Extending Parametric Comparison

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1. Project overview

The project

- Basic goal is to develop a database of parameter values in the form of a “parametric grid” (see Table A below);
- 76 clausal parameters for 40 languages;
- Combined with Longobardi’s (2018) 91-parameter nominal database, this will give a total of 166 clausal and nominal parameters (Longobardi et al have data on 77 languages altogether);
- The database can then be used for theoretical, historical and computational investigations.

The basic idea (highly simplified): morphosyntactic features

- is number marked in nominals in L?

  (English: YES; Japanese: NO)
- is there a system of articles in nominals in L?

  (English: YES; Japanese: NO)
- is there a system of classifiers in nominals in L?

  (English: NO; Japanese: YES)

The basic idea (highly simplified): word order

- Possessor > Possessee
  - John’s sister
  - John-no imooto-ga (Japanese)
- Possessee > Possessor
  - la soeur de Jean (French)
  - chwaer Siôn (Welsh)

A real example (from Longobardi et al 2013:5)

- P4: NP over D separates languages in which most elements normally associated with the D-area, such as “articles” or, in some languages, demonstratives and numerals, surface phrase-initially in the DP (e.g. Indo-European languages) from languages wherein they occur in absolute phrase-final position (e.g. Basque); this is taken to be a signal that the whole complement of D raises to some position to the left of D.
- [D NumP] P4-, e.g. English
- [NumP D (NumP)] P4+, e.g. Basque

		TABLE A		Slc	It	Sp	Fr	Ptg	Rm	Grk	CyG	E	D	Da	Ice	Nor	Blg	SC	Slo	Po	Rus	Ir	Wel	Ma	Hi	Fer	Pse	Man	Can	Inu	Jap	Ar	Heb	Hu	Est	Fin	Tur	Bur	cB	wB	Wo	Ka	Ku		
1	FGM	± gramm. morphology	FGM	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	FGM	1
2	FGP	± gramm. person +FGM	FGP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	+	-	+	+	+	+	+	+	+	+	+	+	+	FGP	2
3	FGN	± gramm. number +FGP	FGN	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	+	+	+	+	+	+	+	+	+	+	-	FGN	3
4	GCO	± gramm. collective ¬+FGN	GCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	0	0	0	0	0	0	0	0	0	0	0	GCO	4
5	FGG	± gramm. gender +FGP	FGG	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	0	0	-	0	+	+	-	-	-	-	-	-	+	+	+	-	FGG	5
6	NOD	± NP over D +FGP	NOD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-	-	-	NOD	6
7	FSN	± feature spread to N +FGN or +GCO, -NOD	FSN	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	+	+	+	+	+	+	0	0	0	+	+	FSN	7
8	FNN	± numb. on N +FSN	FNN	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	+	+	+	+	+	+	0	0	0	+	+	FNN	8
9	CGB	± gramm. boundedness	CGB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	+	+	+	-	-	-	+	-	-	+	+	-	-	+	+	-	CGB	9
10	FIN	± free incorporation +CGB	FIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	-	0	0	0	-	0	0	-	0	0	0	-	0	0	FIN	10
11	DGR	± gramm. article +FGP	DGR	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	+	+	-	-	-	-	0	0	-	0	+	+	+	-	-	-	-	-	+	-	-	DGR	11
12	CGR	± strong article -CGB, +DGR, ¬-FNN	CGR	+	+	+	0	+	+	+	+	+	+	+	-	+	-	0	0	0	0	-	-	0	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	CGR	12
13	NSD	± strong person (+FGN, ¬+FSN) or +DGR	NSD	+	+	+	+	+	+	+	+	-	-	-	-	-	+	0	0	0	0	-	-	0	0	0	0	0	0	0	0	+	+	+	0	0	0	0	+	+	-	0	0	NSD	13
14	DPQ	± free null partitive Q +FNN, ¬+CGB	DPQ	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	-	0	0	0	0	-	-	0	+	+	0	0	0	0	0	0	-	DPQ	14
15	DCN	± article-checking N (+FGN, ¬+FSN) or +DGR	DCN	-	-	-	-	-	+	-	-	-	+	+	+	+	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	+	+	-	0	0	0	0	-	-	-	0	0	DCN	15
16	DOR	± def on relatives +DGR	DOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	-	-	0	0	0	0	0	0	0	0	+	-	-	0	0	0	0	0	0	+	0	0	DOR	16
17	DIN	± D-controlled infl. on N +FSN	DIN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	-	-	DIN	17
18	CPS	± plural spread from cardinals +FSN, ¬+GCO	CPS	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	-	-	0	0	+	0	+	+	-	-	-	-	-	0	0	0	+	0	CPS	18
19	NPA	± numerical (partial) atomizer +FGN, +CGB	NPA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	0	-	0	0	0	+	0	+	0	0	0	+	+	0	NPA	19
20	BAT	± atomizer +NPA, -DGR	BAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	0	0	0	-	0	0	0	0	+	0	BAT	20
21	FGC	± gramm. classifier ¬+BAT	FGC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	0	-	FGC	21
22	GBC	± gramm. bare classifier +FGC	GBC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	-	0	0	0	0	0	0	0	0	0	0	0	0	GBC	22
23	IBC	± indefinite bare classifier +GBC	IBC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	IBC	23
24	CCN	± bounded.-checking N +NPA	CCN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	+	0	0	0	0	0	0	-	0	0	0	0	0	0	-	-	0	CCN	24
25	DNN	± null-N-licensing art -DCN, +NSD	DNN	-	-	+	-	+	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	+	+	0	0	0	DNN	25
26	FGT	± gramm. temporality	FGT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	FGT	26
27	DGP	± gramm. text anaphora ¬+DGR	DGP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-	0	+	-	DGP	27
28	TCL	± clitic *location* +BAT	TCL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TCL	28
29	TPL	± strong partial *location* ¬+TCL	TPL	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	0	+	TPL	29
30	TSL	± strong *location* +TPL	TSL	+	+	-	+	+	-	-	+	+	+	+	-	-	-	-	0	0	+	+	+	+	+	-	-	0	+	0	+	+	+	+	+	+	+	+	+	0	+	TSL	30
31	TAD	± adjectival *location* -TPL or -TSL	TAD	0	0	+	0	0	+	-	-	0	0	0	0	0	+	+	+	+	+	+	+	0	0	0	0	0	0	0	-	+	+	+	0	0	0	0	0	0	0	0	0	TAD	31
32	TSP	± D-checking *location* (+FGN, ¬+FSN) or +DGR, +TPL or (-CGR, +TAD)	TSP	+	+	+	+	+	-	-	+	+	+	+	+	+	0	0	0	0	-	-	0	0	0	0	0	0	0	0	-	+	-	0	0	0	0	+	+	+	0	0	TSP	32
33	TDL	± Double *location* +TPL	TDL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	+	-	0	-	TDL	33
34	HMP	± NP-heading modifier	HMP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	HMP	34
35	AST	± structured APs	AST	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	AST	35
36	FFS	± feature spread to struct. APs +FSN, +AST	FFS	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	0	0	0	0	+	+	-	+	+	-	-	0	0	0	+	+	FFS	36
37	FSP	± feature spread to pred. APs +FGN or +GCO	FSP	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	-	-	+	+	-	-	0	0	+	0	+	+	+	+	+	+	+	+	+	+	FSP	37
38	ADI	± D-controlled infl. on A -NSD, +FFS	ADI	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ADI	38
39	ADR	± NP over obliques	ADR	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	-	-	-	+	+	+	+	+	-	-	-	-	+	+	-	ADR	39
40	AER	± relative extrap. -ADR	AER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	+	-	-	+	-	0	0	0	0	0	-	-	-	-	0	0	+	AER	40
41	ARR	± free reduced rel +AST	ARR	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	0	0	+	-	-	-	-	-	-	-	-	0	-	+	ARR	41
42	NPP	± N-raising with obl. pied-piping +AST	NPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	+	+	-	-	-	-	-	+	+	0	-	-	NPP	42
43	NOC	± N over cardinals	NOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	NOC	43
44	NOO	± N over ordinals -NOC	NOO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	NOO	44
45	NM1	± N over M1 As -NOO, -NPP	NM1	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	0	-	-	-	0	0	0	0	-	-	-	-	0	0	0	-	+	NM1	45
46	NM2	± N over M2 As -NM1	NM2	0	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	-	-	-	0	0	0	0	-	-	-	-	0	0	0	+	0	NM2	46
47	NOA	± N over As -NM2	NOA	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	-	-	-	0	0	0	0	-	-	-	-	0	0	0	0	0	NOA	47
48	GCN	± Poss°-checking N	GCN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	+	-	-	-	-	-	-	+	+	GCN	48
49	GFN	± Gen-feature spread to N +FGP, +GCN	GFN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	-	-	+	0	+	+	0	0	0	0	+	-	GFN	49
50	GAL	± Acc-licensing N	GAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	+	-	GAL	50
51	GUN	± uniform Gen ¬+GFN	GUN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	0	+	0	0	+	-	-	-	0	-	GUN	51
52	GFS	± GenS ¬+NSD, -GUN	GFS	0	0	0	0	0	0	0	+	+	-	+	0	-	-	-	-	-	-	-	-	-	-	-	-	+	0	-	0	0	0	0	0	0	0	0	0	+	0	+	GFS	52
53	GFR	± free Gen -GUN	GFR	+	+	+	+	+	+	-	-	+	+	+	+	+	+	-	-	-	-	+	+	+	+	-	+	-	-	0	+	+	+	0	0	0	0	0	+	+	-	0	-	GFR	53
54	GFO	± GenO ¬+GUN, -GAL or ¬+GFN	GFO	-	-	-	-	-	-	+	+	+	+	-	+	-	-	+	+	+	+	+	+	-	-	+	-	-	-	0	-	+	+	-	0	+	0	0	-	-	+	0	-	GFO	54
55	GPR	± prepositional arguments +ADR	GPR	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	0	0	0	0	+	+	-	-	0	0	0	0	+	-	0	GPR	55
56	EZ1	± gr. generalized linker	EZ1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	EZ1	56
57	EZ2	± gramm. non-clausal linker -EZ1	EZ2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	0	0	-	+	-	-	-	-	-	-	-	-	0	-	-	EZ2	57
58	EZ3	± gr. arg. linker ¬ -EZ1 ,¬+EZ2	EZ3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	0	+	0	0	-	0	-	-	-	-	-	-	-	-	0	-	-	EZ3	58
59	DMP	± phi-licensed poss. +DCN	DMP	0	0	0	0	0	+	0	0	0	0	-	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	DMP	59
60	DMG	± phi-licensed Gen +DMP	DMG	0	0	0	0	0	+	0	0	0	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DMG	60
61	HGI	± head Genitive iteration +GCN or +DMG, -EZ2	HGI	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	-	0	0	0	0	0	0	+	0	HGI	61
62	GSI	± strong inalienable Genitive	GSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	GSI	62
63	GST	± strong Genitive +GSI	GST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	-	GST	63
64	GEI	± Genitive inversion +GFN	GEI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	-	0	-	0	0	0	0	+	0	GEI	64
65	NGO	± N over GenO ¬-GFO, -GAL or ¬+GFN, -NOA or -AST	NGO	0	0	0	0	0	+	+	-	+	0	+	0	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	0	0	+	0	0	NGO	65
66	NOE	± N over ext. arg. -NGO or (¬+GFO, -NOA or -AST)	NOE	0	0	0	0	0	0	0	0	-	0	-	0	-	+	0	0	0	0	0	0	0	+	0	+	-	-	+	+	0	0	+	+	+	+	0	0	0	0	0	0	NOE	66
67	AFM	± free MOD +AST, +NGO	AFM	0	0	0	0	0	0	+	+	0	-	0	-	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	AFM	67
68	ACM	± class MOD -AFM	ACM	0	0	0	0	0	0	0	0	0	-	0	0	-	-	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ACM	68
69	DOA	± def on all (+NSD, (+ARR or +DCN or +AFM or +ACM)) or (+DCN, +CGR)	DOA	-	-	-	-	-	+	+	0	0	-	0	+	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	DOA	69
70	ACP	± Cons. Pr. +AST, (-NM1,+ADR) or (+NPP or ¬-NM2, -ADR)	ACP	0	+	+	+	+	-	+	+	+	+	-	+	+	+	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	0	0	+	+	0	+	+	0	ACP	70
71	NCL	± clitic poss. on N	NCL	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	NCL	71
72	APO	± adjectival poss. ¬+ GFN	APO	+	+	+	+	-	-	-	+	-	-	+	+	+	+	+	+	+	+	-	-	-	-	-	-	0	-	-	-	-	0	-	0	0	-	-	-	-	0	-	APO	72
73	AGE	± adjectival Gen +APO	AGE	-	-	-	-	0	0	0	0	-	0	0	0	+	+	+	-	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	AGE	73
74	PDC	± D checking poss. +DGR, +NSD or ¬+CGR, ¬+GFN	PDC	-	-	+	+	-	-	-	0	0	0	+	0	-	0	0	0	0	+	0	0	+	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	-	0	0	0	PDC	74
75	ACL	± enclitic poss. on adj. +AST, -APO, ¬+DGR or -PDC, ¬+DMP	ACL	0	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	-	-	0	-	0	-	0	0	-	-	0	0	-	ACL	75
		TABLE A		RGS	It	Sp	Fr	Ptg	Rm	Grk	CyG	E	D	Da	Ice	Nor	Blg	SC	Slo	Po	Rus	Ir	Wel	Ma	Hi	Fer	Pse	Man	Can	Inu	Jap	Ar	Heb	Hu	Est	Fin	Tur	Bur	cB	wB	Wo	Ka	Ku		

		TABLE A		Sic	It	Sp	Fr	Ptg	Rm	Grk
1	FGM	± gramm. morphology	FGM	+	+	+	+	+	+	+
2	FGP	± gramm. person +FGM	FGP	+	+	+	+	+	+	+
3	FGN	± gramm. number +FGP	FGN	+	+	+	+	+	+	+
4	GCO	± gramm. collective ¬+FGN	GCO	0	0	0	0	0	0	0
5	FGG	± gramm. gender +FGP	FGG	+	+	+	+	+	+	+
6	NOD	± NP over D +FGP	NOD	-	-	-	-	-	-	-
7	FSN	± feature spread to N +FGN or +GCO, -NOD	FSN	+	+	+	+	+	+	+
8	FNN	± numb. on N +FSN	FNN	+	+	+	-	+	+	+
9	CGB	± gramm. boundedness	CGB	-	-	-	-	-	-	-
10	FIN	± free incorporation +CGB	FIN	0	0	0	0	0	0	0
11	DGR	± gramm. article +FGP	DGR	+	+	+	+	+	+	+
12	CGR	± strong article -CGB, +DGR, ¬-FNN	CGR	+	+	+	0	+	+	+
13	NSD	± strong person (+FGN, ¬+FSN) or +DGR	NSD	+	+	+	+	+	+	+
14	DPQ	± free null partitive Q +FNN, ¬+CGB	DPQ	-	-	-	0	-	-	-
15	DCN	± article-checking N (+FGN, ¬+FSN) or +DGR	DCN	-	-	-	-	-	+	-
16	DOR	± def on relatives +DGR	DOR	-	-	-	-	-	-	-
17	DIN	± D-controlled infl. on N +FSN	DIN	-	-	-	-	-	-	-
18	CPS	± plural spread from cardinals +FSN, ¬+GCO	CPS	+	+	+	+	+	+	+
19	NPA	± numerical (partial) atomizer +FGN, +CGB	NPA	0	0	0	0	0	0	0
20	BAT	± atomizer +NPA, -DGR	BAT	0	0	0	0	0	0	0

Calculating distances

- The distance between two languages (X, Y) is $\delta\ (0 \geq \delta \geq 1)$ determined by the Jaccard formula for the ordered pair <*i*, *d*> (where *i* = the number of identities in parameter values and *d* = the number of differences)

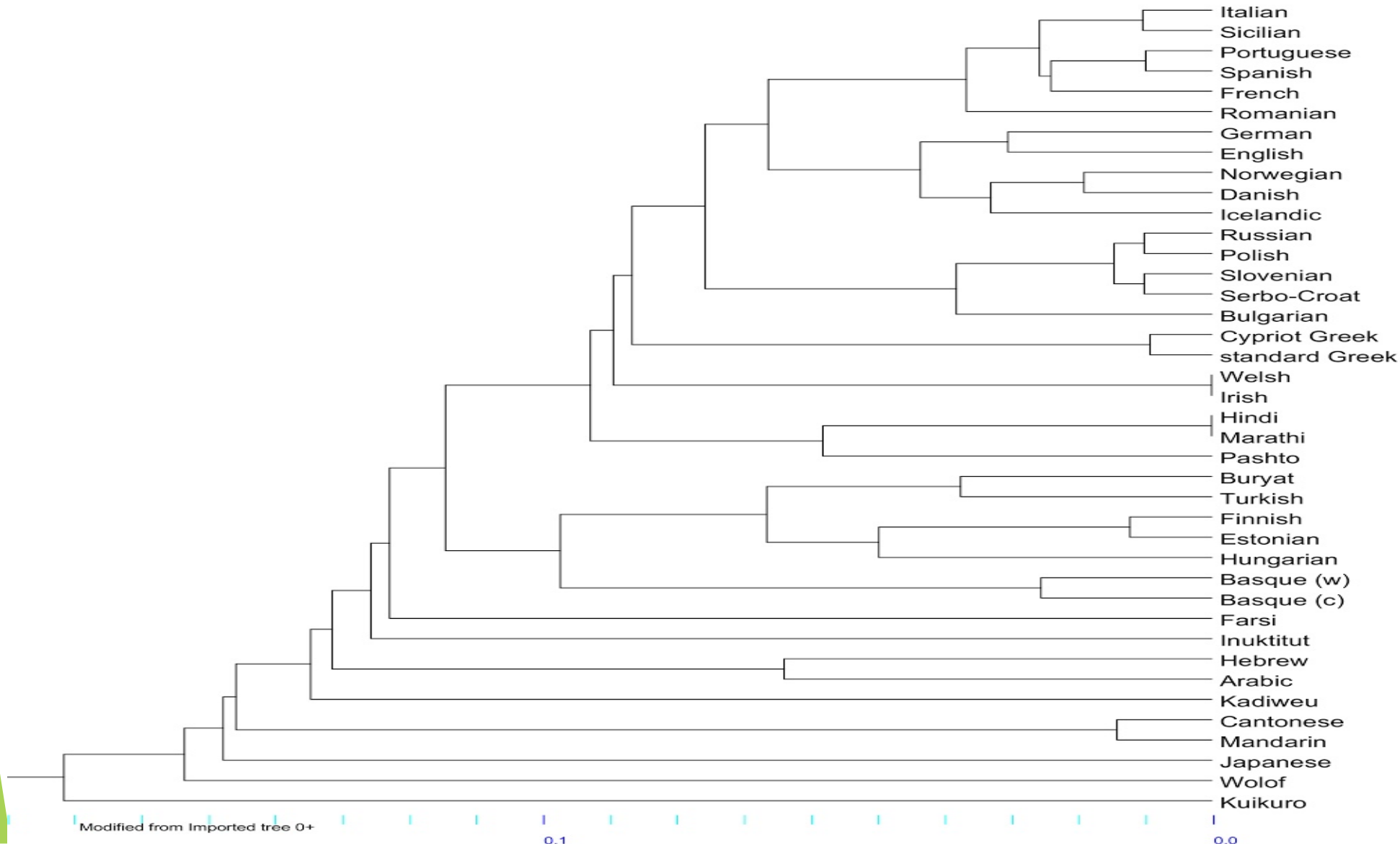
$$\frac{i}{i+d}$$

- Apply phylogenetic software to produce the optimum tree representing the syntactic distance between each pair of languages in the sample.

- Next three slides:
  - distances for all the language pairs in Table A;
  - zoomed-in portion of this table;
  - KITSCH tree for the parametric distances (Longobardi et al 2015).

	Ka	Ku	Sic	It	Sp	Fr	Ptg	Rm	Grk	CyG	E	D	Da	Ice	Nor	Blg	SC	Slo	Po	Rus	Ir	Wel	Ma	Hi	Far	Pas	Man	Can	Inu	Jap	Ar	Heb	Hu	Est	Fin	Tur	Bur	cB	wB	Wo
Ka	0	0,406	0,276	0,233	0,233	0,267	0,233	0,226	0,3	0,3	0,3	0,267	0,233	0,233	0,233	0,233	0,226	0,226	0,226	0,226	0,276	0,286	0,314	0,314	0,438	0,367	0,526	0,526	0,29	0,625	0,379	0,276	0,306	0,29	0,294	0,342	0,394	0,417	0,375	0,455
Ku	0,406	0	0,297	0,324	0,351	0,361	0,324	0,342	0,368	0,368	0,342	0,342	0,316	0,368	0,316	0,378	0,359	0,359	0,359	0,359	0,361	0,361	0,3	0,3	0,351	0,275	0,414	0,414	0,312	0,481	0,368	0,417	0,343	0,297	0,297	0,306	0,351	0,324	0,382	0,571
Sic	0,276	0,297	0	0,0208	0,0833	0,0652	0,0625	0,087	0,17	0,17	0,159	0,111	0,111	0,178	0,133	0,128	0,175	0,175	0,15	0,175	0,209	0,214	0,162	0,162	0,333	0,216	0,375	0,375	0,276	0,304	0,273	0,262	0,225	0,243	0,25	0,333	0,371	0,229	0,229	0,312
It	0,233	0,324	0,0208	0	0,06	0,0417	0,04	0,0625	0,184	0,163	0,152	0,106	0,106	0,17	0,128	0,143	0,167	0,19	0,167	0,19	0,233	0,238	0,158	0,158	0,333	0,211	0,36	0,36	0,276	0,304	0,273	0,262	0,214	0,231	0,237	0,324	0,361	0,222	0,222	0,312
Sp	0,233	0,351	0,0833	0,06	0	0,0625	0,02	0,0612	0,22	0,2	0,174	0,128	0,128	0,17	0,149	0,14	0,14	0,163	0,14	0,163	0,205	0,209	0,184	0,184	0,361	0,237	0,4	0,4	0,267	0,25	0,267	0,279	0,262	0,256	0,263	0,353	0,389	0,222	0,222	0,344
Fr	0,267	0,361	0,0652	0,0417	0,0625	0	0,0417	0,109	0,234	0,213	0,182	0,133	0,133	0,156	0,156	0,17	0,195	0,22	0,195	0,22	0,22	0,225	0,184	0,184	0,361	0,243	0,36	0,36	0,31	0,304	0,31	0,3	0,238	0,237	0,243	0,353	0,389	0,222	0,222	0,312
Ptg	0,233	0,324	0,0625	0,04	0,02	0,0417	0	0,0833	0,224	0,204	0,152	0,106	0,106	0,149	0,128	0,163	0,167	0,19	0,167	0,19	0,209	0,214	0,158	0,158	0,333	0,211	0,36	0,36	0,276	0,304	0,295	0,286	0,238	0,231	0,237	0,324	0,361	0,194	0,194	0,312
Rm	0,226	0,342	0,087	0,0625	0,0612	0,109	0,0833	0	0,184	0,163	0,174	0,174	0,104	0,163	0,122	0,118	0,143	0,167	0,167	0,167	0,227	0,233	0,158	0,158	0,333	0,211	0,36	0,36	0,29	0,206	0,234	0,244	0,286	0,231	0,292	0,371	0,361	0,229	0,229	0,344
Grk	0,3	0,368	0,17	0,184	0,22	0,234	0,224	0,184	0	0,0185	0,208	0,204	0,208	0,22	0,188	0,2	0,156	0,133	0,133	0,133	0,227	0,233	0,225	0,225	0,324	0,275	0,37	0,37	0,267	0,375	0,239	0,295	0,256	0,286	0,275	0,343	0,333	0,378	0,378	0,242
CyG	0,3	0,368	0,17	0,163	0,2	0,213	0,204	0,163	0,0185	0	0,188	0,184	0,188	0,2	0,167	0,22	0,133	0,156	0,156	0,156	0,227	0,233	0,225	0,225	0,324	0,275	0,37	0,37	0,267	0,375	0,239	0,295	0,233	0,262	0,25	0,343	0,333	0,351	0,351	0,242
E	0,3	0,342	0,159	0,152	0,174	0,182	0,152	0,174	0,208	0,188	0	0,0612	0,0816	0,122	0,0816	0,208	0,182	0,205	0,205	0,205	0,14	0,143	0,244	0,244	0,216	0,146	0,25	0,25	0,333	0,36	0,31	0,25	0,233	0,214	0,22	0,222	0,231	0,229	0,229	0,294
D	0,267	0,342	0,111	0,106	0,128	0,133	0,106	0,174	0,204	0,184	0,0612	0	0,0816	0,0962	0,0816	0,167	0,128	0,149	0,149	0,17	0,159	0,163	0,225	0,225	0,27	0,175	0,296	0,296	0,31	0,375	0,31	0,25	0,238	0,22	0,2	0,229	0,289	0,257	0,257	0,294
Da	0,233	0,316	0,111	0,106	0,128	0,133	0,106	0,104	0,208	0,188	0,0816	0,0816	0	0,08	0,0385	0,14	0,14	0,163	0,163	0,163	0,205	0,209	0,171	0,171	0,297	0,171	0,214	0,214	0,3	0,32	0,273	0,214	0,233	0,171	0,2	0,278	0,289	0,2	0,2	0,303
Ice	0,233	0,368	0,178	0,17	0,17	0,156	0,149	0,163	0,22	0,2	0,122	0,0962	0,08	0	0,0588	0,12	0,087	0,109	0,13	0,13	0,133	0,136	0,15	0,15	0,243	0,15	0,296	0,296	0,276	0,292	0,25	0,19	0,238	0,171	0,175	0,257	0,289	0,229	0,229	0,235
Nor	0,233	0,316	0,133	0,128	0,149	0,156	0,128	0,122	0,188	0,167	0,0816	0,0816	0,0385	0,0588	0	0,137	0,14	0,163	0,163	0,163	0,205	0,209	0,171	0,171	0,297	0,171	0,214	0,214	0,3	0,32	0,273	0,214	0,233	0,171	0,2	0,278	0,289	0,2	0,2	0,303
Blg	0,233	0,378	0,128	0,143	0,14	0,17	0,163	0,118	0,2	0,22	0,208	0,167	0,14	0,12	0,137	0	0,0909	0,0682	0,0909	0,0682	0,205	0,209	0,175	0,175	0,333	0,175	0,333	0,333	0,258	0,24	0,239	0,205	0,233	0,22	0,225	0,278	0,316	0,257	0,257	0,375
SC	0,226	0,359	0,175	0,167	0,14	0,195	0,167	0,143	0,156	0,133	0,182	0,128	0,14	0,087	0,14	0,0909	0	0,0204	0,0612	0,0408	0,154	0,158	0,195	0,195	0,237	0,195	0,321	0,321	0,226	0,308	0,211	0,222	0,237	0,19	0,171	0,25	0,308	0,242	0,242	0,267
Slo	0,226	0,359	0,175	0,19	0,163	0,22	0,19	0,167	0,133	0,156	0,205	0,149	0,163	0,109	0,163	0,0682	0,0204	0	0,0408	0,0204	0,154	0,158	0,195	0,195	0,237	0,195	0,321	0,321	0,226	0,308	0,211	0,222	0,263	0,214	0,195	0,25	0,308	0,273	0,273	0,267
Po	0,226	0,359	0,16	0,167	0,14	0,195	0,167	0,167	0,133	0,156	0,205	0,149	0,163	0,13	0,163	0,0909	0,0612	0,0408	0	0,0204	0,154	0,158	0,195	0,195	0,237	0,195	0,321	0,321	0,226	0,308	0,211	0,222	0,263	0,214	0,195	0,25	0,308	0,273	0,273	0,267
Rus	0,226	0,359	0,175	0,19	0,163	0,22	0,19	0,167	0,133	0,156	0,205	0,17	0,163	0,13	0,163	0,0682	0,0408	0,0204	0,0204	0	0,154	0,158	0,195	0,195	0,237	0,195	0,321	0,321	0,226	0,308	0,211	0,222	0,263	0,214	0,195	0,25	0,308	0,273	0,273	0,267
Ir	0,276	0,361	0,209	0,233	0,205	0,22	0,209	0,227	0,227	0,227	0,14	0,159	0,205	0,133	0,205	0,205	0,154	0,154	0,154	0,154	0	0	0,25	0,25	0,257	0,194	0,435	0,435	0,357	0,304	0,262	0,214	0,297	0,257	0,265	0,323	0,333	0,312	0,281	0,323
Wel	0,286	0,361	0,214	0,238	0,209	0,225	0,214	0,233	0,233	0,233	0,143	0,163	0,209	0,136	0,209	0,209	0,158	0,158	0,158	0,158	0	0	0,257	0,257	0,235	0,171	0,435	0,435	0,37	0,304	0,268	0,22	0,278	0,235	0,242	0,3	0,312	0,312	0,281	0,323
Ma	0,314	0,3	0,162	0,158	0,184	0,184	0,158	0,158	0,225	0,225	0,244	0,225	0,171	0,15	0,171	0,175	0,195	0,195	0,195	0,195	0,25	0,257	0	0	0,262	0,116	0,25	0,25	0,206	0,259	0,278	0,324	0,2	0,175	0,211	0,214	0,266	0,206	0,206	0,258
Hi	0,314	0,3	0,162	0,158	0,184	0,184	0,158	0,158	0,225	0,225	0,244	0,225	0,171	0,15	0,171	0,175	0,195	0,195	0,195	0,195	0,25	0,257	0	0	0,262	0,116	0,25	0,25	0,206	0,259	0,278	0,324	0,2	0,175	0,211	0,214	0,266	0,206	0,206	0,258
Far	0,438	0,351	0,333	0,333	0,361	0,361	0,333	0,333	0,324	0,324	0,216	0,27	0,297	0,243	0,297	0,333	0,237	0,237	0,237	0,237	0,257	0,235	0,262	0,262	0	0,184	0,259	0,259	0,323	0,36	0,389	0,382	0,222	0,194	0,206	0,167	0,189	0,281	0,344	0,281
Pas	0,367	0,275	0,216	0,211	0,237	0,243	0,211	0,211	0,275	0,275	0,146	0,175	0,171	0,15	0,171	0,175	0,195	0,195	0,195	0,195	0,194	0,171	0,116	0,116	0,184	0	0,258	0,258	0,258	0,222	0,333	0,324	0,167	0,15	0,184	0,135	0,15	0,152	0,152	0,357
Man	0,526	0,414	0,375	0,36	0,4	0,36	0,36	0,36	0,37	0,37	0,25	0,296	0,214	0,296	0,214	0,333	0,321	0,321	0,321	0,321	0,435	0,435	0,25	0,25	0,259	0,258	0	0,0286	0,429	0,333	0,522	0,571	0,24	0,259	0,32	0,231	0,241	0,231	0,269	0,304
Can	0,526	0,414	0,375	0,36	0,4	0,36	0,36	0,36	0,37	0,37	0,25	0,296	0,214	0,296	0,214	0,333	0,321	0,321	0,321	0,321	0,435	0,435	0,25	0,25	0,259	0,258	0,0286	0	0,429	0,333	0,522	0,571	0,24	0,259	0,32	0,231	0,241	0,231	0,269	0,304
Inu	0,29	0,312	0,276	0,276	0,267	0,31	0,276	0,29	0,267	0,267	0,333	0,31	0,3	0,276	0,3	0,259	0,226	0,226	0,226	0,226	0,357	0,37	0,206	0,206	0,323	0,259	0,429	0,429	0	0,348	0,323	0,31	0,229	0,226	0,206	0,189	0,206	0,259	0,333	0,4
Jap	0,625	0,481	0,304	0,304	0,25	0,304	0,304	0,208	0,375	0,375	0,36	0,375	0,32	0,292	0,32	0,24	0,308	0,308	0,308	0,308	0,304	0,304	0,259	0,259	0,36	0,222	0,333	0,333	0,348	0	0,348	0,476	0,381	0,304	0,364	0,364	0,375	0,2	0,24	0,391
Ar	0,379	0,368	0,273	0,273	0,267	0,31	0,295	0,234	0,239	0,239	0,31	0,31	0,273	0,25	0,273	0,239	0,211	0,211	0,211	0,211	0,262	0,268	0,278	0,278	0,389	0,333	0,522	0,522	0,323	0,348	0	0,128	0,359	0,333	0,306	0,424	0,471	0,324	0,324	0,387
Heb	0,276	0,417	0,262	0,262	0,279	0,3	0,286	0,244	0,295	0,295	0,25	0,25	0,214	0,19	0,214	0,205	0,222	0,222	0,222	0,222	0,214	0,22	0,324	0,324	0,382	0,324	0,571	0,571	0,31	0,476	0,128	0	0,351	0,324	0,294	0,355	0,406	0,312	0,281	0,448
Hu	0,306	0,343	0,225	0,214	0,282	0,238	0,238	0,286	0,256	0,233	0,233	0,238	0,233	0,238	0,233	0,233	0,237	0,263	0,263	0,263	0,297	0,278	0,2	0,2	0,222	0,167	0,24	0,24	0,229	0,381	0,359	0,351	0	0,105	0,0952	0,0952	0,184	0,242	0,303	0,344
Est	0,29	0,297	0,243	0,231	0,256	0,237	0,231	0,231	0,286	0,262	0,214	0,22	0,171	0,171	0,171	0,22	0,19	0,214	0,214	0,214	0,257	0,235	0,175	0,175	0,194	0,15	0,259	0,259	0,226	0,304	0,333	0,324	0,105	0	0,0244	0,162	0,146	0,125	0,188	0,37
Fin	0,294	0,297	0,25	0,237	0,263	0,243	0,237	0,282	0,275	0,25	0,22	0,2	0,2	0,175	0,2	0,225	0,171	0,195	0,195	0,195	0,265	0,242	0,211	0,211	0,206	0,184	0,32	0,32	0,206	0,364	0,306	0,294	0,0952	0,0244	0	0,125	0,184	0,167	0,233	0,365
Tur	0,342	0,306	0,333	0,324	0,353	0,353	0,324	0,371	0,343	0,343	0,222	0,229	0,278	0,257	0,278	0,278	0,25	0,25	0,25	0,25	0,323	0,3	0,214	0,214	0,167	0,135	0,231	0,231	0,189	0,364	0,424	0,355	0,0952	0,162	0,125	0	0,075	0,207	0,276	0,365
Bur	0,394	0,351	0,371	0,361	0,389	0,389	0,361	0,361	0,333	0,333	0,231	0,289	0,289	0,289	0,289	0,316	0,308	0,308	0,308	0,308	0,333	0,312	0,256	0,256	0,189	0,15	0,241	0,241	0,206	0,375	0,471	0,406	0,184	0,146	0,184	0,075	0	0,219	0,281	0,393
cB	0,417	0,324	0,229	0,222	0,222	0,222	0,194	0,229	0,378	0,351	0,229	0,257	0,2	0,229	0,2	0,257	0,242	0,273	0,273	0,273	0,312	0,312	0,206	0,206	0,281	0,162	0,231	0,231	0,259	0,2	0,324	0,312	0,242	0,125	0,167	0,207	0,219	0	0,0513	0,333
wB	0,375	0,382	0,229	0,222	0,222	0,222	0,194	0,229	0,378	0,351	0,229	0,257	0,2	0,229	0,2	0,257	0,242	0,273	0,273	0,273	0,281	0,281	0,206	0,206	0,344	0,162	0,269	0,269	0,333	0,24	0,324	0,281	0,303	0,168	0,233	0,276	0,281	0,0513	0	0,333
Wo	0,455	0,571	0,312	0,312	0,344	0,312	0,312	0,344	0,242	0,242	0,294	0,294	0,303	0,235	0,303	0,375	0,267	0,267	0,267	0,267	0,323	0,323	0,258	0,258	0,281	0,357	0,304	0,304	0,4	0,391	0,387	0,448	0,344	0,37	0,365	0,365	0,393	0,333	0,333	0

	Ka	Ku	Sic	It	Sp	Fr	Ptg	Rm	Grk	CyG	E	D	Da
Ka	0	0,406	0,276	0,233	0,233	0,267	0,233	0,226	0,3	0,3	0,3	0,267	0,233
Ku	0,406	0	0,297	0,324	0,351	0,361	0,324	0,342	0,368	0,368	0,342	0,342	0,316
Sic	0,276	0,297	0	0,0208	0,0833	0,0652	0,0625	0,087	0,17	0,17	0,159	0,111	0,111
It	0,233	0,324	0,0208	0	0,06	0,0417	0,04	0,0625	0,184	0,163	0,152	0,106	0,106
Sp	0,233	0,351	0,0833	0,06	0	0,0625	0,02	0,0612	0,22	0,2	0,174	0,128	0,128
Fr	0,267	0,361	0,0652	0,0417	0,0625	0	0,0417	0,109	0,234	0,213	0,182	0,133	0,133
Ptg	0,233	0,324	0,0625	0,04	0,02	0,0417	0	0,0833	0,224	0,204	0,152	0,106	0,106
Rm	0,226	0,342	0,087	0,0625	0,0612	0,109	0,0833	0	0,184	0,163	0,174	0,174	0,104
Grk	0,3	0,368	0,17	0,184	0,22	0,234	0,224	0,184	0	0,0185	0,208	0,204	0,208
CyG	0,3	0,368	0,17	0,163	0,2	0,213	0,204	0,163	0,0185	0	0,188	0,184	0,188
E	0,3	0,342	0,159	0,152	0,174	0,182	0,152	0,174	0,208	0,188	0	0,0512	0,0816
D	0,267	0,342	0,111	0,106	0,128	0,133	0,106	0,174	0,204	0,184	0,0512	0	0,0816
Da	0,233	0,316	0,111	0,106	0,128	0,133	0,106	0,104	0,208	0,188	0,0816	0,0816	0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Cypriot Greek
standard Greek
Welsh
Irish
Hindi
Marathi
Pashto
Buryat
Turkish
Finnish
Estonian
Hungarian
Basque (w)
Basque (c)
Farsi
Inuktitut
Hebrew
Arabic
Kadiweu
Cantonese
Mandarin
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Wolof
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Advantages compared to lexically based reconstruction

- **discreteness:** the values of a parameter do not form a continuum or cline of any kind
- **binarity:** a maximally simple range of possibilities
- **finiteness:** the number of parameters is finite
- **no uncertainty of comparanda**: we are in principle always sure when we are comparing like with like (Guardiano & Longobardi 2003:4)

Theoretical/learnability issues

- **Parameter expressions** (Clark & Roberts 1993):

The expression of a parameter P is any string S of language L such that P must be set to determinate value in order for S to be grammatical in L.

- P-expressions represent simple existential statements concerning superficial simple properties of strings, e.g.:

  P4+: articles final in DP.

- What kinds of P-expression are needed? Are there defaults?

Two really big questions

- **Theoretical:** implicational relations among parameters/parameter hierarchies/parameter types (macro/meso/micro; Biberauer & Roberts 2017, Biberauer 2017, 2018, Roberts 2019). Also the question of markedness.
- **Historical:** can we go back further than traditional comparative reconstruction?

"the source of the Uralo-Altaic relation must be more ancient and stronger than those reflected in … phonetic/phonemic exchanges"

(Ceolin et al, forthcoming)

2. Defining the parameters

Goal

- To **extend** the list of parameters in EP(N) into a (broadly parallel) list of parameters for EP(V)

Criteria

Three (overlapping) sources of inspiration for EP(V) parameters:

- Parallels to the EP(N) parameters listed in the Appendix to Longobardi et al. (2013) (“L13”)
- Parameters drawn from Roberts (2019)
- Parameters accounting for salient patterns of variation in WALS (Haspelmath et al. 2005, Dryer & Haspelmath 2013)

Notational note

- L13's parameters are labelled p1, p2, p3 …
- These are relabelled here as P_N1, P_N2, P_N3 …
  - keeping the numeric part unchanged
- Our new parameters are labelled P_V1, P_V2, P_V3 …
  - $P_N n$ is parallel to $P_V n$ in some cases, but not consistently

L13 parallels

- Parameters P_V1 to P_V50 are mostly proposed as parallel (to varying extents) to parameters in the range P_N1 to P_N51
  - P_V75 and P_V76 are tentative parallels for P_N54 and P_N55, but see later
- Many parameters in the P_V51 to P_V74 range operate along similar lines to L13's parameters, but they don't constitute direct parallels

L13 parallels

- Very close parallels between P_N1–P_N3 and P_V1–P_V3
  - P_N1/P_V1 Grammaticalised Person
  - P_N2/P_V2 Grammaticalised Number
  - P_N3/P_V3 Grammaticalised Gender
- But considered distinct
  - English: $+P_N3$ *(himself/herself)*, $-P_V3$ (no gender agreement on verbs)

L13 parallels

- P_N4: NP over D
- P_V4–P_V7: roll-up options in CP
  - P_V4 TP over C
  - P_V5 vP over T
  - P_V6 VP over v
  - P_V7 Object over V

L13 parallels

- P_N5 to P_N19: *grammaticalisation* and *locus of realisation* of various features within DP (e.g. definiteness, boundedness …)
- This set is paralleled in a broad sense by P_V8 to P_V21
  - More specific parallels can be identified between many pairs of parameters in the two sets

L13 parallels

- P_V8 φ-feature checking on V
- P_V9 φ-feature spread to V

- P_V10 Grammaticalised Tense
- P_V11 Strong Tense
- P_V12 Tense-checking V
- P_V13 Tense spread to V

L13 parallels

- English is +P_V8: φ-features are realised (sometimes) on V (V *checks* φ-features)
  - [Lucy T_{3sg} [work-**s**$_{3sg}$]]
- A +P_V9 language would mark φ-features on both T and V simultaneously (φ-features *spread* to V)
  - "Lucy does works"

L13 parallels

- Contemporary French may be a +P_V13 language: tense realised on both T and V in the *passé composé* ("tense spreading"):
  - *Lucie a travaill-é* "Lucie worked"

    PAST *PAST*
  - (English periphrastic perfect *Lucy has worked* however shows *aspect* spreading)

L13 parallels

- P_V14 Grammaticalised Aspect
- P_V15 Strong Aspect
- P_V16 Aspect-checking V
- P_V17 Aspect spread to V
- P_V18 Grammaticalised Mood
- P_V19 Strong Mood
- P_V20 Mood-checking V
- P_V21 Mood spread to V

L13 parallels

- P_V11 Strong Tense, P_V15 Strong Aspect, P_V19 Strong Mood concern *movement*: strong heads trigger V movement (unless filled by an auxiliary)

- Different degrees of V movement as described by Schifano (2015, 2018) for Romance

L13 parallels

- P_N10 Free null partitive Q
- P_N14 Definiteness on relatives
- P_N20 Null-N licensing article
- P_N22 Feature spread to structured APs
- P_N23 Feature spread to predicate APs
- P_N24 D-controlled inflection on A
- P_V22 Null prohibitive (Italian *non fumare*)
- P_V23 TMA on complement clauses (Irish *go/gur)*
- P_V24 VP-ellipsis licensing *(Lucy has gone but Harry hasn't)*
- P_V25 φ-feature spread to "structured" Adverbs
- P_V26 φ-feature spread to participles
- P_V27 φ-feature spread restricted to passive participles
- P_V28 Aux-controlled agreement on participles

L13 parallels

- P_N26 Relative extraposition
- P_N29 Free genitive
- P_V29 Complement clause extraposition
- P_V30 Free subject
- P_V31 VP over subject [=> many V-initial orders]

L13 parallels

- P_N29–P_N41 concern *genitives* and *possessives* (i.e. possessive determiners: *my*, *our* etc.)
- A parallel for genitives is identified in *arguments of the clause generally*
- A parallel for possessives is identified in *subject clitics*

L13 parallels

- Argument parameters: based on the ergative parameter hierarchy of Sheehan (2017) (presented in Roberts 2019)
  - P_V32 Theta-related case from v (ergativity generally)
  - P_V33 Generalised theta-related case from v (split-S)
  - P_V34 Restricted theta-related case from v (fluid-S)
  - P_V35 Extraction of ergatives (syntactic ergativity)
  - P_V36 High absolutive

L13 parallels

- P_V38 Secondary agreement
  - Object agreement, ergative agreement
  - Rough parallel to P_N33 Genitive features spread to N: "Argument features spread to V"
- P_V40 Marking of transitivity
  - Rough parallel to P_N41 Poss°-checking N (i.e. marking of N in the presence of a genitive): marking of number of arguments on V

L13 parallels

- Chol:

  *tyi i-jats’-**ä-yoñ***

  PRFV A3-hit-**TV-B1**

  “she hit me”

L13 parallels

Also note:

- P_V37 Case-Agreement Dependency (after M. Baker 2008)
  - Case/agreement split ergativity and other patterns (Bantu locative subjects)
- P_V39 Noun Incorporation
  - cf. the “Polysynthesis Parameter”, M. Baker 1995
  - Mohawk: *ra-wir-a-núhwe’-s* he-baby-Ø-like “he likes babies”

L13 parallels

- P_V41 Subject clitic distinct from agreement
  - (Subject clitic *without* agreement: +P_V1/2/3, -P_V8, -P_V9, -P_V41: φ-features grammaticalised but not spread/checked on V)
- P_V42 Subject clitic enclisis
  - Some Lombard varieties:
    an lisi-v mai di livar
    SCL=not read=SCL.2PL never of books
    "You never read books"

L13 parallels

- P_N42–P_N51: various further parameters relating to movement
- Parallels:
  - P_V43 Tense on Modal
  - P_V43 Aspect raising
  - P_V44 Voice raising
  - P_V45 Strong v
  - P_V46 Strong C
  - P_V48 vP over Voice
  - P_V49 EPP on T
  - P_V50 EPP on C

L13 parallels

- Some parameters cover more specific subcases of the parallels proposed
  - P_V71 Grammaticalised bounded aspect
  - P_V72 Grammaticalised progressive
  - P_V73 Aspect spread to V restricted to perfects
    - French: *Lucie travaille, Lucie a travaillé* (-P_V72, +P_V73)
    - English: *Lucy is working, Lucy has worked* (+P_V72, -P_V73)

L13 parallels

- Adjective Phrase parameters:
  - P_V54 Definiteness on APs
  - P_V55 Grammaticalised AP marker
- Possible parallels:
  - P_V75 Tense on AdvPs
  - P_V76 Grammaticalised AdvP marker
  - Are these ever actually positively instantiated?

L13 parallels

- For a number of L13's parameters, no parallels were identified
  - e.g. P_N21 Structured APs: does the language have a class of adjective phrases with fixed ordering according to a universal sequence?
  - Whilst one class of adverb phrases indeed shows fixed ordering according to a universal sequence (Cinque 1999), their existence does not appear to be subject to cross-linguistic variation

L13 parallels

- Other EP(N) parameters without obvious EP(V) parallels:
  - P_N25 DP over relatives
  - P_N27 Free reduced relatives
  - P_N28 N raising with obligatory pied-piping
  - P_N32 GenO
  - P_N35 Adjectival possessives
  - P_N37 Clitic possessives
  - P_N38 N-feature spread to pronominal possessives
  - P_N39 N-feature spread to free genitive
  - P_N52 Free MOD
  - P_N53 Class MOD
  - P_N56 Consistency Principle

PHUG and WALS

- The parallels identified leave several salient parameters of variation within EP(V) unaccounted for
- Thus they are supplemented with various additional parameters drawn from / inspired by:
  - the parameter hierarchies in Roberts (2019)
  - some salient patterns of variation described in WALS

Following Roberts (2019)

- Nb. some of the PHUG parameters *do* have parallels already identified
  - movement parameters (roll-up, head movement), alignment parameters
- Null subject parameters excluded as seem to cross-cut nominal/clausal domains (though cf. P_V30 Free subject)

Following Roberts (2019)

- Passives:
  - P_V51 Grammaticalised Passive
  - P_V52 Generalised Passive (German *es wurde getanzt*)
  - P_V53 Restricted Passive (Hebrew **yehune* “be pleased”*)*
  - P_V54 *By*-phrase

Following Roberts (2019)

- Ditransitives (after Sheehan 2017)
  - P_V55 Dative Case
  - P_V56 Obligatory Dative Case
  - P_V57 Extended Dative Case
  - P_V58 Theme over Goal
  - P_V59 Ditransitive Theme Passivisation

Following Roberts (2019)

- Causatives (after Sheehan 2017)
  - P_V60 Theta-related case in causatives
    - e.g. French *faire-infinitif*
  - + P_V61 Causative-checking V
    - e.g. Japanese *tabe-**sase**-rare-ta* eat-**CAUS**-PASS-PAST)
- *Wh*-movement
  - P_V64 *Wh*-movement (after Huang 1982)

Following Roberts (2019)

- Negation
  - P_V65 Minimal negator
  - P_V66 Neg-checking
    - *I haven't gone*
  - P_V67 Multiple negation
    - *I didn't do nothing*
  - P_V68 Neg-spreading
    - French *ne … pas*

Following WALS

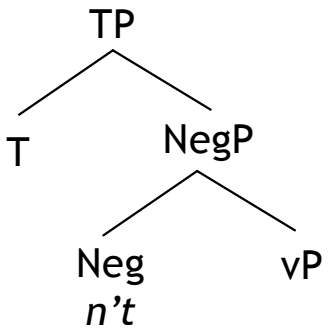
- P_V62 Imperative-checking V
  - e.g. Limbu *lps-**ɛʔ*** sleep-**IMP** “sleep!”
- P_V63 Q-checking V
  - e.g. Hunzib *eƛ’e-čó-**y*** go-PRES.1/2-**Q** “are you going?”
- P_V69 Grammaticalisation of Past
- P_V70 Grammaticalisation of Future
- P_V74 Grammaticalisation of Evidentiality

Problems

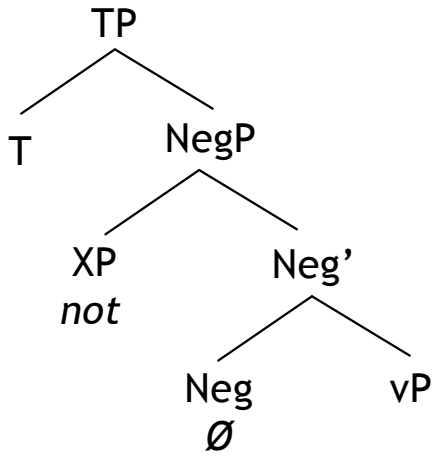
- For some of these, the identification of clear diagnostics is not straightforward
  - P_V65: can the status of a negator as a maximal/minimal projection always be identified?

Problems

Minimal



Maximal



- diagnostics: affix/clitic status *or* V-movement blocking => minimal
- but what about free negators where sufficient V-movement doesn't occur anyway?

Problems

- P_V48: Roberts (2019) gives an argument for vP over Voice in English, but not clear how easy this will be to identify cross-linguistically
- P_V70: does English have a grammaticalised Future? what about German? (cf. Comrie 1985)
  - *I will go*; *I go tomorrow*
  - *Ich werde gehen*; *ich gehe*
- P_V74: what counts as "evidentiality"? what doesn't? (cf. Aikhenvald 2005, 2018)

The diagnostic questions

- Survey aimed at (primarily) syntactically trained native speakers for the purpose of data collection on parameter values
- For each parameter: a simple yes/no question and further clarification points

The diagnostic questions: examples

Parameter	Diagnostic(s)
P_V1 (VGP) Grammaticalised Person in EP(V)	Does the language show agreement for person within the clause? • Person agreement (1st/2nd/3rd) on verbs/auxiliaries/participles, or person-expressing subject clitics • Exclude person-marking on (non-clitic) anaphors and person concord with adjectives • Number and gender treated separately (see below)
P_V4 (TOC) TP over C	Is C final in CP? • Complementisers follow all core clausal material (excluding right-dislocated and extraposed material)

3. Parametric variation observed

P_V1 (VGP) Grammaticalised Person in EP(V): Does the language show agreement for person within the clause?

P_V2 (VGN) Grammaticalised Number in EP(V): Does the language show agreement for number within the clause?

P_V3 (VGG) Grammaticalised Gender in EP(V): Does the language show agreement for gender (or noun class) within the clause?

	CONDITION	FRENCH	ENGLISH	ITALIAN
P_V1	Respectively Person/Number/Gender agreement on verbs/auxiliaries/participles.	+	+	+
P_V2		+	+	+
P_V3		+	-	+

a) Maria è partita
b) Marie est partie

Gender agreement on the participle

c) Mary has left

Lack of Gender agreement on the participle

- P_V7: (OOV) Object over Verb: Does the direct object precede the verb?

	FRENCH	ENGLISH	ITALIAN
P_V7	-	-	-

[$_{Subj.P}$ Elle [$_{TP}$ mange [$_{VP}$ la pomme]]]
[$_{Subj.P}$ She [$_{VP}$ eats the apple]]]
[$_{Subj.P}$ Lei [$_{TP}$ mangia [$_{VP}$ la mela]]]

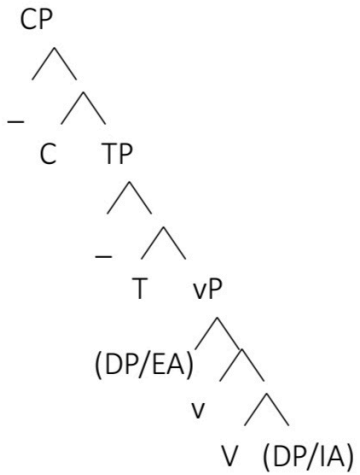
- P_V7 entails the negative values for Pv4-Pv6 (0-)

P_V4 (TOC) TP over C:	Is C final in CP?
P_V5: (VOT) vP over T	Do tensed elements follow other elements (excluding complementisers, right-dislocated/extraposed material)?
P_V6: (VOV) VP over v	Does VP move over v?

- ***FOFC***: If a phrase α is head-initial, then the phrase ß immediately dominating α is head-initial. If α is head-final, ß can be head-final or head-initial. (Holmberg 2000)

- Since in French, English and Italian the object always follows the verb, VP is head-initial. Therefore, according to FOFC, this phrase can only be governed by a head-initial phrase.

$[_{CP} \ldots C \ldots [_{TP} \ldots T \ldots [_{vP} \ldots V \ldots]]]$



- vP immediately dominates VP. Since VP is head-initial, vP has to be head-initial as well because of FOFC.
- Thus, P_V6 (VP over v) has to be –
- VP can't move over vP, otherwise we should assume that vP is head-final.

- TP immediately dominatedìs vP. Since vP is head-initial, TP has to be initial as well because of FOFC.
- Thus, P_V5 (vP over T) has to be –
- TP can't move over vP, otherwise we should assume that TP is head-final.

- CP immediately dominates TP. Since TP is head-initial, CP has to be head-initial as well because of FOFC.
- Thus, P_V4 (TP over C) is –
- C can't be final in CP.

TENSE/ASPECT/MOOD

	FRENCH	ENGLISH	ITALIAN
P_V10 (GRT) Grammaticalised Tense	+	+	+
P_V11 (STT) Strong Tense	0+	0-	+
P_V12 (TCV) Tense-checking V	+	-	+
P_V13 (TSV) Tense spread to V	-	-	-

	FRENCH	ENGLISH	ITALIAN
P_V14 (GRA) Grammaticalised Aspect	+	+	+
P_V15 (STA) Strong Aspect	+	-	+
P_V16 (ACV) Aspect-checking V	-	-	-
P_V17 (ASV) Aspect spread to V	+	+	+

	FRENCH	ENGLISH	ITALIAN
P_V18 (GRM) Grammaticalised Mood	+	+	+
P_V19 (STM) Strong Mood	+	0-	-
P_V20 (MCV) Mood-checking V	+	-	+
P_V21 (MSV) Mood spread to V	-	-	-

CHECKING vs SPREAD:

- Checking is + if tense/aspect/mood are sometimes marked only on V and sometimes on an auxiliary or particle.

Tense Marking:

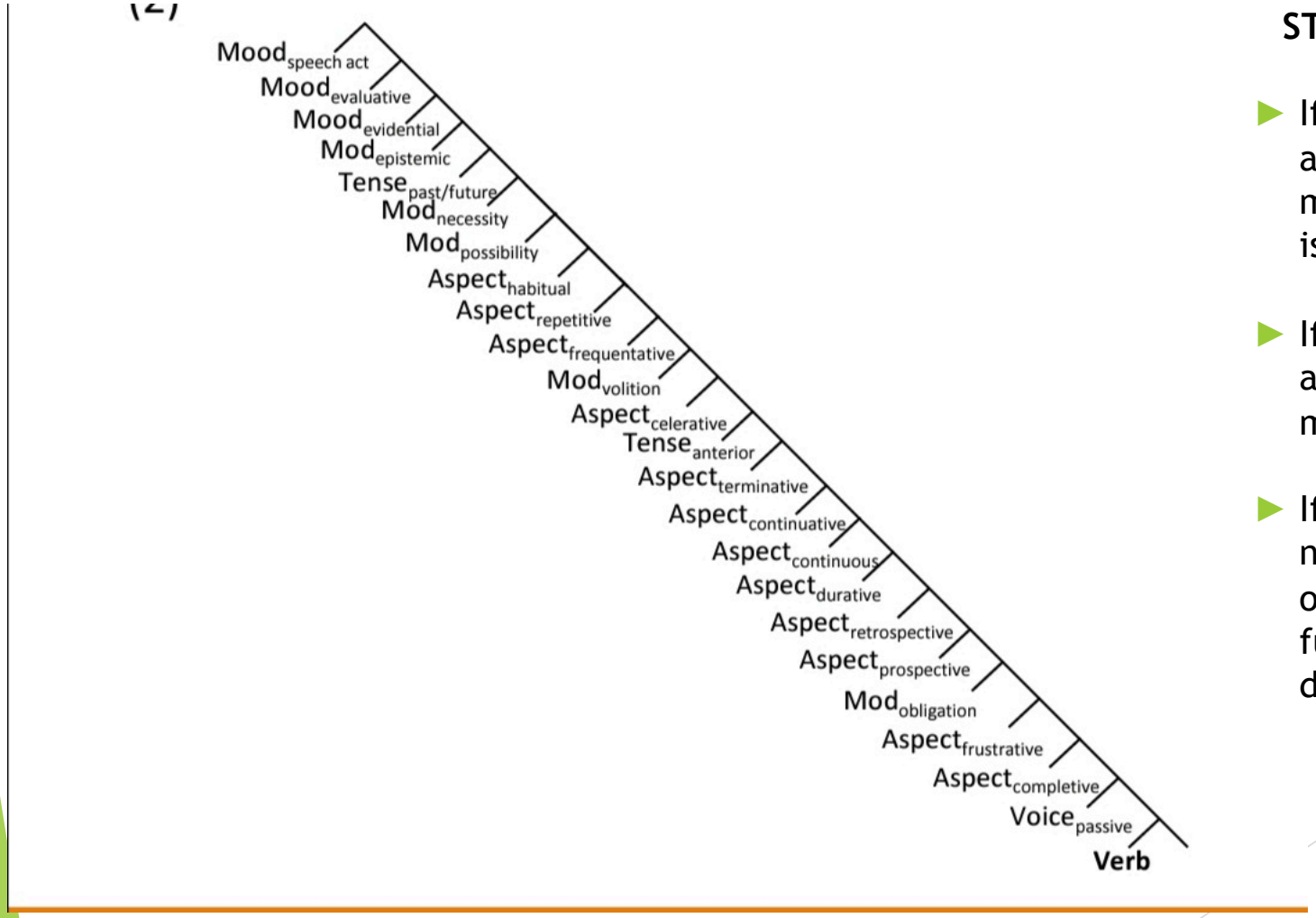
IT: I ragazzi parl<u>av</u>ano
FR: Le garçons parl<u>ai</u>ent

IT: I ragazzi av<u>ev</u>ano parlato
FR: Le garçons av<u>ai</u>ent parlé

IT: I ragazzi hanno parlato
FR: Les garçons ont parlé

- Spread is + if marking at once of tense/aspect/mood on both lexical V and additionally on a higher auxiliary/particle/clitic.

G. Cinque (1999)



STRONG [Mood [Tense [Aspect]]]

- If verb-movement to Mood° is allowed in a language, verb-movement to Tense° and Aspect° is entailed.
- If verb-movement to Tense° is allowed in a language, verb-movement to Aspect° is entailed.
- If verb-movement to Aspect° is not allowed in a language, any other movement to a higher functional projections are disallowed.

- P_V11(Strong Tense): Does the lexical verb move to T?
  - Overt movement of lexical verbs to T in finite declarative main clauses.
  - V precedes adverbs like *already* and potentially some types of negation and floated quantifiers, and internal arguments (in particular direct objects) follow these.
  - V is likely to show relatively "rich" person/number inflection.
  - This movement may be blocked by auxiliaries, where these are not generally present.
  - Assume that Strong Mood (P_V19) entails Strong Tense (Head Movement Constraint).

[$_{SubjP}$ Tu [$_{TP}$ travailles [$_{TAntP}$ déjà]]]	*	Tu déjà travailles
[$_{SubjP}$ Tu [$_{TP}$ lavori [$_{TAntP}$ di già]]]	??	Tu di già lavori
[$_{SubjP}$ You … [$_{TAntP}$ already [$_{VP}$work]]]	*	You work already

- P_V7 (Strong Aspect): Does the lexical verb move to Aspect?
  - Verb precedes adverbs like *completely* and *well*.
  - If no additional movement to Tense, verb follows adverbs like *already* and *always*.
  - Assume that Strong Tense (P_V11) and Strong Mood (P_V19) entail Strong Aspect (Head Movement Constraint).

[SubjP Je [AspP crois [AspComplP complètement [PP à ta sœur]]]]	* Je complètement crois à ta sœur
[SubjP Io [AspP credo [AspComplP completamente [PP a tua sorella]]]]	* Io completamente credo a tua sorella
[SubjP I [AspCompP completely [VP believe [PP in your sister]]]]	* I believe completely in your sister

- P_V19(Strong Mood): Does the lexical verb move to a high Mood head?
  - Verb precedes adverbs like *probably*

[$_{SubjP}$ Elle [$_{MoodP}$ mange [$_{ModEpP}$ probablement … [$_{PP}$à la maison]]]]	* Elle probablement manges à la maison
[$_{SubjP}$ Lei [$_{ModEpP}$ probabilmente [$_{TP}$ mangia [$_{PP}$ a casa]	?? Lei mangia probabilmente a casa
[$_{SubjP}$ She [$_{ModEpP}$ probably [$_{VP}$ eats [$_{PP}$ at home]]]]	* She eats probably at home

- P_V15 (Strong Aspect)
  - It is + in French, indeed the verb always precedes adverbs like «completement»
  - It is + in Italian, indeed the verb always precedes adverbs like «completamente»
  - It is - in English, indeed the verb always follows adverbs like «completely»
- P_V19 (Strong Mood):
  - It is + in French, indeed verb always precedes adverbs like «probablement».
  - It is - in Italian, indeed the verb always folliows adverbs like «probabilmente».
  - It is 0- in English as verb-movement to Aspect.P, located in a lower position of the IP, is disallowed.
- P_V11 (Strong Tense)
  - It is 0+ as verb movement to Mood.P, located in a higher position, of the IP is allowed
  - It is + in Italian, indeed the verb always precedes adverbs like «di già»
  - It is 0- in English as verb-movement to Aspect.P, located in a lower position of the IP, is disallowed.

		FRENCH	ENGLISH	ITALIAN
P_V26 (FPT) Φ-feature spread to participles	Do participles (if present) ever inflect for number and/or gender?	+	-	+
P_V27 (FPP) Φ-feature spread restricted to passive participles	Is participle agreement restricted to the passive construction?	-	0-	-
P_V28 (PAI) Aux-controlled agreement on participles	Does the nature of agreement on participles depend on the nature or form of the auxiliary?	+	0-	+

- P_V26/P_V27:

  IT: Le ragazze sono partit<u>e</u>-*f.pl.*

  FR: Les filles sont parti<u>es</u>- *f.pl.*

  EN: The girls have left – *unmarked*

- P_V28:

  IT: Le ragazze sono partite-*f.pl.*
  Le ragazze <u>hanno</u> parlato-*unmarked*

  FR: Les filles sont parties-*f.pl.*
  Les filles <u>ont</u> parlé-*unmarked*

  EN: The girls have left-*unmarked*
  The girls have spoken-*unmarked*

		FRENCH	ENGLISH	ITALIAN
P_V30 (SFR) Free Subject	Does the language allow "free subjects"?	+	-	+
P_V31 (VOS) VP over subject	Is the subject generally expressed to the right of the core predicate?	-	-	-

- As for P_V30, the respective values for English and Italian are more straightforward than the value for French:
  - The positive value in French is due to *Stylistic-Inversion* structures:

    Quand partita *ton ami*?
    When will leave your friend?

  - In Italian the inverted subject is also used in declarative clauses, despite being endowed with some specific informational structure features (Belletti 1999)

    Partirà domani *il mio amico*
    Will leave tomorrow the my friend.

- As for P_V31 a positive setting of this parameter would give rise to surface VOS or OVS orders. Although VOS order occurs in Italian and French in some specific structures, this is not the most basic order. This accounts for the negative value of this parameter in all th three languages at issue.

Standard Italian and Florentine variety

- Tuscan Italian is traditionally divided into four main sub-areas (Ledgeway 2016)
  a) Florentine
  b) Western Tuscan (Elbano-Pisan-Lucchese-Pistoiese)
  c) Eastern Tuscan (Aretino – Chainaiolo)
  d) Southern Tuscan (Senese – Grossetano)
- They represent a distinct linguistic area generally considered to be structurally more conservative than other Italo-Romance areas. (Ledgeway 2016)
- Application of the PCM to the Florentine variety.
- The expectation is that the majority of parameters values will coincide with St. Italian.
- Nonetheless, the fact that some parametric differences do exist gives a chance to extent the list of parameters expressed by the PCM.

		ITALIAN	FLORENTINE
P_V41 (SCL) Subject clitic distinct from agreement	Does the language make use of both subject clitics and subject agreement, occurring together?	-	+

1sg	(Io) (**e**) parlo
2sg	(Te) **tu** parli
3sg. masc	(Lui) **e** parla
3sg. fem	(Lei) **la** parla
1pl	(Noi) **si** parla
2pl	(Voi) **vu** parlate
3pl. masc	(Loro) **e** parlano
3pl. fem	(Loro) **le** parlano
Neuter	**gli**

Suner 1992

- The term (Subject) Clitic is used to refer to a relatively reduced (subject) morpheme which depends phonologically and/or syntactically on some other linguistic unit […], often analyzed as syntactic heads […] and which pronominalizes a subject. (Poletto and Tortora 2000)
- Not a clear-cut way to determine the status of subject clitics in Florentine.
- From Poletto's (2000) classification, we can assume that:

[$_{LDP}$ inv.SCL$_i$ [$_{CP}$ dei.SCL [$_{FP}$ T$_i$ [IP [$_{Neg.P}$ Neg [$_{Numb.P}$ Numb. SCL [$_{Hear.P}$ Person SCL [$_{Speak.P}$ VB [TP]]]]]]]]]

  - 3sg. fem and 3pl. fem SCL are *Number* clitics.
  - 2sg SCL is a *Person* clitic
  - «E» cannot work as an *Invariable* clitic as suggested by Poletto (2000)

- Subject clitic and subject agreement occur together with SV order for the majority of persons.

- But it does not occur with the 1pl person, with all types of verbs

(Noi) si vede (We) SCL sees-*3sg*	* (Noi) si vediamo (We) SCL see-*1pl*
(Noi) si telefona (We) SCL telephones-*3sg*	* (Noi) si telefoniamo (We) SCL telephone-*1pl*
(Noi) si parte (We) SCL leaves-*3sg*	* (Noi) si partiamo (We) SCL leave-*1pl*

- This phenomenon is not restricted to Florentine variety, but is widespread in all Tuscan Italian varieties.

- This phenomenon shows that subject clitic and subject agreement do not co-occur systematically for all persons in the paradigm.

- This phenomenon predicts the possibility of widening the list of parameters related to the VP and TP domain.

- As observed by Brandi and Cordin (1989), subject clitic and subject agreement do not co-occur with VS order, when the subject is a third person singular or plural subject.

  Gl'è venuto delle ragazze
  SCL is come-*unmarked* some girls

  Gl'è venuto la Maria
  SCL is come-*unmarked* the Mary

  Gl'ha telefonato delle ragazze
  SCL has phoned some girls

- Moreover, it is not observed an agreeing clitic as in case of SV order, but the neuter SCL.

- This phenomenon is a further suggestion in favour of new sub-parameters within the PCM framework.

- However, the lack of subject agreement in VS structures is not systematic in all Florentine varieties spoken in the area around Florence.

- There is research in progress aimed to observe the level of acceptability with respect to different «degrees» of agreement between the subject and the verb in case of post-verbal subject structures.

- *Methodology*:

  - Grammaticality judgment task adopting a 5-point Likert Scale.
  - The dependent variable is the choice of the informants.
  - The independent variables are two ternary factors, producing 9 conditions.

    1. *Type of Verb:* Transitive - Unergative - Unaccusative
    2. *Type of Subject:* Fem.sg - Fem.pl - Masc.pl

  - For each condition either two, or three or four sentence trials have been created expressing different levels of agreements.

  - All sentences have been introduced by a context.

  - Three types of verbs have been considered as some differences depending on this factor may be found.

  - As for the subject types, masculine-singular subject have not been considered as they produce a default value of agreement on both the auxiliary and the clitic. As a matter of fact the status of 3sg-masc SCL has not been well-determined yet, so we can't say that «e» stands for the agreeing SCL.

- ***Condition A***: sentence(s) with a transitive verb and a singular feminine subject.

1. Gl'ha conosciuto la ragazza
   SCL has known the girl
   Subject agreement on the auxiliary + neuter clitic

2. L'ha conosciuto la ragazza
   SCL has known the girl
   Subject agreement on the auxilary + agreeing clitic

- ***Condition C***: sentence(s) with a transitive verb and a plural feminine subject.

1. Gl'ha conosciuto le ragazze
   SCL has known the girl
   Lack of subject agreement on the auxiliary + neuter clitic

2. Gl'hanno conosciuto le ragazze
   SCL have known the girls
   Subject agreement on the auxiliary + neuter clitic

3. L'hanno conosciuta le ragazze
   SCL has known the girls
   Subject agreement on the auxilary + agreeing clitic

- Despite providing contexts, (A.2) and (C.3) may be misleading as «l'» is an object clitic in St. Italian.

- ***Condition F:*** sentence(s) with unaccusative verb and a plural feminine subject:

1. Gl'è venuto delle ragazze SCL is come-unmarked some girls	Lack of subject agreement on the auxiliary and of object agreement on the participle + neuter clitic
2. Gl'è venute delle ragazze SCL is come-*fem.pl* some girls	Object agreement, but lack of subject agreement + neuter clitic
3. Gli sono venute delle ragazze SCL are come-*fem.pl* some girls	Object and subject agreement + neuter clitic
4. Le sono venute delle ragazze SCL are come-*fem.pl* some girls	Object and subject agreement + agreeing clitic

- As for the strucutre with unergative verbs, I always considered verbs that do not take an indirect object argument, otherwise the Florentine subject clitic «gli» could be interpreted as an inderect object clitic.

- E.g: gl'ha telefonato la ragazza
  SCL has telephoned the girl
  This sentence may be interpred as «ha telefonato la ragazza a lui»
  has telephoned the girl to him

- E.g gl'ha partecipato la ragazza
  SCL has joined the girl
  This sentence can't be interpreted as «ha partecipato la ragazza a lui»
  has joined the girl to him

- *Results:*

  The expected results may reveal different levels of acceptability, strictly correlated to the area where the respective informant come from.

- *Discussion:*

  If different levels of acceptability result, we will further investigate on how this non-systematicity can be accounted for by the PCM. In particular, whether it is necessary to add some new (sub)-parameters in order to express the relative phenomenon.

  If the acceptability judgements confirm the results obtained by Brandi and Cordin, we will definitely have to assume at least one (sub)-parameter expressing the lack of subject agreement in case of post-verbal subject.

4. Conclusion

Conclusion

A synthesis of:

- syntactic theory (what the parameters actually are);
- historical linguistics (computing historical relations);
- psycholinguistics (implications of relations);
- computational methods (phylogenetic tree-optimisation).

Conclusion

We should “take advantage of the combined insights of the two major scientific revolutions in linguistics, those which gave rise respectively to the historical-comparative paradigm during the XIX century and the ‘synchronic-cognitive’ paradigm in the XX” (Longobardi 2003:5).

Thank you for listening!

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References

- Aikhenvald, A.Y. (2004). *Evidentiality*. Oxford: Oxford University Press.
- Aikhenvald, A.Y. (2018). Evidentiality: The Framework. In A.Y. Aikhenvald (ed.), *The Oxford Handbook of Evidentiality*. Oxford: Oxford University Press.
- Baker, M. (1995). *The Polysynthesis Parameter*. Oxford: Oxford University Press.
- Baker, M. (2008). *The Syntax of Agreement and Concord*. Cambridge: Cambridge University Press.
- Belletti, A. (2001). "Inversion" as Focalization. In A. Hulk and J. Pollock (eds.), *Subject Inversion in Romance and the Theory of Universal Grammar*. Oxford University Press.
- Brandi, L. and Cordin, P. (1989). Two Italian Dialects and the Null Subject Parameter. In O. Jaeggli and K. Safir (eds.), *The Null Subject Parameter*. Dordrecht: Kluwer Academic Publisher.
- Cinque, G. (1999). *Adverbs And Functional Heads*. New York: Oxford University Press.
- Comrie, B. (1985). *Tense*. Oxford: Oxford University Press.
- Dryer, M.S. and Haspelmath, M. (2013). World Atlas of Language Structures Online. Jena: Max Planck Institute for the Science of Human History. https://wals.info
- Haspelmath, M., Dryer, M.S., Gil, D. and Comrie, B. (2005). The World Atlas of Language Structures. Oxford: Oxford University Press.
- Holmberg, A. (2000). Derving OV order in Finnish. In: P. Svenonius (ed.), *The Derivation of VO and OV*. Amsterdam: John Benjamins.
- Huang, C.-T. J. (1982). *Logical Relations in Chinese and the Theory of Grammar*. PhD thesis, Massachusetts Institute of Technology.
- Ledgeway, A. and Maiden, M. (n.d). *The Oxford Guide To The Romance Languages*.
- Longobardi, G., Guardiano, C., Silvestri, G., Boattini, A. and Ceolin, A. (2013). Toward a syntactic phylogeny of
- modern Indo-European languages. Journal of Historical Linguistics 3(1), 122-152. Appendix at http://dx.doi.org/10.1075/jhl.3.1.07lon.additional
- Poletto, C. (2000). *The Higher Functional Field: Evidence Form Northern Italian Dialects*. Oxford University Press.
- Roberts, Ian. (2019). *Parameter Hierarchies and Universal Grammar*. Oxford: Oxford University Press.
- Schifano, N. (2015). The paradigmatic instantiation of TAM: A novel approach to Romance verb movement. In Aboh, E., Schaeffer, J., and Sleeman, P. (eds), Romance Languages and Linguistic Theory 2013. Amsterdam: John Benjamins.
- Schifano, N. (2018). Verb movement in Romance: A comparative approacj. Oxford: Oxford University Press.
- Sheehan, Michelle. (2017). Lecture series on parameter hierarchies, Universidade Nova de Lisboa, July 2017.