Adjunction in minimalism: Ideas and ideals

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Overview

1. Recall: adjuncts in GB
2. The minimalist turn
3. Adjunction in minimalism
4. Conclusion
Progress

1 Recall: adjuncts in GB

2 The minimalist turn

3 Adjunction in minimalism

4 Conclusion
Recall: adjuncts in GB

In X-bar theory:

```
XP
  Spec X'
    X'
      X' Adjunct
        X Comp
```

Adjunct rule: $X' \rightarrow (ZP) X' (ZP)$

- sister to and daughter of $X'$
- recursive
Examples (Carnie 2013)

(1) the book of poems with a red cover

```
NP
   Det the
   N' book of poems
      PP with a red cover

Adjunct: [PP with a red cover]
Complement: [PP of poems]
```
Examples (Carnie 2013)

(1) the book of poems with a red cover

NP

Det
the

N’

N’

PP

with a
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Complement: [PP of poems ]
Adjunct: [PP with a red cover ]

book of poems
(2) I loved the policeman intensely with all my heart.

```
VP
  | V'
  V'
  | V'
  NP
  V
  loved

AdvP
  intensely

PP
  with all
  my heart

Complement: [NP the policeman]
Adjuncts: [AdvP intensely]
Adjuncts: [PP with all my heart]
```
Examples (Carnie 2013)

(2) I loved the policeman intensely with all my heart.

\[
\begin{align*}
\text{VP} & \\
& \text{V'} \\
\text{V'} & \\
& \text{AdvP} \\
& \text{V'} \\
\text{V} & \text{NP} \\
\text{loved} & \text{the policeman} \\
\end{align*}
\]

Complement: \([\text{NP the policeman}]^1\)

Adjuncts: \([\text{AdvP intensely}]\)
\([\text{PP with all my heart}]\)

\(^1\text{NB: in current parlance this is a DP.}\)
Complements vs. adjuncts

In contrast to complements, complements complete the meanings of heads while adjuncts add optional information. Especially true for verbs; e.g., I loved *(the policeman) (intensely).* Complements are structurally closer to heads than adjuncts. So adjuncts but not complements may be reordered; compare:

- the book *[of poems] [with a red cover] [by Robert Burns]*
- the book *[of poems] [by Robert Burns] [with a red cover]*
- *the book [by Robert Burns] [of poems] [with a red cover]*
Complements vs. adjuncts

- Complements complete the meanings of heads while adjuncts add optional information.
  - Especially true for verbs; e.g., *I loved *(the policeman) *(intensely).*
Complements vs. adjuncts

- Complements complete the meanings of heads while adjuncts add optional information.
  - Especially true for verbs; e.g., *I loved *(the policeman) *(intensely).*
- Complements are structurally closer to heads than adjuncts.
  - So adjuncts but not complements may be reordered; compare:
  
  the book [of poems] [with a red cover] [by Robert Burns]
  the book [of poems] [by Robert Burns] [with a red cover]
  *the book [by Robert Burns] [of poems] [with a red cover]
Complements vs. adjuncts

- Adjuncts but not complements can iterate.
  
e.g., *the book [of poems] [of fiction] with a red cover
Complements vs. adjuncts

- Adjuncts but not complements can iterate.
  e.g., *the book [of poems] [of fiction] with a red cover
- Complements and adjuncts are constituents of different types.
  - So they cannot be conjoined; compare:
    the book of poems [with a red cover] and [with a blue spine]
    *the book [of poems] and [by Robert Burns]
Complements vs. adjuncts

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  - So they cannot be conjoined; compare:
    the book of poems [with a red cover] and [with a blue spine]
    *the book [of poems] and [by Robert Burns]
- Some constituency tests (e.g., one, do so) must include complements
  but may exclude adjuncts.
  e.g., the book of poems with a red cover ➔
  the one, the one with a red cover
  *the one of poems with a red cover
Interim summary

- Adjuncts are a very common type of constituent in human language. They are everywhere.
- In GB adjunction was treated as a special PS rule (schematized into X-bar theory).

... and the existence of such a rule was taken for granted.
Progress

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3. Adjunction in minimalism

4. Conclusion
The minimalist turn (Chomsky 1995)

As X-bar theory got superseded by bare phrase structure (BPS), many aspects of adjunction had to be rethought. In particular,
- How to recover its structural/relational definition without X-bar?
  - sister to and daughter of $X'$ ➔ ?
- How to maintain the complement vs. adjunct distinction?
  - distance from head, iterability, etc.

All such “basic facts” became new explicanda.
In earlier papers . . . X-bar theory is presupposed, with specific stipulated properties. Let’s now subject these assumptions to critical analysis, asking what the theory of phrase structure should look like on minimalist assumptions . . . .

—Chomsky (1995:242)
Bare phrase structure

In earlier papers . . . X-bar theory is presupposed, with specific stipulated properties. Let’s now subject these assumptions to critical analysis, asking what the theory of phrase structure should look like on minimalist assumptions . . . .

—Chomsky (1995:242)

- Output conditions make only minimal/maximal projections available.
- X’ is invisible at the interface and for computation.
- There is only one structure-building operation: Merge.
- Merge is simply (labeled) set formation.
Bare phrase structure

Phrase structure theory is essentially “given” on grounds of virtual conceptual necessity . . . . The structures stipulated in earlier versions are either missing or reformulated in elementary terms satisfying minimalist conditions, with no objects beyond lexical features. Stipulated conventions are derived . . . phrase structure theory can be eliminated entirely, it seems, on the basis of the most elementary assumptions.

—Chomsky (1995:249)

So BPS is a minimalist move par excellence. It provides a good model for other minimalist (re)theorizations to follow.
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Adjunction in minimalism

Three major approaches:

1. **Axiomatic:** defined as a special rule (as in GB)
2. **Derivational:** reduced to a side effect of procedural computation (typical in transformational grammar)
3. **Lexicalist:** reduced to the property of a functional category (an appealing trend)

In the remainder of this minilecture I briefly introduce and evaluate the three approaches.
Axiomatic approach to adjunction I

Chomsky (1995): adjunction is distinguished from complementation by the shape of its label

- Complementation: $\text{Merge}(\alpha, K) = \{ H(K), \{ \alpha, H(K) \} \}$
- Adjunction: $\text{Merge}(\alpha, K) = \{ \langle H(K), H(K) \rangle, \{ \alpha, H(K) \} \}$

NB: complementation and adjunction are created by the same operation Merge and only differ in labeling.

\[ ^2 \text{This is a “two-segment category” in Chomsky’s (1986) terms} \]
Axiomatic approach to adjunction II

Chomsky (2000, 2004): adjunction is created by a different type of Merge, called “pair Merge”

- Complementation: $\text{Merge}(\alpha, \beta) = \{\gamma, \{\alpha, \beta\}\} (\gamma = H(\beta))$
- Adjunction: $\text{Merge}(\alpha, \beta) = \{\gamma, \langle\alpha, \beta\rangle\}$

NB: this time the shape of label stays the same.
Chomsky (2000, 2004): adjunction is created by a different type of Merge, called “pair Merge”

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NB: this time the shape of label stays the same.

The ordered pair brings out the “inherent asymmetry” in adjunction.

- Chomsky (2004): the adjunct is merged “on a separate plane”
Axiomatic approach to adjunction

The pair-Merge-based approach to adjunction is the current standard in the minimalist program. It is axiomatic in that pair Merge cannot be reduced to anything else in the theory.

- An axiom is a statement that is taken to be true, to serve as a premise or starting point for further reasoning and arguments. (Wikipedia)
- “Adjunction is created by pair Merge” is an axiom in minimalism.
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- An axiom is a statement that is taken to be true, to serve as a premise or starting point for further reasoning and arguments. (Wikipedia)
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There is nothing wrong with the axiomatic approach—other than that it is axiomatic... 
- part of the minimalist spirit is to reduce the number of stipulated premises
- e.g., X-bar → BPS
Derivational approach to adjunction I

Hornstein & Nunes (2008): adjunction is unlabeled merger³

- \([X X^Y]^Z\) adjunction

³Hornstein & Nunes use the term “concatenation,” which is basically Merge.
Hornstein & Nunes (2008): adjunction is unlabeled merger

- $[x \ X^Y]^Z$ adjunction

H&N allow elements in an unlabeled merger to participate in further Merge (called “reconcatenation”); e.g.,

- $[w \ W^/[x \ X^Y]]^Z$ $\downarrow$ $Z$ is a “dangling off” adjunct

(see also Hornstein 2009)

---

3Hornstein & Nunes use the term “concatenation,” which is basically Merge.
Derivational approach to adjunction II

Oseki (2015): adjunction is unlabeled merger plus compulsory Transfer (i.e., spell-out) “two-peaked” structure

```
  WP
   W  ZP
    Z  XP  YP (= Adjunct)
```

this peak must be transferred
The basic idea in H&N (2008) and that in Oseki (2015) are the same:

1. Some merger $\mu$ is not labeled
2. $\mu$ cannot be input to further Merge
3. One of $\mu$’s components participates in further Merge; the other = “adjunct”
Derivational approach to adjunction

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They mainly differ in the motivation of step 3:

- H&N: axiomatic (by definition of “atom”)
- Oseki: only possible upon Transfer of the adjunct peak
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This approach is derivational in that it relies on the procedural implementation of syntactic operations (e.g., Merge, Label, Transfer).
Derivational approach to adjunction

There are a number of problems in H&N’s and Oseki’s proposals, but a most prominent one is their resort to multidominance.
Derivational approach to adjunction

There are a number of problems in H&N’s and Oseki’s proposals, but a most prominent one is their resort to multidominance.

**Multidominance**

A single node is simultaneously dominated by two or more nodes.

- H&N: $[_{w} W^\{_{x} X^\{Y]\}Z$
- Oseki: $[_{wp} W^\{_{zp} Z^\{XP]\}YP$
Derivational approach to adjunction

There are a number of problems in H&N’s and Oseki’s proposals, but a most prominent one is their resort to multidominance.

**Multidominance**

A single node is simultaneously dominated by two or more nodes.

- H&N: \([_{W} W^{{[_{X} X^{Y}]}^{Z}}]\]
- Oseki: \([_{WP} W^{{[_{ZP} Z^{XP}]}^{YP}}]\]

Multidominance is set-theoretic intersection:

- \([W, \{X, Y\}] \cap \{\{X, Y\}, Z\} = \{X, Y\}\]
- \([W, \{Z, XP\}] \cap \{\{Z, XP\}, YP\} = \{Z, XP\}\]
Derivational approach to adjunction

There are no operations “form copy” or “remerge,” just simple Merge. . . . The concepts of multidominance, “late Merge,” and some others postulate an extension of Merge.

—Chomsky (2013:40)

Recall: part of the minimalist spirit is to reduce the number of stipulated premises (i.e., axioms) in syntactic theorization

- favor simple Merge over a menagerie of Merge-y operations
- (a glaring outlier: pair Merge)
Lexicalist approach to adjunction

Rubin (2003): all adjuncts are introduced via a dedicated functional category Mod, which triggers pair Merge

- similar to functional shells for clauses (C) and nominal phrases (D)
- $[\text{ModP} \ \text{Mod} \ [\text{YP} \ \text{“Adjunct”}]]$

Rubin’s proposal is motivated by his dissatisfaction with the axiomatic approach.
Lexicalist approach to adjunction

For Chomsky (2001), adjunction necessarily involves pair-Merge. . . . [I]t is crucial to ask how . . . NS determines that pair-Merge is appropriate for adjuncts. We need to avoid circularity here, so we cannot simply say that we want adjuncts to be adjuncts [and therefore] invoke pair-Merge, which creates adjuncts. Before any two expressions are merged, relational terms such as adjunct, complement, and specifier are premature. Another way to understand the same question is to ask why set-Merge couldn’t create adjuncts.

—Rubin (2003:663)
Lexicalist approach to adjunction

Rubin’s evidence: dedicated modifier markers

(3) \( nà \ yì-bĕn \ [\text{ModP} \ [ \text{zài} \ zhuōzi \ shàng ] \ [\text{Mod} \ *(de) ]] \ shū \ [\text{Mandarin}] \)

that one-CL be at table top MOD book

‘that book on the table’

(4) \( bahay \ [\text{ModP} \ [\text{Mod} \ *(na)] \ [ \text{maganda} ]] \ [\text{Tagalog}] \)

house MOD beautiful

‘the beautiful house’

These could be exponents of Mod.
Lexicalist approach to adjunction

Rubin’s evidence: dedicated modifier markers

(3) \( \text{না যিবেন [ModP [ \text{在} zhūōzi shàng ] [Mod *(de) ]] shū [Mandarin]} \)
  \( \text{that one-CL be at table top MOD book} \)
  ‘that book on the table’

(4) \( \text{bahay [ModP [Mod *(na)] [ maganda ]] [Tagalog]} \)
  \( \text{house MOD beautiful} \)
  ‘the beautiful house’

These could be exponents of Mod.

- NB: the word order variation (Adjunct≺Mod vs. Mod≺Adjunct)
- reminiscent of head-complement linearization parameterization
- e.g., ENG watch TV vs. JAP terebi-o miru ‘TV-ACC watch’
Lexicalist approach to adjunction

Rubin’s proposal is in line with a recent trend in minimalism:

**Borer-Chomsky conjecture (Baker 2008)**

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

Rubin’s proposal is in line with a recent trend in minimalism:

**Borer-Chomsky conjecture (Baker 2008)**

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

In fact not only parameters but also core syntactic mechanisms have been gradually “lexicalized”; e.g.,

- Merge $\rightarrow$ edge feature
- Agree $\rightarrow$ unvalued features
- Move $\rightarrow$ EPP feature

Mod may be another member in this trend.

- Adjoin $\rightarrow$ MOD feature?
Glitches in Rubin’s proposal

1. It does not replace but merely triggers pair Merge.
   - So it is at best semilexicalist (or semiaxiomatic)
Glitches in Rubin’s proposal

1. It does not replace but merely triggers pair Merge.
   - So it is at best semilexicalist (or semiaxiomatic)

2. Mod merges twice but only triggers pair Merge in the second step (Arsenijevic & Sio 2009)
   - So Rubin’s proposal crucially relies on bar-level information (antiminimalist!)
Glitches in Rubin’s proposal

3. Mod lacks substantive C-I basis
Glitches in Rubin’s proposal

3. Mod lacks substantive C-I basis
   - Mod does have semantic content but it is purely type-theoretic

\[
\begin{align*}
\text{XP} & \langle e, t \rangle \\
\text{(Adjunct} & =) \text{ ModP} & \langle \langle e, t \rangle, \langle e, t \rangle \rangle \\
\text{Mod} & \langle \langle e, t \rangle, \langle \langle e, t \rangle, \langle e, t \rangle \rangle \rangle \\
\text{YP} & \langle e, t \rangle (\text{=} \text{ Adjunct core})
\end{align*}
\]
Glitches in Rubin’s proposal

3 Mod lacks substantive C-I basis
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\begin{align*}
\text{XP}\langle e, t \rangle & \\
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\text{Mod}\langle\langle e, t \rangle, \langle\langle e, t \rangle, \langle e, t \rangle \rangle \rangle & \\
\text{YP}\langle e, t \rangle ( = \text{Adjunct core})
\end{align*}
\]

This makes Mod fundamentally different from other functional categories (e.g., C, D, T), which all have conceptual basis.

- C: discourse, D: referentiality, T: anchoring
- (see Wiltschko 2014 for a full proposal)
Glitches in Rubin’s proposal

Rubin lets Mod denote \( \langle \langle e, t \rangle, \langle e, t \rangle, \langle e, t \rangle \rangle \) because the structure needs that. This brings us back to the same kind of circularity that Rubin started criticizing. . .

We need to avoid circularity here, so we cannot simply say that we want adjuncts to be adjuncts and therefore invoke pair-Merge, which creates adjuncts.
Progress

1. Recall: adjuncts in GB
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Approaches to adjunction

GB: a special rule of the “base”

- $X' \rightarrow (ZP) X' (ZP)$

Minimalism: various new ideas upon the elimination of X-bar

1. Axiomatic (standard): pair Merge
2. Derivational: unlabeled merger + remerge
3. Lexicalist: dedicated functional category (“adjunct shell”)

However, none of these ideas is perfectly minimalist in spirit.
Approaches to adjunction

GB: a special rule of the “base”
  - $X' \to (ZP) X' (ZP)$

Minimalism: various new ideas upon the elimination of X-bar
  1. Axiomatic (standard): pair Merge
     - stipulated premise, taken for granted
  2. Derivational: unlabeled merger + remerge
     - multidominance (and numerous technical problems, see Song 2019)
  3. Lexicalist: dedicated functional category (“adjunct shell”)
     - Mod is not an efficient solution
Recall: Chomsky’s question

What should the theory of phrase structure look like on minimalist assumptions? (Answer: BPS)

We can ask the same question for adjunction...
What should a minimalist theory of adjunction look like?
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1. It should invoke as few extra (e.g., adjunction-specific) axioms as possible (ideally none).
   - Do not stipulate! Derive instead.
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1. It should invoke as few extra (e.g., adjunction-specific) axioms as possible (ideally none).
   - Do not stipulate! Derive instead.

2. It should control the overall complexity of the theory.
   - e.g., How many modules of the language faculty are involved (narrow syntax only or also the interfaces)?
   - A mechanism as fundamental as adjunction (like Merge) is unlikely to be an interface (e.g., spell-out) effect. It is indeed in the base (as in GB).
What should a minimalist theory of adjunction look like?

- It should avoid deviation from existing minimalist tenets (inasmuch as those are justified).
  - e.g., simple Merge, binary branching, interface condition
  - the more deviation, the heavier the explanatory burden
What should a minimalist theory of adjunction look like?

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4. If it additionally converges with results from other domains of minimalist theorization, that is even better!
   - e.g., Borer-Chomsky conjecture, feature-centrism
What should a minimalist theory of adjunction look like?

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5. And of course it should explain all empirical facts about adjuncts.
   - e.g., asymmetry, islandhood, optionality, iterability
How far are we from the minimalist ideals?
How far are we from the minimalist ideals?

<table>
<thead>
<tr>
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The standard minimalist approach (pair Merge) still wins out. But the lexicalist approach has more potential beyond Rubin’s proposal! (See Song 2019 for an alternative lexicalist proposal.)
How far are we from the minimalist ideals?

## Table of Ideals

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(See Song 2019 for an alternative lexicalist proposal.)
Thank you!
Selected bibliography 1

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- **Rubin, Edward**
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