

# From macroparameters to nanoparameters -a comparative Bantu case study

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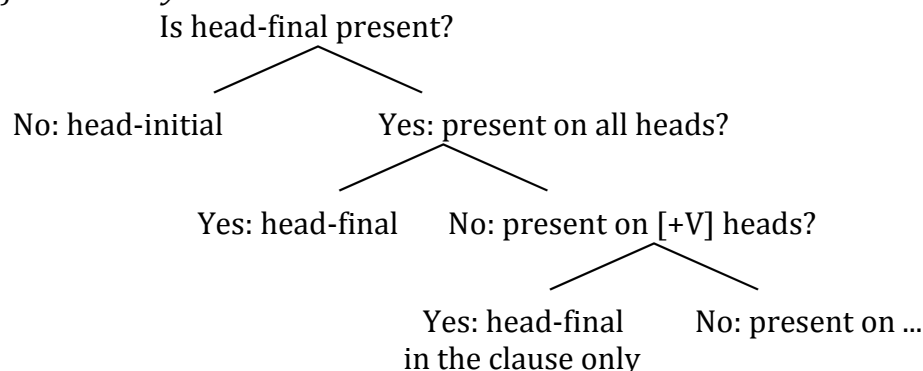
## 1. Parametric variation

- Rethinking Comparative Syntax (ReCoS, <http://recos-dtal.mml.cam.ac.uk>) -Minimalist approach to parametric variation
- Assumption of the Borer-Chomsky Conjecture (Baker 2008:3, cf. Borer 1984, Chomsky 1995), building on the Lexical Parameterization Hypothesis (Manzini and Wexler 1987) and the Functional Parameterization Hypothesis (Fukui 1995):

(1) All parameters of variation are attributable to differences in the features of particular items (e.g. the functional heads) in the lexicon.

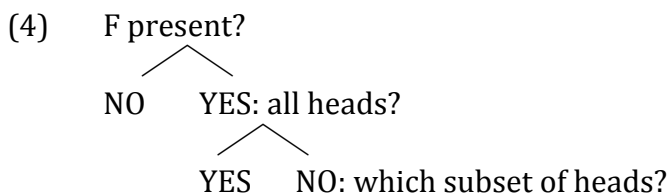
- Proposing dependent parameters, in hierarchies:

(2) *Hierarchy 1: Word order*



- Taken as a “path for acquisition”, the hierarchy is informed by two general principles:

- (3) a. **Feature Economy (FE)** (adapted from Roberts & Roussou 2003)  
Only postulate a new formal feature if the input requires it, i.e. postulate the fewest features compatible with the data.
- b. **Input Generalisation (IG)** (Roberts 2007)  
If a functional head sets parameter  $P_j$  to value  $v_i$  then there is a preference for (similar) functional heads to set  $P_j$  to value  $v_i$ .
- By FE, the first question should always be whether a feature is present/grammaticalised in a language at all (cf. Gianollo, Guardiano & Longobardi 2008). If it is, IG kicks in and assumes the feature is everywhere. Only if there is counterevidence in the PLD will an acquirer backtrack and ask more specific questions about the distribution.



- This NONE > ALL > SOME acquisition hierarchy creates a hierarchy that we can think of as ever more specified (i.e. featurally rich) parameters.
- In “size” terms, we could distinguish the following parameter types:

- (5) For a given value  $v_i$  of a parametrically variant feature F:
- Macroparameters:** all functional heads of the relevant type share  $v_i$ ;
  - Mesoparameters:** all functional heads of a given naturally definable class, e.g. [+V], share  $v_i$ ;
  - Microparameters:** a small subclass of functional heads (e.g. modal auxiliaries, pronouns) shows  $v_i$ ;
  - Nanoparameters:** one or more individual lexical items is/are specified for  $v_i$ .  
[modelled on Biberauer & Roberts 2012a,b]

- The original ReCoS idea: the parameter hierarchies would give insight into acquisition, typology and diachrony. True macroparameters sit at the top of the network. As we move successively down:
  - Typology:** Systems become more marked (in featural terms)
    - Parameters have a longer description (the conjunction of all the “nodes”)
    - Complexity increases
  - Acquisition:** Lower parameters are further along a learning path
    - connections between parameters within a given hierarchy [there is assumed to be more than one, contra Baker 2001] cut down on the potential number of systems we predict to exist
  - Diachrony:** Systems become less stable (cf. Biberauer & Roberts 2012b)

→ Whether the hierarchies for acquisition and typology can really be the same is debatable, but we won’t focus on it today.

Do we actually find each type of parameter?
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## 2. Bantu case study

### 2.1. Overview of (morpho)syntactic parametric variation in Bantu

Macro
- (abstract) Case - SVO order / head-initiality
Meso
- verbal agreement - dependent tenses (converbs, relative tense)?
Micro
- (abstract) Case? - sensitivity of object marking to animacy, definiteness, theta roles - subject marking sensitive to topicality/case/direction - status of locatives as DP or PP - high/low applicative derivation - number of noun classes - verb movement “halfway” (Julien 2002) - focus in-situ/final/IAV - wh movement
Nano
- PPs? - ‘relic’ locative markings
Stuck in the elevator
- negation - pronouns & resumptives - number of object markers

### 2.2. Case

Diercks (2012):

- Case Parameter:  
Uninterpretable Case features are/are not present in a language
- Case Parameter setting for Bantu:  
Uninterpretable Case features are not present

Arguments (see also Sheehan & van der Wal 2014):

1. DPs in Bantu languages do not show morphological case;
2. overt DPs can be subjects of non-finite clauses (6b);
3. logical subject DPs can occur postverbally without subject agreement (7b);
4. there is hyperraising, which means that DPs occur in more than one Case position (8);
5. and there is hyperagreement (9), which means that DPs stay active, hence Case is not the relevant activity feature (assuming it gets deleted upon valuation, cf. who proposes gender as the activity feature in Bantu).

Digo (E73, Diercks 2012: 260, referring to Steve Nicolle)

- (6) a. I-na-wezekana      kukala Mike      a-nda-muiha      Tegan.  
           9SM-PRES-possible      that      1.Mike      1SM-FUT-call      1.Tegan  
           ‘It is possible that Mike will call Tegan.’
- b. I-na-wezekana      Mike      ku-muiha      Tegan.  
           9SM-PRES-possible      1.Mike      INF-call      1.Tegan  
           ‘It is possible (for) Mike to call Tegan.’

Kirundi (JD62, Ndayiragije 1999: 418)

- (7) a. Yohani a-á-ra-somye ibitabo  
1.John 1SM-PST-DJ-read:PERF 8.books  
'John has read books'
- b. Ibitabo bi-á-somye Yohani.  
8.books 8.SM-PST-read:PERF 1.John  
'John (not Peter) has read (the) books.' (lit. 'The books read John.')

Zulu (S42, Halpert to appear)

- (8) a. Ku-bonakala [sengathi iqhina li-phum-ile embizeni].  
17SM-seems that 5.steinbok 5SM-exit-PERF LOC.9.cooking.pot  
'It seems like the secret came out.'
- b. Iqhina li-bonakala [sengathi li-phum-ile embizeni].  
5.steinbok 5SM-seems that 5SM-exit-PERF LOC.9.cooking.pot  
'The secret seems to have come out.'

Swahili (G42, Carstens 2011)

- (9) Juma a-li-kuwa a-me-pika chakula.  
Juma 1SM-PST-be 1SM-PERF-cook 7food  
'Juma had cooked food.'

NB : this setting does not hold for the whole of the language family: in languages where subject agreement is consistently with the logical subject, as in (10), subject agreement (AgrS/T) seems to be sensitive to nominative Case. Still: macroparameter set for whole language.

Kimatuumbi (P13, Odden 1984: 295)

- (10) a-gonja Mambóondo  
1SM-sleep 1.Mamboondo  
'Mamboondo is sleeping'

Halpert (2012, to appear): (nominative) Case may be absent on T, but Case is still relevant for vP in Zulu → microparameter!

- Nominative Case absent: Optional raising out of finite clauses (8) and other indications.
- Case-licensing in vP: augmented nouns (u-muntu) have inherent Case, but augmentless nouns (muntu) need to be structurally licensed inside the vP,<sup>1</sup> whether this is the main or the embedded vP in (11).

- (11) a. A-ngi-sho-ngo [ukuthi ku-fik-e muntu].  
NEG-1SG.SM-say-NEG.PAST that 17SM-arrive-PERF 1.person  
'I didn't say that anyone came.'
- b. \*A-ngi-fun-i [ukuthi muntu a-pheke iqanda].  
NEG-1SG.SM-want-NEG that 1.person 1SM.SJ-cook 5.egg
- c. A-ngi-fun-i muntu<sub>i</sub> [ukuthi t<sub>i</sub> a-pheke iqanda].  
NEG-1SG.SM-want-NEG 1.person that 1SM.SJ-cook 5.egg  
'I don't want anyone to cook an egg.'

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<sup>1</sup> Augmentless nominals have earlier been argued to have the exact opposite effect: they need *not* be case-licensed (Baker 2003), which is why subjects can remain postverbal without agreement (assuming that Case is associated with agreement).

## 2.3. Argument indexing

### 2.3.1. $\phi$ on verbal heads

Indexing thought of as the distribution of  $\phi$  features on heads. Bantu languages have  $\phi$  on:

- C: relative/operator marking (12)
- T: subject indexing
- v: object indexing

But not all the heads in the language have  $\phi$  features. Bantu has no  $\phi$  on:

- P
- N<sup>2</sup>

It seems thus that  $u\phi$  are distributed in the extended projection of V, forming a natural class  
→ mesoparameter.

Shona (S10, Demuth and Harford 1999)

(12) mbatya dza-v-aka-son-era vakadzi mwenga  
10.clothes 10.REL-2.SUBJ-T-sew-APPL 2.women 1.bride  
'the clothes which the women sewed for the bride'

### 2.3.2. (Differential) object marking

- However, object marking is non-uniform across *and within* languages. Object marking is never obligatory for all objects, but always related to a subset of objects → microparameter.
- Groupings can be made of different types of object-marking systems:

(13) Object marking subsets

a. *inherent properties*

- [ $\phi$ P]
- [animacy]  
[class]

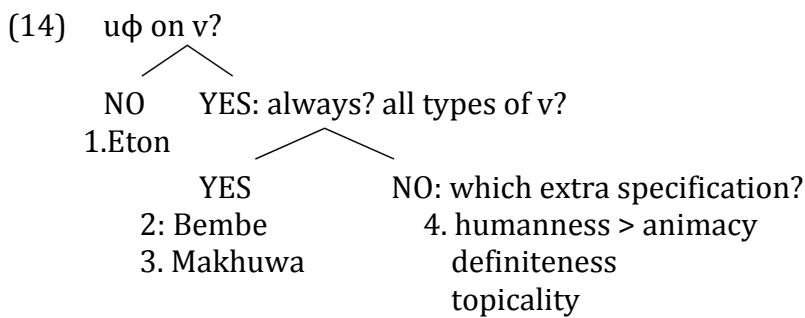
b. *optional properties*

- [topic]
- [definiteness]
- [theta role]

- The first distinction is that between pronominal systems, i.e. where the OM *always* functions as a (incorporated) pronoun, and languages which allow 'doubling' with an overt DP (cf. Riedel 2009 for an in-depth discussion and overview of this ongoing debate).
- Within the doubling languages (where OM is agreement), the difference is in what feature (combination) triggers the OM to appear, such as animacy, definiteness, topicality etc, presumably universally following Duranti's (1979) hierarchy.
- So for an individual head we can ask more or less the same questions: whether it is present at all, then whether it is dependent on anything, and then what it is dependent on:

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<sup>2</sup> Nominal dependents do have concord. This is the 'split' type Nichols (1986) refers to: head marking in the clausal domain and dependent marking in the nominal domain.



Languages with pronominal object marking (a): Bembe, Chichewa, Nguni languages, Setswana (cf. Marten & Kula 2012)

**System 1:** No object marking at all

Example: Eton (Van de Velde 2008). Which other languages?

When there is always an Agree relation, this can still take two forms:

**System 2:** Pronominal marking

- Object marker is pronominal, optional co-occurring full DPs being dislocated.
- Roberts' (2010) head movement: a clitic will appear on the verb if the features on the probe are a superset of the features of the goal, essentially incorporating the goal (= the object).
- $\phi$  features always present on the probe and always agree, but *only* when the goal is a weak  $\phi$ P pronoun are they spelled out as an object marker.
- Example: Bembe object marker is always pronominal and in complementary distribution with full DP arguments

(15) Bembe (Iorio in progress)

a. *Mwana a-yak-a ngyoa.*  
 1child 1SM.T-kill-FV 9snake  
 "The child has killed a snake."

b. *Mwana a-ya-yak-a.*  
 1child 1SM.T-9OM-kill-FV  
 "The snake has killed it."

c. *Mwana a-(\*)ya-yak-a ngyoa.*  
 1child 1SM-9OM-kill-FV 9snake  
 'The child has killed a snake.'

**System 3:** Reduced morphological paradigm

- Object marker agrees with all objects
- Will only and always be spelled out if there is a morphological form
- Example: Makhuwa object marking, which is only possible, and even obligatory, for persons and classes 1 and 2. The other classes simply do not have an object marker.
- So agreement still takes place, but the match with the morphological paradigm just returns 'empty cells'. This would not work for a system like Swahili, where there is a matching object marker for categories that do not take obligatory but optional marking (in casu animate vs inanimate).
- Crucially, this means that not all of the variation is in the narrow syntax; some is more superficial!

Makhuwa

- (16) a. ki-ni-m-wéha Hamísi / namarokoló/ nancoólo  
 1SG.SM-PRES.CJ-1OM-look 1.Hamisi / 1.hare / 1.fish.hook  
 'I see Hamisi / the hare / the fish hook'
- b. \*ki-m-wéhá Hamísi / namarokoló/ nancoólo  
 1SG.SM-PRES.CJ-look 1.Hamisi / 1.hare / 1.fish.hook
- c. ki-m-wéhá nveló / mikhorá / kalapinteéro / etthepó  
 1SG.SM-PRES.CJ-look 3.broom / 4.doors / 5.carpenter / 9.elephant  
 'I see the broom / doors / carpenter / elephant'
- d. \*ki-ni-m-wéha nveló / mikhorá / kalapinteéro / etthepó  
 1SG.SM-PRES.CJ-1OM-look 3.broom / 4.doors / 5.carpenter / 9.elephant

**System 4:** Object doubling for inherent and optional properties

- Object marker agrees with a subset of full DPs
- OM sensitive to features like definiteness or topicality
- Example: Nyaturu does not mark inanimates (17a), and within the animates only marks definites (17b,c).

Nyaturu (Hualde 1989: 182)

- (17) a. n-a-(\*ki)-onaa kítabu  
 1SG.SM-PAST-7OM-see 7.book  
 'I saw the book'
- b. n-a-onaa mwalimu  
 1SG.SM-PAST-see 1.teacher  
 'I saw a teacher'
- c. n-a-mu-onaa mwalimu  
 1SG.SM-PAST-1OM-see 1.teacher  
 'I saw the teacher'

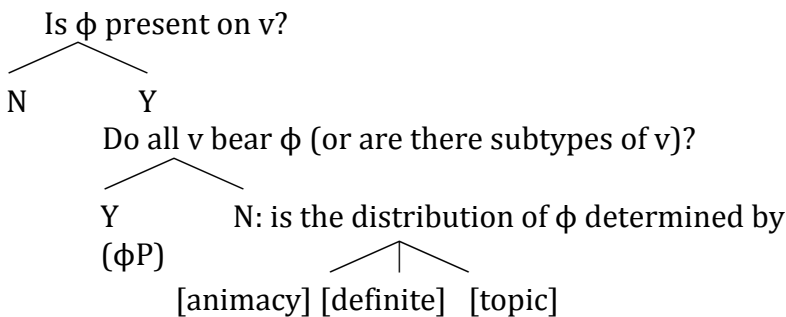
- Example: Manyika marks topical objects. Bax and Diercks (2012) show that in Manyika object marking triggers a non-focus interpretation of the doubled object DP. In (18) the non-marked version (a) is felicitous when the verb, the object, or the VP is in focus (as diagnosed by a contextualising question), whereas (b) is only felicitous when the object is not included in the focus.

Manyika (S10, Bax and Diercks 2012: 191)

- (18) a. Tendai w-aka-werenga bhuku nekukasika. *non-doubled*  
 1.Tendai 1F.SM-PAST-read 5.book quickly  
 'Tendai read the/a book quickly.'
- b. Tendai w-aka-ri-werenga bhuku nekukasika. *doubled*  
 1.Tendai 1F.SM-PAST-5OM-read 5.book quickly  
 'Tendai read the (particular) book quickly.'  
 ✓ answer to 'what did Tendai do with the book?' (V foc)  
 \* answer to 'what did Tendai do?' (VP foc)  
 \* answer to 'what did Tendai read?' (O foc)

- The more specific features associated with System 4 can be modeled in one of two ways:
- Either the features are indicated on the more specified probe, that is, defining subtypes of  $v$  by asking ‘on which more specific heads?’ e.g. as ‘ $\phi$  features on  $v$ [+human, +def]’. All features would need to be matched on the goal. This is sketched in (19).
  - From the perspective of acquisition, the child will simply set the next parameter that is most saliently signalled in the PLD. If [animacy] is most obvious in language L, that will be set next. If [definiteness] is the obvious correlation in language M, that will be set next by a child learning M.
  - Assuming that the various language acquisition paths make up the typological space of variation, these acquisitional options form a multiple-choice point from the typological perspective.
  - This could come down to a “conspiracy” of hierarchies for each of the features involved.

(19) Object marking hierarchy



- Or the specifications are a property of the goal, e.g. only a [+human, +def] goal is visible for  $v$ . In this alternative,  $v$  is always a probe but only spells out as OM if it finds the “right” object.
  - More technically, we can think of this specification on the goal as an extra set of features (like a big-DP analysis, Uriagereka 1995, Cechetto 1999; differing from Zeller 2008 however) with which the probe agrees. As this extra feature will be a subset of the features on the probe, under Roberts’ (2010) account of head-movement it will be spelled out on the probe, while the DP is still overt. This predicts that pronominal OM languages will never have a big-DP.

2.3.3. Number of object markers

- Yet another parameter relating to the distribution on  $\phi$  is the number of object markers a language can have. In featural terms, this could be
  - sets of  $\phi$  features on one head
  - an “insatiable” probe (trouble with Full Interpretation)
  - or various heads for object marking.

Kinyarwanda (JD61, Beaudoin-Lietz et al. 2004: 183)

(20) Umugoré a- ra- na- ha- ki- zi- ba- ku- n-  
 1woman SM1-DJ-ALSO- OM16- OM7- OM10- OM2- OM2SG- OM1SG-  
 someesheesherereza.  
 read.CAUS.CAUS.APPL.APPL

‘The woman is also making us read it (book) with them (glasses) to you for me there (in the house).’



- The opposite is also possible: having fewer sets of  $\phi$  features, which may then be sensitive to *both* subject and object, as in Hungarian:

(21)

S	O	O	X	
$\phi$	$\phi$	$\phi$	$\phi$	→ Kinyarwanda (separate markers for subj and objs)
	$\phi$			→ Makhuwa (one marker for subj and one for objs)
$\phi$				→ Hungarian (one marker sensitive to subj and obj)

#### 2.4. Locatives

- The Bantu noun classes include a number of locative classes: 16-17-18 (widespread) and sometimes 23 or 25.
- A point of crosslinguistic variation is whether locatives are DP or PP. Marten (2010) proposes the ‘Great Locative Shift’ for southern Bantu languages, reanalysing the locative prefix as a preposition: locatives are PPs in these languages.

Herero (R30, Marten 2006)

(22) Mò-ngàndá mw-á-hítí òvá-ndù.  
 18-9.house 18sm-PST-enter 2-people  
 ‘Into the house entered (the) people.’

[<sub>DP</sub> mo [<sub>NP</sub> nganda]]

Zulu (S42, Buell 2007)

(23) Ku-lezi zindlu ku-hlala abantu abakhubazekile.  
 17-10.these 10.houses EXPL-stay 2.people 2.handicapped  
 ‘In these houses live handicapped people.’

[<sub>PP</sub> ku [<sub>DP</sub> lezi [<sub>NP</sub> zindlu]]

- This effectively means that there is a loss of noun classes, leaving behind some relics → (morphological) nano-parametric variation.
- This is in some cases just lexicalisation, which is importantly *not* part of parametric syntax, and in more interesting instances still has syntactic effects.
- Example: Tswana, where some prepositions show class 16 or 18 morphology and only two nouns are inherently in these classes, but these do take true class 17 locative agreement on the verb, according to Creissels (2011).<sup>3</sup>

Tswana

(24) a. class 18 *mo-rago ga* ‘behind’  
 b. class 17 *go-lo* ‘place’  
 c. class 16 *fe-lo* ‘place’

- Synchronically, locatives are derived from nouns by either the suffix *-ng* or the prefix *go-* (which we can assume to be adpositions). The former “is used if the first word of the noun phrase is a noun belonging to classes other than 1a/2a, or a non-human noun of

<sup>3</sup> Creissels (2011:36) notes that “Tswana speakers tend to regularize the situation by using *lefelo* (class 5, plural *mafelo*) instead of *felo* [class 16, JW]”.

class 1a, whereas [the latter] is used in all other contexts” (Creissels 2011: 37); this would perhaps be between a micro- and nanoparameter?

(25) Mo-setsana o tlaa ya noke-**ng**.  
1-girl 1SM FUT go 9.river-LOC  
‘The girl will go to the river.’

(26) Ke tswa **go** malome.  
1SG.SM come LOC 1.uncle.1SG  
‘I am coming from my uncle’s.’

### 3. Conclusions

- “Bantu” displays family-internal variation which seems amenable to description in terms of parameters of different “sizes” ... and there is plenty more scope for investigation here (verb movement, negation, wh-in situ, etc.)
- All parameter types can be found, but languages vary as to the “grain” of their settings: what is micro in one system could be nano in another, and so on. This is predicted by the ReCoS approach: the “same” phenomenon should surface in contexts of different sizes in different systems.

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