

Exfoliation and Control

Michelle Sheehan & Jutta M. Hartmann

Exfoliation

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Conclusion

Exfoliation

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Exfoliation

Core idea

- ► Recent paper by David Pesetsky on *Exfoliation: towards a derviational theory of clause size*
- Core idea: all non-finite clauses start as full finite CPs; they can become smaller during the derivation → exfoliation
- Exfoliation is triggered by movement of the embedded subject to the higher clause, i.e. movement of the subject makes the infinitival clause possible;
- → "Flipped version" of the standard theory whereby verbs select infinitivals, which cannot license overt referential subjects;

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Definition of Exfoliation

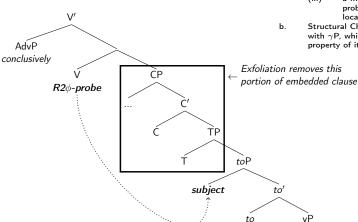
(1) Exfoliation

- a. Structural Description: $\ldots \beta \ldots [\gamma_{P(phase)} \ldots [\gamma_{(non-phase)} \ldots \alpha]$
 - ...]], where
 (i) YP is the phase that dominates α but not β
 - (i) YP is the phase that dominates d
 - (ii) α occupies the edge of γP , and
 - (iii) a movement triggering probe on β has located α as its goal.
- b. Structural Change: Replace YP with γ P, which takes the phasal property of its predecessor.

(see Pesetsky 2019, 11)

Illustration: Raising-to-Object (=R2)

(2)Raising to object



 $\dots \beta \dots [\gamma_{P(phase)} \dots [\gamma_{phase}] \dots [\gamma_{phase}]$ (non-phase) $\ldots \alpha \ldots]], where$

- YP is the phase that (i) dominates α but not β
- (ii) α occupies the edge of γP . and
- (iii) a movement triggering probe on β has
- located α as its goal. Structural Change: Replace YP with γP , which takes the phasal property of its predecessor.

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Central Evidence

Some verbs only select infinitival complements only when the subject is A'/A-extracted:

- ► French *believe*-verbs
- (3) a. l'homme, que je croyais ___ être arrivé ...
 the.man, that I believed __AUX.INF arrived
 'the man I believed to have arrived'
 b. *Je croyais cet homme être arrivé
 (Pollock (1985) cited from Pesetsky 2019, 21)
 - ► English wager-verbs
- (4) a. *We wagered Mary to be the most likely winner.
 - b. Mary, who we wagered to be the most likely winner . . .
 - c. Mary was wagered to be the most likely winner.

(Pesetsky 2019, 22, original observation in Postal 1974)

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Central Evidence

- ► Double object verbs (Kayne paradigm)
- (5) a. *I assure you Mary to be the best candidate.
 - b. Mary, who I assure you to be the best candidate...
 - c. *Mary was assured you to be the best candidate... (Kayne (1984) cited from Pesetsky 2019, 22)

Exfoliation and Control

Control is a configuration, in which we find infinitivals, but

movement of the subject is not obvious.

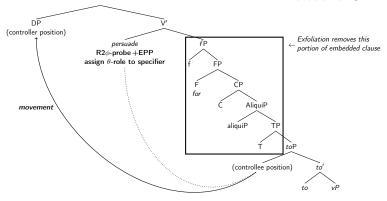
- Obligatory control: an argument of the embedding verb necessarily co-refers with the subject of the embedded clause
- (6) a. John hoped PRO to solve the problem.
 - b. John tried PRO to solve the problem.
 - ► Non-obligatory control (=NOC): non-local/non-c-commanding antecedents, discourse control, generic interpretation;
- (7) Potatoes are tastier [after PRO boiling them] (Landau, 2013, 232)
- (8) Amy_i thinks that $\underline{}_{i/j/i+j/gen}$ dancing with Dan intrigues Tom_j . (Jackendoff & Culicover, 2003, 522)

Pesetsky (2019) (tentatively) proposes that movement is involved both in obligatory (OC) and non-obligatory control (NOC), following the Movement Theory of Control (=MTC) for obligatory control, see Hornstein (1999), Boeckx et al. (2010b) among others;

- OC1: controllee is moved to the higher clause from toP (MTC1 approach)
- OC2: controllee is moved via FP (functional projection above CP) to the higher clause (MTC2 approach)
- NOC: controllee is moved to fP (functional projection that can also host for and involves a special semantics), where controllee needs to be unpronounced

(9) Pesetsky's MTC 1

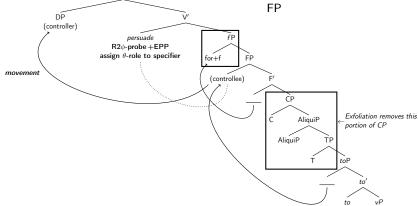
- Movement via toP
- fP structure not obligatory/possible
- Exfoliation of CP-TP



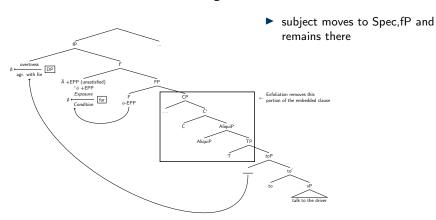
(see Pesetsky 2019, 108)

(10) Pesetsky's MTC 2

- Movement via toP and FP
- ► fP structure comes with a specific semantics
- Exfoliation of (i) CP-TP (ii) FP



(11) Pesetsky's exfoliation in NOC contexts: to talk to the driver is illegal



Against movement in OC

While Pestesky's proposal is certainly in line with many aspects of current analyses of control, the movement analyses of OC has been challenged especially for at least one type of obligatory control cases.

- ightarrow logophoric control, see Landau (2015), *pro*-control, see Sheehan (2014, 2018)
 - ▶ partial Control (Landau, 2000)
 - ▶ independent tense interpretation (Landau, 2000)
 - ▶ obligatory *de se* interpretation, see Chierchia (1989), Pearson (2016), Landau (2015)
 - ► [+human] antecedent (Landau, 2013)
 - availability of control shift and implicit control (Landau, 2015)

Properties of logophoric control

- Partial control (see Landau 2000, Pitteroff et al. 2017, Pitteroff & Sheehan 2018)
 PC is problematic for MTC, as a trace cannot get a different interpretation from its antecedent;
- (12) The chair; preferred [PRO $_{i+}$ to gather at 6].
 - ▶ independent tense interpretation (Landau, 2000)
- (13) Yesterday, John wanted to solve the problem tomorrow. (Landau, 2000, 6)

Exfoliation and Control: Logophoric Control

Properties of logophoric control

- ▶ obligatory *de se* interpretation (see Chierchia 1989, Pearson 2016, Landau 2015):
 - (14) is only felicitous in a context in which Mary is aware that she is the one to have found the solution, but infelicitous in a context where she mistakes herself to be someone else.
- (14) Mary claimed to have found the solution.

obligatorily de se

- ► [+human] antecedent (Landau, 2015)
- a. *The note specified where to be filed.
 b. The note specified where it should be filed.
 (Landau, 2015, 66f)

Properties of logophoric control

- ➤ Availability of **control shift** in (16) (see Landau 2015); Control Shift is problematic for movement theory of control, because it is unclear how to makes sure that the embedded subject moves to subject or object depending on the properties of the embedded clause (passive, modals, non-agentive predicates);
- (16) a. The coach promised Montana; [PRO; to be allowed to play in the Super Bowl].
 - b. Bill_i proposed to Mary [PRO_i to join her]. (Landau, 2015, 68)

Exfoliation and Control

Properties of logophoric control

- ▶ availability of implicit control in (17)
- (17) Er werd geweigerd om het verdachte appelsap op te drinken. there was refused C the suspicious apple.juice up to drink '(Lit.) There was refused to drink the suspicious apple juice.'

 (Landau, 2015, 70)

Duality of OC in recent approaches:

- ► Agree Theory of Control: Landau (2000) and follow-up work
- Logophoric vs. predicative control Landau (2015)
- ▶ Movement-control vs. pro-control: Sheehan (2018)
- ▶ UPro: (McFadden & Sundaresan, 2018): UPRO can be bound in different ways

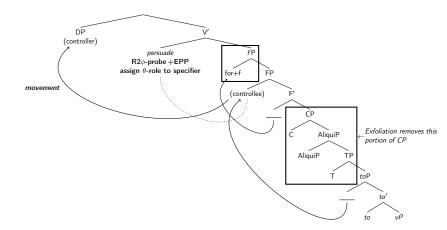
Earlier approaches (following the overview in Landau 2013):

- ▶ Predication: Williams (1980), Lebeaux (1984), Chierchia (1984))
- Binding: Manzini (1983), Sag & Pollard (1991), Bouchard (1984), Koster (1984), Williams (1992), Manzini & Roussou (2000), for LFG see Bresnan (1982),
- ► A-movement (among others Hornstein 1999, Polinsky & Potsdam 2002, Boeckx & Hornstein 2004, Manzini & Roussou 2000)

We propose to adjust Pesetsky's proposal such that one type of obligatory control is possible that does not involve movement:

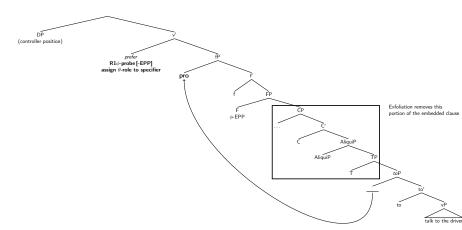
- ► Two types of control
 - movement control: movement control as proposed in Pesetsky; verbs have a R1 (subject control) or R2 (object control) probe that require movement;
 - pro-control involving movement to fP/FP; verbs have an R1 or R2 probe that gives rise to agreement;

(18) Pesetsky's MTC 2



Control 2: pro-Control

(19) pro-Control: based on Pesetsky's NOC case (see Sheehan 2018, similarly, logophoric control Landau 2015)



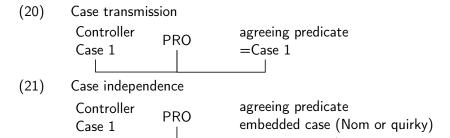
Intermediate Summary

- ► Pesetsky proposes that obligatory control always involves movement of the subject into the matrix clause.
- ► However, one subtype of OC cannot be derived by movement;
- ▶ We propose that Pesetsky's NOC structure is also possible as complement (similiar to what is proposed by Landau 2015) giving rise to OC.

Icelandic case transmission and case independence

Overview

▶ In OC contexts, under attitude predicates, Icelandic allows both case transmission and case independence (Andrews 1976, Thráinsson 1979):



- ▶ In object-OC, predicative adjectives, past participles, floating quantifiers and indefinite pronouns can take NOM (case independence) or ACC (case transmission). (Andrews 1976, 1990, Thráinsson 1979, 2007, Sigurðsson 1991, 2008, Bobaljik & Landau 2009, Boeckx & Hornstein 2006, Boeckx et al. 2010a)
- (22) Ég bað hanni [að fara einn
 I.NOM asked him.ACC to go alone.M.SG.NOM

 /einan bangað].

 /alone.M.SG.ACC there

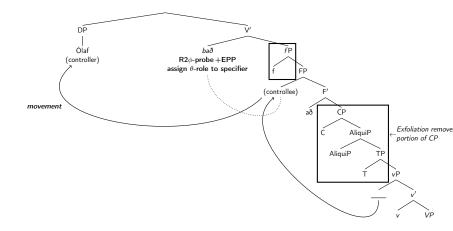
 'I asked him to go there alone.'

 (Thráinsson, 1979, 301)
 - Sigurðsson (2008, 414) shows that both ACC and NOM are widely accepted in examples of this kind.

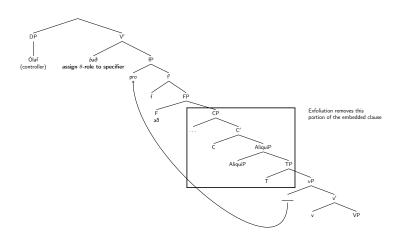
- ▶ Overt nominative subjects are not possible in in this context, despite the availability of NOM.
- (23) Ég bað Maríu að (*hún /*Ásta) fara I asked Maria.ACC to she /Asta.NOM go ein þangað. aloneF.SG.NOM there 'I asked Maria (for her/Asta) to go there alone.' (Thráinsson, 1979, 301)
 - ► From an exfoliation perspective: Icelandic non-finite complements start off life as finite clauses and NOM can be retained after exfoliation has taken place.

- ► Case transmission indicates that control is derived via movement (MTC2): the subject of the embedded predicate is a trace that shares the features of the controller.
- ► Case independence indicates that control results from pro-control (co-opting Pesetsky's 2019 approach to NOC): the subject of the non-finite clause is a controlled pro in spec fP.
- We will consider how this proposal can deal with (i) partial control, (ii) patterns of case preservation and quirky independence vs. quirky transmission and (iii) successive cyclicity.

(24) MTC 2 derivation for Icelandic



(25) pro-Control: case independence



- ➤ Younger speakers of Icelandic permit PC readings (Landau (2000)) under attitude predicates (Sheehan, 2018, 148).
- (26) *Borgarstjórinn **fékk** /**byrjaði** að hittast klukkan the.mayor.NOM managed /started to meet.ST clock fimm.
- (27) Borgarstjórinn vonast til að heilsast /sættast. the.mayor.NOM hopes for to greet.ST /be.reconciled.ST 'The mayor hopes to greet one another/make up.'

- ▶ In instances of PC, only case independence (*pro*-control) is possible. Case transmission (MTC2) becomes impossible.
- (28) Hann bað Ólaf; [að pronom hittast einir;+/
 he asked Olaf.ACC to meet.ST alone.NOM.M.PL/
 *eina;+]
 alone.ACC.M.PL
 'He asked Olaf to meet alone.PL.'
 (Sheehan, 2018, 149)
 - ► Note that the indefinite pronoun is also morphologically plural, unlike the controller.
 - ▶ Partial control requires *pro*-control (see also Landau 2008 on Russian and Sheehan 2018 for a discussion of subject control which shows the same basic effect)

- In instances of pro-control, PC (and control shift) are possible because pro is a controlled pronoun in spec fP with its own case and phi-features.
- In instances of MTC 2, the embedded subject is a deleted copy of the controller so the two must be indentical in reference ruling out PC and control shift. NOM is overwritten by the matrix clause case.
- Case independence (pro-control) is (almost) always possible.
- ► Case transmission (MTC 2) is ruled out where movement to a thematic position is blocked.

Many Icelandic predicates assign a quirky (non-structural) case:

- (29) *Hún /*Hana /Henni leiðist she.NOM /.ACC /.DAT is.bored 'She is bored.' (see Thráinsson 2007, 55)
- ► There are three distinct quirky puzzles associated with Icelandic control (see Bobaljik & Landau (2009) for discussion):
- 1. No case preservation
- 2. Quirky independence
- 3. Quirky transmission

No case preservation

- ► In raising, matrix case is determined 'downstairs'
- ▶ In subject control, matrix case is determined 'upstairs'
- ► So, quirky DPs can undergo raising, but not MTC 2.
- (30) Mönnunum/*Mennirnir virðist báðum [t hafa verið men.the.DAT/*NOM seem both.DAT have been hjálpað].
 helped.DFT
 'The men seem to have both been helped.'
 (Sigurðsson, 2008, 419) citing Thráinsson 1986:252
- (31) Mennirnir/*Mönnunum vonast til [að prodat verða men.the.Nom/*dat hope for to be báðum hjálpað].
 both.dat helped.dft
 'The men hope to be both helped.'
 (Sigurðsson, 2008, 419) citing Thráinsson 1986:252

- While participles can only agree for structural cases, predicative adjectives, secondary predicates, floating quantifiers and indefinite pronouns can also inflect for quirky (non-structural) cases.
- ▶ This allows us to see whether *pro* has quirky case.
- Where the embedded predicate is quirky, case transmission is blocked in OC.
- (32) (#) Jón bað hann [að leiðast ekki
 Jon.NOM asked him.ACC to be.bored not
 einum /*einan].
 alone.DAT /alone.ACC
 'Jon asked him not to be bored alone.'
 (based on Bobaljik & Landau 2009, 116, who build on Boeckx &
 Hornstein 2006, 594)

Quirky transmission

- ▶ Where the control predicate is quirky, case transmission of quirky DAT/ACC is possible for some speakers, but transmission of GEN is blocked (see Sigurðsson 2008, 415)
- (33) Við sögðum Ólafi að vera **rólegur** /%**rólegum**We told.1PL Olaf.DAT to be calm.**NOM** /calm.**DAT**'We told Olaf to be calm.' (Sigurdsson 2008: 415)
 NOM OK 80%; DAT OK/? 67% [Icelandic, n=15]
- (34) Ólaf langaði [að vera **fyrstur**Olaf.ACC longed to be /the.first.one.**NOM**//%**fyrstan**].
 /the.first.one.**ACC**'Olaf longed to be the first one.' (Sigurðsson 2008, 415)
 NOM OK 100% ACC OK/? 27%; [Icelandic, n=15]

- ► Under exfoliation, these three puzzles can be explained by restricting movement into a thematic position.
- ▶ DPs with quirky case cannot move into a mismatched thematic position. This explains puzzles (1) and (2): quirky predicates necessitate pro-control.
- ➤ The variable availability of quirky transmission suggests that some speakers do, however, permit movement into a thematic position associated with quirky case.
- ▶ Wherever MTC2 fails, pro-control is available.

Conclusion and Outlook

Advantages of Exfoliation

- Non-finite complements of control verbs in Icelandic can look like complete case domains with NOM/quirky case but an obligatorily controlled subject position.
- ► Exfoliation provides a natural way to capture this and to model the difference between between case transmission (MTC 2) and case independence (pro-control)
- ► The same is true for the three quirky puzzles they reduce to restrictions on movmement to a thematic position.

Challenges for exfoliation

- ► The big one: what ensures that pro is null in pro-control. Pesetsky's proposal for English does not extend to Icelandic if að realises F.
- ► How do the two possibilities of pro-control and MTC 2 co-exist for the same control verbs?
- ► What happens to NOM in instances of MTC2 (and ECM/raising)?

- ► In ECM contexts, case independence is blocked and all inflecting predicates must agree with the surface case of the promoted object (participles get a default form if the DP is quirky).
- ▶ In a sense, this is as expected if only movement is possible here: there is no possibility of pro-control in instances of ECM.
- (35) Ég tel Maríu hafa verið
 I.NOM believed Maria.ACC to.have been
 tekna /*tekin af lögreglunni.
 taken.F.SG.ACC /*F.SG.NOM by the.police
 'I believed Maria to have been taken by the police.'
 (Thráinsson, 1979, 250)

- ➤ So, the exfoliation approach necessitates that structural cases (unlike quirky cases) can be overwritten where an argument moves in passivisation/ECM/control.
- ► This applies successive cyclically, raising challenges for phase theory.
- (36) Ég álit hana vera talda hafa verið I consider her.F.SG.ACC be believed.F.SG.ACC have been ríka rich.F.SG.ACC 'I think that she is believed to have been rich.'
- (37) Hún er álitin vera
 she.F.SG.NOM is consideredF.SG.NOM be
 talin vera rík
 believed.F.SG.NOM be rich.F.SG.NOM
 'People think that she is believed to have been rich.'

- ► Thráinsson (1979) notes that case transmission into passive complements of control predicates is blocked:
- (38) Ég skipaði **Maríu** að vera **tekin**I ordered Maria.**DAT** to be taken.F.SG.**NOM**/*tekinni af lögreglunni

 /.**DAT** by the.police
 'I ordered Maria to be arrested by the police.'(Thráinsson, 1979, 249)

- ► This is not about past participles vs. secondary predicates (contra Boeckx et al. (2010a)), as secondary predicates in these examples must also be NOM:
- (39) Ég bannaði **Maríu** að vera **tekin**I forbade Maria.**DAT** to be taken.F.SG.**NOM**föst af lögreglunni
 fast.F.SG.**NOM** by the.police
 (Thráinsson, 1979, 248)
 - ► The implication is that A-movement followed by theta-related movement is blocked for some reason, forcing *pro*-control.
 - ▶ But, as Thráinsson notes, passives here are "not the greatest" (Thráinsson, 1979, 305), some speakers don't accept them at all and some such examples seem to involve control shift.

- ► Conversely, where a controller receives ECM, case transmission becomes basically obligatory and PC becomes impossible (Landau, 2008, Sheehan, 2018).
- (40) beir töldu [Harald vilja [fara they believed Harald.M.SG.ACC want.INF go
 ??einn /einan bangað]]]
 aloneM.SG.NOM /alone.M.SG.ACC there
 'They believed Harald to want to go there alone.'
 (Sheehan 2018: 151)
 - ► From an exfoliation perspective, this pattern, like the previous one, suggest that there are restrictions on the interleaving of thematic and non-thematic A-movements.

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