

# Exfoliating the implicational universal in complementation

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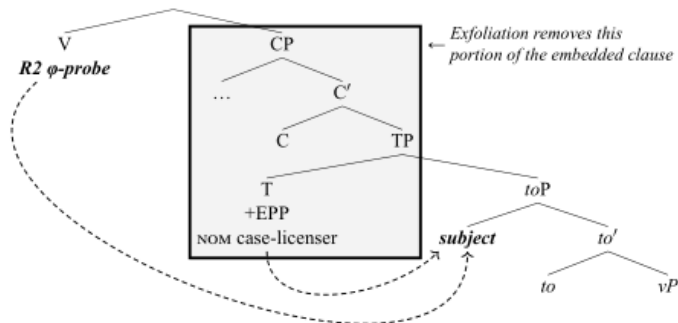
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# Background

Pesetsky (2019) proposes a theory in which nonfinite clauses start out as full and finite. They are rendered nonfinite by the syntactic operation *Exfoliation*, which peels away the outer layers of the clause, leaving the subject to occupy its edge, which is then extracted.

## A fuller picture of infinitive-producing Exfoliation



(a) Figure 1: Exfoliation at work (Pesetsky (2019))

# Background

Under this account, *to* is pronounced in a raising, or control sentence, because the phasehood of CP moves to toP, under the Exposure Condition:

- (1) Exposure: The functional head *to* is exposed iff it heads a phase and does not retain a specifier.
- (2) Exposure Condition: A functional head is overt only if exposed.

Because the subject is extracted, toP no longer retains a specifier. Under Exfoliation, the prediction is therefore that all raising and control complements in English are as large as toP.

# Problems

In this talk, I plan to give three empirical arguments for raising and control complements being as large as CP.

- (3) The implicational universal in complementation (Wurmbrand & Lohninger (2019))
- (4) The existence of *tough*-constructions in English, which involve A'-movement (Chomsky (1977))
- (5) A comparison with Hindi nonfinite clauses, which are never larger than TP (Keine (2020))

But I propose that this need not mean we give up Exfoliation; I propose an account which allows us to get these facts if we eliminate the Exposure Condition.

# Implicational universal in complementation

Wurmbrand & Lohninger (2019) provides convincing empirical data that control complements can in fact have CP and TP layers. They propose that there are three kinds of control complements: propositional, which are CPs; situational, which are TPs; and events, which are vPs. Propositional complements involve those which can be assigned a truth value:

- (6) Trump believes voter fraud to be common in the US, which seems false.

But situational ones cannot:

- (7) \*Mary asked me to buy an apple, which is true.

# Implicational universal in complementation

One empirical test that they provide is given below; propositional infinitives behave like finite clauses in that they cannot occur in the non-progressive form when referring to a non-generic episodic event, but situational infinitives can:

- (8) Clara decided to eat salad right now.
- (9) Clara claimed to be eating/\*eat salad right now.

Such interpretative contrasts (CP vs. TP vs. vP) aren't captured on an Exfoliation account, where the complements are all toP.

## Tough-constructions

Chomsky (1977) argues for an account of *tough*-constructions which involve A'-movement of a null operator. Here is an example of a *tough*-construction:

(10) The violin is easy to play sonatas on.

But once we have *wh*-movement of *this sonata*, the sentence is unacceptable:

(11) \*What sonatas is the violin easy to play on?

That's because you can only have one of *tough*- or *wh*-movement, because there's only one Spec,CP. You can't have both. So this indicates the presence of CP.

## Hindi nonfinite complements

Keine (2020) provides convincing arguments that Hindi nonfinite complements can only be as large as TP. For example, the *wh*-element *kyaa* 'what' can take scope within the finite embedded clause:

- (12) tum jaan-te ho [(ki) us-ne kyaa ki-yaa]  
you know-IPFV.M.PL be.PRES.2PL that he-ERG what do-PFV.M.SG  
'You know what he did.'

But a *wh*-element inside an infinitival clause cannot take embedded scope:

- (13) \*tumhe [kyaa kar-naa] aa-taa hai  
you.DAT what do-INF.M.SG come-IPFV.M.SG be.PRES.3SG  
'(Intended) You know what to do.'

But the sentence is acceptable if the *wh*-element takes matrix scope, ex. "what do you know how to do?"



# English nonfinite complements

However, this is easily possible in English:

(14) You know what to do.

Even the predicates that Wurmbrand & Lohninger (2019) claim are situational (TP) allow *wh*-movement into the embedded clause:

(15) You asked him whether to eat salad.

This indicates a fundamental difference between the size of English and Hindi nonfinite clauses (and potentially that CPs need not be propositional).

## *Hindi tough-constructions?*

Based on this, one prediction would be that Hindi wouldn't have tough-constructions given that Hindi nonfinite complements are never larger than TP. This prediction is borne out (Stefan Keine, p.c.). This indicates that English nonfinite complements really are larger than TP, as we already have independent evidence that Hindi's nonfinite clauses can be no larger than TP.

# Hindi and English similarities

But there are a few ways in which Hindi and English infinitival clauses are similar. English of course doesn't allow the complementizer *that*, even with infinitival CP complements:

(16) \*Mary seems that to be eating salad.

Neither does Hindi (Keine (2020)):

(17) siitaa [(*\*ki*) prataap-ko dekh-naa] caah-tii thii  
Sita that Pratap-ACC see-INF.M.SG want-IPFV.F.SG be.PST.F.SG  
'Sita wanted to see Pratap.'

# Hindi and English similarities

Furthermore, English allows tough-constructions, but not topicalization inside infinitival clauses:

- (18) I want to say that I read the book.
- (19) The book, I want to say that I read.
- (20) \*I want the book, to say that I read.

# Hindi and English similarities

Hindi doesn't allow *I want the book, to say that I read*, either (Keine (2020)):

- (21) [mai caah-taa            huu            [kitaab-ko kah-naa        [ki  
I        want-IPFV.M.SG be.PRES.1SG book-ACC say-INF.M.SG that  
mai-ne parh-aa            hai]]]  
I-ERG read-PFV.M.SG be.PRES.3SG  
'(Intended) I want the book, to say that I read.'

But it does allow the other word orders, like English.

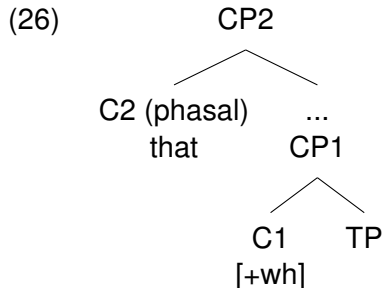
## Hindi vs. English summary

- (22) Difference: English allows *wh*-elements to take embedded scope in an infinitival clause, Hindi does not.
- (23) Difference: English has *tough*-movement (a kind of *A'*-movement), Hindi does not.
- (24) Similarity: English and Hindi infinitival clauses both do not allow *A'*-moved element to stay in the infinitival clause.
- (25) Similarity: Neither English nor Hindi infinitival clauses can be headed by a complementizer.

Do we need Rizzi (1997)'s help? As little as possible!

## Dividing CP into two

So, the evidence for English having CPs is mixed! How do we account for it? We might assume that CP is divided into 2 layers—let us call it CP2 and CP1 for now. CP2 is where the complementizer *that* is present, and it is a phase head. CP1 is responsible for wh-movement.



CP1 is responsible for the propositional semantics and wh-movement, and CP2 for finiteness, at least in English and Hindi.

## Independent evidence

I'm not the first to suggest that this be done. Carstens & Diercks (2013) show that in some Bantu languages, some finite clauses are transparent for hyperraising, while others are not. They make the exact same suggestion that I do: CP2 is phasal, but not CP1. Here are some examples from Lubukusu, where hyperraising is possible with the complementizer *mbo*:

- (27) Mikaeli a-lolekhana **mbo** a-si-kona.  
Michael 1SA-seem that 1SA-PRES-sleep  
'Michael seems to still be sleeping.'



## Independent evidence

But hyperraising is not possible with the complementizer *-li* which agrees with the matrix subject:

- (28) \*Mikaeli a-lolekhana **a-li** a-si-kona.  
Michael 1SA-seem 1CA-that 1SA-PRES-sleep  
'Michael seems to still be sleeping.'

Under this analysis, *mbo* is a low, non-phasal complementizer (CP1), and *-li* is a higher, phasal complementizer (CP2), just like what I proposed for English!

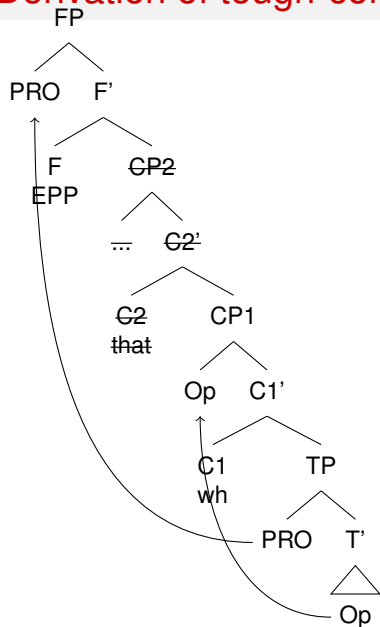
## Back to Exfoliation

We now have the ingredients in place for an Exfoliation account, if we suppose that Exfoliation always deletes CP2, at the very least. I propose that probes which are responsible for Exfoliation—the raising and control probes that extract the matrix subject and PRO respectively—come in different strengths:

- (29) vP complements: Probe delete CP2, CP1, TP
- (30) TP complements: Probe deletes CP2 and CP1
- (31) CP1 complements: Probe deletes CP2

There is a way to define this more formally with Keine's categorial features, but I won't be getting into that.

# Derivation of tough-constructions



## Exposure Condition (RIP)

Under Pesetsky's original account, with toP, we could try to derive tough-movement if the null operator moves straight to Spec,fP, but this would wrongly predict that Hindi could also have tough-movement (since Hindi also has control and therefore PRO extraction).

With this new account, this does mean we have to give up the Exposure Condition... *to* is not a functional head, but it is pronounced as a PF reflex, of CP2 being Exfoliated.

But this simplification might be welcome: it also allows us to simplify the rules of Exfoliation, by getting rid of Structural Change.

### Exfoliation

- a. **Structural Description:** ...  $\beta$  ... [YP (phase) ... [ $\gamma$ P (non-phase) ...  $\alpha$  ...]], where
  - (i) YP is the phase that dominates  $\alpha$  but not  $\beta$ ,
  - (ii)  $\alpha$  occupies the edge of  $\gamma$ P,<sup>8</sup> and
  - (iii) a movement-triggering probe on  $\beta$  has located  $\alpha$  as its goal.
- b. **Structural Change:** Replace YP with  $\gamma$ P, which takes the phasal property of its predecessor.

(b) Figure 2: Exfoliation definition (Pesetsky (2019))

# Conclusion

The empirical evidence that English nonfinite clauses can be as large as CP is strong. But we don't need to give up Pesetsky's empirical insights, or Exfoliation, to account for all of these problems.

Two concluding thoughts I would like to leave you with:

- (32) Is there a greater generalization to be made between the availability of embedded wh-scope and the possibility of tough-constructions? Ex. if a language has tough-constructions, then it has embedded wh-scope?
- (33) Maybe CP2 is Rizzi (1997)'s FinP, at least in English? And could this be extended to other languages?

Thank you!

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