Sonia Cristofaro (University of Pavia)

1 Functional-typological explanations in diachronic perspective

(1) Classical functional-typological explanations for case marking alignment:

- In most of the attested case marking alignment patterns, two of the three core argument roles A, S and P are encoded in the same way. In all of the attested patterns, A and P are encoded differently (tables 1-3).
- This is because of two mechanisms: (i) speakers need to disambiguate co-occurring roles, such as A and P, hence these roles will not be encoded in the same way, and (ii) speakers will encode in the same way the roles that have something in common.

- In particular (Moravcsik 1978, Dixon 1979 and 1994, DeLancey 1981, Du Bois 1985 and 1987, Mithun 1991a, Mithun and Chafe 1999, Givón 2001, Song 2001, among several others):
  - S arguments may be encoded in the same way as A arguments because both of these roles typically correspond to agentive participants, topical participants, or, more generally, participants that represent a starting point in discourse.
  - S arguments, however, may also be encoded in the same way as P arguments, because both of these roles typically correspond to participants introduced for the first time in discourse, because certain types of S arguments correspond to nonagentive participants, or, in some analyses, because the participants most immediatey involved in the state of affairs being described occur in S or P role.

A	S
P	

Table 1:
Accusative alignment (adapted from Dixon 1994: 72)

A	S
P	

Table 2:
Ergative alignment (adapted from Dixon 1994: 72)

A	S (AG)
P	S (PAT)

Table 3:
Active alignment (adapted from Dixon 1994: 72)

(2) Some general implications of this view:

- Alignment patterns reflect the properties of particular argument roles.
- Alignment patterns are motivated in terms of the relative need to disambiguate individual roles.

(3) But does all this play a role in the actual development of individual alignment patterns cross-linguistically?

(4) The diachronic development of case marking alignment: Individual alignment patterns are a direct or indirect result of the reinterpretation of pre-existing constructions. Two major processes:

- Reanalysis of the argument structure of individual constructions, so that markers not originally used for core argument roles come to encode these roles.
- Development of dedicated markers for particular argument roles through grammaticalization.

(5) Reanalysis: Individual alignment patterns arise through the reanalysis of the argument structure of pre-existing constructions. For example:

- Complex sentences involving nominalized verb forms are reinterpreted as monoclausal structures with similar meaning, leading to either ergative or accusative case marking patterns depending on the original structure of the sentence (Gildea 1998, Creissels 2008):

– Constructions of the type 'X is occupied with Verbing', or 'X is occupied with the Verbing of Y' are reinterpreted as 'X is Verbing', 'X is Verbing Y'. This yields a nominative system, in that, in the resulting constructions, A and S arguments are encoded in the same way because they both originate from the S argument of the main clause in the source construction, while P arguments are encoded differently because they originate from the possessor argument ((6)-(7)).
– Constructions such as 'It will be X's Verbing', or 'To X will be Y's Verbing' are reinterpreted as monoclausal structures, that is, 'X will Verb' or 'X will Verb Y'. This yields an ergative pattern, in that, in the resulting constructions, S and P arguments originate from the possessor argument of the nominalized verb, so they both maintain possessor marking, while A arguments are encoded differently because they maintain the marking of the dative NP from which they originate ((8)).

- Resultative intransitive constructions where some entity is in a state resulting from a previous action. The NP encoding the agent of this action is reintepreted as the A argument of the sentence, and the marker on this NP becomes a marker for A arguments: 'Y is X's Verbed thing', 'Y is Verbed by X' > 'X ERG Verbed Y ((9)-(11)).
- In some languages, given third persons are not overtly expressed, so transitive sentences may not have overt third person agents. In these sentences, an instrument can be reinterpreted an agent, leading to the instrumental NP becoming the A argument of the sentence. As a result, the instrumental marker is reinterpreted as a marker for A arguments ('(Somebody) did Y with X' > 'X ERG did Y': (12a-b)).
- In addition to not overtly encoding given third persons, some languages have a constraint whereby situations where a third person acts upon a first or second person must be encoded through passive sentences ((12c)). These sentences are reinterpreted as active ones, leading to the

oblique-marked agent of the passive sentence becoming the A argument of the active sentence. As a result, the oblique marker on the agent of the passive sentence evolves into an ergative marker for the A argument of the resulting active sentence ('Y was made by X' > 'X ERG made Y': (12d)).

- Transitive clauses with unexpressed third person A arguments are reinterpreted as intransitive ones, e.g. '(It) Verbed me' becomes 'I am Verbed' (Harris 1985, Malchukov 2008, Mithun 2008, among others). In the resulting intransitive clause, the S argument is encoded in the same way as P arguments because it was originally the P argument of the transitive clause ((13)).
- Transitive light verbs are reinterpreted as intransitive ('say word' > 'speak', 'do a job' > 'work'). In the resulting clause, the S argument is encoded in the same way as A arguments because it was originally the A argument of the transitive clause ((14)).

Cariña (Cariban)

(6) *a-eena-rɨ* **ɨ-'wa**-*ma*
2-have-NOMLZR 1-DAT/ERG-3.be
'I will have you' (from a nominalized construction 'To me it will be your having': Gildea 1998: 169)

Kuikúro (Cariban)

(7) (a) *áiha u-ikucé-lâ* *léha* **e-héke**
ASP 1-paint-PUNCT ASP 2-ERG
'You finished painting me.' (Franchetto (1990: 411))

(b) **i-ñomó-héke** *titá* *i-ta-lâ-ko*
3-husband-PL-ERG there 3-hear-PUNCT-PL
'Their husbands there heard them' '(Franchetto (1990: 409)) [both from the same type of nominalized construction as (6): Gildea (1998)]

Wayana (Cariban)

(8) **ɨ**-*pakoro*-**n** *iri-Ø* *pək* *wai*
1-house-POSS/OBJ make-NOMLZR occupied.with 1.be
'I'm (occupied with) making my house' [lit. 'my house's making'] (Gildea 1998: 201)

West Greenlandic (Eskimo-Aleut)

(9) **piniartu-t** *terianniaq* *taku-a-at*
hunter-REL.PL fox.ABS see-INDIC-3PL.3SG
'The hunters saw the fox.' (originally 'the hunters's seen thing (was) the fox.': Fortescue 1995: 62-7)

Old Persian (Indo-European)

(10) (a) *ima tya* **manā** *kartam pasāva yaθā xšāyaθiya*
that which 1SG:GEN do:PTCPL after when king
abavam
become:PAST:1SG
'This is that which was done by me (lit. 'my deed')' (Haig 2008: 26)

(b) *avaθā*=**šām** *hamaranam kartam*
thus=3PL.GEN battle do:PTCPL
'Thus by them battle was done/ their battle was fought/ they engaged in battle.' (Haig 2008: 46)

Late Middle Indo-Aryan (Indo-European)

(11) (a) *laddh-a* *tuhuṃ* **maiṃ** *im-aṃmi*
find-PERF.PTCPL.NOM 2SG.NOM 1SG.INSTR this-LOC
van-aṃmi
wood-LOC
'You are found in this forest by me/ I have found you in this forest.'
(Bubenik 1998: 148)

(b) *tā* *keumai-eṃ* *hauṃ* *ghar-aho*
then Ketumaki-INSTR 1SG.NOM home-OBL
nī-ya
take-PERF.PTCPL.NOM
'Then I was brought home by Ketumaki/ Then Ketumaki brought me home.' (Bubenik 1998: 148)

Hanis Coos (Coosan)

(12) (a) **x̣**=*yɨqántštextbarime:x̣* *mæ* *hanƛ* *eʔkwɨnai:ɬ*
ERG=last people shall they.see.thee
'The last generation shall see you.' (Mithun 2005)

(b) *k'wɨn-t* **x̣**=*mɨl:aqətš*
shoot-TRANS OBL=arrow
'**(He)** shot at him with an arrow.' (reanalyzed as 'An arrow ERG shot him.': Mithun 2005)

(c) *n=tó:hɨ-ts-u*
1SG-hit-TRANS-PASS
(He/she/it) hit me.' (lit. 'I was hit.': Mithun 2005)

(d) **x̣**=*lau* *kwantextbarl* *tə=n=tsx̣ewé-i:ɬ* *tə=x̣* *hú:mɨs*
OBL-that.one seems-will that=1SG=kill-PASS that=OBL woman
'I may be killed by that woman.' (Mithun 2005)

Galela (Austronesian)

(13) (a) *ni-kiolo*
2SG.U-asleep
'You are asleep.' (Modern Galela: Holton 2008: 261)

(b) **i**-*mi-tosa*
3SG.A.NONHUM-3F.SG.U-angry
'She is angry.' (19th century Galela: Holton 2008: 272)

(c) *mi-pereki*
3F.SG.U-old
'She is old.' (19th century Galela: Holton 2008: 272)

Udi (Nakho-Dagestanian)

(14) *äyel-en* *o̩ne-ne-xa*
child-ERG crying-3SG-say.PRES
'The child is crying.' (Harris 2002: 252)

(15) Grammaticalization/metonymization: particular elements are reinterpreted as markers indicating the role of a co-occurring argument as their original meaning is bleached:

- 'take' verbs are reinterpreted as indicating the role of a co-occurring P argument. As A and S arguments are undifferentiated, this gives rise to an accusative system ((16), (17); see Chappell 2013, among others, for more examples).
- topic markers are reinterpreted as indicating the role of a co-occurring P argument. As A and S arguments are undifferentiated, this gives rise to an accusative system ((18), (19)).

- An indexical element (demonstratives, third person pronouns) used to signal that a co-occurring A argument represents new/unexpected information becomes a marker for this argument. As P and S arguments are undifferentiated, this gives rise to an ergative system ((47): McGregor 2006, 2008).
- A directional marker used on both verbs and nouns to indicate motion of an entity towards the speaker or the hearer can be reinterpreted as a marker for (third person) A arguments when attached to the A argument of a transitive clause(Rude 1991, 1997: (21)).

Twi (Niger-Congo)

(16) (a) *ɔkɔm* **de** *me*
hunger take me
'Hunger takes me' (Lord 1993: 70) [from an earlier description of the language]

(b) *o*-**de** *afoa ce boha-m*
he-OBJ sword put scabbard-inside
'He put the sword into the scabbard' (Lord 1993: 66)

(c) *wo̲*-**de** *no ye̲e̲ o̲safohéne*
they-OBJ him make captain
'they made him captain' (Lord 1993: 79)

Mandarin Chinese (Sinitic)

(17) (a) *Tāmen* **bǎ** *Zhāng-sān [...] jiǎntao le liǎn xiǎoshi*
They OBJ Zhang-san scrutinize ASP two hours
'They scrutinized Zhang-san for two hours.' (Modern Mandarin: Li and Thompson 1974: 203)

(b) *Yù qīng* **bǎ** *tīan zhǐ ruì-lìng yǐ zhēn yǒu Miáo*
Yu himself take heaven POSS mandate to conquer PTCL Miao
'Yu himself took the mandate of heaven to conquer Miao.' (*Mè-zǐ*, 5th century B.C.: Li and Thompson 1974: 202)

Kanuri (Nilo-Saharan)

(18) (a) *Músa shí-***ga** *cúro*
Musa 3SG-OBJ saw
'Musa saw him' (Cyffer (1998: 52))

(b) *Káno-ro leji-ya ráwanzə́ súr-in*
kano-to go.3SG-DEP.FUT uncle see-IMPF
'When she goes to Kano, she will see her uncle' (Cyffer (1998: 70))

(c) *wú-***ga**
1SG-as.for
'As for me' (Cyffer (1998: 52))

Corsican (Romance)

(19) (a) *cercu* **a** *boi*
look.for:1SG to you
'I am looking for you' (Rohlfs 1984: 66)

(b) **a** *chi ghiè pinzutu 'un more tundu*
to who is pointed NEG die.3SG round
'He who is pointed will not die a square man (proverb).' (Rohlfs 1984: 77)

Bagandji (Australian)

(20) *yaḍu-***ḏuru** *gāndi-d-uru-ana*
wind-DEM/ERG carry-FUT-3SG.SUBJ-3SG.OBJ
'**This wind** will carry it along / The wind will carry it along' (Hercus (1982: 63))

Sahaptin (Sahaptian)

(21) (a) *áw* *i-q'´inum-***ɨm***-a* *w´inš*
now 3NOM-see/look-CSL-PAST man
'Now the man looked *this way*' (Rude 1991: 41)

(b) *áw-naš* *x̣wɨsaat-***nɨm** *i-twána-***m***-aš*
now-1SG old.man-ERG 3NOM-follow-CSL-IPFV
'Now the old man is following me' (Rude 1991: 41)

(22) Case marking alignment and diachrony:

- The fact that different argument roles are encoded in the same way need not reflect some perceived similarity between those roles, and is a result of different processes in different cases:
  - Sometimes, all argument roles are originally undifferentiated, and dedicated markers for particular roles evolve through

grammaticalization or other processes of form-function recombination within complex expressions.

- The roles not involved in the process remain undifferentiated, but this is because all roles were originally undifferentiated, not because of some perceived similarity between these roles.
- In other cases, particular roles are encoded in the same way as other roles because they evolve from these roles **in the source construction**.
- In both of these cases, the fact that particular roles are encoded in the same way can be an epiphenomenal result of diachronic processes not specifically pertaining to those roles.

- Individual alignment patterns do not obviously arise because of the need to disambiguate particular argument roles.
- When particular alignment patterns originate through reanalysis, the reanalysis is plausibly driven by the fact that the resulting meaning is part of, or can naturally be inferred from the original meaning of the construction.
- For example, the source construction and the resulting construction describe the same two-participant event, and the reanalysis is a result of the source construction losing some additional components of its meaning.
- Some properties of the source construction may facilitate the reanalysis, for example:
  - If there are no overtly expressed third person agents, this may facilitate the reinterpretation of some other component of the expression as an agent, particularly if the original meaning of these

components of the sentence is close to the agentive meaning.

  - If certain participant combinations are obligatorily encoded through passives, then passives are the only means to encode these combinations. As a result, the distinction between active and passive can be blurred in these contexts, leading to the reinterpretation of the sentence as an active one (Mithun 2005).

- In other cases, the alignment pattern is a result of the development of a dedicated marker for particular argument roles as some pre-existing element is reinterpreted asa marker for a co-occurring argument. What triggers the reinterpretation process is plausibly (i) the fact that the original meanign of the element (topic marker, demonstrative, 'take', deictic) is bleached, and (ii) the fact that the element co-occurs with particular argument types.

- This means that individual alignment are a result of processes of context-driven reinterpretation of pre-existing constructions: there is no obvious evidence that they arise because of the need to disambiguate particular argument roles.
- Explanations for particular alignment patterns in case marking, then, should take into account how these patterns developed in individual languages, rather than just the pattern in itself.

(23) Adnominal possession ('The X of Y', as opposed to 'Y has X'):

- Languages often make a grammatical distinction between alienable adnominal possession (possession of alienable items, e.g. 'John's house', 'John's books') and inalienable adnominal possession (kinship relationships, part-whole relationships, e.g. 'John's mother', 'my head', 'the leg of the table').

- In inalienable possession, the linear distance between the elements encoding possessor and possessee (as defined by presence vs. absence of overt possessive morphemes between the two, affixation and phonological reduction of the possessor) is never greater than in alienable possession (Haiman 1983 and 1985, among others). For example:
  - In many languages the same construction (e.g. an overt possessive morpheme occurring between possessor and possessee, or juxtaposition of possessor and possessee) is used for both alienable and inalienable possession ((24), (25)).
  - When different constructions are used involving different degrees of linear distance between possessor and possessee, the constructions involving the greater distance (for example, overt possessive morphemes between possessor and possessee as opposed to juxtaposition of the two: (26); juxtaposition of possessor and possessee as opposed to possessor affixation: (27)) are always used

for alienable, rather than inalienable possession.

Luo (Nilo-Saharan)

(24) (a) *puoth-a*
garden.CONSTR.POS.SG-1SG
'my garden' (Stafford 1967: 68)

(b) *lwet-a*
hand.CONSTR.POSS.SG-1SG
'my hand' (Stafford 1967: 68)

Imonda (Border)

(25) (a) *ta* *ehe*-**na**
hair 3-POSS
'her hair' (Seiler 1985: 63)

(b) *ka*-**na** *aia-l*-**na** *ièf*
1-POSS father-NOMLZR-POSS house
'the house of my father' (Seiler 1985: 63)

Warrgamay (Australian

(26) (a) '*ŋulmburu*+**ŋu** *mindi*
woman+ABS+GEN bag+ABS
'the woman's grass dilly-bag' (Dixon 1980: 293)

(b) *ŋulmburu* *bingany*
woman+ABS foot+ABS
'I'll look at the woman's foot' (Dixon 1980: 293)

Kpelle (Niger-Congo)

(27) **ŋ** *pɛrɛ*
1 house
'my house' (Welmers 1973: 273)

(b) **m**-*pôlu*
1-back
'my back' (Welmers 1973: 273)

(28) Two classical explanations for the encoding of alienable and inalienable possession:

- Iconicity (Haiman 1983 and 1985 and several others): alienable possession involves greater conceptual distance between possessor and possessee, and this is iconically reflected by the greater linear distance between the corresponding linguistic items.
- Frequency and economy (Nichols 1988, Koptjevskaja-Tamm 1996, Dahl and Koptjevskaja-Tamm 1998 and 2001, Haspelmath 2008b): Being inherently relational, inalienable nouns are typically possessed, so (i) the possessor relation can easily be inferred and does not need to be specified by means of overt morphemes, and (ii) the frequency of

possessor-possessee combinations leads to affixation and phonological reduction of the possessor, particularly for pronominal possessors. Alienable nouns, on the other hand, are not usually possessed, so (i) the possessor relationship is more difficult to disambiguate from other relationships, and needs to be overtly specified, and (ii) being less frequent, possessor-possessee combinations do not lead to affixation and phonological reduction of the possessor.

(29) Some general implications of these explanations:

- speakers make a conceptual distinction between alienable and inalienable possession, which is (iconically) reflected at the grammatical level;
- alternatively, the relative frequency of particular types of possession relationships affects the grammatical encoding of these relationships
- in both cases, the encoding of possession is assumed to be **motivated** by the alienable vs. inalienable nature of the possession relationship.

- But do iconicity and economy really play a role in the development of the constructions used for alienable and inalienable possession cross-linguistically?

(30) The diachronic development of overt markers for alienable possession: These usually evolve from the grammaticalization of pre-existing elements.

- Locative elements (Location Schema: Heine 1997: chap. 3): these evolve into possessive markers as constructions of the type 'The X at Y's' are reinterpreted as 'Y's X'. ((31)-(33)).
- Demonstratives (Eksell Harning 1980, Schuh 1983 and 1990, Aristar 1991, Koptjevskaja-Tamm 1996: (34)-(36)), which plausibly evolve into possessive markers as constructions such as of the type 'That X, the one of Y' or 'That X (is of) Y' are reinterpreted as 'The X of Y' (Schuh 1983,1990).

- Lexical items denoting possessed items evolve into markers for the possession relationship (('X, Y's property/ thing/ stuff' > 'The X of Y': (37); 'X, Y's food/drink' > "Y's X': (38)).
- Indefinite pronouns evolve into possessive markers used when some conceptually inalienable item is alienably possessed ((39b-c)). The source construction is 'somebody's X (of) Y', which evolves into 'Y POSS (of) Y '. The use of the source construction is motivated by the fact that, when a conceptually inalienable item is alienably possessed by some entity, it is also inalienably possessed by some other entity (e.g., for(39b), 'my milk (from the store)' is some other entity's milk, i.e. the milk produced by this entity).
- Body parts used to indicate the collocation of the possessee vis-a-vis the possessor evolve into possessive markers, e.g. 'the X in Y's mouth' is reinterpreted as 'Y's X' ((40)).

Kabyie (Niger-Congo)

(31) (a) *kólú* **tɛ́** *píya*
blacksmith POSS children
'the blacksmith's children (typically those living in hs compound but *not his own*)' (Heine, Claudi, and Hünnemeyer 1991: 148)

(b) *kólú* *píya*
blacksmith children
'the blacksmith's *own* children' (Heine, Claudi, and Hünnemeyer 1991: 148)

(c) *pɛ*-**tɛ́** *we* *ɖéu*
their-home be beauty
'their home is beautiful' (Heine, Claudi, and Hünnemeyer 1991: 148)

Ngiti (Nilo-Saharan)

(32) (a) *ma* *m-ìngyè* *àba* **bhà** *ɨdzalí-nga*
1SG SC-be.i.the.habit.PFPR father POSS courtyard-NOMLZ
'I normally stay at the courtyard of my father' (Kutsch Lojenga 1994: 322)

(b) *ɔtsʉ́-du*
hand-1SG.INAL.POS
'my hand' (Kutsch Lojenga 1994: 202)

(c) **bhà:**
at.home
'at home' (Kutsch Lojenga 1994: 154)

Assiniboine (Siouan)

(33) (a) *c´a̯pa ni***tá***wa*
shoe 2SG.POSS
'your shoes' (Levin 1956: 24)

(b) *mi-s´u̯ka*
1SG-brother
'my brother' (Levin 1956: 24)

(c) *tí-***ta**
house-at
'at home' (Levin 1956: 19)

Kanakuru (Afro-Asiatic)

(34) *ɓil kimne; mɔ Miyim; ɓili* **ma** *lowoi*
horn buffalo; wife Miyim; horn POSS boy
'buffalo's horn; Miyim's wife; the boy's horn', cf. **me** 'this' (Schuh 1983: 183-4)

Luo (Nilo-Saharan)

(35) (a) *i-dwaro* **ma***?*
2-want this
'Do you want this?' (Stafford 1967: 34)

(b) *agulni* **mag** *mon*
women POSS.PL water.pot
'the women's water pots' (Stafford 1967: 52)

Mojave (Hokan)

(36) (a) *m-***n**$^{\mathbf{y}}$*-utis*
2-POSS-gun
'your gun' (Munro 1976: 17)

(b) *m-intay*
2-mother
'your mother' (Munro 1976: 16)

(c) *m-ime*
2-leg
'your leg' (Munro 1976: 16)

(d) '**n**$^{\mathbf{y}}$*a-*'
that
'that' (Munro 1976: 30)

Cemuhi (Autronesian)

(37) (a) *ā* *mwà* **tɛ**-*n*
the house POSS-his
'his house' (Moyse-Faurie and Ozanne-Rivierre 1983: 119)

(b) *pūnī-n*
head-his
'his head' (Moyse-Faurie and Ozanne-Rivierre 1983: 118)

(c) **tɛ**-*n*
property-his
'his property, his goods' (Moyse-Faurie and Ozanne-Rivierre 1983: 119)

Suau (Austronesian)

(38) (a) *sine* *ta* *e-na* *numa*
woman this POSS-her house
'This woman's house' (Lynch 1973: 72)

(b) *salai* *ne* **a**-*na* *goila*
pig that POSS-its water
'That pig's water' (cf. **'ai** 'to drink') (Lynch 1973: 73; 89)

Navajo (Na-Dene)

(39) (a) *shi-be*
1SG-milk
'my milk (from my own breasts)' (Young and Morgan 1980: 28)

(b) *she-***'a**-*be*
1SG-3INDEF-milk
'my milk (from a secondary source, as milk purchased at the store)'
(Young and Morgan 1980: 7)

(c) **'a**-*be*
3INDEF-milk
'something's milk' (Young and Morgan 1980: 7)

Ngiti (Nilo-Saharan)

(40) (a) *ngbángba* **rɔ̀** *mbɛrʉ̀*
child POSS clothes
'the child's clothes (which he is wearing)' (cfr. **-rɔ̀** 'on the body/surface of') (Kutsch Lojenga 1994: 156)

(b) *ɨ́-yà* **tsʉ̀** *ɔtɛ*
mother-3PL.LOG.POS POS words
'the words of their mother'(Kutsch Lojenga 1994: 157)

(c) *abhu-du* **tsʉ̀** *nyʉ̀ngʉ́*
grandfather-1SG.POS POS pipe
'my grandfather's pipe' (Kutsch Lojenga 1994: 157)

(d) **tsʉ̀**-*du*
mouth-1SG.POS
'in my mouth, by me' (Kutsch Lojenga 1994: 312)

(41) The markers used for alienable possession do not obviously develop because of the need to disambiguate this particular possession type:

- Locative markers, demonstratives and other elements (body part term) evolve into possessive markers because they take on a meaning of possession that is present in the context, either inherently or as a result of contextual inferences. This is a process of metonymization: some element in a complex expression becomes associated with some component of the global meaning of the context in which the expression is used (Traugott and Dasher 2005, among others). This is independent of the relative need to give overt expression to particular categories.
- In other cases, the source element (terms indicating a possessed item; indefinites) encodes the actual possessed item, or an additional possessor, and it evolves into a general possessive marker as some more specific components of its meaning are bleached. This is a process of generalization of meaning (Bybee, Perkins, and Pagliuca 1994), also

logically independent of the need to give overt expression to particular categories.

(42) The distribution of overt possessive markers directly reflect the distribution of the source constructions:

- Locative constructions are not used with kins or body parts, as these are not usually characterized in terms of their location vis-a-vis the possessor (Claudi and Heine 1986, Heine, Claudi, and Hünnemeyer 1991: chap. 6); cf. ? 'the mother at my place' vs. 'the courtyard at my place', ? 'the arm at my place').
- Constructions of the type 'That X, the one of Y', or 'That X (is of) Y' are usually not used for body parts or kin terms because the referents of these nouns are inherently individuated, so they do not need to be identified by means of demonstratives (? 'That arm, the one of John's', ? 'That mother the one of John's').

- Constructions involving lexical items such as 'property' or 'thing' do not usually apply to inalienably possessed nouns because the referents of these nouns are not naturally characterized as the possessor's property (? 'my property, the mother', 'my property, the arm').
- Indefinite elements encoding additional possessors are not used with inalienably possessed items ((39)) because in this case the item is only involved in one (inalienable) possession relationship.
- In some languages, overt possessive morphemes are used for particular possession types when the global meaning of the construction is related to the original meaning of the morpheme, but not when there is no direct relationship. For example, markers derived from locative elements are used for either alienable or inalienable possession when the posession relationship involves a specific locative component, but not when this is not the case ((43)-(45)).
- The relevant possessive markers, then, are not used for inalienable

possession because the source construction is not used with inalienably possessed items. There is no evidence that this restriction is due to the lower need to disambiguate inalienable possession.

Tswana (Niger-Congo)

(43) (a) *dikgômo ts-êtšho*
cattle POSSC-COMM
'my/our (family's) cattle (communal possession by the family or relatives of the person or persons referred to)' (Cole 1955: 163)

(b) *dikgômo tsa-***ga***-êtšho*
cattle POSSC-LOCC-COMM
'the cattle of my/our village' (Cole 1955: 164)

(c) **gae**
home
'home, at home'(Cole 1955: 98)

Malinke (Niger-Congo)

(44) (a) *ń jàtígì*
1 host.DEF
'my host' (Creissels 2009: 121)

(b) *n* **ɲé** *luntân*
1 POSTP guest.DEF
'my guest' (Creissels 2009: 121) (*ɲé* also functions as the locative copula: Creissels 2009: 77)

Mandinka (Niger-Congo)

(45) (a) *à màario*
3 master
'his master' (Creissels 2001: 446)

(b) *à* **la** *jòŋo*
3 POSS slave
'his slave' (Creissels 2001: 446)

(c) *à kèe*
3 husband
'her husband' (Creissels 2001: 446)

(d) *à* **la** *mùsoo*
3 POS wife
'his wife' (Creissels 2001: 446)

(e) *X* **la** *Y*
X at Y
'The X at Y's' (Creissels 2001: 454)

(46) How about possessor affixation and phonological reduction ((27))?

- While overt possessive morphemes develop from grammaticalization processes and are restricted accordingly, affixation and phonological reduction are generally recognized to be related to frequency (Bybee 2001, among several others).

- So it might indeed be the case that the affixation and phonological reduction of possessors in inalienable (as opposed to alienable) possession is related to the fact that inalienable items are inherently possessed, so they will often be combined with possessors (Nichols 1988, Haspelmath 2008a).

However,

- This phenomenon typically involves pronominal, rather than nominal possessors (Dahl and Koptjevskaja-Tamm 1998: 47; (47)), and there are languages where these are affixed independently of alienability ((31), (48)). This suggests that possessor affixation and phonological reduction are related to the pronominal status of the possessor, rather than to inalienability, which is plausible considering that it is generally recognized that pronouns are good candidates for affixation and phonological reduction (Mithun 1991b, Siewierska 2004, among others).

- In some languages, pronominals are indeed affixed only in inalienable possession ((27)). This can be accounted for by assuming that pronominal possessors occur more frequently with inalienable nouns than with alienable nouns, possibly because the referents of inalienable nouns are usually directly related to the immediate situational context, so their possessors are highly predictable (Dahl and Koptjevskaja-Tamm 1998: 43-4). This explanation is based on frequency, but in the sense that inalienable nouns usually take pronominal possessors and pronominals are prone to affixation and phonological reduction, rather than in the sense that these nouns are usually possessed.

Bagandji (Australian)

(47) (a) *gaḷi-ḏuru* *baḍa-nd'-uma* *maṛa-***ama**
dog-DEM/ERG bite-POT-2SG.OBJ hand-2SG.POSS.ABS
'that dog might bite your hand' (Hercus 1982: 58)

(b) *wīmbadja-na* *bi̱rn̄a-bi̱rn̄a*
Aborigenal-GEN bone-bone
'a lot of human (Aborigenal's) bones' (Hercus 1982: 76)

Kabyie (Niger-Congo)

(48) *pɛ-tɛ́* *we* *ɖéu*
their-home be beauty
'their home is beautiful' (Heine, Claudi, and Hünnemeyer 1991: 149)

(b) *maa-oki* *man-ɖani* *tɛ́*
1SG.NEG-go my-she.friend to
'I don't go to my girl friend' (Heine, Claudi, and Hünnemeyer 1991: 149)

(49) The encoding of alienable/inalienable possession and diachrony:

- The structural differences between the constructions used to encode alienable and inalienable possession need not be a result of some

difference between these two possession types (either in terms of some conceptual differences that is perceived by speakers, as in the iconicity hypothesis, or in terms of different discourse frequency, as in the economy hypothesis).

- The use of overt markers for alienable, rather than inalienable possession is a result of the fact that different elements that do not apply to inalienably possessed items evolve into possessive markers due to context-driven processes of reinterpetation.
- Frequency does play a role, but not in the assumed sense.
- Explanations for the encoding of different possession types, then, should take into account what source constructions give rise to the possessive construction, rather than just the possession type in itself.
- This provides a natural explanation for the notorius difficulties in defining the nature of inalienable possession cross-linguistically (Nichols 1988: 579, among others): inalienable possessive constructions do not apply to

the same nouns from one language to another because they originate from different source constructions, or they are at different stages of grammaticalization anyway.

(50) Overt vs. zero marking for singular and plural:

- Languages can use zero marking for singular and overt marking for plural, but usually not the other way round.
- This too has been explained by assuming that speakers will tend to use overt marking for number only when they really need to do so. Plural is less frequent than singular, and hence more in need to be disambiguated through overt marking (Greenberg 1966, Croft 2003, Haspelmath 2008a).
- But this is not actually supported by the actual diachronic properties that give rise to zero vs. overt marking for singular and plural cross-linguistically.

(51) The processes that give rise to overt plural marking are not triggered by the need to disambiguate plural:

- Sometimes, in partitive expressions ('both/many of them'), an element not used to indicate number (a partitive case marker, a verb form: (52), (53)) takes on a plural meaning originally associated with a co-occurring quantifier.
- This is a process of form-function recombination whereby plural meaning is transfered from one element to another within a complex expression. This is plausibly a result of the co-occurrence of these elements, rather than the need to give overt expression to plural (in fact, plural is unambiguously identified by the quantifier).
- Often, plural markers develop through the reinterpretation of elements that are not originally used to express plural, but imply the notion of plurality, at least contextually (distributives, expressions of multitude such as 'people', 'many', 'several' 'all': (54), (55)).

- This is plausibly due to the overlap between plurality and the other meaning components of the relevant expressions, which may lead to these expressions being reinterpreted as encoding plurality, particularly in contexts where their other meaning components are communicatively peripheral (e.g. 'mark where all the windows are' = 'mark where the windows are', 'several/ a few/ a lot of people do that, but I don't' = 'people do that, but I don't', 'the British people' 'the wizard people'). = 'the British'). This too is independent of the need to give overt expression to plural.
- In yet other cases, overt plural marking is a result of the development of elements that encode other categories (gender), but evolve from pre existing elements with separate singular and plural forms (demonstratives, third person pronouns: table 4). In this case, overt marking of plural is an epiphenomenal result of the development of markers for other categories, rather than a result of principles pertaining

to plural in itself.

- New overt plural markers can develop in situations where there is no need for disambiguation:
  - the language already has another plural marker (e.g. the Maithili plural markers in (55) developed as older plural markers were still used in the language, cf. early Maithili *yuwati-nhi* lady-PL: Jhā 1958: 290-1);
  - the language also evolves a singular marker, hence plural would be disambiguated by the absence of that marker (table 4).

Bengali (Indo-European)

(52) (a) *chēlē*-**rā**
child-GEN
'children' (15th century: Chatterji 1926: 736)

(b) *āmhā*-**rā** *såbå*
we-GEN all
'all of us' (14th century: Chatterji 1926: 735)

Assamese (Indo-European)

(53) (a) *chātar*-**hãt**
student-PL
'Students' (Modern Assamese: Kakati 1962: 295)

(b) *dui*-**hanta**
two-be.PTCPL
'Both of them' (Early Assamese: Kakati 1962: 283)

Southern Paiute (Uto-Aztecan)

(54) (a) *qa'nɪ* / **qaŋqa'nɪ**
house / house.DISTR
'house, houses' (Sapir 1930-1: 258)

(b) *piŋwa- / **pivi′ŋwa.mï***
wife / wife.DISTR.their
'wife / their (vis.) wives' (Sapir 1930-1: 257)

Maithili (Indo-Aryan)

(55) (a) *ənḍit/ *bhəīs* **lokəin***
pundit people
'pundits' (Yadav (1997: 70))

(b) *jən/ gæ* **səb***
laborer cow all
'laborers, cows' (Yadav (1997: 69))

(56) The actual processes that give rise to zero marking for singular are not triggered by the fact that singular is less in need of disambiguation:

		SG	PL	
Nouns	M	/õā́-**mà**	/õā́-**//u‘a**	‘boy’
	F	/õā́-**hɛ̀**	/õā́-**djì**	‘girl
	C	/õā́-**(’à)**, /õā́-**djì**	õā́-**nà**	‘child’
Pronouns	M	xà-**má**, á-**mà**, i-**mà**	xà-**//u̯á**, á-**//u̯á**, í-**//u̯á**	‘he’
	F	xà-**hɛ̀**, á–**hɛ̀**, i–**hɛ̀**	xà-**djí**, á-**djí**, í-**djí**	‘she’
	C	(xa-’**à**)	xà-**nà**, á-**nà**, í-**nà**	‘it’

Table 4: Gender/number markers and third person pronouns in Kxoe (Khoisan: Heine 1982: 211)

- In many cases, singular and plural are both originally zero marked, and overt plural markers develop through the reinterpretation of pre-existing elements ((51)). Singular retains zero marking, but this is a result of both singular and plural being originally zero marked, not any specific reason

for using zero marking for singular.

- In other cases, both singular and plural are originally overtly marked, and the singular marker is eliminated due to general processes of phonological erosion in the language ((57)): these are phonologically conditioned, and there is no evidence that they are also driven by the lower need to disambiguate singular as opposed to plural.

(57) English: In Middle English, singular and plural were both originally overtly marked in most cases:

		I	II	III
SG	NOM-ACC	-	-e	-e
	GEN	-(e)s	-e	-e
	DAT	-e	-e	-e
	PL	-(e)	-es	-en, GEN -en(e)

The current configuration with zero marked singulars and *-s* marked plurals (traditionally regarded as a textbook case of economy) resulted from a series

of phonetic changes that led to the elimination of all overt inflectional endings for singular and except genitive singular *-s* and plural *-es* (Mossé 1949).

(58) Different source constructions and developmental processes do not all give rise to the same configurations for zero vs. overt singular and plural marking:

- Overt markers restricted to plural originate from constructions restricted to plural (plural quantifiers, expressions of multitude, plural quantifiers: (52)-(55)).
- On the other hand, constructions that apply to both singular and plural (gender markers) give rise to both singular and plural markers (table 4).
- Particular processes give rise to either overt marking restricted to plural or overt marking restricted to singular, possibly leading to exceptions to the universal:
  - In partitive expressions, metonymic transfer of meaning from a quantifier to a co-occurring element gives rise to overt singular

markers if the quantifier is singular ('one of them'), possibly leading to situations where singular is marked overtly and plural is zero marked ((59)).

– Phonological erosion can target plural markers, also leading to situations where singular is marked overtly and plural is zero marked ((60), (61)).

- These facts suggest that the development of overt marking for plural as opposed to singular depends on what source constructions give rise to the marker, rather than the relative need to disambiguate singular and plural.

Imonda (Border)

(59) (a) *agõ*-**ianèi**-*m* *ainam* *fa-i-kõhõ*
women-NONPL-GL quickly CL-LNK-go
'He grabbed the woman' (Seiler 1985: 194)

(b) *mag-m* *ad-***ianèi**-*m*
one-GL boy-NONPL-GL
'To one of the boys' (Seiler 1985: 219)

(60) Sinhala (Indo-European): some inanimate nouns have overtly marked singulars and zero marked plurals (e.g. *pot-***a**/ *pot* 'book-SG/ book.PL'). This was a result of phonetic changes leading to the loss of the plural ending of a specific inflectional class in the ancestor language (Nitz and Nordhoff 2010: 250-6).

(61) Nchanti (Niger-Congo): Nouns in classes 3/4 have overt marking in the singular and zero marking in the plural, e.g. *k*^{w}*ə̄ŋ/ kə̄ŋ* 'firewood.SG/ firewood.PL, *k*^{w}*ēē/ kēē* 'moon.SG/ moon.PL'. Originally, both singular and plural were marked overtly through the two prefixes **u*- and **i*- respectively. As these were eliminated, the singular prefix led to the labialization of the initial consonant of the stem, while the plural prefix left no trace (Hombert 1980).

(62) Word order patterns:

- Recurrent word order patterns are generally assumed to be motivated by principles pertaining to the relative positioning of the elements involved in the pattern.

- For example, the higher frequency of SVO and SOV as opposed to other possible orders is motivated by these orders complying with three principles (Tomlin 1986):
  - the Theme First Principle, whereby subjects, being inherently thematic, should precede objects;
  - the Animated First principle, also leading to subjects preceding objects;
  - the Verb-Object bonding principle, whereby objects should be adjacent to the verb.

- Likewise, the higher frequency of NRel as opposed to RelN is motivated by processing ease (Hawkins 1983 and subsequent works):
  - preposed modifiers delay recognition of the head, and the more structurally complex the modifier, the further the delay in head recognition;
  - therefore, more structurally complex modifiers, such as relative clauses, tend to be placed before the head.

- Correlations between different word order dyads are also assumed to be motivated in terms of principles pertaining to the properties of each dyad. For example:
  - In languages where the possessor follows the possessed item, the relative clause follows the noun (NPoss $\rightarrow$ NRel).
  - This too has been accounted for in terms of the need to optimize immediate constituent recognition (Hawkins 1983, 1994, 2004). If there is a tendency to place structurally complex modifiers after the head, then, if less complex modifiers such as possessors are placed after the noun, so are more complex modifiers such as relative clauses.

(63) The diachronic development of word order patterns:

- In many cases the processes that give rise to particular word order dyads or co-occurrence between these dyds are independent of the principles that can be postulated on synchronic grounds.
- The same word order dyads and correlations arise differently in different cases, hence the global frequency of these dyads or correlations may not be significant and there may not be a unified explanation.

(64) Some possible sources for NRel:

- Luo ((65)): A construction involving a demonstrative combined with a predicating expression and referring to a preceding topical expression gives rise to NRel as the demonstrative is reanalized as a relative maker: 'X, that one Verbs' > 'The X who Verbs', with the demonstrative evolving into a relative marker.
- Ewe ((66)): the source construction involves a topical NP X modified by a (postposed) demonstrative, an appositional NP consisting of the definite article and a verb root used in modifying function, and a sentence describing an event in which the referent of the topical NP is involved: 'X this (for 'This X), the one who Verbs, (this one) Verbs' > 'The X who Verbs', with the demonstrative and the definite article evolving into relative markers.

- In both of these cases, the relative clause originates from the reanalysis of some other type of expression.What triggers the reanalysis is presumably the fact that, in the original construction, some expression provides additional iformation about a referent by describing a state of affairs in which the referent is involved: this can lead to the inference that the information is provided in order to identify the referent, which is the function of relative clauses.
- This is independent of the need to place structurally complex modifiers after the head:
  - the construction that gives rise to Rel does not originally function as the modifier of the element that becomes the head of the relative clause;
  - in one case (Ewe) the expression that gives rise to Rel involves a modifying element, but this is preposed to its head. This order is maintained in the resulting NRel construction, and the fact that this

construction involves a postposed relative clause is a side effect of the fact that the original head of the modifying expression does not function as a head any more, and the original combination modifying expression + head as a whole functions as a modifier of some other element.

- In these two cases, NRel originates from the reanalysis of different source constructions, which independently lend themselves to be reinterpeted as NRel: there is no evidence, then, that the development of NRel in these two cases reflect a single principle pertaining to NRel and independent of individual source constructions.

Luo (Nilo-Saharan)

(65) (a) *ji* **m**-*o-biro*
men REL-COMPL-come
'the men who have just come' (Stafford 1967: 29)

(b) *i-dwaro* **ma***?*
2SG-want this
'Do you want this?' (Stafford 1967: 34)

(c) *i-dwaro* **ma***?*
2SG-want this
'Do you want this?' (Stafford 1967: 34)

Ewe (Niger-Congo)

(66) *nyɔ́nu* **si** *vá* *étsɔ* **lá** *mé-ga-le* *o*
woman REL come yesterday REL NEG-yet-be NEG
'The woman who came yesterday is no longer here' (Heine and Reh 1984: 251)

(67) Some possible origins for the co-occurrence between NG and NRel:

- Relative clauses and constructions used to encode possessors both originate from a demonstrative phrase ('X, that (who) Verbed' > 'The X who Verbed', 'X, that (of) Y > 'the X of Y': (65), (68)).
- In such cases, the correlation between the order of relative clauses and that of possessor constructions is naturally accounted for by the fact that both of these constructions types maintain the order of the demonstrative phrase from which they both derive, so there is no evidence for any motivating principle (such as processing ease) relating RelN and GN independently of the source construction.
- In other cases, NRel and NG have other sources, different for each dyad:
  - English: NG ('the X **of** Y') originates from a construction encoding the source of some entity ('the X from/ out of Y' > 'The X of Y': Heine 1997: chap. 3), while NRel ('the X who Verbed') originates

from an interrogative construction ('Who Verbed?' > 'He asked who Verbed' > 'I don't know who Verbed' > 'I know who Verbed' ('the one who Verbed') > 'the X who Verbed').

- In this case too, NRel and NG appear to be a a result of the reanalysis of specific source contructions, rather than principles independent of these constructions: the reinterpretation is plausibly a result of the fact that the possessive meaning and the relative clause meaning can be inferred from the original uses of the construction, and the word order in the resulting contructions reflects the order of the source.
- However, (i) NRel and NG do not originate from the same source as in Luo, and (ii) they originate from distinct constructions, which independently provide a motivation for the two orders.
- It is not clear, then, than a single principle (e.g. processing ease) can account for (i) all of the occurrences of NRel or NG cross-linguistically, or (ii) the co-occurrence of NRel and NG.

Luo (Nilo-Saharan)

(68) *duong'* **ma**-*r* *piny*
greatness GEN-SG land
the greatness of the land' (Stafford 1967: 29)

Abbreviations

A actor

ABS absolutive

ASP aspect

C common

CL classifier

COMM communal

COMPL complete aspect

CONSTR.POSS construct possessive

CSL cislocative

DEM demonstrative

DEP.FUT dependent future

DISTR distributive

ERG ergative

F feminine

GEN genitive

GEN genitive

GL goal

IMFV imperfective

IMPF imperfect

INAL inalienable

INDEF indefinite

INDIC indicative

LNK link

LOC locative concord

NEG negation

NOM nominative

NOMLZ nominalizer

NOMLZR nominalizer

NONHUM non-human

NONPL non-plural

OBJ object

OBL oblique

PASS passive

PAST past

PERF perfect

PL plural

POSS possessive

POSS possessor

POSSC possessive concord
PRES present
PTCL particle
PTCPL participle
PTCPL participle
PUNCT punctual
REL relative
SG singular
SRC source
SUBJ subject
TRANS transitive
U undergoer

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