

Government, Agreement and Minimality
Ian Roberts
Downing College, University of Cambridge
(igr20@cam.ac.uk)

1. Introduction

Three points:

- How to define government in bare phrase structure
- Government reduces to (relativised) minimality
- The strange case of the Final-over-Final Constraint (FOFC)

2. How to define government in bare phrase structure

(1) Syntactic object (SO):

- i. A **lexical item** (LI) is an SO.
 - ii. A **feature bundle** $FB = \{F_1 \dots F_n\}$ is an SO.
 - iii. If α is an SO and β is an SO, then **Merge** $(\alpha, \beta) = \{K, \{\alpha, \beta\}\}$ is an SO (where $K = \alpha$ or β is the label of SO).
- LIs and FBs are the atomic elements. Merge is the fundamental binary, iterative, combinatorial relation which creates all structures, permitting the following definitions:

- (2) i. In $\{K, \{\alpha, \beta\}\}$ α is the **sister** of the β and β is the **sister** of α .
- ii. In $\{K, \{\alpha, \beta\}\}$ K **contains** α and β .
- iii. In $\{K, \{\alpha, \beta\}\}$, where $K = \alpha$, α is the **head** of K .

- Asymmetric c-command is the transitive closure of sisterhood and containment:

(3) α **asymmetrically c-commands** β iff β is contained in the sister of α .

Now we need only add a notion of intervener in order to define government:

(4) α is an **intervener** for a relation $R(\beta, \gamma)$ iff
[[$R(\beta, \alpha) \ \& \ R(\alpha, \gamma) \ \& \ \neg R(\alpha, \beta)$]]

(5) In: ... β ... α ... γ ...

α (R-)intervenes between β and γ just where R holds of (β, α) and (α, γ) and not of (α, β) . Intuitively, α “blocks” $R(\beta, \gamma)$.

(6) Government: α **governs** β iff α asymmetrically c-commands β , there is no γ , an intervener for asymmetric-c-command (α, β) .

- C-command isn't “downward bounded”; government is, thanks to the intervention clause.

(7) Every politician betrays [the people [who voted for him]]

3. *Government and (relativised) minimality*

In the GB literature, slightly differing notions of government were applied to a range of syntactic relations including the following:

- (Internal) θ -role assignment
- categorial and semantic selection
- Case assignment
- binding domains (whence the PRO theorem)
- licensing *pro*
- licensing traces (the Empty Category Principle)
- L-marking (whence bounding nodes for subjacency)

Let's look at these in turn:

- **θ -role assignment and s-selection** go together and don't depend on c-command (cf. external arguments) therefore not on government as construed here
 - **c-selection** (NB this subsumes L-marking (see Chomsky (1986:15))
- (8) Sisterhood for simple internal arguments:
[V DP], [P DP], etc.
- (9) Small clauses:
V- β [DP- γ Pred- α] (α, β, γ as in (4))
- if government depends on asymmetric c-command Pred is not an intervener and so V governs DP
- (10) a. I consider [John nice] -- V doesn't θ -mark DP
b. I hammered [the metal flat] -- V does θ -mark DP
- BUT Pred can be an intervener for c-selection:
- (11) a. *I consider under the stairs.
I consider [under the stairs a good place to hide].
b. *John danced Mary.
John danced [Mary sick].
c. I hammered at the metal.
*I hammered [at the metal flat].
- Pred's c-selection property determines the category of the SC "subject"
- (12) Ditransitive constructions:
John [gave + v [Mary [V a flower]]] (Larson 1988 etc)
 $\beta \quad \gamma \quad \alpha$
- V c-selects IO and DO and acts as intervener for c-selection by v

Case assignment

- Equivalent to abstract agreement

- (13) A Probe α Agrees with a Goal β iff:
 (i) α asymmetrically c-commands β
 (ii) α and β are non-distinct in formal features
 (iii) there is no intervener.

- (13) a. Accusative: [v [V DO]]
 ➤ V Agrees with DO, as V isn't a Probe
 ➤ If V has inherent Case this prevents DO getting Acc (V is then an intervener)
 b. [v [V [P DP]]]
 • Case/agreement in DP determined by P, not v

- (14) Small clauses/ditransitives/Exceptional Case markers:

[v [V [DP [Pred]]]] (where Pred potentially contains a Case-marker)

- v Agrees with DP, not V and not Pred as neither are probes (non-finite T is not a Probe)
- the one-size-fits-all notion of government won't carry over here, but **relativising the notion of intervener (= relativised minimality) will**: c-selectors block other c-selectors; Probes block other Probes.

- (15) Unaccusatives:

[_{TP} .. T ... [_{VP} v_{def} [_{VP} V DP]]]

- T can Agree with the direct verbal object here since where v is inactive (lacking formal features), despite the fact that v is an intervening head:

- (16) a. Ne sono arrivati [molti (ne)]
 Of-them are arrived many
 "Many of them have arrived"
 b. *Ne hanno telefonato [molti (ne)]
 Of-them have telephoned many
 c. Hanno telefonato [molti studenti]
 have telephoned many students
 "Many students have telephoned."

-- *ne*-cliticisation shows the argument of *arrivare* is VP-internal (Belletti & Rizzi 1981);

-- in (16c), *molti student* is vP/VP-external hence v is not a possible Probe.

- (17) I [v [saw [John's D hat]]]

- D is a Probe (for the possessor) and a Goal (for v)
- If D is inert, possessor-raising ensues (possessor Agrees with v)

Control and the PRO theorem

- The PRO theorem ensures that PRO only appears as subject of infinitive
- PRO is not a normal Goal DP → suppose it has no Case and unvalued ϕ -features
- If so, PRO cannot be probed by a regular Probe (as these too only have uninterpretable ϕ -features and the point of Agree is to value these)

- (18) a. *PRO left.
 b. *I saw PRO.
 c. *I believe [PRO to be the best].
 d. *I put the book on PRO.
 e. *I arranged [for PRO to do that].
- Failure to value Probe's (T, v, P) features
- (19) Option I: PRO gets its features valued by the nearest c-commanding DP:
 a. John tried [PRO to leave].
 b. John convinced Mary [PRO to wash herself/*himself].
 (cf. Rosenbaum's minimal distance principle)
- (20) Option II: if there's no c-commanding DP, or if the nearest one is too far away, PRO defaults to the arbitrary reading (and arbitrary ϕ -features):
 a. Oh PRO to be in Englsnd! -- no DP
 b. [PRO to leave now] would be a shame -- no DP
 c. John told Mary it was time [PRO to leave] – nearest DP an expletive
- (21) Incompatibility of +wh C and control suggests (20a-c) have a hidden generic operator in C:
 a. John wondered [how [PRO to fix the sink]]
 b. [Gen(x) [x to leave] would be a shame]. (= (20b))
 c. *[Gen(x) [John to leave] would be a shame]. – vac quant
 d. *Who did you see Bill? -- idem
- (22) Other elements with anaphoric/generic interpretation include Romance *si/se*:
 a. Gianni *si* ammira. -- *si* gets its features from *Gianni*
 John SI admires
 John admires himself.
 b. Qui *si* lavora troppo. – *si* is bound by a Gen operator (Chierchia 1995)
 Here SI works too-much
 Here people/one work(s) too much.
- See also Holmberg (2010) on partial null-subject languages.
 - (19) and (21a) show that the closest potential licenser of PRO prevails, i.e., acts as an intervener for all higher potential ones
- (23) a. John asked Mary [PRO to wash herself/*himself].
 b. John asked [PRO to wash himself].

- c. John asked [how [PRO to wash oneself/himself]].
- In (23c), *how* is underspecified for ϕ -features, and so is not a full intervener for PRO, cf. Starke (2001):

(24) In ... $\alpha\beta$... α ... $\alpha\beta$... α is not an intervener for $\alpha\beta$

(25) John was [*imp* killed (John)]

- *Imp* is a ϕ -defective argument (NB arbitrary reference again) and so does not intervene between *John* and its copy (T Biberauer, p.c.)
- Non-intervention/minimality is relevant for the licensing and interpretation of PRO, but the class of interveners differs from those relevant for both (standard) Agree and c-selection

Licensing *pro*

(26) Rizzi (1986): languages choose the set of heads able to formally license *pro* under government; *pro*'s content must be identified by the features of the licensing head:

Italian:	{T, v}
English	{ }

(27) T cannot license *pro* in object position in unaccusatives:

- a. Tutti i bambini sono andati via. -- subject raising
 All the children are gone away
- b. I bambini sono andati tutti via. – subject raising + Q-float
 The children are gone all away
- c. Sono andati via tutti i bambini. – non-raising
 Are gone away all the children
 “All the children have gone away.”
- d. *Sono andati tutti via i bambini. – illicit Q-float
 Are gone all away the children
- e. *Sono andati tutti i bambini via. – illicit object-shift
 Are gone all the children away
- f. Sono andati tutti via. -- where's *pro*?
 Are gone all away
 “They have all gone away.”

Rizzi (1987): in (f), *pro* cannot be in the position of *i bambini* either in (d) or (e) (without special pleading), and so must be in subject position, corresponding to *i bambini* in (b).

(28) [_{TP} .. T ... [_{VP} v_{def} [_{VP} V *pro*]]]

- T cannot license *pro* here since where *v* is a potential licenser in Italian and an intervening head
- NB the direct, minimal contrast with Case in (15)
- Minimality/intervention depends on the nature of the relation

Licensing traces (the Empty Category Principle)

- The island phenomena associated with adjunct wh-movement are clear cases of intervention effects blocking a required Agree relation (Rizzi 1990):
- (29) a. I wonder who could solve the problem in this way.
b. *How did you wonder [who could solve this problem (how)] ?
- (30) a. How many people do you consider [(how many people) intelligent]?
b. How intelligent do you consider [John (how intelligent)] ?
- (31) a. ??How many people do you wonder whether I consider (how many people) intelligent?
b. *How intelligent do you wonder whether I consider John (how intelligent) ?
- Argument copies are immune to the intervention effect as they are able to be construed with their quantificational antecedent by referential binding:
- (32) A binds B iff:
(i) A and B are non-distinct DPs and
(ii) A c-commands B
(Rizzi 2001: NB how this applies to control in the above cases).
- (33) Super-raising with A-movement:
a. It seems that it is likely that John will win.
b. It seems that John is likely t to win.
c. John seems t to be likely t to win.
d. *John seems that it is likely t to win.
- (34) The Head Movement Constraint:
a. They could have left.
b. *Have they could (have) left?
c. Could they (could) have left?
- One-size-fits-all government, as defined in (6), is too strong.
 - What is needed in order to account for these relations, is c-command + intervener, but where the intervener is *relativised* to the relation.

Relativised minimality: in the configuration

(35) ... X ... Z ... Y ...

“Y cannot be related to X if Z intervenes and Z has certain characteristics in common with X. So, in order to be related to X, Y must be in a minimal configuration with X, where minimality is relativized to the nature of the structural relation to be established” (Rizzi (2001)).

- (36) Y is in a minimal configuration (MC) with X iff there is no Z such that
- (i) Z is of the same structural type as X, and
 - (ii) Z intervenes between X and Y.

“It seems to be the case that prominence .. and locality .. are two fundamental and independent configurational notions that natural languages use” (Rizzi (2001)).

- (37) C-command (prominence) but not locality:
- a. No candidate can predict how many people will vote for him.
 - b. Every politician is worried when the press starts attacking him.
 - c. Which politician appointed the journalist who supported him?

- (38) Locality but not c-command:
John sells books, Mary buys records and Bill V newspapers.
(V = *buy*, not *sell*)

- (39) Neither locality nor c-command:
The question of whether John met Mary worries the people who support him.

- **Conclusion: relativised minimality** is the relation we need (whether we call this government is then a purely terminological issue).

4. *The strange case of the Final-over-Final Constraint (FOFC)*

4.1 *The phenomenon*

- (40) The Final-over-Final Constraint (FOFC):
Within a single extended projection, a head-final phrase can only dominate another head-final phrase.
(see Biberauer, Holmberg & Roberts 2011 (BHR) and the references at <http://research.ncl.ac.uk/linearization/index.php>)

- (41) $*[\beta_P [\alpha_P \alpha \gamma_P] \beta]$
(where α_P is the complement of β and γ_P is the complement of α)

- A. $*[VO] Aux$:
Germanic shows head-initial order (AUX V O, e.g. English) and head-final order (O V AUX, e.g. German), we find a range of other orders, e.g. AUX O V (“verb projection raising”):

- (42) .. *da Jan wilt een huus kopen*
.. that Jan wants a house buy-INF

“.. that Jan wants to buy a house” (West Flemish; cf. also Swiss German Haegeman & van Riemsdijk (1986), Wurmbrand 2006)

O AUX V order is found in Dutch, West Flemish and Afrikaans, and AUX V O order in West Flemish, Afrikaans and Swiss German. But **V O Aux is not attested**. This is because it violates FOFC.

- (43)
- | | | |
|--|--------|-----|
| | AuxP | |
| | r u | |
| | VP | Aux |
| | ru | |
| | V | DP |

- (44) No final complementisers in VO languages (Hawkins (1990a: 256-7) Dryer 1992: 102; 2009b: 199-205, Kayne 2000: 320-321).

- | | | | | | |
|----|----|----|----|----|---|
| | CP | | | CP | |
| | ru | | ru | | |
| | TP | C | OR | TP | C |
| | ru | | ru | | |
| ru | T | VP | | VP | T |
| | ru | | ru | | |
| | V | DP | V | DP | |

- (45) Clausal complements in OV languages have three options :
- a. Final C, e.g. Japanese
 - b. Nominalisation, e.g. Turkish
 - c. Extraposition of CP, avoiding the FOFC configuration, e.g. German :
 Er weißt, dass sie kommen.
 he knows that they come
 ‘He knows that they’re coming.’

- (46) *[NO] Po, e.g., Finnish. Some Finnish adpositions can be either pre- or post-positions, e.g. *yli* ‘across’:

- a. yli rajan
 across border
- b. rajan yli
 border across
 both: ‘across the border’

- If the NP complement of *yli* itself has a postnominal complement or adjunct, the prepositional option is still fine but the postpositional option is ungrammatical:

- (47) a. yli [rajan maitten välillä]
 across border countries between

- ‘across the border between the countries’
 b. *[rajan maitten välillä] yli
 border countries between across

(48) Diachronic evidence:

Change from head-final to head-initial order:

$[[[O V] I] C] \rightarrow [C [[O V] I]] \rightarrow [C [I [O V]]] \rightarrow [C [I [V O]]]$.

- Biberauer, Newton and Sheehan (2010:43-6) show that changes from head-final to head-initial order in TP and VP in both the history of English and the history of French conform to (48). Ledgeway (forthcoming, Chapter 5) shows the same for the development of Latin to Romance, again a change from head-final to head-initial order.
- “the first robustly head-initial structures to emerge in Latin involve the CP and the PP” (Ledgeway, forthcoming:225)
- “once head-initiality becomes established in the topmost CP and PP layers, it is free to percolate down harmonically to the phrases that these in turn embed” (228).

Change from head-initial to head-final order:

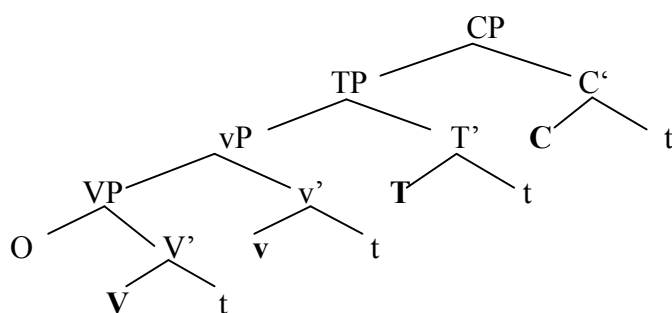
$[C [I [V O]]] \rightarrow [C [I [O V]]] \rightarrow [C [[O V] I]] \rightarrow [[[O V] I] C]$.

- This is rarer, at least in Indo-European. However, Biberauer, Newton & Sheehan (2009:717-721) present data which indicates that the Ethiopian Semitic languages may have undergone change in this direction. The oldest attested language of this group, Ge’ez, is VSO and has a basic head-initial typology; Tigré and Tigrinya are verb- and auxiliary-final, with mixed initial and final complementisers. Harari, on the other hand, has exclusively final Cs.

4.2 *A possible account (BHR 2011)*

- (49) **The Linear Correspondence Axiom (adapted from Kayne 1994)**
 α precedes β if and only if α asymmetrically c-commands β or if α is contained in γ where γ asymmetrically c-commands β .

(50)



- Given the LCA, head-final structures like this must be derived by “roll-up” movement: iterated movement of the complement of each head H to the specifier of H (starting at the most deeply embedded complement).

(51) Movement is triggered by a general movement-triggering feature. We use ^ (caret) as a symbol of this feature.

- (52) a. $T_{[u\phi, \wedge]}$ triggers movement of the goal of the probe $[u\phi]$ to specTP
 b. $C_{[EF, \wedge]}$ triggers A'-movement;
 c. $V_{[+V, \wedge]}$ **triggers movement of the complement of V to specVP.**

(53) FOFC restated:

If a head α_i in the Extended Projection EP of a lexical head L, EP(L), has ^ associated with its $[\pm V]$ -feature, then so does α_{i+1} , the next head down in EP(L).

(54) Extended Projection (adapted from Grimshaw 2001):

Π is the extended projection of L if and only if Π is the maximal subsequence of $\Sigma(L)$ such that

- $L \in \Pi$,
- if $\alpha \in \Pi$, then α and L have the same value for $[\pm V]$.

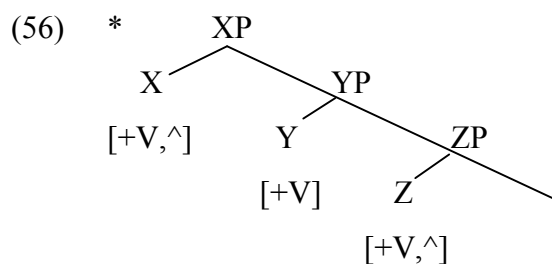
(55) (a) Head-finality is a consequence of the movement-trigger ^ being paired with the categorial feature $[\pm V]$, which enters the derivation with the head of the extended projection.

(b) The movement-trigger ^ can be inherited with $[\pm V]$ from head to head via selection along the spine of the extended projection, subject to parametric variation.

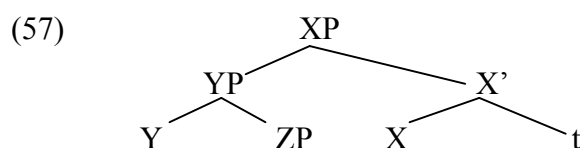
i.e. head-finality can stop anywhere on the way up the tree (or, of course, not be there at all), but **it can't “skip” a head in the EP**. Why?

(c) Selection relations are subject to Relativized Minimality.(as we have already seen)

In other words, a given head H in an EP can select ^ if its complement has ^, but cannot if it doesn't, and the complement of the complement is out of reach:



- Here X can select [+V], but not [+V, ^]; Y on the other hand can select either



- This is the structure that results from illicit select of [+V, ^] by X in (56); this is the FOFC-violating configuration

5. Conclusion

- Government is c-command plus a minimality condition providing downward-boundedness (a form of locality)
- Rigid minimality does not work for the range of relations government was invoked for in GB theory; relativised minimality does →
- Government is relativised minimality + asymmetric c-command, two distinct relations which we don't actually need to combine.

References

- Belletti, A. & L. Rizzi (1981) "The syntax of *ne*: some theoretical implications." *The Linguistic Review* 1:117-154.
- Biberauer, T., A. Holmberg & I. Roberts (2011) A hierarchical universal and its consequences. Ms Universities of Cambridge and Newcastle.
- Biberauer, T., Newton, G. & Sheehan, M. (2009). Limiting synchronic and diachronic variation and change: the Final-Over-Final Constraint. *Language and Linguistics* 10:(4). 701-743.
- Biberauer, T., Newton, G. & Sheehan, M. (2010). Impossible changes and impossible borrowings: the Final-over-Final Constraint. In *Continuity and Change in Grammars*, edited by A. Breitbarth, C. Lucas, S. Watts and D. Willis, John Benjamins, pp. 35-60
- Chomsky, N. (1986) *Barriers*. Cambridge, Mass.: MIT Press.
- Dryer, M. (1992). On the Greenbergian Word-Order Correlations. *Language* 68: 81-138.
- Grimshaw, J. (2001). Extended projection and locality. In: P. Coopmans, M. Everaert & J. Grimshaw (eds.). *Lexical Specification and Insertion*. Amsterdam: Benjamins, 115-133.
- Haegeman, L. & H. van Riemsdijk (1986). Verb projection raising, scope and the typology of rules affecting verbs. *Linguistic Inquiry* 7: 417-66.
- Hawkins, J. (1990). A parsing theory of word order universals. *Linguistic Inquiry* 21: 223-261.
- Holmberg, A. (2010) Null Subject Parameters. In T. Biberauer, A. Holmberg, I. Roberts & M. Sheehan (eds) *Parametric Variation: The Null Subject Parameter*. Cambridge: Cambridge University Press.
- Kayne, R. (1994). *The Antisymmetry of Syntax*. Cambridge, Mass: MIT Press.
- Kayne, R. (2000). *Parameters and Universals*. Oxford: OUP.

Roberts, Government etc.

Syntactic government, Cambridge, September 2011

Larson, R. (1988) On the double object construction. *Linguistic Inquiry* 19, 335 - 391.

Ledgeway, Adam (forthcoming) *From Latin to Romance: Morphosyntactic Typology and Change*. Oxford: Oxford University Press.

Rizzi, L. (1986) "Null Objects in Italian and the Theory of *pro*," *Linguistic Inquiry* 17: 501-557.

Rizzi, L. 1987. Three remarks on null subjects. Talk given at the Workshop on Dialectology, GLOW X, University of Venice.

Rizzi, L. (1990). *Relativized Minimality*. Cambridge, Mass: MIT Press.

Rizzi, L. (2001). Relativized Minimality effects. In: M. Baltin & C. Collins (eds.). *The Handbook of Contemporary Syntactic Theory*. Oxford: Blackwell, 89-110.

Starke, M. (2001) Move dissolves into Merge. PhD dissertation, University of Geneva.

Wurmbrand, S. (2006) Verb clusters, verb raising and restructuring. In M. Everaert & H. Van Riemsdijk (eds) *The Blackwell Companion to Syntax*, Volume 5: 229-343, Oxford: Blackwell.