Q in the A domain: A solution with Multiple Projection

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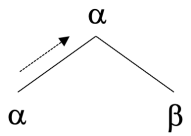
1 Introduction

- In this talk I will discuss feature projection of the Q head within the A-domain

- **Chomsky 1993:** when two elements Merge, one of them projects its features.
- **Single Projection**



- α and β encode bundles of morphosyntactic features.

- In this talk, I will argue for a modification of the projection algorithm to allow for both features of the daughter nodes to project in some cases
- The primary motivation for this idea will come from the syntax of *questions* [1]

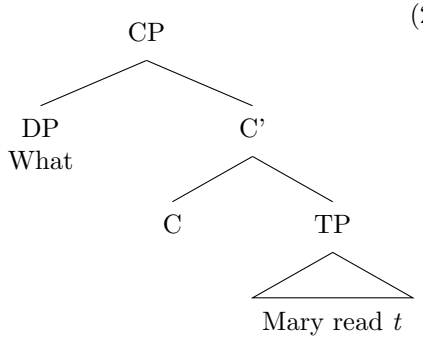
[1]This handout reports on work in progress. We are especially grateful to Juan Uriagereka, Norbert Hornstein, and Masha Polinsky for discussion. We also thank Kenyon Branon, Jeff Lidz, Malhar Shah, and the UMD syntax Lab

2 Background: Q and Projection of Q

- Cable 2007 put forward an influential proposal that the syntax of *wh*-questions is universally richer than it seems (cf. Hagstrom 1998).

Traditional Syntax Cable system

(1)



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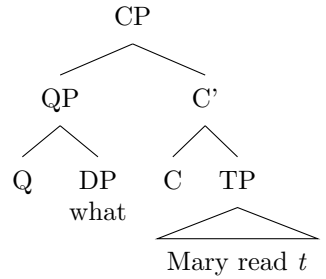


2.1 The Q particle and standard assumptions

- A range of data motivate the existence of a Q head in the structure
- In some languages, the Q head is overtly realized. Cable (2007, 2010)

(3) **Tlingit**

a. [Daa **sá**] aawaxaa i éesh?
what Q he.ate.it your father
'What did your father eat?'

b. [Aa **sá**] [daa **sá**] aawaxáa?
who Q what Q they.ate.it
'Who are what?'

(4) **Structure for 3a**

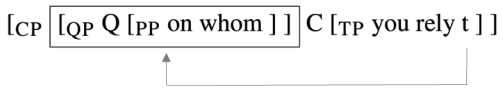
[[QP daa Q]1 C [TP [VP t1 aawaxaa] i éesh]]]

In addition: a question syntax with Q allows for a natural theory of pied-piping.

- A constituent larger than just the *wh* can front. For example:

(5) **Pied-piping**
[On whom] do you rely __?

(6) **Structure for 5**

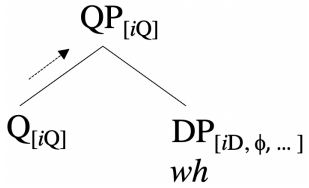


Next: I will discuss a puzzle when A movement precedes A′ movement.

3 Theoretical Puzzle

Recall The standard theory of QPs:

(7) In the traditional syntax, Q alone projects its feature.



Observe: Q and D features *divide* between positions.

- The features targeted in A- and A′-movement are situated on separate nodes within the QP.
- A-movement is triggered by a ϕ-probe on T, whereas A'-movement is triggered by a [uQ] probe on C, (Pesetsky and Torrego 2001, Van Urk and Richards 2015, Hewett 2025.)
- The QP bears an [iQ] feature, while the *wh*-DP bears ϕ-features.

Within a this theory of QPs we run into a problem with subject questions in English. Take the subject question in 8.

- The problem comes when a step of A-movement precedes A′-movement.

(8) Who seems to be smart

- The raising predicate in 8 is suggestive of A movement.

Lets take an example with a bound pronoun

(9) Who$_j$ seems to himself$_j$ to be smart.

- A movement creates new binding possibilities but A′ doesn't.
- *who* binds *himself* without a crossover violation suggesting an A movement step before the A′ step.

Diagnosing A′ movement

(10) Who the hell seems to himself to be smart.

- The Wh-phrase contains *the hell*, indicates A′ movement (Ginzburg and Sag 2000, Pesetsky and Torrego 2001)

In general the *the hell* is only licensed when the Wh phrase undergoes fronting, shown in the following contrast.

(11) Who the hell did Mary see?
(12) *Who saw who the hell

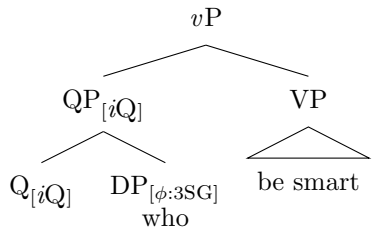
- *The hell* is licensed in the example under consideration.

Now lets play out how the derivation will go once we put Q into the structure.

Consider the parse if Q alone projects:

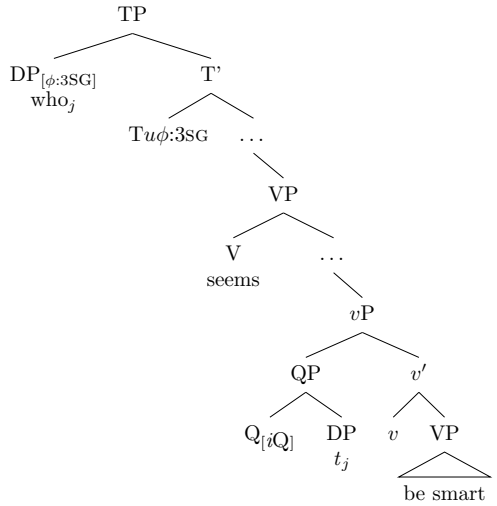
- The embedded vP would have the base structure in 13
- QP in spec of vP, Q alone projects leaving the Q feature on the top node and the ϕ feature of *who* are on the DP complement of Q

(13)



Next: Lets play out the derivation for A-movement.

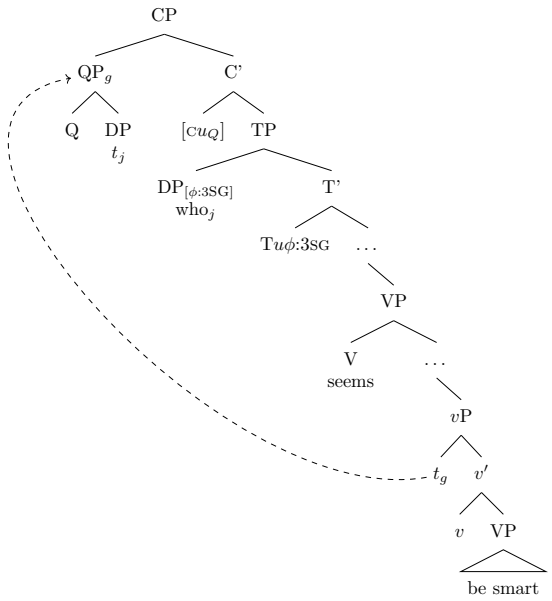
(14) Who seems to be smart.



- Probe looks for ϕ features
- The A-movement attracts the DP and strands the Q in situ

Next: Lets play out the A′ movement step.

(15)



- The A movement stranded the QP.
- DP gets left in the position it raised to.
- The QP has to remnant move.

3.1 Consequences of this prediction

The derivation appears to be off target.

- The key consequence of having the DP and QP end up in separate positions is that the DP is not fronted.

- Inconsistent with *the hell* data, which showed the DP is fronted in subject questions.

Moreover: morpheme order in Tlingit is suggestive of the *wh* fronting with Q.

- In subject questions in Tlingit the Q particle *sà* appears to the right of the DP.
- If Q fronted alone, it should surface to the *left* of the wh.

(16) Aadóoch sá kawshixít yá x'úx'?
who Q wrote this book
'Who wrote this book?'

- The observed word order is expected if the *wh* moves with Q.
- The goal is to find a derivation that allows the DP and QP to front as a unit.

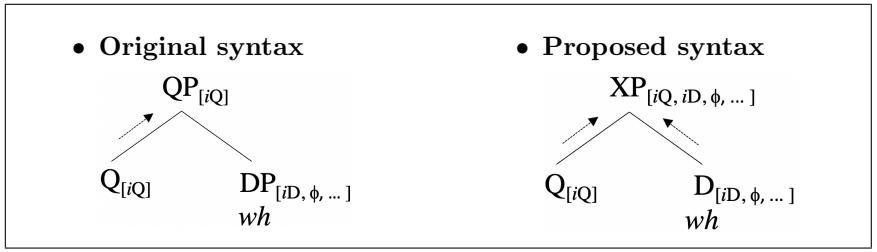
Hence, the target derivation is one in which the QP and DP front together.

(17) **Target result (≈)**
[$_{CP}$ [$_{QP}$ aadóoch Q] C [$_{TP}$ t_1 T [$_{vP}$ t_1 kawshixít yá x'úx']]]

Next: I will explore an idea that solves this problem with a modification to the projection algorithm.

4 Solution with Multiple Projection

Recall: Chomsky 1993 one feature projects to the explusion of the other. We propose a second mechanism for projection



- We take it that when Q and its sister merge, the features of *both* project, following Branan and Erlewine 2023, (see also e.g. Cole, Hermon, and Sung 1993, Citko 2008 for similar mechanisms).
- The mother node inhertis all D-related features projected from *who* along with [iQ] projected from Q.

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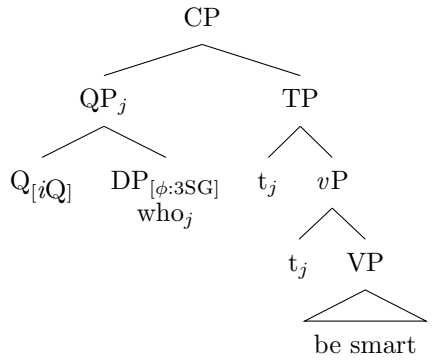


This same projection algorithm can also offer a solution to a family locality problems that arise when Q and DP are on separate nodes. Consider: Selection and Case.

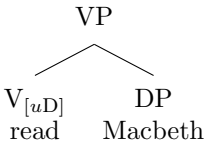
4.1 Selection

Selection is a local process where a head selects for its complement

- Consider example 19.

- Cateogry features are considered to be checked sister to sister.

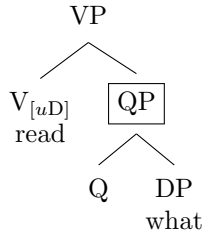
(19) Amy read Macbeth



Problem: When we integrate QP into the structure, the QP should intervene for selection, (noted in Cable 2007, Safir 2019, see also Branan and Erlewine 2023).

(20) What did Amy read?

(21) **Structure of the VP**



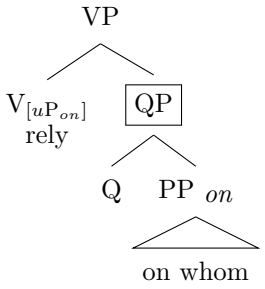
- But, the question is licit, so selection must take place.

Further evidence that selection is unaffected by QP comes from prepositions.

(22) Baseline of rely
  a. I rely on Amy.
  b. *I rely { of, at, from, ... } Amy.

(23) Question variant
  a. On whom do you rely?
  b. *{Of, at, from, ... } whom do you rely?

(24) Structure of the VP



4.2 Case licensing

- I will walk through consequences of Q in the structure for two theories of Case, one where case is assigned based on position, and the other dependent case.

Observe: Subject and object DP receive the same case in questions as in declaratives.

(25) Who saw whom?

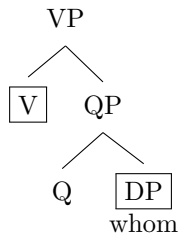
Problem accusative case assignment should be interupted by Q depending on the theory.

- **Positional case:** a DP is case licensed in a particular position (Chomsky 1981)

(26) **Licensing condition:**
DP → ACC if DP is complement to V.

- However, with Q the DP itself, is not complement to V.

(27) Syntax of the VP

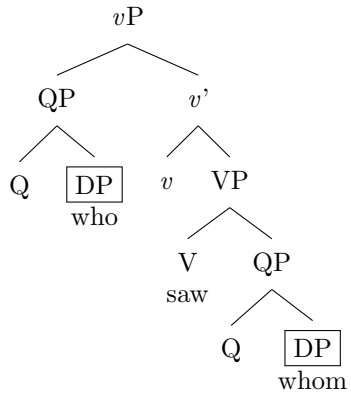


Dependent case: case depends on the relative position of DPs (e.g. Marantz 1991).

- **Licensing condition**
  DP → ACC if DP is (locally) c-commanded by another DP.
- However: with Q, the two DPs are not in a c-command relation.

As with selection: In the multiple wh-question above, the QP layers should disrupt configurations for case, but it does not.

(28) Structure of the VP



These problems are solved with multiple projection.

4.3 Multiple Projection

With Multiple Projection: recall that Q- and D-related features are co-projected.

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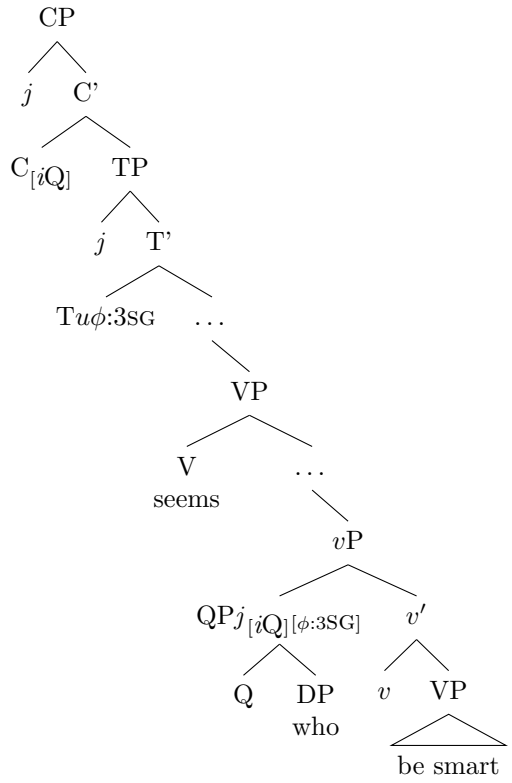
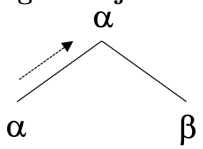


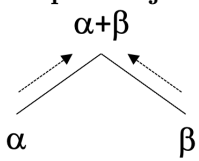
5 Constraining the mechanism

At this point: we have (at least) *two* mechanisms of projection in the syntactic grammar.

- **Single Projection**



- **Multiple Projection**

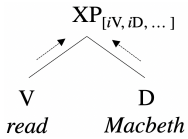


- But, in many cases, Multiple Projection seems to be unavailable.

A possible constraint on what consituent restrictions apply to multiple projection

- We want to constrain MP to avoid the following.

(30) By Multiple Projection



- This would allow for the the following, which is bad.

(31) a. Amy read Macbeth.
b. *See Amy read Macbeth.

Hence, in this case: Multiple Projection must be blocked in favor of Single Projection.

5.1 A possible constraint

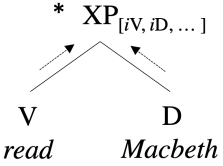
Possibility: to posit a constraint on what mix of features a given node can bear.

(32) **Category constraint**: A given node can only bear one major category feature.
a. *Major category features*
C, T, *v*, V, D, ...
b. *Other features*
Q, ϕ, ...

Given the constraint: with the verb and object, Multiple Projection is blocked.

(33) Amy will [read Macbeth].

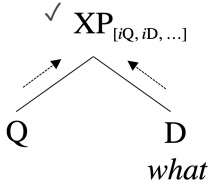
(34) **Multiple Projection (illicit)**



Hence: Multiple Projection is licit only if one daughter lacks a major category feature.

(35) What did Amy read?

(36) **Multiple Projection (licit)**



- The only projected major category feature is projected from D.

Possible diagnostic: a major category feature is one that can be selected for.

- Features like V and D are each selected for.

(37) **Structure for Mary will read Macbeth**

[$_{TP}$ Amy$_1$ will [$_{vP}$ t$_1$ v [$_{VP}$ read Macbeth]]]]

- T: [*uv*]
- *v* [*u*V]
- *see* : [*u*D]

- On the other hand, no predicate ever selects for Q. Non-existent:

(38) **Hypothetical verb** *blick* : [*u*Q]
  a. What did you blick?
  b. *I blicked the book.

With the constraint: Multiple Projection is quite narrowly restricted where it can apply.

Next: I will discuss a potential alternative.

6 An alternative

There is a potential alternative analysis that would be based on derivational timing.

- One version of how it could go would be based on counter cyclic merge.
- Only after the A movement, does the Q merge into the A′ position. Safir 2019, Hewett 2025, Johnson 2009.

With this kind of derivation, the A/ A′ problem solves itself in the sense that Q is not present in the structure when A movement takes place.

- For Safir: The Q would not be there even at the point of A′, but would merge *after* A′ -movement.
- For Hewett: Slightly different timing: When phrase moved to subject position, then Q layers through parallel merge, then link the QP to CP

Both these strategies are plausible, but in their current form, each requires the presence of Q to be linked to A′ movement.

Evidence from Tlingit suggest Q is can appear without (A′)-movement.

(39) **Wh-indefinite**

Tlél [goodéi sá] xwagoot.
not where.to Q I.went

'I didn't go anywhere?'

- Based on this evidence, there is a choicepoint to either
  - Make the timing more fine grained to allow Q to be in an A position.
  - This has the potential to recreate the original problem derivation, and would require a constraint to merge Q *only after* all A-movement has taken place.
  - In order to capture the data with LM you would need a constraint on movement, but still allow Q to merge into the A-position.
- MP takes the Wh-indefinite data seriously as evidence that Q is present throughout the derivation.
- On this basis, we have revised the syntax so that we capture A/A′ problem without having to negotiate on the presence of Q.

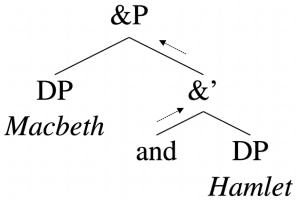
7 Conclusion

This talk:

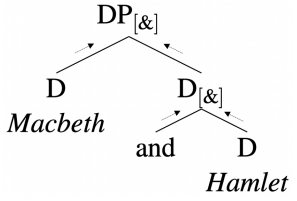
- QP and DP front together.
- Tlingit Wh- indefinite data show Q exists throughout the derivation.
- Multiple Projection of the features associated with Q and DP allow for the QP to front as a constituent.

A possible extension of multiple projection could account for some coordinate structures.

- **Single projection**



- **Multiple Projection**



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