Instrumental adjunct and does not trigger verbal agreement:

(8) a. *çəfə-m$_1$*   *txəλə-r$_2$* $\varnothing_2$-*ə$_1$-ǰə-ʁ.*
    man-OBL   book-ABS   3.ABS-3SG.A-read-PST
    'The man read the book (to completion).' (Arkadiev & Letuchiy 2008: 82)

   b. *çəfə-r$_1$*   *txəλə-m$_2$* $\varnothing_1$-*je$_2$-ǰ-a-ʁ.*
     man-ABS   book-OBL   3.ABS-3SG.IO+APPL-read-AP-PST
     'The man read from the book.' (ibid.)

(9) a. *he-m$_1$*   *lə-r$_2$* $\varnothing_2$-*j$_1$-e-šxə.*
    dog-OBL   meat-ABS   3.ABS-3SG.A-PRS-eat
    'The dog is eating the meat.' (ibid.: 81)

   b. *he-r$_1$*   *lə-č'e*   *ma$_1$-šx-e.*
     dog-ABS   meat-INS   3.ABS+PRS-eat-AP
     'The dog feeds on meat.' (ibid.)

Such clear-cut situations as the one found in Adyghe are rare. Usually various minor mismatches are attested; the more general the nature of these mismatches, the closer is the system to type C.

AMHARIC (Semitic, Ethiopia): obligatory subject agreement + optional agreement with topicalized direct (10a) or primary (10b) object, and oblique objects (11a,b), each realized by a special series of markers, both dependent and head; no more than two agreement affixes are allowed at a time. The only mismatch between flags and indices is with the ditransitives, where the Recipient can be cross-referenced by object agreement suffixes and at the same time be marked by the preposition *lä-* instead of the accusative (10c):

(10) a. ***šum-u-n*** *bäqlo* *räggäṭ-ačč-əw.*
official-DEF.M-ACC   mule   kicked-3SG.F.SBJ-3SG.M.OBJ
'A mule kicked the official.' (Leslau 1995: 423)

  b. ***ləǧ-u-n*** *bet-u-n* *asayy-ä-w.*
child-DEF.M-ACC   house-DEF.M-ACC   showed-3SG.M.SBJ-3SG.OBJ
'He showed the house to the child.' (ibid.: 893)

  c. ***lä-ləǧ-u*** *bet-u-n* *asayy-ä-w.*
to-child-DEF.M   house-DEF.M-ACC   showed-3SG.M.SBJ-3SG.OBJ
'=8b' (ibid.)

(11) a. *almaz* ***b-addisu ərsasə-wa*** *ṣaf-äčč-əbb-ät.*
Almaz   with-new   pencil-3SG.F.POSS   wrote-3SG.F.SBJ-INS-3SG.OBJ
'Almaz wrote with her new pencil.' (ibid.: 430)

  b. *ənnatəyya-wa* ***lä-ləǧo-čč-əwa*** *šänkora* *agäda* *gäzza-čč-əll-aččäw.*
mother-DEF.F   to-child-PL-3SG.F.POSS   sugar.cane   stalk   bought-3SG.SBJ-BEN-3PL.OBJ
'The mother bought sugar cane for her children.' (ibid.: 429–430)

8.2. Three-way systems: considerably rare, presumably because they involve doubling of information and increase of morphological complexity. In some languages, e.g. Modern Greek, the full triple-agreement system is used only under special discourse conditions.

BASQUE (isolate, Spain, France): Ergative, Absolutive and Dative cases and person/number indices

(12) a. *ni-k$_1$* *aita-ri$_2$* *diru-a$_3$* *eska-tu* *d$_3$-io$_2$-t$_1$.*
I-ERG   father-DAT   money-ABS.SG   ask-PRF   3.ABS-3SG.DAT-1SG.ERG
'I have asked father for (some) money.' (Saltarelli 1988: 238)

  b. *zu-k$_1$* *aita-ri$_2$* *diru-a$_3$* *eska-tu* *d$_3$-io$_2$-zu$_1$.*
you-ERG   father-DAT   money-ABS.SG   ask-PRF   3.ABS-3SG.DAT-2SG.ERG
'You have asked father for (some) money.' (ibid.)

  c. *ni-k$_1$* *aita-ri$_2$* *eskutitz-ak$_3$* *eska-tu* *d$_3$-izk$_3$-io$_2$-t$_1$.*
I-ERG   father-DAT   letter-ABS.PL   ask-PRF   3.ABS-PL.ABS-3SG.DAT-1SG.ERG
'I have asked father for the letters.' (ibid.)

  d. *ni-k$_1$* *zu-ri$_2$* *diru-a$_3$* *eska-tu* *d$_3$-izu$_2$-t$_3$.*
I-ERG   you-DAT   money-ABS.SG   ask-PRF   3.ABS-2SG.DAT-1SG.ERG
'I have asked you for (some) money.' (ibid.)

MODERN GREEK (Indo-European, Greece):
  Nominative ~ obligatory verbal agreement inflections
  Accusative ~ accusative clitics (used with thematic direct objects)
  Dative[5] ~ Dative clitics (used with thematic indirect objects)

(13) a. *o* *Jann-is$_1$* *tin$_2$=agapa-i$_1$* *t-i* *Maria$_2$.*
DEF.NOM.SG.M   John-NOM.SG   3SG.ACC.F=love-PRS.3SG.SBJ   DEF-ACC.SG.F   Mary:ACC.SG
'John [emphasized] loves Mary.' (Mackridge 1985: 224)

  b. *t-u* *Mixal-i$_1$* *tu$_1$=e-ftiak-s-e* *kafe.*
DEF-DAT.SG.M   Michael-DAT   3SG.DAT.M=PST-make-PRF-3SG.SBJ   coffee:ACC.SG
'She made Michael [some] coffee.' (ibid.: 62)

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[5] Called genitive in traditional descriptions.

8.3. Two-way systems: several subtypes

8.3.1. Two (core) cases correspond to two series of agreement markers.

KWOMTARI (Arai-Kwomtari, Papua New Guinea)
(14) a. *eete-geni lufwa$_1$ glei aie Gote-le$_2$ arienuboue le-fo$_2$-li$_1$.*
　　　 this-thing man 　NEG father God-ACC love 　　　do-3SG.OBJ-3SG.SBJ.REAL
　　　 'This man didn't love father God.' (Honsberger et al. 2008: 91)

With ditransitives, both objects are case-marked by the Accusative, but only the Recipient may trigger agreement:
　　　 b. *mena-ne$_1$ eete-geni mamelei-le nifa-o$_1$-ne.*
　　　　 I-ACC 　　　this-thing 　crocodile-ACC 　give-1/2SG.OBJ-3PL.REAL
　　　　 'They gave me this crocodile (meat).' (ibid.: 92)

KAKI AE (isolate, Papua New Guinea) is similar, except that the Nominative case is optional[6]:
(15) a. *aieʔi-ro$_1$ ẽa$_2$ ara-mu$_1$-ha$_2$.*
　　　 fire-NOM 　house 　burn-3SG.OBJ-3SG.SBJ
　　　 'The fire is burning the house.' (Clifton 1995: 39)
　　　 b. *aieʔi ara-ha.*
　　　　 fire 　burn-3SG.SBJ
　　　　 'The fire is burning.' (ibid.)
　　　 c. *... nane-ro ara-ra-ha ...*
　　　　 fish-NOM 　burn-IRR-3SG.SBJ
　　　　 'When the fish is cooked...' (ibid.: 69)

HUNGARIAN (Uralic, Europe): 'subjective' and 'objective' series of verbal person markers, the latter being used when the verb has a definite direct object marked with the accusative case.
(16) a. *Bemegy-**ek** a régi ház-ba.*
　　　 go-1SG.SBJ 　DEF 　old 　house-ALL
　　　 'I am going into the old house.' (Rounds 2001: 100)
　　　 b. *Lát-**ok** egy ház-at.*
　　　　 see-1SG.SBJ 　INDEF 　house-ACC
　　　　 'I see a house.' (ibid.: 23)
　　　 c. *Lát-**om** a ház-at.*
　　　　 see-1SG.SBJ/3.OBJ 　DEF 　house-ACC
　　　　 'I see the house.' (ibid.)

8.3.2. Two (core) cases correspond to three series of agreement markers: Adyghe.
8.3.3. Two series of agreement markers correspond to two non-overlapping sets of case-markers.

MANAMBU (Sepik, Papua New Guinea): subjective vs. objective agreement markers; the first are used with zero-marked Nominative case exclusively; the second are able to cross-reference topicalized NPs bearing Accusative-Locative, Dative-Aversive,

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[6] Contra Clifton (1995: 38) who labels this case 'Ergative' despite the fact that it can occur on intransitive as well as on transitive subjects, cf. (15c).

Allative-Instrumental, and Terminative cases (Aikhenvald 2008: 68). Accusative marking on the topicalized object is optional (17d).

(17) a. *dakul wapi* **duañanugw-a:m** *kə-da:-**di**.*
　　　　 spirit bird male.children-ACC eat-3PL.SBJ-3PL.OBJ
　　　　 'The spirit birds ate up male children.' (ibid.: 149)

　　 b. *wun* **a-də** *yaba:-r yi-tua-**d**.*
　　　　 I DEM-SG.M road-ALL go-1SG.SBJ-3SG.OBJ
　　　　 'I went towards the road.' (ibid.: 62)

　　 c. *də* **də-kə** *takwa:-k ata wa-də-**l**.*
　　　　 he he-POSS+F.SG woman-DAT here say-3SG.M.SBJ-3SG.F.OBJ
　　　　 'He spoke like this to his woman.' (ibid.: 153)

　　 d. **a-də** **ma:j** *wun laku-tua-**d**.*
　　　　 DEM-SG.M story I know-1SG.SBJ-3SG.OBJ
　　　　 'I have understood the story.' (ibid.: 62)

Languages of type B rarely exhibit a one-to-one correspondence between case and verbal agreement; what distinguishes them from type C languages is that the mismatches between the two systems are not pervasive and operate on a unidirectional (one-to-many, not many-to-many) basis.

The rarity of pure type B systems is probably again explained by the difference in the functional load of head-marking and case.

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9. Type C languages
9.1. Overview

　　 Eurasia: Alutor, Belhare, Burushaski, Georgian, Sumerian
　　 Africa: Kabyle
　　 Australia: Alawa, Gooniyandi, Malakmalak, Nyigina
　　 Oceania: Hua, Sentani
　　 America: Choctaw, Diegueño, Karok, Siuslaw, Southern Paiute, Tarascan,
　　　　 West Greenlandic, Yanomami

Core alignment:
　　 accusative: Sentani, Southern Paiute, Tarascan
　　 marked nominative: Choctaw
　　 ergative: Alutor, Belhare, Burushaski, Gooniyandi, Hua, Karok, Siuslaw,
　　　　 Malakmalak, Sumerian, West Greenlandic, Yanomami
　　 active: Nyigina
　　 split: Alawa, Georgian, Kabyle

　　 ➢ The high percentage of ergative languages in type C is explained by the fact that the majority of languages with accusative case marking fall into type B (see **8.1**).

Number of cases:
　　 2: Burushaski, Choctaw, Karok, Southern Paiute, Kabyle
　　 3–4: Yanomami
　　 6–8: Alawa, Diegueño, Georgian, Hua, Malakmalak, Tarascan, West Greenlandic
　　 > 8: Alutor, Belhare, Gooniyandi, Nyigina, Sentani, Siuslaw, Sumerian

Number of participants indexed on the verb:
   2: the majority
   3: Tarascan, Yanomami
   >3: Choctaw, Sumerian

Defining feature: A many-to-many correspondence between flagging and indexing.

KABYLE (Berber, Alger): two cases and three types of verbal indices; any case can be cross-referenced by any index and vice-versa; agreement with direct and indirect objects is available only in topic and antitopic constructions, where all nominals appear in Direct and Oblique case, respectively (Galand 1979)

(18) a. ***ye-fka***   ***we-rgaz***   *a-γanim*   *i*   *t-meṭṭut.*
       3SG.SBJ-give   OBL-man   DIR-reed   to   OBL-woman
       'The man gave the reed to the woman.' (based on Naït-Zerrad 2001: 61, 163)

    b. ***a-rgaz***   *ye-fka*   *a-γanim*   *i*   *t-meṭṭut.*
       DIR-man   3SG.SBJ-give   DIR-reed   to   OBL-woman
       '=17a' ('the man' is topicalized) (ibid.)

    c. ***a-γanim***$_1$,   *ye*$_2$*-fka-t*$_1$ *we-rgaz*$_2$ *i*   *t-meṭṭut.*
       DIR-reed   3SG.SBJ-give-3SG.M.DO   OBL-man   to   OBL-woman
       '=17a' ('the reed' is topicalized) (ibid.)

    d. *ye*$_1$*-fka-**t***$_2$ *we-rgaz*$_1$ *i*   *t-meṭṭut,*   ***u-γanim***$_2$.
       3SG.SBJ-give-3SG.M.DO   OBL-man   to   OBL-woman   OBL-reed
       'The man gave it to the woman, the reed.' (ibid.)

    e. ***ta-meṭṭut***$_1$,   *ye*$_2$*-fka-**yas***$_1$ *we-rgaz*$_2$ *a-γanim.*
       DIR-woman   3SG.SBJ-give-3SG.IO   OBL-man   DIR-reed
       '=17a' ('the woman' is topicalized) (ibid.)

    f. *ye*$_1$*-fka-**yas***$_2$ *we-rgaz*$_1$ *a-γanim,*   ***t-meṭṭut***$_2$.
       3SG.SBJ-give-3SG.IO   OBL-man   DIR-reed   OBL-woman
       'The man gave her the reed, the woman.' (ibid.)

9.2. Common sources of flagging-indexing mismatches: split ergativity and split ditransitivity (see section 3).

BURUSHASKI (Srinagar dialect; isolate, Jammu & Kashmir)
(19) a. *um-e*   *śugulu*$_1$ *ni:-mi*$_1$.
       you-OBL   friend(DIR)   went-3SG.SBJ
       'Your friend went.' (Munshi 2006: 130)

    b. *salim-e*$_1$ *huma*$_2$ *mu*$_2$*-ye:c-imi*$_1$.
       Salim-OBL   Huma(DIR)   3SG.F.OBJ-saw-3SG.SBJ
       'Salim saw Huma.' (ibid.: 135)

    c. *in-e*$_1$ *in-e-re*$_2$ *ḳita:b-an*   *e:*$_2$*-ć-umo*$_1$.
       3SG-OBL   3SG-OBL-to   book-INDEF   3SG.M.OBJ-gave-3SG.F.SBJ
       'She gave him a book.' (ibid.: 139)

➤ Agreement is based on grammatical relations and topicality (note that object agreement in Burushaski is with animates only), whereas case is more sensitive to semantic roles. More or less similar situations are attested in Alawa, Belhare, Gooniyandi, Hua, Malakmalak, Siuslaw, West Greenlandic (and in a number of languages

outside my sample, sometimes with interesting variation between genetically related languages).

9.3. Less common sources of flagging-indexing mismatches

CHOCTAW (Muskogean, USA). Two cases: Nominative vs. (optional) Accusative; (at least) three sets of verbal agreement markers: Agentive, Patientive, Dative. Nominative case can correspond to any verbal index (20), accusative — at least to Dative and Patientive (21).

(20) a. *anako-sh   ikhana-li-h.*
        I:FOC-NOM   know-1SG.A-PRED
        'I am the one who knows.' (Davies 1986: 3)

   b. *anako-sh   sa-yimmi-h.*
        I:FOC-NOM   1SG.P-believe-PRED
        'I am the one who believes.' (ibid.: 4)

   c. *anako-sh   am-ahwa-h.*
        I:FOC-NOM   1SG.DAT-think-PRED
        'I am the one who thinks.' (ibid.)

(21) *hattak-at   alla-yã$_1$ towa-yã$_2$ ĩ$_1$-∅$_2$-pila-tok.*
    man-NOM   child-ACC   ball-ACC   3DAT-3P-throw-PST
    'The man threw the ball to the child.' (ibid.: 7)

➢ Case-marking operates on a purely syntactic (subject vs. object) basis, whereas agreement is mainly determined by semantic roles and predicate type (cf. Heath 1977).

NYIGINA (Nyulnyulan, Australia): For subjects, both case-marking and agreement operate on an "agentive/patientive" basis, but the two systems do not match each other.

(22) a. ***wamba-ni***   *yin-marra-n*   *waḷi.*
        man-ACT   3SG.A-burn-PRS   meat
        'The man is cooking the meat.' (Stokes 1982: 258)

   b. ***dyuŋgu-ni***   *yi-marra-n*   *waḷi.*
        fire-ACT   3SG.SBJ-burn-PRS   meat
        'The fire is cooking the meat.' (ibid.: 259)

   c. ***dyuŋgu***   *yi-marra-n.*
        fire   3SG.SBJ-burn-PRS
        'The fire is burning.' (ibid.: 258)

   d. *lagarr* ***yin***-*di-ny*   ***wanydyarri maṇin...*** *waladya-yi gunariny-gan   balu.*
        climb   3SG.A-do-PST one   woman   honey-DAT   wild.fig-LOC   tree
        'One woman climbed up in the wild fig tree for honey.' (ibid.: 130)

➢ "where no second entity is significantly affected by the activity ... the [Subject] does not take the active suffix" (ibid.: 130). In the choice between the two sets of prefixal agreement markers the crucial factor is the "degree of control over the activity specified" (ibid.: 260).

Arguments not directly affected by the situation are represented by a special set of pronominal suffixes; the object is left unmarked if "unattainable" (23a), or by the Dative case otherwise (23b):

(23) a. *gaḏady yi-na-**yina**   **ginya   wamba**... *yarridy yi-na-na.*
      search   3SG.A-PST-3SG.IO DEM   man   disappear 3SG.SBJ-sit-PST
      'He searched for that man ... he'd disappeared.' (Stokes 1982: 78)

   b. *gaḏady yi-na-**yina**   **ginya-yi wamba**... *yim-bula-na-yina   garrgudyi.*
      search   3SG.A-PST-3SG.IO DEM-DAT man   3SG.A-come-PST-3SG.IO straight
      'He searched for that man and came upon him straightaway.' (ibid.: 79)

> Languages of type C show a great diversity of many-to-many correspondences between case marking and verbal cross-referencing. Except for the "trivial" mismatches in transitive and ditransitive alignment well-known from the literature, it seems that in each language functions of flagging and indexing are distributed in a unique, though usually clearly motivated way. Notably, as shows the comparison of Burushaski and Choctaw, duties done by case marking in one language may be attributed to agreement in another, and vice versa.

10. Cross-referencing of oblique participants

"[T]he likelihood of an argument displaying both overt case and agreement marking declines as we progress down the argument hierarchy". (Bakker & Siewierska 2009: 302)

➢ True, but counterexamples are instructive.
Languages where verbs may agree with NPs bearing peripheral case marking: Amharic (see **8.1**), Burushaski (only the postposition marking Recipients, see **9.1**), Gooniyandi, Manambu (see **8.3.3**), Sentani, Sumerian (?), Ungarinjin, Tarascan + outside the sample: Itelmen (Chukotko-Kamchatkan), Khanty (Uralic).

Main sources of such situations:
➢ Topicalization (Manambu, possibly Amharic);
➢ Employment of peripheral cases for marking of core participants

KHANTY (Uralic, Siberia): a special locative-agent construction (24b) with ergative properties on a par with the predominant neutral alignment (24a)

(24) a. **qujali**   *aj   ni   tʃupɨ-l-**tə**.*
      young.man   small   woman   kiss-PRS-3SG.SBJ/SG.OBJ
      'Young man is kissing a young woman.' (Filchenko 2007: 346)

   b. **qujali-nə**   *aj   ni   tʃupɨ-l-**tə**.*
      young.man-LOC small   woman   kiss-PRS-3SG.SBJ/SG.OBJ
      '=24a' (ibid.)

GOONIYANDI (Bunaban, Australia): objects of certain verbs deviating from the canonical transitive prototype are marked by peripheral cases and cross-referenced by a special 'oblique' set of verbal indices.

(25) a. *nganyi-ngga   wayandi   jardli.*
      I-ERG   fire   lit:1SG.SBJ/3SG.O
      'I lit a fire'. (McGregor 1990: 318)

   b. *nganyi-ngga   **thadda-ya** yoowangiraa-**nhi**.*
      I-ERG   dog-LOC   excercise.caution:1SG.SBJ-3SG.IO
      'I'm afraid of the dog.' (ibid.: 321)

Also: Itelmen, Sentani, Ungarinjin

➢ Use of applicatives (without surface promotion of objects): Sumerian, Tarascan

TARASCAN (isolate, Mexico): with some verbs 'locative suffixes' introducing locational phrases are obligatory.

(26) *xí   apáŗ-k'u-š-k'a-ni   kwinkwísi-ŗu.*
     I   burn-**LOC**-PST-IND-1SG   elbow-LOC
     'I burned myself on the elbow.' (Foster 1969: 183)

ADYGHE: applicatives normally require that the objects they introduce acquire Oblique case marking (27a); however, marginally, applicative prefix on the verb may cross-reference a postposition phrase (27b):

(27) a. *se   č'ale-m$_1$ žeg^{w}aλe   qə-∅$_1$-fe-s-š'efə-ʁ.*
       I   boy-OBL   toy   DRV-3SG.OBL-BEN-1SG.A-buy-PST
      'I bought a toy for the boy.' (Alexander Letuchiy, p.c.)

    b. *se   č'ale-m   paje$_1$ žeg^{w}aλe   qə-∅$_1$-fe-s-š'efə-ʁ.*
       I   boy-OBL   for   toy   DRV-3SG.OBL-BEN-1SG.A-buy-PST
      '=27b' (ibid.)

11. Conclusions

➢ Case is well attested in head-marking languages, even with the restrictions stated in section **1**, moreover, head-marking languages tend to have rich case-systems.

➢ Three major types of case ~ agreement correspondence systems are found:
   Type A: (almost) complementary distribution;
   Type B: (almost) exact matching;
   Type C: systematic mismatches and many-to-many correspondences.

➢ There are no strict boundaries between the types, and pure systems of types A and B are rare; rather, there is a cline from type A via type B to type C depending on the nature and scope of case ~ agreement mismatches attested in the individual languages.

➢ The fact that type C is by far the most common, as well as the frequency of various minor or systematic one-way mismatches between flagging and indexing found in the languages of types A and B, can be attributed to inherent differences in functions of case and agreement (e.g. case is "better suited" for distinguishing between As and Ps as well as to marking peripheral semantic roles, whereas agreement is more sensitive to prominence relations between arguments).

➢ However, as the data clearly show, it is far too simplistic to assume that functions of head- and dependent-marking are cross-linguistically consistent: what may motivate the distribution of case in one language, in other will motivate agreement, and vice versa.

➢ Rather, languages tend to be organized in such a way that the interplay between head- and dependent-marking be "optimal", i.e. both systems partition the domain of participant-related semantics, where they complement and reinforce each other, often in intricate language-specific ways.

Abbreviations

A – agent, ABS – absolutive, ACT – active, ALL – allative, AP – antipassive, APPL – applicative, BEN – benefactive, CAUS – causative, DAT – dative, DEF – definite, DEM – demonstrative, DET – determiner, DFV – definitive, DIR – direct case, DO – direct object, DRV – directional, DU – dual, ERG – ergative, F – feminine, FOC – focus, FUT – future, HAB – habitual, IND – indicative, INDEF – indefinite, INS – instrumental (case/applicative), IO – indirect object, IRR – irrealis, LOC – locative (case/applicative), M – masculine, NEG – negation, NOM – nominative, OBJ – object, OBL – oblique (case/object), P – patient, PASS – passive, PL – plural, POSS – possessive, PRED – predicative, PRF – perfect(ive), PRS – present, PST – past, REAL – realis, S – subject of intransitive verb, SBJ – subject, SG – singular, TNS – tense

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