Parameters as Emergent Properties

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Outline

- Parameters and the 3 factors of language design
- Microparameters and the second position
- Some macroparameters
- Typology, acquisition and diachrony

1. Parameters and the 3 Factors (Chomsky 2005)

- The three factors:
- F1: Innate endowment (UG)
- F2: The environment (PLD)
- F3: General principles of computation and cognition

On the existence of parameters

- “Parameter”: a grammatical property in a given language which we can show to be
- (a) non-universal
- (b) plausibly unlearnable from PLD (i.e. need to invoke poverty-of-stimulus considerations)
- A property meeting (a) and (b) shows that variation must be partly a matter for F1 and/or F3 (GB view: just F1, therefore UG heavily prespecified for all cross-linguistic options)

That-t in Italian vs English (Perlmutter (1971), Rizzi (1982))

- (1) a. Chi hai detto che t ha scritto queste cavolate ?
  b. Da chi hai detto che sono state scritte queste cavolate t ?

- (2) a. *Who did you say that t wrote this rubbish ?
  b. Who did you say that this rubbish was written by t ?

- Assuming *that-t* not acquired directly from PLD, the innate endowment plays a role in the Italian/English contrast
- F1 and/or F3 somehow specify the difference
- ➔ the innate endowment specifies *differences* as well as *similarities* among languages (typology meets biolinguistics)
- → quite easy to state of F1 (parametrised UG), rather hard to see role of F3 here

The problem with over-parametrised UG

- “we are not yet at the point of being able to ‘prove’ that the child is not equipped with 7,846 .. parameters, each of whose settings is fixed by some relevant triggering experience. I would put my money, however, on the fact that evolution has not endowed human beings in such an exuberant fashion”

(Newmeyer (2005: 83))

Emergent properties of the three factors: WH-movement in English

- F1:

  - existence of [wh] feature marking a class of Ds and Cs;
    - Nature of "A'-movement"/"A'-positions"
    - Nature of (internal) Merge
    - Properties of copies (movement/reconstruction)

- F2:
- Obligatory movement (**You met which boy?* vs. Chinese etc.)
- Of just one wh-phrase (**Who what saw?* Vs. Slavic etc.)
- No “partial movement” (**What did you say who left?* vs. German etc.)
- Etc.

- F3:

- Locality (relativised minimality and PIC), possibly reducible to “minimal search”
- Linearisation of upward dependency as leftward
- Bijective nature of quantifier-variable relation
- Nature of quantification?

And

We could probably say the same about:

- passives
- subjects
- consonants (F1: nature of rhotics, glides; F2: PLD; F3: phonetics)
- “English” (F1: an instantiation of fixation of a set of UG options; F2: what English-speakers were exposed to when small; F3: whatever gives one English-speaker the capacity to recognise another)
- Very many linguistically interesting phenomena, in fact

Parameters and the three factors

- F1: where UG doesn't mind (underspecification)
- F2: trigger experience
- F3: general strategies of L1 acquisition based on computational conservatism:
  - Input Generalisation (IG, see below)
  - Feature economy (the fewer the better)
  - Subset Principle (not today)

2. Microparameters and the second position

- German:

(1)Leo Tolstoi habe **ich** gelesen.

L. T. have I read

(2)Welches Buch hast **du** gelesen?

which book have you read?

(3)Hast **du** dieses Buch gelesen?

Have you this book read?

- Serbian/Croatian:

(1)Lava **sam** Tolstoja čitao.

L. I-am T. read

(2) Koliko **im** ko daje?

How-much them who gives

(3) Dajes **li joj** pokone?

give-you Q her presents?

- Old Spanish:

(1) yo **vos** daria buen cavallo et buenas armas

I you would-give good horse and good weapons

(2) Que **uos** diremos?

What to-you we-will-say?

(3) Envïó**te** él a mi?

Sent-you he to me?

Assumptions

- Articulated left periphery (Rizzi (1997)):

  $[_{ForceP}$ Force $[_{FocP}$ Foc $[_{FinP}$ Fin TP]]]

- Parameters:

a. Clitics (in Fin) or weak pronouns (in SpecFin).

b. Position of V (Force, Foc, Fin, T, v).

c. Position of Edge Feature (Force, Foc).

Parametric variation

	SpecFceP	Fce	SpecFocP	Foc	SpecFinP	Fin
GER:	XP	EF, V			weak pron	
	Wh	EF, V	(Wh)	EF,V	weak pron	
	OP	EF,V			weak pron	
SC:	XP/V	EF				Cl
	Wh	EF	Wh*	EF(*li*)	Cl	
	OP	V		*li*		Cl
OSp:	XP/V	EF			weak pron	
			Wh	EF	weak pron	
			OP	V,EF	weak pron	

Objections

- (a) Parochial parameters: what about all the non-P2 languages in the world?
- (b) Dull parameters: low-level, descriptive variation.
- (c) Newmeyer: are these among the innately-given options?

Restatement

- (a) Does Fin have φ-features? (Y: attracts clitics/weak pronouns, N: doesn't)
- (b) Does {Force, Foc, Fin, T} have a V-feature?
- (c) Does {Force, Foc, Fin} have EF?

(Cf. the general format for parameters as specifying the formal features of functional heads).

3. Macroparameters

- **Idea:** macroparameters are the result of aggregates of microparameters acting together, effectively as a single parameter.
- This is favoured by a markedness principle, roughly stateable as:

Input Generalisation (IG):

There is a preference for a given feature of a functional head F to generalise to other functional heads G, H …

The null-argument macroparameter:

Given that UG allows probes to have φ-features, but doesn't care (i) how fully specified they are; (ii) which probes have them:

Are uφ-features obligatory on all probes?

a. No: **Radical Pro-drop** (least-marked option: no features)
b. Yes: Are uφ-features fully specified on all probes?
c. Yes: **Pronominal-arguments** (next least-marked: IG)
d. No: Are uφ-features fully specified on some probes?
e. No: **Non-null-subject** (feature economy, given some features).
f. Are the uφ-features of some specific (set of) head(s) {T, v,…} fully specified?
g. Yes: **Italian, etc. ..** And so on down to microparameters.

The role of markedness

Markedness principles :

- lead all the relevant functional heads to “point the same way”.
- NOT grammatical principles, but acquisition strategies (deriving from F3: computational conservatism of the learning device)
- → macroparametric effects in grammatical systems derive from markedness, which emerges from the computational conservativity of the learner.
- → no need to formulate a difference between micro- and macroparameters. It emerges given our characterisation of markedness.

As we move successively “down the network/hierarchy”:

- Systems become more marked
- Parameters become more “micro”
- Parameters become intrinsically more complex, having a longer description (the conjunction of all the “nodes”)
- Parameters are further along a learning path

a. **Typological skewing:** acquirers, therefore languages, favour higher positions in the network (conservatism: F3)
b. **Typological drift:** languages "drift upwards" in networks (but this gets harder in the higher parts of the networks as the systems differ more radically)

An old typology

Given that UG allows (defective) goals to incorporate into their probes as a special case of Agree (see Roberts 2010), but doesn't mind which goals do this:

a. Do all probes trigger head-movement?

b. Y: **polysynthesis** (least-marked option by IG)

c. N: Do some probes trigger head-movement?

d. N: **analytic** (next least-marked)

e. Y: does some specific (subset of) {C, T …} trigger head-movement ? And so on down to microparameters

- “fusional” languages are lower in the network, involving partial head-movement

- many agglutinating languages typically show the following structure:

  $[_{XP}$ YP $[_{X}$ affix] (YP)]

- This is in fact the variant of the general OV parameter where the host head contains a bound morpheme.

Discourse configurationality

- Given

(i) all languages have a means to express discourse relations (new vs old information, topic/comment, focus/presupposition, etc) via movement (F1 and "functionalist" F3)

(ii) locality constraints are conceptually necessary (F3)

(iii) locality is implemented partly through features of phase heads (F1)

(iv) UG doesn't mind which phase heads are activated (F1):

A'-movement parameters

a. Do all phase heads trigger A'-movement?
   → "**free word order**" (least marked by IG)

b. N: Does only v trigger A'-movement? (only one EF in the system)→ **wh-in-situ+scrambling**

c. N: Do v and C trigger movement?
   → **wh-movement and scrambling**

c'. N: does v allow movement to its edge
   N: wh-movement only, no scrambling

d. N: does only C allow movement?
   → **wh-movement only of subjects**

P2 Parameters

- (a) Does Fin have φ-features?

-- very low on the null-argument hierarchy

- (b) Does {Force, Foc, Fin, T} have a V-feature?

-- low on the word-structure hierarchy

- (c) Does {Force, Foc, Fin} have EF?

-- fairly low in the A'-movement hierarchy.

→The P2 parameters represent three families of microparameters.

→They are therefore parochial and dull.

4. Typology, acquisition and change

Typology: systems higher on the hierarchies than the P2 parameters will lack P2 effects

So:

- No radical pro-drop languages have P2 clitics (or any clitics)
- No wh-in-situ language allows P2
- P2 clitics only allowed if scrambling is

More on typology

We might also be tempted to deduce:

- No pronominal-argument languages have P2 clitics
- Only fusional languages allow P2

But in fact if Fin has phi-features this could be because all heads have phi-features (pronominal-argument languages) → P2 clitics in these languages (Warlpiri, Luiseño, etc.)

Similarly for head-movement → polysynthetic languages may have P2 (various Amerindian languages)

Acquisition

- Recall that the learner moves “down the hierarchies” (by markedness/F3)
- Therefore microparametric options only exist where macroparametric ones can’t be satisfied (by PLD/F2)
- No innate prespecification of elaborate clitic/agreement/P2 systems: these options are created by the learner moving through the hierarchy (epigenesis)

Diachrony

- Tendency to move up the hierarchies by losing or generalising features
- Strong pronoun (DP) > weak pronoun (D+Case) > clitic (φ) > agreement marker (uφ)
- Loss of V2 (English, French, Welsh, etc)
- Certain parameters as "family traits": e.g. P2 in Indo-European

5. Conclusion

- We have to have “parameters” in some form (the term may have outlived its usefulness but we’re stuck with it)
- They don’t have to be restricted to externalisation (*pace* Berwick & Chomsky (2008))
- A more natural approach is to treat them as emergent properties of the interaction of the three factors, like most other linguistic phenomena.