The achievements of Generative Syntax: a time chart

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Introduction. In May 2015, a group of eminent linguists met in Athens to debate about the road ahead for generative grammar¹. There was a lot of discussion (at least, so I heard) and a shared intention to draw a list of achievements of generative grammar, for the benefit of other linguists. This list, to the best of my knowledge, has never seen the light. However, Peter Svenonius did publish a tentative list on his blog after the conference. The list was edited and compiled by Mark Baker, Rose-Marie Déchaine, Amy Rose Deal, Winfried Lechner, Julie Legate, Ian Roberts, Ivy Sichel, and Peter Svenonius himself. A group of people is now working on an encyclopedia based on the list².

The list can be found here: http://blogg.uit.no/psv000/2016/08/30/significant-mid-level-results-of-generative-linguistics/

I decided to do an exercise: I put a (tentative) date on every entry of the list, just to map these important results on a time chart. Many of these are shared results, so I tried to select the paper/dissertation in which these ideas were first formulated, not necessarily with the name we use for them today. I then put the list on Lingbuzz and Facebook, and had an overwhelming response by the community³, so that this time chart has now become a collective exercise. Since this draft is receiving much more attention than I had expected, let me add some disclaimers, which I had left aside for sloppiness and only added to the extended version of the paper on which I am working.

First, as Svenonius points out⁴, the original list concerns mid-level-coverage results in generative grammar (or rather: syntax) for which there is a broad consensus. According to Gillian Ramchand's blog⁵, "'mid level generalizations' […] refer to the concrete results of bread and butter generative syntax (whether GB, LFG or HPSG) which would not have been discovered without the explicit goals and methodologies of generative grammar (MLGs)".

The list will look very unbalanced towards the early days of generative grammar. This is very likely because results take a lot of time before they are accepted/tested and acknowledged. It might however also reflect a different way of approaching data generalizations nowadays.

One thing that was very interesting for me is that I got many of these dates wrong, when drafting the chart for the first time. Now, of course this might be entirely due to my ignorance,

¹ Unfortunately, the conference website is not longer working. The conference was called *Generative Syntax in the Twenty-First Century: The Road Ahead.*

² Please, contact Peter Svenonius if you want to contribute.

³ I wish to thank Avery Andrews, Tista Bagchi, Theresa Biberauer, Jonathan Bobaljik, Hagit Borer, Stanley Dubinsky, Dan Everett, Berit Gehrke, Alessandra Giorgi, Vera Gribanova, Heidi Harley, Martin Haspelmath, Monica Irimia, Pauline Jacobson, Dalina Kallulli, Alec Marantz, Jason Merchant, Gereon Müller, Francisco Ordoñez, Dennis Ott, Diego Pescarini, David Pesetsky, Omer Preminger, Craig Sailor, Peter Svenonius, Tonjes Veenstra, and Xavier Villalba Nicolas (I hope I'm not forgetting anyone) for their feedback. I hope I'm reproducing their suggestions correctly. All mistakes you'll find remain entirely mine.

⁴ You can find part of the conversation here:

https://www.facebook.com/robertadal/posts/10102223520838580

⁵ http://generativelinguist.blogspot.nl/2015/05/athens-day-1.html

and it certainly is, in good part. I grew up in the Minimalist era, and had very little exposure to GB and the early years of generative grammar. Because of this, when I started looking for dates I proceeded as I usually do when I start working on a new project: Google, handbooks, introductory chapters, introductory syntax books, and encyclopedia articles of all sorts. Then, I turned to read (not very accurately, admittedly, as this was just for fun and I didn't have too much time) some more specialized articles. I tried to track down the first time something was observed, and selected as the "starting point" those references on which all seemed to converge⁶.

Despite my efforts, I got many references wrong. I put the draft online as I was sure that many of these "standard references" were wrong, and there was a lot of reappropriation?: very often the people/papers who are cited as "the standard reference" or "the first to observe" are not the ones who actually first discovered/observed/reported something. Some years ago, I taught a course on agreement which I called *Die Ewige Wiederkehr des Gleichen*, where I tried to show that most of what we think we are discovering or inventing today was already in place in the '60s. Let's say that this time chart affair gives me the same feeling.

Many people had also interesting suggestions for additions to the list, so I will add a list of suggestions after the original list. Finally, as many observed, not all of these results are ascribable to generative grammar. We will assume for the time being that they are, as this is not directly relevant for the exercise I wish to do, but we should be aware of this. I will not modify the list, but I will copy it entirely from Peter's blog, including the explanations to the titles that I first omitted, as I think they make things a bit clearer. And I will add the references.

This is work in progress, so everybody is very welcome to send me more observations, corrections, and suggestions.

1. Mid-level coverage results in generative grammar

- 1. **Unaccusativity** [There are two classes of monovalent verbs such that the argument in the unaccusative class is predicate-internal, while the argument in the unergative class is predicate-external (in derivational terms, the unaccusative argument originates predicate-internally)]: **Hall (1965)**
- **2.** *The Agent asymmetry*: [NPs bearing Agent roles are higher than NPs bearing other roles in the unmarked structure of the clause]: **Keenan & Comrie (1972)**
- 3. *Passive valence reduction*: [Agents are the easiest arguments to suppress in valency reduction]: **Keenan (1975)**

X-bar theory, categories, and headedness

 Extended projections [Clauses and nominals consist of a (respectively) verbal/nominal head, dominated by zero or more members of an ordered sequence of functional elements]: Grimshaw (1991)

⁶ Now, admittedly this does not make too much sense, because results are always due to more than one person, but I did it, so here it is.

⁷ A term due to Pauline Jacobson, who sent me loads of interesting feedback, and to whom I wish to give special thanks.

- **2.** *Cinque hierarchy* [There are semantically defined classes of TAM functors that appear in the same hierarchical order in all languages in which they exist overtly]: **Cinque (1999)**
- 3. **Cinque hierarchy for adverbs** [There are semantically defined classes of adverbs that appear in the same hierarchical order in all languages in which they exist overtly (related to or identical to the TAM hierarchy)]: **Cinque (1999)**
- 4. **Morphology Mirrors Syntax** [The hierarchy of projections as reflected in free words is the same one that is reflected in morphological structure when morphemes express the same notions as the free words]: **Chomsky (1957)/Muysken (1979), (1981)**
- **5.** *CP-DP parallelism* [There are substantive parallels in structure between noun phrases and clauses, most obviously in the case of nominalizations but also detectable in other kinds of nominals (e.g. similarities between subjects and possessors, subject to cross-linguistic variation)]: **Jackendoff (1977)**
- **6. The final over final constraint** [It is relatively difficult to embed head-final projections in head-initial ones, compared to the opposite (132 but not *231, where 1 takes 2 as a complement and 2 takes 3)]: **Biberauer, Holmberg and Roberts (2007)**
- 7. Cinque's version of Greenberg's U20 [Only one unmarked order is found prenominally for Dem, Num, and Adj, namely Dem > Num > Adj > N; ordering possibilities increase as N is further to the left in the sequence. The facts suggest (i) a universal hierarchy Dem > Num > Adj > N, where these categories exist, (ii) the possibility of leftward but not rightward movement of projections of N to derive some other orders, and (iii) the absence of such movement of adnominal modifiers alone (e.g. no information-neutral movement of Adj across Num and/or Dem unless it is in a projection containing N) (May generalize to other categories)]: Cinque (1996)
- **8.** *Functional Material Doesn't Incorporate* [Higher functional structure such as determiners and complementizers doesn't incorporate into superordinate lexical heads]: Li (1990)
- 9. **SOV scrambling** [All SOV languages allow a degree of word order freedom (scrambling); VO languages may not]: **Grewendorf & Sternefeld (1990)**?

Movement in general (not restricted to A-bar or A)

- 1. **Coordinate Structure Constraint** [Extraction from a Coordinate Structure is not possible unless it is by Across-the-Board movement (the phenomenon of pseudocoordination has to be distinguished; e.g. "What did you go (to the store) and buy?"; pseudocoordination shows characteristic properties, for example a restricted class of possible left-hand categories (cf. *"What did you walk and buy?"), extraction only from the open-class right-hand member (cf. *"Which store did you go to and buy shrimp?")]: **Ross (1967)**
- 2. **Head Movement Constraint** [Head movement doesn't cross heads. This cannot be escaped by excorporation: If X moves to Y by head-movement, then X cannot move on, stranding Y. (Clitic movement crosses heads and must be distinguished from head movement proper, i.e. head movement of complements in extended projections to their selecting projections, and of incorporees to their selecting predicates)]: **Travis (1984)**
- 3. *Movement is upward* [Movement is upward, landing in higher syntactic positions]: Ross (1967)
- 4. *Right Roof constraint* [Rightward movement is clause bounded ("the right roof constraint")] Ross (1967)

- 5. **Second position** [There are second position effects which are category-insensitive, i.e. not sensitive to the category of the element in first position, but no second to last effects which are similarly category-insensitive. (This allows for immediately pre-verbal positions in V-final structures)]: **Kayne (1994)**
- 6. **Syntactic clitic placement** [A major class of clitics (phonologically dependent items) have their location in the surface string determined by purely syntactic principles of the language (i.e. ignoring the phonological dependency)]: **Steele (1977)**

Binding Theory

- 1. **Principle B** [Pronouns, in the unmarked case, can't be locally bound (under the same A-position class of locality as for Principle A), but can be bound nonlocally]: **Chomsky (1973)**/Lasnik (1976)/Chomsky (1981)
- 2. **Principle C** [an R-expression can't be bound by (systematically corefer with) a c-commanding pronoun]: **Chomsky (1973)**/Lasnik (1976)/Chomsky (1981)
- **3. Structure relevant to binding** [The conditions on pronominal reference cannot be stated purely with linear order. The subject-nonsubject distinction plays an important role, especially for Principle A (and B to the extent that it is complementary)]: **Langaker (1966)**
- 4. **Strong crossover** [Coreference is impossible between a pronoun in an argument position and a c-commanding antecedent when the antecedent has moved across the pronoun; i.e. is the head of a filler-gap dependency where the gap is c-commanded by the pronoun. Example: "Who did he say was hungry?" Coreference impossible.]: **Postal (1971)**/Wasow (1972)
- 5. **Weak crossover** [Coreference is degraded between a pronoun and a c-commanding antecedent when the antecedent has moved across the pronoun; i.e. is the head of a filler-gap dependency where the gap is lower than the pronoun. Example: "Who did his mother say was hungry?" Coreference degraded]. **Postal** (1971)/Wasow (1972)

Arguments

- 1. **Improper movement** [A-positions (as diagnosed by case, agreement, and binding) feed unbounded dependencies (e.g. the tail of a wh-movement, relative clause formation, or topicalization chain is in an A-position). Unbounded dependencies preserve case, agreement, and binding configurations, and do not (normally) feed A-positions (i.e. they do not normally increase the possibilities for an element to enter case-agreement-relevant relations, unlike passive, raising, etc.).]: **Chomsky (1977)**?
- 2. **Control versus raising** [Obligatory control is a subject-to-subject relation (or, in some cases, object-to-subject relation) in which one referent gets thematic roles from two predicates, related to each other by nonfinite complementation; in Raising, the shared argument gets only one thematic role, from the embedded predicate.]: **Rosenbaum (1965)**
- 3. **Structural agreement** [There is a structural bias affecting agreement such that nominals higher in the clause are agreed with in preference to lower nominals, except where marked case on a higher nominal may disqualify it. (reflected in subject agreement over object agreement).]: **Aissen (1989)**
- **4.** *Grammatical Subject* [There is a distinction between grammatical subject and thematically highest argument (though traditional subject diagnostics may decompose even further)]: **Chomsky (1965)**

- 5. **Diesing's Generalization** [If uniquely referring DPs (definites and/or specifics; Milsark's "strong" noun phrases) and weak indefinites with the same grammatical function occupy different positions, then the uniquely referring DPs are structurally higher.]: **Diesing (1992)**
- 6. **Person-Case Constraint (PCC)** [Languages place strong restrictions on the use of local direct objects when a goal NP is present (NP, or DP, as opposed to PP), for example: A direct object may not be first or second person in the presence of an indirect object.] **Perlmutter (1971)**
- 7. **No NCC** [There is no number case constraint; languages do not restrict the grammatical number of the direct object when a goal NP is present.]: **Nevins (2011)**
- **8.** *Ergative subjects* [Asymmetries between arguments for purposes of unmarked word order, binding, and control work the same way in nominative and ergative languages. Clause structure in ergative and accusative languages is homomorphic.]: **Mahajan (1997)**
- Null subjects [Many languages allow pronouns to be unpronounced in certain positions under certain conditions. Where possible, these pronouns act much like overt pronouns for e.g. Binding Conditions]: Perlmutter (1971)
- 10. *High causatives* [In a morphological causative, the new causee will be higher than any argument of the base verb.]: **Baker (1988)**
- 11. *Marantz' Generalization* [In benefactive applicative constructions, the new argument will be structurally higher than the base internal argument.]: **Marantz (1984)**
- 12. *Erg Agreement is dependent on Erg case* [No language has a nominative-accusative case system and an ergative-absolutive agreement system, although matched systems are possible, and the opposite mismatch is possible (Bobaljik 2008, and typological sources)]: **Anderson (1977)**
- 13. *No Active Case* [No language has an active system of case marking, whereas active systems of agreement marking are possible. (Baker and Bobaljik in press/in progress, but well documented)]: **Mithun (1991)**?

Quantifier Raising

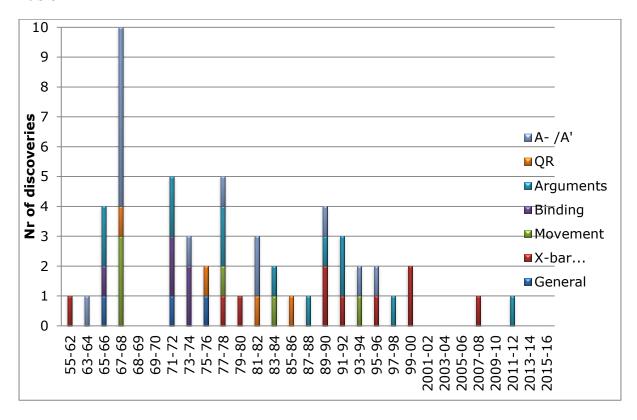
- 1. **QR** [The logical scope of natural language quantifiers (over individuals, times or situations/worlds) does not have to match their surface position. Quantifier scope is co-determined by structural factors (islands, clausal boundaries), logical properties of the quantifier (universal vs. existential) and the form of the quantificational expression (simple vs. complex indefinites).]: **Bach (1968)**, May (1977)
- **2. QR is clause bound** [The scope of (expressions corresponding to) universal quantifiers is limited by conditions identical or very similar to the conditions on A-movement (clause bounded, except in restructuring contexts).]: **May (1985)**
- 3. *Widest scope indefinites* [In many languages, morphologically simple indefinites (*some books at least one book*) may take unbounded scope, even across islands]: **(Fodor & Sag 1982)**
- 4. **Reconstruction** [Dislocated quantificational expressions can take scope below their surface position, but no lower than their base position]: **Chomsky (1976)**

A-bar. A-bar phenomena

- 1. **A-bar Unity** [A class of A-bar (filler-gap) constructions (including interrogatives, relative clauses, focus movement constructions, and operator-variable chains) show unified behavior with respect to locality and configuration]: **Chomsky (1977)**, Chomsky (1981)
- 2. *Successive Cyclicity* [Unbounded dependencies are successive-cyclic, as diagnosed by locality effects.]: Fillmore (1963)/Chomsky (1973)
- 3. **Covert A-bar dependencies** [There are operator-variable relations where the operator is low on the surface that are restricted by the same laws as A-bar dependencies, where the A-bar element is high on the surface. For example, the interpretation of *wh-in-situ* for selection and scope parallels overt *wh*-movement in a significant and fairly well-defined class of cases.]: **Huang (1982)**
- 4. *Subject-object asymmetry for A-bar* [High (preverbal) subjects are more difficult to extract than low (often postverbal) subjects in a class of cases.]: **Ross (1967)**
- 5. **Freezing** [It's harder to subextract from subjects and objects that have moved; no language will permit movement out of a moved subject or object but not out of a nonmoved one, under otherwise identical conditions.]: **Ross (1967)**
- 6. **Specifier bias in Pied-piping** [If you can pied-pipe from a complement then you can pied-pipe from a specifier.]: **Ross (1967)**?
- **7. Adjunct extraction is hard** [If a phrase is an island for argument extraction, then it is also an island for adjunct extraction.]: **Huang (1982)**
- 8. *Parasitic gaps* [An A-bar chain can license an otherwise illicit gap in an adjunct.]: Ross (1967)
- Resumptive pronouns [Resumption is by pronouns (not by dedicated resumptive particles).]: Ross (1967)
- 10. Resumptive pronoun island alleviation [Resumptive pronouns tend to alleviate island effects.]:
 Ross (1967)
- 11. *Local subject condition on resumption* [There is a class of resumption which is incompatible with local subject position.]: McCloskey (1990)
- **12.** *Left-dislocation* [Many languages allow one or more kinds of left dislocation, with systematic similarities and differences from A bar movement (e.g. lack of case connectivity).]: **Lambrecht (1994)**
- 13. *Intervention Effects (Beck Effects)* [Covert A-bar chains (i.e. in-situ wide-scope-bearing elements) cannot cross (take scope over) scope-bearing interveners.]: **Beck (1996)**

This is a chart that illustrates the discoveries by year:

Table 1



2. Suggestions for additions

Many people sent me suggestions for discoveries to be added to the list. Many of them were converging on some items. I will just list them here, randomly.

- 1. Root vs *non*-root transformations [Some transformations can only take place in root environments.]: **Emonds (1969)**
- 2. Accessibility hierarchy for relativization [see also the Agent asymmetry above]: **Keenan & Comrie** (1972)

X-bar theory, categories, and headedness

- 1. C-command: **Klima (1964)**/Reinhart (1976)
- 2. COMP/C: Bresnan (1972)

Movement in general (not restricted to A-bar or A)

- 1. Remnant movement: **Tiersch (1985)**
- 2. Principle of Minimal Compliance: Richards (1989)
- 3. Minimality/Relativized Minimality: Chomsky (1986)/Rizzi (1990)
- 4. Clitic doubling voids A-minimality effects: Anagnostopoulou (2003)

Arguments

- 1. VP-shells: **Chomsky (1955)**/Larson (1988)
- 2. Non-nominative subjects [Non-nominative subjects behave like structural subjects]: **Andrews (1976)**
- 3. Split subject position/two subject positions: **Schachter (1976)**/Guilfoyle
- 4. Exceptional Case Marking: Chomsky (1981)

QR

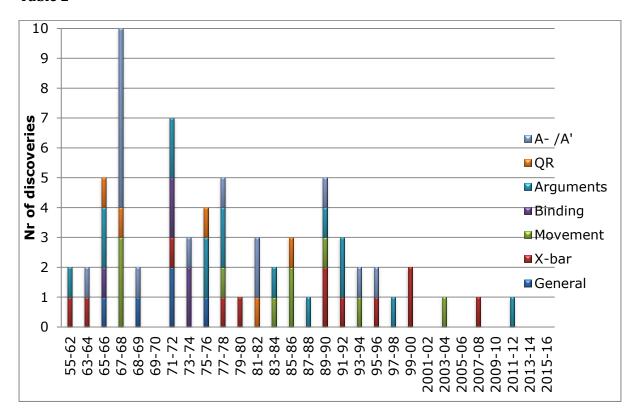
1. Quantifier lowering is subject to island constraints: **Lakoff (1965)**/(1970)

A-bar. A-bar phenomena.

1. Some kinds of sluicing ameliorates islands: **Ross (1969)**

This chart includes the suggestions:

Table 2



3. Some comments on the time charts

Table 1 (as well as Table 2) shows that the most important and generally accepted discoveries, or observations, were made between 1955 and 1992. 1999 is a particularly happy year, because of Cinque's hierarchy (which in the list is counted twice, once as a general hierarchy for tense and aspect, once for adverbs, but it might actually boil down to one).

After 1990, we see a steady discovery rate of 1 or 2 items per biennium. From 2001 onwards, there is almost nothing. This might be due to the fact that of course discoveries or observations

need to be tested and take some time before they get accepted as true. The impression that I have, however, is that that's not the whole story. The wealth of discoveries in the 60s and 70s, in the times of early generative grammar, is never repeated later. During the *Government and Binding* era, we still have a stable 'discovery-rate'. After the publication of the *Minimalist Program*, we see much less happening.

We could ask ourselves why that is the case. One possible answer could be that the advent of the *Minimalist Program* has shifted the object of investigation from languages to language. The biolinguistic program has focused on the Faculty of Language, which is defined in cognitive terms much more than Universal Grammar was. Of course, in both cases we are trying to understand how our grammatical/computational system looks, under the assumption that we have one. The image of this language acquisition device has, however, changed radically from the GB years to the biolinguistics years, and so has the methodology to investigate it.

In GB, linguists (syntacticians) were busy trying to find similarities across languages, to identify parameterized principles that could account for the limits of syntactic variation. These parameterized principles were considered as part of the UG; X-bar was considered as genetically endowed, something underlying every grammar, the essence of our computational system.

The MP, and biolinguistics in particular, have been concerned with understanding whether the computational basis of language is common to other cognitive faculties or not. The discussion revolves around Merge and animal language, but not so much around wh- movement or head directionality. Yes, there might be something that guides humans to fix head directionality, but that is because of interface requirements (among which, ease of computing dependency between heads that are harmonically aligned vs heads that are not); there is certainly something that allows some languages to drop the subject, but that too is irrelevant to understand the nature of the faculty of language, and is ultimately an interface condition (or a set of conditions interacting).

The "macroparametric"/classical approach has been replaced by the Borer-Chomsky conjecture (Baker 2008): we need to learn the lexicon, we also learn the "parameters" attached to each functional head. Why these microparameter cluster is almost always still a mystery, but we don't really care as this is not really relevant for our understanding of language.

There is, now more than ever, a divide between those syntacticians whom a famous biolinguist recently defined "philologists", who occupy themselves with generalizations about languages, and biolinguists, who occupy themselves with generalizations about language. There's nothing bad about this divide, other that we are leaving generalizations about languages aside as if we understood everything about it, and we don't.

In general, "interface conditions" are a shorthand for "outsourcing": we leave it to morphologists and phonologists to solve puzzles (like linearization, focus, etc) that were once the syntacticians' object of inquiry. But phonologists and morphologists are mostly preoccupied with other issues, and do not worry about these. So we don't get to see many strong and interesting generalizations and "results" anymore.

A connected issue is that we doom most of the empirical discoveries that come from other fields as not relevant. Psycholinguistics has evolved into a very strong field, but we rarely take their observations seriously. Discarding everything as irrelevant is dangerous, and is bringing us to isolation. Theoretical approaches to language are less and less prominent, linguistics is moving towards a scarily vacuous empiricism: we need to reach out, listen to what other fields and linguistic subfields have to say, and try to incorporate their insights (when possible), while at the same time proposing integrated methodologies which can help our enterprise.

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