

Modularized Global Parametrization

and

the Form of Parametric Variation

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Parametric minimalism

What is the form of a possible parameter?



Why are there *so many* of them?



Why *parameters* (diversity) at all?

GOAL:

can we downsize grammatical variation?

Empirical database

a manageable model

of the **polymorphy space**

of grammatical knowledge

Apparently enormous width of grammatical diversity



We need a database preserving all its
complex structural characteristics,
except for **magnitude**



Method: Modularized Global Parametrization
(MGP)

Longobardi 2001 and 2003

(1) Generalizations guided by the poverty-of-stimulus argument

Scattered **existential** statements about

single parameters in

few languages

(2) Extensive typological coverage

- **Not** guided by **theory-oriented** considerations
- **Randomly** chosen language sample
- No **abstract level** comparison

MGP

Single module of grammar

Exhaustive investigation of the parameters that define it



INTENSIVE procedure:

focuses **in depth** on a **limited** and **coherent subset**
of **parameters**

MGP

Relatively **wide sample** of languages
(**minimally contrasting varieties**)



EXTENSIVE procedure

A first practical implementation

- Internal syntax of the **Determiner Phrase**
- Tentative set of **47 binary parameters**
- Crosslinguistic database of **24 languages**
(Indo-European, Semitic, Uralic and Niger-Kordofan families)
- Representational format: **Table A**

TABLE A

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	
(1) ± gramm. gender	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	
(2) ± gramm. number -1	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	+	+	
(3) ± num. on N (BNs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	
(4) ± num. on APs (BAs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-e	+	+e	-	-	+	
(5) ± ambiguous bare singulars +3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	+	-?	
(6) ± numeral agreement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(7) ± num/gend. on Mod +1 or +2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
(8) ± gramm. anaph. def	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	-	
(9) ± gramm. general def. +8	+	+	+	+	+	0-	+	+	+	-	+	+	+	+	+	0-	0-	+	+	+	+	+	+	0-	
(10) ± gramm. prox. def +9	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	+	-	0-	
(11) ± gramm. count ('null article') -5, +9	+	+	+	+	+	0-	-	-	+	0-	-	+	+	+	-	0-	0-	-	-	-	-	-	0+	0-	
(12) ± gramm. Count specif. +9, -11	0	0	0	0	0	0	?	?	0	0	+?	0	0	+	+	0	0	-?	-	+	-	?	0	0	
(13) ± gramm. K-to-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	?	-	
(14) ± strong D	+	+	+	+?	+	?	+	+	+	?	-?e	-	-	-	+	?	?	-?	-?	+	+	-	+?	?	
(15) ± variable person on D +14	-	+	-	+	-	?	?	?	+	?	?	0-	0-	0-	+	?	?	?	?	?	+	0-	-	-	
(16) ± art& compl +art, +compl, +14	-	+	-	+	0	0	+	+	-	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	
(17) ± def checking N +9	-	-	-	-	+	0	-	-	-	-	-	-	-	+	+	0	0	-	-	-	-	-	-	0	
(18) ± def spread on N +9	-	-	-	-	-	0	-	-	-	-	-	-	-	+	-	0	0	-	-	-	+	-	-	0	
(19) ± def. on attrib. +9, (-14 or -17)	-	-	-	-	0+	0-	+	+	+	-	-	-	-	-	0+	0-	0-	-	-	+	+	-	-	0	
(20) ± def. on Rel +9	-	-	-	-	-	0-	-	-	-	-	-	-	-	-	-	0-	0-	-	-	-	-	+	-	0	
(21) ± high dem.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+	
(22) ± low dem. +21	-	+	-	-?	+	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+?	-	-	-	
(23) ± def. check. dem +9, (-11 or +21)	+	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0	
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	

TABLE A

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(24) ≠ structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(25) ≠ ordered APs +24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	-
(26) ≠ inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0
(27) ≠ free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	0-	0-	0+	-
(28) ≠ context. infl. As +infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	-	0-	-?
(29) ≠ c selecting \tilde{N}	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(30) ≠ prepos. Gen (vs. infl. Gen)	+	+	+	-	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	+	-	-?
(31) ≠ free Gen (non-agr.) -30	0+	0+	0-	0+	+	+	-	-	-	-	0+	0+	0+	0+	0+	-	-	0+	0+	0+	0+	0+	-	-?
(32) ≠ GenO +30 or -31	-	-	-	-	0+	0+	+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	?	-	+
(33) ≠ GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	-	?	+
(34) ≠ poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ≠ N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ≠ N over ext. arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	+	0+	0+	+	+
(37) ≠ N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	+	+	+	+	0-	+	0-	+	+	+	+	+	+	+	0+	0+	+	-
(38) ≠ N over low As +24, +37	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	-	
(39) ≠ N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	0	0
(40) ≠ N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0
(41) ≠ Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	0	+
(42) ≠ head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(43) ≠ pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?
(44) ≠ agr. poss. +infl. As/Ds, -34	+	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	-	-	-	-	0-	0-	0-
(45) ≠ obl. poss form + double form	+	+	+	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+	-	-	+	0	0
(46) ≠ enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-
(47) ≠ def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

Partial interactions (1)

no trigger for the parameter is present, owing to
the values of other parameters



the setting is **irrelevant**



0

Partial interactions (1)

(9) ± gramm. general def. +8	+	+	+	+
(11) ± gramm. count ('null article') -5, +9	+	+	-	-
(12) ± gramm. specif. +9, -11	0	0	+	-

Partial interactions (2)

surface consequences of the interaction between

two parameters p_1 and p_2



can sometimes happen to be identical with those

obtained when p_2 is set on either + or -



0+, 0-

Partial interactions

30) ± prepos. Gen (vs. infl.Gen)	+	+	+	+	-	-	-
31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+
32) ± GenO +30 or -31	-	-	-	-	+	0+	0+
33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+

Downsizing Grammatical Variation (1):

Interactions

MGP



precise measure of interactions

- **Pervasive:**
 - **34/47** parameters undergo the effect of at least one interaction
 - **24/47** parameters induce an implicational effect on at least one other parameter

Interactions

45 independent parameters generate
about **35,000 billions** of languages

45 parameters interacting as in Table A generate
about **3.5 billions** of languages
(preliminary simulation)

*i.e. the number of admissible languages is reduced
by a factor of 10,000*

Downsizing Grammatical Variation (2):

Arbitrariness conjecture

Predicted combinations of parameter values are

more likely to be observed

the more the relevant parameters are

independent of specific

morphophonological encoding

(lexical arbitrariness)

Demonstratives: checking // movement

	a.	b.	c.	d.	e.	f.
(21) \pm high dem.	+	+	+	+	-	-
(22) \pm low dem. (+21)	+	+	-	-	0+	0+
(23) \pm def. check. dem (...)	+	-	-	+	+	-

	a.	b.	c.	d.	e.	f.
(21) ± high dem.	+	+	+	+	-	-
(22) ± low dem. (+21)	+	+	-	-	0+	0+
(23) ± def. check. dem (...)	+	-	-	+	+	-

21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+	
22	-	+	-	-?	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+	+	-	-	
23	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0	
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

Possessives

	a.	b.	c.	d.	e.	f.	g.	h.
(44) ± agr. poss. (...)	+	+	+	-	-	-	-	+
(45) ± obl. poss form (...)	+	+	-	-	-	+	+	-
(46) ± enclitic possessives	+	-	-	-	+	+	-	+

	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>e.</i>	<i>f.</i>	<i>g.</i>	<i>h.</i>
(44) ± agr. poss. (...)	+	+	+	-	-	-	-	+
(45) ± obl. poss form (...)	+	+	-	-	-	+	+	-
(46) ± enclitic possessives	+	-	-	-	+	+	-	+

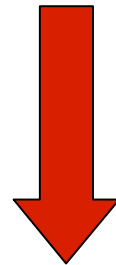
44	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	-	-	-	-	0-	0-	0-	
45	+	+	+	+	+	+	-	-	+	+?	+?	+	-	+	+?	+?	+	+	+	-	-	+	0	0
46	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-
	It	Sp	Fr	Ptg	RumLat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	

Downsizing Grammatical Variation (3):

Parameter Schemata

Minimalist critique

of the *format* of parameters



few abstract **parameter *schemata***

Background assumption

Borer (1984)

parameters are always properties of
functional heads of the lexicon

Further assumption

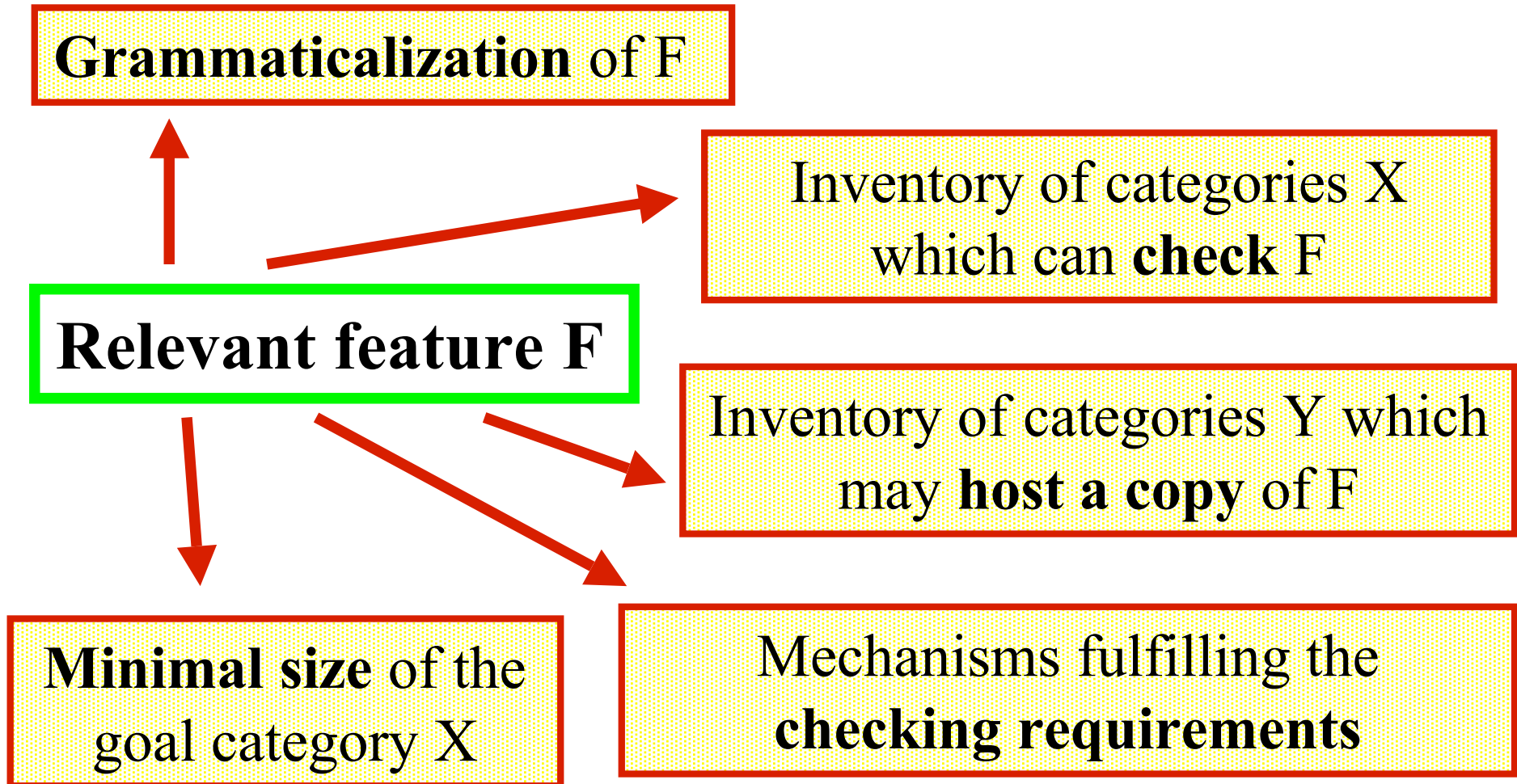
Topological Mapping Theorem

The locus of interpretation of each grammatical feature is universal, not parametrized

Parameter schemata

- A. Is F, F a functional feature, **grammaticalized**?
- B. Is F, F a grammaticalized feature, **checked by X**, X a category?
- C. Is F, F a grammaticalized feature, **spread on Y**, Y a category?
- D. Is F, F a grammaticalized feature checked by X, **strong**?
- E. Is F, F a grammaticalized feature, **checked by a category X⁰**?
(also cf. Biberauer & Richards 2006)

Parameter schemata



For $F = \text{definiteness}$, $X = \text{nouns}$, $Y = \text{adjectives}$

A. *Grammaticalization* of definiteness (par. 8, 9):

Yes=Italian, No=Russian

B. *Checking* of definiteness by nouns (par. 17):

Yes=Rumanian, No=Italian

C. *Spread* of definiteness on adjectives (par. 19):

Yes=Arabic, No=Italian

For $F = D$ features, $X = \text{noun}$

D. *Strength of D* (par. 14):

Yes=Arabic, Italian, No=English, Norwegian

E. *Minimal size of the goal category* (par. 26):

Yes=Italian, No=Arabic

Table A

Up to 39 out of the 47 parameters of
Table A can be reduced to a form
which falls into one of only 5 abstract
parameter schemata

A. Grammaticalization schema

	It	Sp	Fr	Ptg	Run	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(1) ± gramm. gender	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(2) ± gramm. number -1	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	+	+
(3) ± num. on N (BINS) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(4) ± num. on APs (BAs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-e	+	+e	-	-	+
(5) ± ambiguous bare singulars +3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	+	-?
(6) ± numeral agreement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(7) ± num/gend. on Mod +1 or +2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
(8) ± gramm. anaph. def	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	-
(9) ± gramm. general def. +8	+	+	+	+	+	0-	+	+	+	-	+	+	+	+	+	0-	0-	+	+	+	+	+	+	0-
(10) ± gramm. prox. def +9	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	+	-	0-
(11) ± gramm. count ('null article') -5, +9	+	+	+	+	+	0-	-	-	+	0-	-	+	+	+	-	0-	0-	-	-	-	-	-	0+	0-
(12) ± gramm. Count specif. +9, -11	0	0	0	0	0	0	?	?	0	0	+?	0	0	0	+	0	0	-?	-	+	-	?	0	0
(13) ± gramm. K-to-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	?	-	-
(14) ± strong D	+	+	+	+?	+	?	+	+	+	?	-?e	-	-	-	+	?	?	-?	-?	+	+	-	+?	?
(15) ± variable person on D +14	-	+	-	+	-	?	?	?	+	?	?	0-	0-	0-	+	?	?	?	?	?	+	0-	-	-
(16) ± art&compl +art, +compl, +14	-	+	-	+	0	0	+	+	-	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0
(17) ± def checking N +9	-	-	-	-	+	0	-	-	-	-	-	-	-	+	+	0	0	-	-	-	-	-	-	0
(18) ± def spread on N +9	-	-	-	-	-	0	-	-	-	-	-	-	-	+	-	0	0	-	-	-	+	-	-	0
(19) ± def. on attrib. +9, (-14 or -17)	-	-	-	-	0+	0-	+	+	+	-	-	-	-	-	0+	0-	0-	-	-	+	+	-	-	0
(20) ± def. on Rel +9	-	-	-	-	-	0-	-	-	-	-	-	-	-	-	-	0-	0-	-	-	-	-	+	-	0
(21) ± high dem.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+
(22) ± low dem. +21	-	+	-	-?	+	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+?	-	-	-
(23) ± def. check. dem +9, (-11 or +21)	+	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0
	It	Sp	Fr	Ptg	Run	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

A. Grammaticalization schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(24) ± structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(25) ± ordered APs +24	+	+	+	+	+	+	+	+	+	+?	+	+	+	+	+	+	+	+	+	+	+	0	-	-
(26) ± inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0	0
(27) ± free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	0-	0-	0+	-	-
(28) ± context infl. As, infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	0-	-?	-
(29) ± c selecting \tilde{N}	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(30) ± prepos. Gen (vs. infl. Gen)	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	-	-	-?
(31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+	-	-	-	-	0+	0+	0+	0+	-	-	0+	0+	0+	0+	-	-	-?
(32) ± GenO +30 or -31	-	-	-	-	+	0+	0+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	?	-	+
(33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	?	+	+
(34) ± poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ± N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ± N over ext.arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	+	0+	0+	+	+
(37) ± N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	-	+	+	+	+	0-	+	0-	+	+	+	+	+	+	0+	0+	+	-
(38) ± N over low As +24, +37	+	+	+	+	+	0-	0-	-	-	-?	-	0-	-	0-	-	-	-	+	+	0+	0+	0	-	-
(39) ± N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	0	0
(40) ± N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0
(41) ± Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	+	+
(42) ± head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(43) ± pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?
(44) ± agr. poss. +infl.As/Ds, -34	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	+	-	-	-	-	0-	0-	0-
(45) ± obl. poss form + double form	+	+	+	+	+	+	-	-	+	+?	+?	+	-	+	+?	+?	+	+	+	-	-	+	0	0
(46) ± enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-
(47) ± def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

B. Checking schema

	It	Sp	Fr	Ptg	Run	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	
(1) ± gramm. gender	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	
(2) ± gramm. number -1	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	+	+	
(3) ± num. on N (BNs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	
(4) ± num. on APs (BAs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-e	+	+e	-	-	+	
(5) ± ambiguous bare singulars +3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	+	-?	
(6) ± numeral agreement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(7) ± num/gend. on Mod +1 or +2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
(8) ± gramm. anaph. def	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	-
(9) ± gramm. general def. +8	+	+	+	+	+	0-	+	+	+	-	+	+	+	+	+	0-	0-	+	+	+	+	+	+	+	0-
(10) ± gramm. prox. def +9	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	+	-	0-	
(11) ± gramm. count ('null article') -5, +9	+	+	+	+	+	0-	-	-	+	0-	-	+	+	+	-	0-	0-	-	-	-	-	-	0+	0-	
(12) ± gramm. Count specif. +9, -11	0	0	0	0	0	0	?	?	0	0	+?	0	0	0	+	0	0	-?	-	+	-	?	0	0	
(13) ± gramm. K-to-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	?	-	-	
(14) ± strong D	+	+	+	+?	+	?	+	+	+	?	-?e	-	-	-	+	?	?	-?	-?	+	+	-	+?	?	
(15) ± variable person on D +14	-	+	-	+	-	?	?	?	+	?	?	0-	0-	0-	+	?	?	?	?	?	+	0-	-	-	
(16) ± art&compl +art +compl +14	-	+	-	+	0	0	+	+	-	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	
(17) ± def checking N +9	-	-	-	-	+	0	-	-	-	-	-	-	-	+	+	0	0	-	-	-	-	-	-	0	
(18) ± def spread on N +9	-	-	-	-	-	0	-	-	-	-	-	-	-	+	-	0	0	-	-	-	+	-	-	0	
(19) ± def. on attrib. +9, (-14 or -17)	-	-	-	-	0+	0-	+	+	+	-	-	-	-	-	0+	0-	0-	-	-	+	+	-	-	0	
(20) ± def. on Rel +9	-	-	-	-	-	0-	-	-	-	-	-	-	-	-	-	0-	0-	-	-	-	-	+	-	0	
(21) ± high dem.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+	
(22) ± low dem. +21	-	+	-	-?	+	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+?	-	-	-	
(23) ± def. check. dem +9, (-11 or +21)	+	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0	
	It	Sp	Fr	Ptg	Run	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	

B. Checking schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(24) ± structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(25) ± ordered APs +24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	-	-
(26) ± inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0
(27) ± free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	0-	0-	0+	-	-
(28) ± context. infl. As +infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	0-	-?	-
(29) ± c selecting N̄	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(30) ± prepos. Gen (vs. infl.Gen)	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	-	-	-?
(31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+	-	-	-	-	0+	0+	0+	0+	-	-	0+	0+	0+	0+	-	-	-?
(32) ± GenO +30 or -31	-	-	-	-	+	0+	0+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	?	-	+
(33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	?	+	+
(34) ± poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ± N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ± N over ext.arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	+	0+	0+	+	+
(37) ± N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	-	+	+	+	+	0-	+	0-	+	+	+	+	+	+	0+	0+	+	-
(38) ± N over low As +24, +37	+	+	+	+	+	0-	0-	-	-	-?	-	0-	-	0-	-	-	-	+	+	0+	0+	0	-	-
(39) ± N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	0	0
(40) ± N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0
(41) ± Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	0	+
(42) ± head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(43) ± pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?
(44) ± agr. poss. +infl.As/Ds, -34	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	+	-	-	-	-	0-	0-	0-
(45) ± obl. poss form + double form	+	+	+	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+	-	-	+	0	0
(46) ± enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-
(47) ± def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0

C. Spread schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(1) ± gramm. gender	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(2) ± gramm. number -1	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	+	+
(3) ± num. on N (BNs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(4) ± num. on APs (BAs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-e	+	+e	-	-	+
(5) ± ambiguous bare singulars +3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	+	-?
(6) ± numeral agreement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(7) ± num/gend. on Mod +1 or +2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
(8) ± gramm. anaph. def	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	-
(9) ± gramm. general def. +8	+	+	+	+	+	0-	+	+	+	-	+	+	+	+	+	0-	0-	+	+	+	+	+	+	0-
(10) ± gramm. prox. def +9	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	+	-	0-
(11) ± gramm. count ('null article') -5, +9	+	+	+	+	+	0-	-	-	+	0-	-	+	+	+	-	0-	0-	-	-	-	-	-	0+	0-
(12) ± gramm. Count specif. +9, -11	0	0	0	0	0	0	?	?	0	0	+?	0	0	0	+	0	0	-?	-	+	-	?	0	0
(13) ± gramm. K-to-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	?	-	-
(14) ± strong D	+	+	+	+?	+	?	+	+	+	?	-?e	-	-	-	+	?	?	-?	-?	+	+	-	+?	?
(15) ± variable person on D +14	-	+	-	+	-	?	?	?	+	?	?	0-	0-	0-	+	?	?	?	?	?	+	0-	-	-
(16) ± art&compl +art, +compl, +14	-	+	-	+	0	0	+	+	-	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0
(17) ± def checking N +9	-	-	-	-	+	0	-	-	-	-	-	-	-	+	+	0	0	-	-	-	-	-	-	0
(18) ± def spread on N +9	-	-	-	-	-	0	-	-	-	-	-	-	-	+	-	0	0	-	-	-	+	-	-	0
(19) ± def. on attrib. +9, (-14 or -17)	-	-	-	-	0+	0-	+	+	+	-	-	-	-	-	0+	0-	0-	-	-	+	+	-	-	0
(20) ± def. on Rel +9	-	-	-	-	-	0-	-	-	-	-	-	-	-	-	-	0-	0-	-	-	-	-	+	-	0
(21) ± high dem.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+
(22) ± low dem. +21	-	+	-	-?	+	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+?	-	-	-
(23) ± def. check. dem +9, (-11 or +21)	+	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

C. Spread schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	
(24) ± structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	
(25) ± ordered APs +24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	-	-
(26) ± inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0	0
(27) ± free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	0-	0-	0+	-	-
(28) ± context. infl. As +infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	-	0-	-?	-
(29) ± c selecting N	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(30) ± prepos. Gen (vs. infl.Gen)	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	+	-	-	-?
(31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+	-	-	-	-	0+	0+	0+	0+	-	-	0+	0+	0+	0+	0+	-	-	-?
(32) ± GenO +30 or -31	-	-	-	-	+	0+	0+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	?	?	-	+
(33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	-	?	+	+
(34) ± poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ± N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ± N over ext.arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	+	0+	0+	+	+	+
(37) ± N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	-	+	+	+	+	0-	+	0-	+	+	+	+	+	+	0+	0+	+	-	-
(38) ± N over low As +24, +37	+	+	+	+	+	0-	0-	-	-	-?	-	0-	-	0-	-	-	-	+	+	+	0+	0+	0	-	-
(39) ± N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	+	+	+	0+	0+	0	0	0
(40) ± N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0	
(41) ± Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	0	+	+
(42) ± head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(43) ± pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?	
(44) ± agr. poss. +infl.As/Ds, -34	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	+	-	-	-	-	0-	0-	0-	
(45) ± obl. poss form + double form	+	+	+	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+	-	-	+	0	0	
(46) ± enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-	
(47) ± def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0	
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	

D. Strength schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(1) ± gramm. gender	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(2) ± gramm. number -1	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	0+	+	+
(3) ± num. on N (BNs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(4) ± num. on APs (BAs) +1 or +2	+	+	-e	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-e	+	+e	-	-	+
(5) ± ambiguous bare singulars +3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	+	-?
(6) ± numeral agreement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
(7) ± num/gend. on Mod +1 or +2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
(8) ± gramm. anaph. def	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	-
(9) ± gramm. general def. +8	+	+	+	+	+	0-	+	+	+	-	+	+	+	+	+	0-	0-	+	+	+	+	+	+	0-
(10) ± gramm. prox. def +9	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	+	-	0-
(11) ± gramm.count ('null article') -5, +9	+	+	+	+	+	0-	-	-	+	0-	-	+	+	+	-	0-	0-	-	-	-	-	-	0+	0-
(12) ± gramm. Count specif. +9, -11	0	0	0	0	0	0	?	?	0	0	+?	0	0	0	+	0	0	-?	-	+	-	?	0	0
(13) + gramm. K-to-O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	?	-	-
(14) ± strong D	+	+	+	+?	+	?	+	+	+	?	-?e	-	-	-	+	?	?	-?	-?	+	+	-	+?	?
(15) ± variable person on D +14	-	+	-	+	-	?	?	?	+	?	?	0-	0-	0-	+	?	?	?	?	?	+	0-	-	-
(16) ± art&compl +art, +compl, +14	-	+	-	+	0	0	+	+	-	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0
(17) ± def checking N +9	-	-	-	-	+	0	-	-	-	-	-	-	-	+	+	0	0	-	-	-	-	-	-	0
(18) ± def spread on N +9	-	-	-	-	-	0	-	-	-	-	-	-	-	+	-	0	0	-	-	-	+	-	-	0
(19) ± def. on attrib. +9, (-14 or -17)	-	-	-	-	0+	0-	+	+	+	-	-	-	-	-	0+	0-	0-	-	-	+	+	-	-	0
(20) ± def. on Rel +9	-	-	-	-	-	0-	-	-	-	-	-	-	-	-	-	0-	0-	-	-	-	-	+	-	0
(21) ± high dem.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+
(22) ± low dem. +21	-	+	-	-?	+	+	+	+	+	+	-	-	-	-	-?	-?	-?	0+	0+	0+	+?	-	-	-
(23) ± def. check. dem +9, (-11 or +21)	+	+	+	+	+	0-	-	-	-	0	+	+	+	+	+	0-	0-	-	-	+	-	+	-	0
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTC	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

D. Strength schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	
(24) ± structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	
(25) ± ordered APs +24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	-	-
(26) ± inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0	0
(27) ± free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	0-	0-	0+	-	-
(28) ± context. infl. As +infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	-	0-	-?	-
(29) ± c selecting N̄	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(30) ± prepos. Gen (vs. infl.Gen)	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	+	-	-	-?
(31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+	-	-	-	-	0+	0+	0+	0+	-	-	0+	0+	0+	0+	0+	-	-	-?
(32) ± GenO +30 or -31	-	-	-	-	+	0+	0+	+	+	+	+	-	+	-	-	+	+	+	+	+	+	+	?	-	+
(33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	-	?	+	+
(34) ± poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ± N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ± N over ext.arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	+	0+	0+	+	+	+
(37) ± N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	-	+	+	+	+	0-	+	0-	+	+	+	+	+	+	0+	0+	+	-	-
(38) ± N over low As +24, +37	+	+	+	+	+	0-	0-	-	-	-?	-	0-	-	0-	-	-	-	+	+	+	0+	0+	0	-	-
(39) ± N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	0	0
(40) ± N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0
(41) ± Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	0	+	+
(42) ± head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(43) ± pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?	
(44) ± agr. poss. +infl.As/Ds, -34	+	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	-	-	-	-	0-	0-	0-	
(45) ± obl. poss form + double form	+	+	+	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+	-	-	+	0	0	
(46) ± enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-	
(47) ± def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0	
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin	

E. Size schema

	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin
(24) ± structured APs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+
(25) ± ordered APs +24	+	+	+	+	+	+	+	+	+	+?	+	+	+	+	+	+	+	+	+	+	+	0	-	-
(26) ± inversely ordered APs +25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	0	0
(27) ± free APs in Mod +24, +25, -26	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	0-	0-	0+	-	-
(28) ± context. infl. As +infl. As	-	-	-	-	-	-	-	-	-	+	+	0-	+	+	-	-	-	-	-	-	-	0-	-?	-
(29) ± c selecting N̄	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
(30) ± prepos. Gen (vs. infl.Gen)	+	+	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	+	+	+	+	-	-	-?
(31) ± free Gen (non-agr.) -30	0+	0+	0+	0+	-	+	+	-	-	-	-	0+	0+	0+	0+	-	-	0+	0+	0+	0+	-	-	-?
(32) ± GenO +30 or -31	-	-	-	-	+	0+	0+	+	+	+	+	-	+	-	-	+	+	+	+	+?	+?	?	-	+?
(33) ± GenS +30 or (-31, +32)	-e	-e	-	-e	-	0+	0+	-	-	+	+	+	+	+	-	-	-	-	-	-	-	?	+	+
(34) ± poss marking on N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
(35) ± N over Rel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(36) ± N over ext.arg. -25 or -26	+	+	+	+	+	+	+	+	+	+	+	-	+	-?	+	+	+	+	+	0+	0+	+?	+?	+?
(37) ± N over GenO +36, (+24 or (-30 or +32))	+	+	+	+	+	-	-	+	+	+	+	0-	+	0-	+	+	+	+	+	0+	0+	+	-	-
(38) ± N over low As +24, +37	+	+	+	+	+	0-	0-	-	-	-?	-	0-	-	0-	-	-	-	+	+	0+	0+	0	-	-
(39) ± N over M2 As +25, +38	+	+	+	+	+	0-	0-	0-	0-	0-?	0-	0-	0-	0-	0-	0-	0-	+	+	0+	0+	0	0	0
(40) ± N over high As +39	-	-	-	-	-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	0-	+e	+e	0+	0+	0	0	0
(41) ± Consistency Princ. -36 or...-40	+	+	+	+	+	?	?	?	-	?	+	+	+	+	-	-	-	0	0	0	0	0	+	+
(42) ± head initial DP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+?
(43) ± pr. (poss.) to Gen -32 or -33	+	+	+	+	?	0	0	+	-	0	0	-	0	+	+	+	+	+	+	-	-	?	-	0?
(44) ± agr. poss. +infl.As/Ds, -34	+	+	+	+	+	+	+	-	+	+	0	+	+	+	+	+	+	-	-	-	-	0-	0-	0-
(45) ± obl. poss form + double form	+	+	+	+	+	+	-	-	+	+?	+?	+	-	+	+?	+?	+	+	+	-	-	+	0	0
(46) ± enclitic possessives	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-?	-?	+	-	-
(47) ± def ch. poss. +8 or +9, -def ch. Gen	-	+	+	-	-	0	-	-	-	?	0+	0+	0+	0+	-	0	0	+	+	0+	0+	0+	0+	0
	It	Sp	Fr	Ptg	Rum	Lat	CIG	NTG	Grk	Got	OE	E	D	Nor	Blg	SC	Rus	Ir	Wel	Heb	Ar	Wo	Hu	Fin

Further simplification

interactions among **parameters**



interactions among **schemata**

Axiomatization of interactions

A schema may happen not to generate any
parameter at all for a given feature

in a given language,

because of the interactions **among schemata**
and **between schemata and principles**

Is F grammaticalized? (A)

Is F checked by X? (B) Relevant if +A

Is F spread on Y? (C) Relevant if +A

Is F (checked by X) strong? (D) Relevant if +B

Is F checked by X^0 ? (E) Relevant if +D

(9) ± gramm. general def. +8

Is F(F= def) grammaticalized? (A)

(10) ± gramm. prox. def +9

(11) ± gramm.count ('null article') -5, +9

(12) ± gramm. specif. +9, -11

(13) ± gramm. K-to-O

(14) ± strong D

(15) ± variable person on D +14

(16) ± art&compl +art, +compl, +14

(17) ± def checking N +9 →

Is F checked by X? (B) Relevant if +A

(18) ± def spread on N +9 →

Is F spread on X? (C) Relevant if +A

(19) ± def. on attrib. +9, (-14 or -17)

(20) ± def. on Rel +9

Is F checked by/spread on X?
(B/C) Relevant if +A
(& interaction with UG PRINCIPLES)

(21) ± high dem.

(22) ± low dem. +21

(23) ± def. check. dem +9, (-11 or +21)

(47) ± def ch. poss. +8 or +9, -def ch. Gen

Is F checked by X? (B)
Relevant if +A
(& interaction with UG PRINCIPLES)

Conclusions

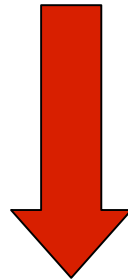
Arithmetical simplification

of the content of UG

Few Schemata >>> *Many Parameters*

Principles&Parameters

model



Principles&Schemata

model

New conception of UG

restricted amount of **parameter schemata** at S_0



triggering experience
(lexicon = features+categories)



parameters = questions

AND

values = answers



S_S

Why so much diversity?

- **Extensional** reduction
 - Interactions
- **Intensional** reduction
 - Lexical arbitrariness
 - Schemata

Why parameters at all?

Functional evolutionary justification of

just a **few schemata**

rather than of

an enormous **host of parameters**

Parameters, schemata and virtual conceptual necessity

Functional justification of **one parameter**
within a schema



Functional justification of **the whole schema**
(via the variable nature of F , X , Y)

**E.g. tentative explanation of schema C
through an acquisition strategy**

1. a **specific lexical item** shifts from a class X where its feature F is interpretable to a class Y where it is not

+

2. acquisition strategy: the phonological content of inflectional morphology is preserved independently of categorial (re)analysis



Functional explanation for C

Hence

reduction of few schemata to functional
(say, evolutionary) explanation



functional explanation of ALL parameters,
i.e. of grammatical diversity

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