

A typology of article inflection

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Introduction

The sample

- . 99 languages from
- . the 6 macroareas as used in WALS (Dryer and Haspelmath 2013)
 - . Africa (8 families)
 - . Eurasia (9 families)
 - . Papunesia (8 families)
 - . Australia (9 families)
 - . North America (13 families)
 - . South America (6 families)
- . 131 articles
- . convenience sample:
only languages with articles, preferably recent and detailed descriptions

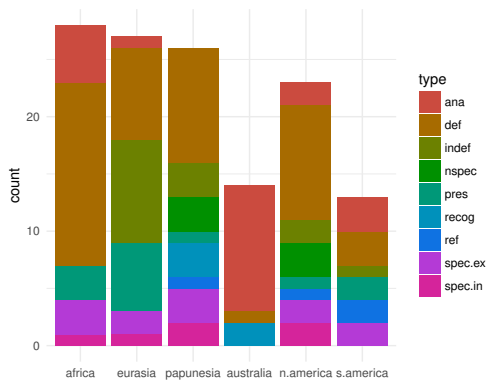
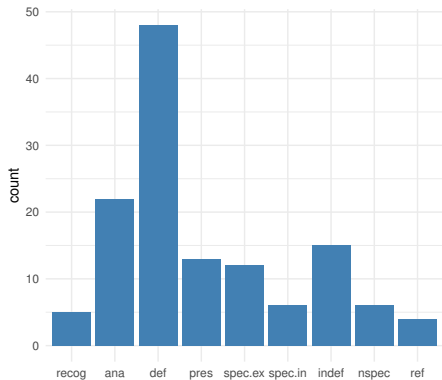
Defining articles

(1) *Articles as a crosslinguistic category*

Articles are markers in the nominal domain, whose primary function is to systematically indicate the referential function of the noun that they occur with.

- . **function:** referential markers
- . **form/domain:** any type of marker occurring with the noun
- . **distribution:** systematic

Function: Article types



Form: An example from Mokpe (Bantu)

CL	NOUN	ART + NOUN	CL	NOUN	ART + NOUN	
singular			plural			
1	mòtò ηmána	è mòtò è ηmána	2	wàtò wána	wátò wána	'person' 'child'
3	mòlélí mólèngò	mólélí mólèngò	4	mèlélí mélèngò	mélélí mélèngò	'food' 'sheep'
5	likàlà líkpà	líkàlà lí:kpà	6	màkàlà mákpà	mákàlà má:kpà	'bridge' 'bag'
7	ètàngùlè élélé	étàngùlè élélé	8	βètàngùlè βélélé	βétàngùlè βélélé	'lizard' 'morning'
9	mbèzà mbóli	è mbèzà è mbóli	10	í mbèzà í mbóli	í mbèzà í mbóli	'boy' 'goat'
14	wòzö wóngó	wózö wóngó			/	'face' 'fear'
19	ìnòní dzùngù	ínòní dzúngù			/	'bird' 'mosquito'

Form: An example from Mokpe (Bantu)

- (2) ì mènέ ηmánέ βòβá ndáwò ó mbówà. **líkândò/*líkândò** lí mà
we see.PST.1PL small ugly house in village **roof.CL5.ART:DEF** CL5 PST
kúwú lì βáηgèjà
finish INF get.damaged
'We saw a small ugly house in the village. The roof had been damaged.'
- (3) mòkákè àndí kâti. è **mòtìlèli** à βéli.ndí mòtà βéndì.
Mokake buy.3SG book **ART:DEF writer.CL1** CL1 be person.AM French
'Mokake bought a book; the author is French.'

Mokpe (primary data)

Categories that articles inflect for

Categories marked on the article

agreement with nominal categories

- . **number**
- . **gender** (+animacy)
- . **case**
- . (person?)

additional categories articles can mark

- . deixis (distance)
- . affectedness

Number, gender, and case

Number

- . Only counted as category of the nominal domain if marked systematically (obligatory, but regular exceptions are allowed)

Gender

- . A language is treated to have gender as a nominal category, if nouns can be grouped into classes based on agreement.

Case

- . What I count as case marking for the purposes of the present study is the systematic marking of at least one of the three argument roles: S, A, P.
- . Even though e.g. genitives and datives etc. can arguably be treated as case marking based on language-internal criteria, it is not possible to do that based on good language-independent criteria.

Examples for gender marking

- (i) on both the article and the noun (e.g. Bemba)
- (ii) on the article, but not on the noun (e.g. Spanish)
- (iii) on the article (if present), otherwise on the noun (e.g. Supyire)
- (iv) on the noun, but not on the article (e.g. Runyankore)

(i) Gender marking on ART+NOUN in Bemba (Bantu)

noun class	ART-CL	CL
1	u-mu-	mu(u)-
2	a-ba-	ba(a)-
3	u-mu-	mu(u)-
4	i-mi-	mi(i)-
5	(il)i-	li(i)-
6	a-ma-	ma(a)-
7	i-ci-	ci(i)-
8	i-fi-	fi(i)-
9	i-N-	ni(N)-
10	i-N-	ni(N)-
11	u-lu-	lu(u)-
12	a-ka-	ka(a)-
13	u-tu-	tu(u)-
14	u-bu-	bu(u)-
15	u-ku-	ku(u)-
16	/	pa-
17	/	ku-
18	/	mu-

(4) (Givón 1969: 42)

- a. nshiamwene **u**-mu-ana
see.PST.NEG.1SG **ART:SPEC-CL1**-child
'I didn't see the child.'
- b. nshiamwene **mu**-ana
see.PST.NEG.1SG **CL1**-child
'I didn't see any child.'

(ii) Gender marking on ART in Spanish

	singular	plural	
	definite article		
masculine	el oso	los osos	‘the bear(s)’
feminine	la abeja	las abejas	‘the bee(s)’
	indefinite article		
masculine	un oso	unos osos	‘the bear(s)’
feminine	una abeja	unas abejas	‘the bee(s)’

(ii) Gender marking on ART in Spanish

	singular	plural	
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	indefinite article		
masculine	un oso	unos osos	'the bear(s)'
feminine	una abeja	unas abejas	'the bee(s)'

? *el agua* 'the water (f)', *el águila* 'the eagle (f)'

→ This use of the masculine form of the definite article occurs systematically:

(5) *la* → *el* / _#á

? no gender marking on nouns

- (6) a. *-a* → feminine
b. *-o* → masculine

→ Even though the gender can be predicted correctly for many nouns in Spanish based on their form, they do not mark gender consistently. (cf. Harris 1991)

- . *el problema* 'the problem (m)', *la mano* 'the hand (f)'
- . *el sol* 'the sun (m)', *la col* 'the cabbage (f)'
- . *la tribu* 'tribe (f)', *el espíritu* 'spirit (m)'

(iii) Gender marking on ART/NOUN in Supyire (Gur)

gender	noun class marker		definite article	
	singular	plural	singular	plural
1	-wV	-(bi)li	-ŋi	-pili
2	-gV	-yV	-ke	-yi
3	-lV	-gili	-ni	-kili
4		-rV		-te
5		-mV/-bV		-pe

CLASS	NOUN	NOUN-ART	
CL1.SG	foo	foòŋi	‘(the) owner’
CL1.PL	zòmii	zòmǀíí	‘(the) hearts’
CL.2SG	ŋkêŋè	ŋkêŋke	‘(the) branch’
CL2.PL	ciye	ciyí	‘(the) trees’
CL3.SG	sàhàlà	sàhàni	‘(the) basket’
CL3.PL	sháháŋii	sháháŋkíí	‘(the) palm nuts’

based on Carlson (1994)

(iv) Gender marking on NOUN in Runyankore (Bantu)

Runyankore has an anaphoric article *nya-*. While the articles does not mark number or gender, all nouns in Runyankore are marked for their class, which corresponds to the classes relevant for agreement with other elements in the noun phrase and on the verb.

gender	marker on the noun	
	singular	plural
A	mu-	ba-
B	mu-	mi-
C	ri-	ma-
D	ki-	bi-
E	n-	n-
F	ru-	ka-
G	tu-	bu-
H		-ku-

(7) Runyankore (Asiimwe 2014: 223)

- a. **nya-mu**-shaija
ART:ANA-A-SG-man
'the said man'
- b. **nya-ku**-ki-kora
ART:ANA-H-o:3SG-do
'the [said] one who did it'

Examples for case marking

- (i) on the article, but not on the noun (e.g. Albanian)
- (ii) on both the article and the noun (e.g. Diyari)
- (iii) on the article (if present), otherwise on the noun (?)
- (iv) on the noun (in most languages)

(i) Case marking on ART in German

	masculine		feminine		neuter	
	singular	plural	singular	plural	singular	plural
NOM	der Baum	die Bäume	die Wiese	die Wiesen	das Haus	die Häuser
ACC	den Baum	die Bäume	die Wiese	die Wiesen	das Haus	die Häuser
DAT	dem Baum	den Bäumen	der Wiese	den Wiesen	dem Haus	den Häusern
GEN	des Baums	der Bäume	der Wiese	der Wiesen	des Hauses	der Häuser

	singular			plural					
	masculine		feminine		neuter				
	def	indef	def	indef	def	indef	def	indef	
NOM	der	ein	die	eine	das	ein	die	/	
ACC	den	einen	die	eine	das	ein	die	/	
DAT	dem	einem	der	einer	dem	einem	den	/	
GEN	des	eines	der	einer	des	eines	der	/	

(i) Case marking on ART in Albanian

	masculine <i>mik</i> 'friend'		feminine <i>dele</i> 'sheep'	
	NOUN	NOUN+ART	NOUN	NOUN+ART
NOM	<i>mik</i>	<i>mik-u</i>	<i>dele</i>	<i>del-ja</i>
ACC		<i>mik-un</i>		<i>dele-n</i>
DAT/ABL	<i>mik-u</i>	<i>mik-ut</i>	<i>dele-je</i>	<i>dele-s</i>
GEN	<i>i mik-u</i>	<i>i mik-ut</i>	<i>i dele-je</i>	<i>i dele-s</i>

based on Zymberi (2004)

(iii) Case marking on ART+NOUN in Diyari (Pama-Nyungan)

Case marking on both the article and the noun is very rare crosslinguistically, mostly attested in Australia.

In Diyari, case marking on definite articles follows the case marking of the third person pronouns, their source element. Masculine nouns do not distinguish between nominative and accusative; therefore, such article-noun combinations have different case syncretism patterns.

While different syncretisms seem to be more common with inflection classes, the Diyari pattern is typologically interesting because it shows that the source element of the article is responsible for its case markers.

	ART	NOUN
A	ERG	ERG
S	NOM	NOM
P	ACC	

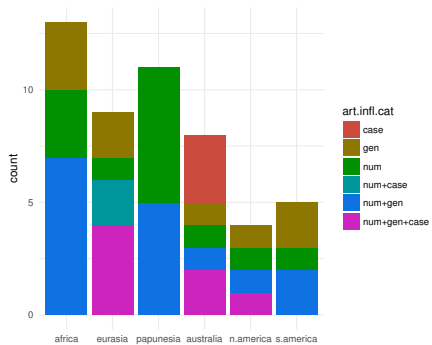
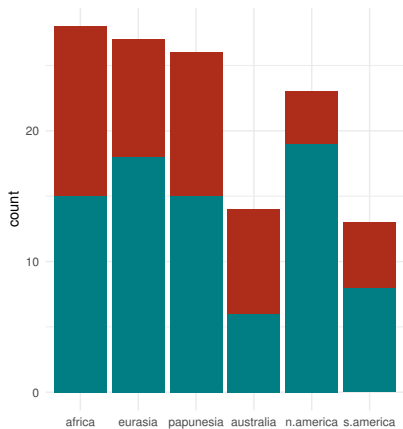
Why do articles inflect?

Potential factors to influence the inflection of articles

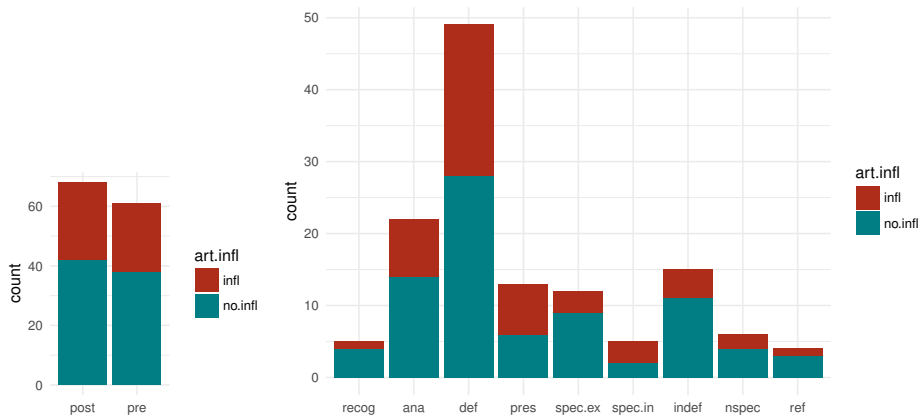
- ☹ geographical area
- ☹ position of the article
- ☹ article type

- ☺ inflection on the noun
- ☺ inflection of the article's source element

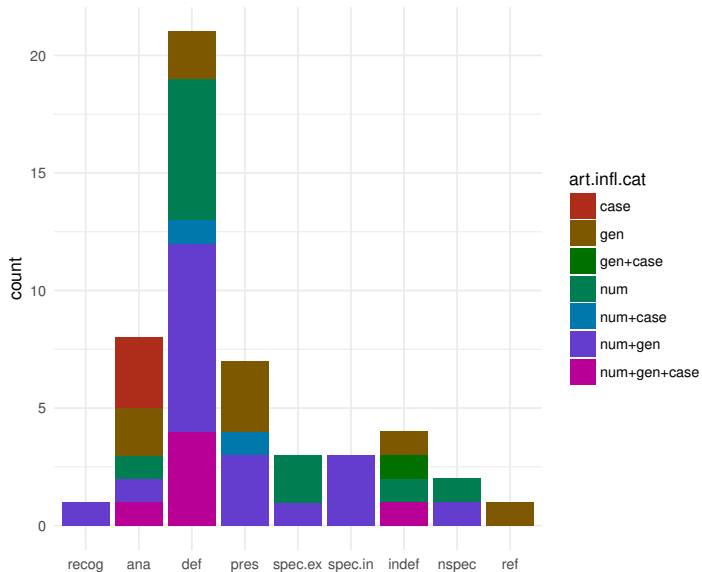
Article inflection & macroarea



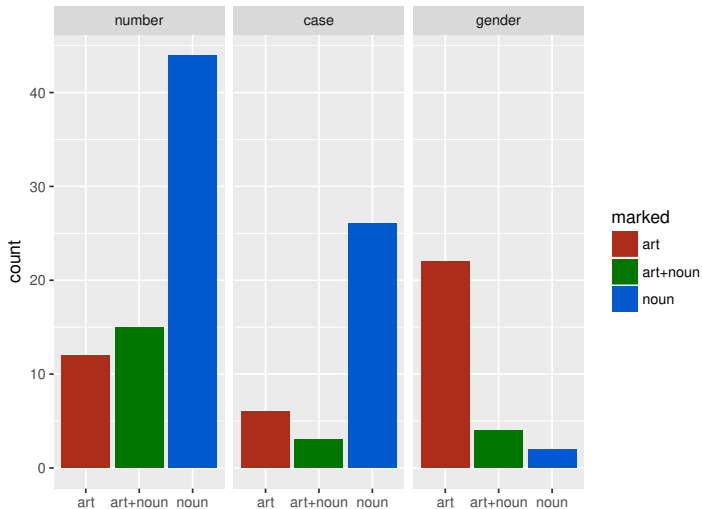
Article inflection & position / type



Article inflection & type



Article inflection & noun inflection



N languages with the categories: 88 (number), 37 (case), 45 (gender)

Why do articles inflect?

Inflection of the article and the noun

Article inflection & noun inflection

	number	case	gender
art	12	6	22
art + noun	15	3	4
noun	44	26	2
(favored : total)	44 : 71	26 : 35	22 : 28
proportion	0.62	0.74	0.79

Bayes test of proportions

position	favored : total	proportion favored : total	estimated confidence interval
number	on noun : total	0.62	[0.50, 0.72]
case	on noun : total	0.74	[0.59, 0.86]
gender	on art : total	0.79	[0.61, 0.90]

Article inflection & source inflection

There are 3 possible scenarios:

- (i) The article can either retain the inflectional morphology of its source element
- (ii) simplify it which results in the loss of inflectional morphology,
- (iii) or the article could develop new inflectional morphology that is not present on its source element.

→ We almost exclusively find evidence for scenarios (i) and (ii).

Article inflection & source inflection (pronouns)

language	article	ART infl	pronoun	PRO infl
Oko (def)	<i>àye</i> (SG), <i>ábẹ</i> (PL)	num	<i>àye</i> (3SG), <i>ábẹ</i> (3PL)	num
Lango (ana)	<i>én</i>	/	<i>én</i> (3SG)	num
Amharic (def)	-w/u (M.SG, PL), -wa (F.SG)	num+gen	-w/u (M.SG), -wa (F.SG)	num+gen
Pap. Malay (def)	<i>de</i> (3SG)	num	<i>de</i> (3SG)	num
Biak (spec.in)	-ya/-i (3SG)	num+gen	<i>i</i>	num+gen
Warrwa (ana)	<i>kinya</i>	case	<i>kinya</i> (3SG)	num +case
Dyari (def)	<i>nhawu</i> (3NF.SG)	num+gen+case	<i>nhawu</i> (3NF.SG)	num+gen+case
Sumu (ana)	-ni (3SG)	/	-ni (3SG)	num
Cupeño (def)	<i>pe'</i> (SG), <i>pem</i> (PL)	num	<i>pe'</i> (3SG), <i>pem</i> (3PL)	num
Apinayé (def)	<i>ja</i>	/	<i>ja</i> (3SG)	num

Article inflection & source inflection (demonstratives)

language	article	ART infl	demonstrative	DEM infl
Supyire (def)	<i>-ke</i> (CL2.SG)	num+gen	<i>-ɨ́ǰé</i> (CL2.SG)	num+gen
Konso (def)	<i>-siʔ</i> (M.SG) <i>-siniʔ</i> (M.PL)	num+gen	<i>-oosiʔ</i> (M.SG) <i>-oosiniʔ</i> (M.PL)	num+gen
Sheko (def)	<i>-ns/nf</i> (M.SG) <i>-in</i> (F.SG)	gen	<i>yīz</i> (M.SG) <i>yīni</i> (F.SG)	num+gen
Hungarian (def)	<i>a</i>	/	<i>az</i> (NOM.SG)	num+case
Armenian (def)	<i>-n</i>	/	<i>-ayn</i> (SG)	num+case
Maori (def)	<i>te</i> (SG) <i>ngā</i> (PL)	num	<i>tēnā</i> (SG) <i>ēnā</i> (PL)	num
Alamblak (def)	<i>ind</i>	num+gen	<i>indar</i>	num+gen
Ch'ol (def)	<i>li</i>	/	<i>ili</i>	/
Ute (def)	<i>ʼu</i> (S.AN.SG) <i>ʼumu</i> (S.AN.PL)	num+gen+case	<i>ʼuwa</i> (S.AN.SG) <i>ʼumu</i> (S.AN.PL)	num+gen+case
Tarahumara (def)	<i>echi</i>	/	<i>echi</i>	/
Arawak (def)	<i>to</i> (NM.SG), <i>na</i> (PL)	num+gen	<i>toho</i> (NM.SG), <i>naha</i> (PL)	num+gen

Article inflection & source inflection (numeral ‘one’)

language	article	ART infl	numeral	NUM infl
Logba (pres)	<i>ɔkpiɛ</i> (CL7.SG) <i>ikpiɛ</i> (CL8.PL)	num +gen	<i>ikpɛ</i>	gen
Konso (pres)	<i>takka</i> (F)	gen	<i>takka</i>	gen
Hungarian (indef)	<i>egy</i>	/	<i>egy</i>	/
Albanian (indef)	<i>një</i>	/	<i>një</i>	/
Armenian (indef)	<i>mi</i>	/	<i>mek</i>	/
German (indef)	<i>ein</i> (SG.M/N)	gen+case	<i>eins</i>	gen+case
Basque (pres)	<i>bat</i> (SG) <i>batzuk</i> (PL)	num +case	<i>bat</i>	case
Neo-Aramaic (pres)	<i>xa</i> (M) <i>ḏa</i> (F)	gen	<i>xa</i> (M) <i>ḏa</i> (F)	gen

Article inflection & source inflection (numeral ‘one’)

language	article	ART infl	numeral	NUM infl
Kharia (pres)	<i>moŋ</i>	/	<i>muḍu</i> (HUM) <i>moŋ</i> (NHUM)	gen
Tamil (indef)	<i>oru</i>	/	<i>onru</i>	/
Dameli (pres)	<i>ek</i>	/	<i>ek</i>	/
USL Malay (indef)	<i>hatthu</i>	/	<i>satthu</i>	/
Agul (pres)	<i>sa</i>	/	<i>sa</i>	/
Palula (spec.ex)	<i>áak/áa</i>	/	<i>áak/áa</i>	/
Sye (indef)	<i>hai</i>	/	<i>hai(ten)</i>	/
Tepehua (indef)	<i>tam</i>	/	<i>laqa-tam</i> (CL:GEN-ONE) <i>puma-tam</i> (CL:HUM-one)	gen

Can articles develop inflection?

Evidence from plural marking in the indefinite domain

In my sample, from 42 articles in the indefinite domain (indefinite, specific articles), only 18 are compatible with plural nouns, and 9 articles inflect for number.

	✗ with PL	✓ with PL	number infl
Σ def	0	69	21 (=0.30)
Σ indef	24	18	9 (=0.50)

Articles from the indefinite domain mostly develop from the numeral 'one'. The incompatibility with indefinite articles and plural nouns is not due to its own semantics, but to the semantics of its source element.

→ From these 9 articles in my sample, 4 articles originate from elements that already have a plural marker, and 4 articles take on a plural marker that is prominent in the nominal system

Can articles develop inflection?

language	article			
Konso	pres	SG	<i>tokka</i> (M) / <i>takka</i> (F)	(Orkaydo 2013: 94)
		PL	<i>takka-n</i>	
Basque	pres	SG	<i>bat</i>	(Hualde and Ortiz de Urbina 2003: 12)
		PL	<i>bat-zuk</i>	
Carib	indef	SG	<i>amu</i>	(Courtz 2008: 110)
		PL	<i>amu-kon</i>	
Oko	spec.ex	SG	<i>ô-bèn</i>	(Atoyebi 2010: 68)
		PL	<i>é-bèn</i>	
Logba	pres	SG	<i>ɔ-kpie</i>	(Dorvlo 2008: 89,333)
		PL	<i>i-kpie</i>	
Lavukaleve	pres	SG	<i>roa</i> (M) / <i>ro</i> (F) / <i>roge</i> (N)	(Terrill 2003: 53)
		PL	<i>rovo</i>	
Hausa	pres	SG	<i>wani</i> (M) / <i>wata</i> (F)	(Newman 2000: 153)
		PL	<i>wa(dan)su</i>	
Biak	spec.ex	SG	<i>i</i> / <i>ya</i>	(van den Heuvel 2006: 72)
		PL	<i>sya</i> (AN) / <i>na</i> (INAN)	
Biak	nspec	SG	<i>o</i>	Can articles develop inflection?

Can articles develop inflection?

- Basque *bat* (SG), *bat-zuk* (PL)
The marker *-k* is the plural marker for nouns and adjectives in the absolutive and ergative case (Hualde and Ortiz de Urbina 2003: 173)
- Carib *amu* (SG), *amu-kon* (PL)
Carib has two plural markers for nouns; the majority of nouns take *-kon*, and only a group of nouns with animate referents uses *-jan* (Courtz 2008: 59).
- Oko *ò-bèn* (SG), *é-bèn* (PL)
The alternation between *ò-* and *é-* is also found on both nouns and adjectives with the value [-ATR] to indicate singular vs. plural (Atoyebi 2010: 66-69). Also, the definite article has different number marking morphology: *àyè* (SG) and *àbè* (PL).
- Logba *ɔ-kpiɛ* (SG), *i-kpiɛ* (PL)
Logba has nominal noun class markers indicating number and gender; the specific article combines with these markers used for nouns and adjectives.

→ Based on the data in my sample, articles only rarely develop new inflectional morphology. The only cases attested are highly pervasive plural markers in the nominal domain that articles can take over.

The inflection of articles is mostly determined by their source element.

- . Crosslinguistically, we find a trend against article inflection.
- . Inflection of articles is independent of geographical areas, the article type, the position of the article in the noun phrase.
- . Across languages, a tendency for number and case marking on nouns can be correlated to less marking on articles.
- . Innovative article inflection is only attested in a few cases with prominent plural marker in the nominal domain.

Thank you!

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The sample. Africa

Afro-Asiatic

1	Amharic	Semitic	(Leslau 1995)
2	Dime	South Omotic	(Seyoum 2008)
3	Hausa	West Chadic	(Newman 2000)
4	Konso	East Cushitic	(Orkaydo 2013)
5	Moloko	North Biu-Mandara	(Friesen 2017)
6	Sheko	Dizoid	(Hellenthal 2010)

Benue-Congo

7	Oko	Oko-Eni-Osayan	(Atoyebi 2010)
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Dogon

8	Jamsay	Dogon	(Heath 2008)
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Eastern Sudanic

9	Gaahmg	Eastern Jebel	(Stirtz 2011)
10	Lango	Nilotic	(Noonan 1992)

Mande

11	Beng	Eastern Mande	(Paperno 2014)
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Niger-Congo

12	Akan	Kwa (Nyo)	(Amfo 2010; Arkoh 2011; Arkoh and Matthewson 2013), Sampson Korsah, pc
13	Bemba	Sabi	(Givón 1969)
14	Bullom So	Mel	(Childs 2011)
15	Limbum	Narrow Grassfields	(Fransen 1995), Jude Nformi, pc
16	Logba	Kwa (Na-Togo)	(Dorvlo 2008)
17	Mokpe	Sawabantu	primary data, (Atindogbe 2013)
18	Runyankore	Northeast Savanna Bantu	(Asimwe 2014)
19	Supyire	Gur	(Carlson 1994)

Sandawe

20	Sandawe	Sandawe	(Steeaman 2011)
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Songhay

21	Koyra Chiini	Songhay	(Heath 1999)
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The sample. Eurasia

Afro-Asiatic

1	Hebrew	Semitic	(Glinert 2005)
2	Neo-Aramaic	Semitic	(Khan 2008)

Altaic

3	Bonan (Bao'an)	Mongolic	(Fried 2010)
4	Turkish	Turkic	(Göksel and Kerslake 2005)

Austro-Asiatic

5	Kharia	Munda	(Peterson 2011)
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Austronesian

6	Sri Lanka Malay	Malayo-Sumbawan	(Nordhoff 2009)
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Dravidian

7	Tamil	Southern Dravidian	(Lehmann 1993)
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Indo-European

8	Albanian	Albanian	(Newmark, Prifti, and Hubbard 1982; Buchholz and Fiedler 1987; Zymberi 2004)
9	Armenian	Armenian	(Dum-Tragut 2009; Andonian 2005)
10	Dameli	Iranian	(Perder 2013)
11	Domari	Indic	(Matras 2012)
12	German	Germanic	(Hentschel and Weydt 2003)
13	Irish	Celtic	(Stenson 2008a; Stenson 2008b)
14	Palula	Dardic	(Liljegren 2016)
15	Rajbanshi	Iranian	(Wilde 2008)

Isolate

16	Basque	Isolate	(de Rijk 2008; Hualde and Ortiz de Urbina 2003)
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Nakh-Dagestanian

17	Aghul	Lezgif	(Ganenkov, Maisak, and Merdanova 2009)
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Sino-Tibetan

18	Ao (Mongsen)	Kuki-Chin	(Coupe 2007)
19	Lepcha	Lepcha	(Plaisir 2006)

Uralic

20	Hungarian Conclusion	Ugric	(Kenesei, Vago, and Fenyvesi 1998)
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The sample. Papunesia

Austro-Asiatic

1	Papuan Malay	Malayo-Sumbawan	(Kluge 2017)
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Austronesian

2	Agta	Greater Central Philippine	(Robinson 2008)
3	Biak	South Halmahera	(van den Heuvel 2006)
4	Maori	Oceanic (Eastern Polynesian)	(Harlow 2012)
5	Rapa Nui	Oceanic (Centr. East. Polynesian)	(Kieviet 2017; Weber 2003)
6	Siar Lak	Oceanic	(Rowe 2005)
7	Sye	Oceanic (Southern Melanesian)	(Crowley 1998)
8	Tongan	Oceanic (Nuclear Polynesian)	(Völkel 2010; Churchward 1985)
9	Yapese	Yapese	(Jensen 1977)

Oksapmin

10	Oksapmin	Oksapmin	(Loughnane 2009)
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Sepik

11	Alamblak	Sepik Hill	(Bruce 1979)
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Skou

12	Skou	Western Skou	(Donohue 2004)
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Solomons East Papuan

13	Lavukaleve	Lavukaleve	(Terrill 2003)
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Timor-Alor-Pantar

14	Abui	Greater Alor	(Kratochvil 2007)
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Trans-New Guinea

15	Menya	Angan	(Whitehead 2006)
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The sample. Australia

Bunuban			
1	Gooniyandi	Bunuban	(McGregor 1990)

Gunwinyguan			
2	Wubuy	Nunggubuyu	(Heith 1984)

Mangarrayi-Maran			
3	Mangarrayi	Mangarrayi	(Merlan 1989)

Maningrida			
4	Curagone	Bureran	(Green 1995)

Mirndi			
5	Jingulu	Djingili	(Pensalfini 1997)

Nyulnyulan			
6	Bardi	Nyulnyulan	(Bown 2004)
7	Warrwa	Nyulnyulan	(McGregor 1994b)

Pama-Nyungan			
8	Diyari	Central Pama-Nyungan	(Austin 2011)
9	Duuridjawa	Southeastern Pama-Nyungan	(Kite and Wurm 2004)
10	Martuthunira	Western Pama-Nyungan	(Dench 1994)
11	Yankuntjatjara	Western Pama-Nyungan	(Goddard 1985)
12	Yolngu	Yolngu	(Wilkinson 1991)

Worrorran			
13	Gunin	Worrorran	(McGregor 1994a)

Yangmanic			
14	Wardaman	Yangmanic	(Merlan 1994)

The sample. North America

Algic			
1	Blackfoot	Algonquian	(Taylor 1969; Frantz 1991)
Hokan			
2	Chimariko	Chimariko	(Jany 2009)
Mayan			
3	Ch'ol	Mayan	(Vázquez Alvarez 2011)
Misulmalpan			
4	Sumu (Mayangna)	Misumalpan	(Norwood 1997)
Mixe-Zoque			
5	Zoque	Mixe-Zoque	(Johnson 2000)
Muskogean			
6	Koasati	Muskogean	(Kimball 1985)
Oto-Manguean			
7	Chatino (Teotepecan)	Zapotecan	(McIntosh 2011)
Salishan			
8	Halkomelem	Central Salish	(Suttles 2004)
Siouan			
9	Crow	Core Siouan	(Graczyk 2007)
10	Lakota	Core Siouan	(Van Valin 1977; Ingham 2003; Rood and Taylor 1996)
Totonacan			
11	Tepehua	Totonacan	(Kung 2007)
Uto-Aztecan			
12	Cupeño	California Uto-Aztecan	(Hill 2006)
13	Tarahumara	Tarahumaran	(Cohen 1998)
14	Ute	Numic	(Givón 2011)
Wakashan			
15	Nuuchahnulth	Southern Wakashan	(Davidson 2002)
Yinlan	Conclusion		

The sample. South America

Arawakan

1	Arawak	Caribbean Arawakan	(Pet 2011)
2	Asheninka Perené	Pre-Andine Maipuran	(Mihás 2010)
3	Bare	Inland North. Arawakan	(Aikhenvald 1995)
4	Baure	Bolivia-Parana	(Danielsen 2007)
5	Parecis	Central Arawakan	(Barros Brandão 2014)
6	Wayuu	Wayuu	(Álvarez 2017)

Cariban

7	Carib	Cariban	(Courtz 2008)
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Choco

8	Epena Pedee	Choco	(Harms 1994)
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Macro-Ge

9	Apinayé	Ge-Kaingang	(oliveira2005)
10	Karajá	Karajá	(Ribeiro 2012)

Nambikwaran

11	Sabanê	Sabanê	(Antunes de Araujo 2004)
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Tucanoan

12	Cubeo	Tucanoan	(Chacon 2012)
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