A-dependencies

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Abstract

An A-dependency is usually characterised in terms of a relationship between different syntactic positions that is based on case, agreement, θ-role assignment, or binding. This chapter starts with an examination of the defining properties of A-dependencies, focusing on case and agreement as potential driving forces for the creation of such dependencies, and the debate surrounding these topics. We then explore the crosslinguistic variation in the syntax of A-dependencies, illustrating it with dependencies that cross a clausal boundary. Specifically, we examine different instances of raising and control, as well as the theories formulated to account for such phenomena.

Keywords: A-dependencies, A/Ā-distinction, A-movement, case, agreement, finiteness, raising, control, restructuring, hyperraising

1 What Are A-dependencies?

This chapter explores the crosslinguistic variation we find in the syntax of A-dependencies and synthesises the current approaches devised to account for them. Syntacticians have long noted systematic differences in the syntactic behaviours of nominals in two categories of syntactic positions. Chomsky (1981) characterised this in terms of positions where arguments may originate, introducing the term 'A-position' to refer to potential θ-positions: VP-internal argument positions and the 'subject' position (i.e. specifier of IP). 'Ā-positions' are those in the complement set. The terminology and empirical need for a distinction has endured, even if the notions underpinning the terms have changed.

As the VP-internal subject hypothesis took hold (e.g. Koopman and Sportiche, 1991), it became clear that 'potential θ-position' no longer had the intended empirical coverage, since it would exclude Spec-IP subject positions. Noting this issue, Mahajan (1990) suggested a broader set of positions, which were dubbed 'L-related positions' and which include all complement and specifier positions of a predicate (like V) and the functional heads in its extended projection (such as Agr and T). This allowed for phenomena like object shift for case and agreement to be counted as A-phenomena. Mahajan also shifted the focus of the discussion to behaviours of elements in these positions, and of the movement chains they form. In particular, A-positions and A-chains tend to have the following properties (based on Mahajan 1990, Van Urk 2015, Safir 2019), in contrast to Ā-properties:

(1) a. The head of an A-chain can be assigned case.
b. The head of an A-chain can Agree with the local functional head.

c. A-dependencies cannot bypass intervening subjects.
d. The landing site for A-movement can bind anaphors.
e. A-movement cannot license parasitic gaps.
f. A-movement cannot induce a Weak Crossover violation.
g. A-movement does not have to reconstruct for Condition C.

More recent discussions of the A/Ā-distinction add further nuance. For example, Van Urk (2015) argues that these distinct A-properties are not a product of the inherent properties of syntactic positions, but rather arise from a distinction between different feature types: A-chains involve agreement for ϕ-features and are interpreted via abstraction over individuals, while Ā-chains involve other features and abstraction over choice functions. Van Urk demonstrates that in languages like Dinka Bor, ϕ-features are associated with positions that are not typically assumed to be A-positions, but nominals that agree with these ϕ-bearing heads show the expected A-properties.

For the purposes of this chapter, we focus on syntactic relationships that involve nominals that either remain in their argument position or that undergo movement to a position associated with agreement or case. A-dependencies, then, can either involve a relationship between an element in an A-position and an agreeing head, or between elements occupying different A-positions.

While the basic properties of A-phenomena appear to be robust across languages, there is in fact quite a bit of variation in how A-dependencies can manifest. In this chapter, we will consider a number of syntactic phenomena that are built from A-dependencies. First, as Mahajan (1990) makes explicit, the basic A-dependency is often assumed to be case assignment; Safir (2019) notes a general consensus in theories about A-movement that it is driven by case and agreement needs. In §2, we investigate these intuitions about the basic drivers of A-dependencies, focusing primarily on monoclausal environments. As we will see, case and agreement dependencies need not involve movement; languages vary in whether these dependencies can be established with in situ elements.

In contrast to Ā-dependencies, which are typically long-distance and unbounded, A-dependencies tend to be syntactically restricted. We will discuss two instances of cross-clausal A-dependencies in §3: raising, in which a thematic argument of the embedded clause establishes A-dependencies in the matrix clause, and control, in which thematic arguments in both clauses show A-type connectivity effects.

2 Are There Universal Basic A-dependencies?

If we consider the A-properties identified in (1), the first two—case and agreement—stand out in that they are often seen to be the drivers of the dependency, while (1c)–(1g) can be taken to be byproducts of the basic dependency, combined with independent principles and constraints of the grammar (e.g. Minimality, the interpretation of the residue of movement, the Case Filter, etc; cf. Takahashi and Hulsey 2009; Van Urk 2015; Safir 2019, a.o.). For this reason, in this section, we focus on the research that takes case or agreement as driving forces in the establishment of A-dependencies. We will see that, while it is often taken for granted that case assignment is the main trigger of A-dependencies like movement, recent research focuses on agreement instead.

Chomsky's (1981) initial intuition that A-positions include VP-internal argument positions and the 'subject' position aligns with the distributional and morphological patterns of case and agreement across languages. That is, even amid the variety of particular morphological alignment patterns (see discussion in §2.1.1), nominals seem to be syntactically and morphologically licensed in predictable ways in the vicinity of active, transitive *v* and in the vicinity of finite T. We can

see the relevance of these structural factors on both case and agreement patterns by looking at argument structure alternations in monoclausal sentences.

For example, in environments in which there is no agent, languages systematically seem to require alternative syntactic licensing for theme nominals (Burzio's generalisation, Burzio 1986). In these cases, we typically find evidence that the theme nominal establishes "subject"-like A-dependencies. Evidence for this type of dependency may be found in *(i)* T-agreement morphology tracking the theme, *(ii)* in case morphology on the theme matching what is assigned by T, *(iii)* in movement of the theme to Spec-TP, *(iv)* or any combination of the three.

For instance, unaccusative predicates underlyingly have only a theme argument. Crosslinguistically, that theme is treated like a "subject" by the syntax, in that the sole argument of an unaccusative can be moved to the subject position, can be assigned nominative case, and/or agree with the verb.

(2) *Brazilian Portuguese*

a. Eu e a Maria$_k$ nunca t_k gosta-mos do inverno.
I and the Maria never liked.1PL of.the winter
'Maria and I have never liked the winter.' *transitive*

b. Eu e a Maria$_k$ nunca chega-mos t_k no horário.
I and the Maria never arrive.1PL in.the time
'Maria and I have never arrive on time.' *unaccusative*

Likewise, passivised predicates seem to suppress the typical external argument, often via specialised morphology or an auxiliary structure. If the external argument is expressed, it does not appear to be a core argument, but rather is marked with a PP or oblique morphology.

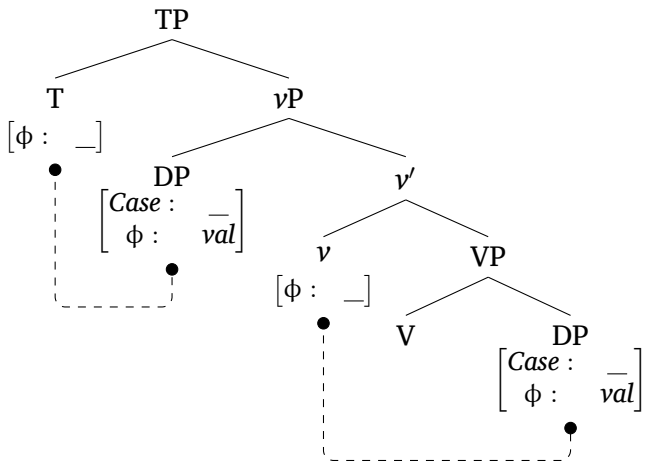
(3) *Passivised themes show subject case, agreement, and position (Brazilian Portuguese)*

a. A Maria **me** viu.
the Maria 1SG.ACC saw
'Maria saw me.' *active transitive*

b. **Eu** fui vista *t* (pela Maria).
1SG.NOM was.1SG seen (by.the Maria)
'I was seen by Maria.' *passive*

One way to model these patterns is as a dependency that holds between the relevant heads (T and *v*) and a local nominal (e.g. the subject and object, respectively).

(4)



While the precise implementation for establishing case and/or agree in this way varies, classic generative approaches to typically involve several common ingredients:

(5) a. Some type of probe-goal relationship between a head (T or *v*) and a local nominal
b. Potential (A-)movement of the nominal to specifier of the head (an EPP effect)
c. Potential morphological reflex of the relationship marked on the head (agreement) or the nominal (case)

Case and agreement phenomena are often coextensive, to the point where approaches like Chomsky (2000, 2001) take them to be inseparable reflexes of a single operation. Nonetheless, a significant body of work over the past decades has established that these two operations are not fundamentally inseparable. In the remainder of this section, we look first at the role that case may play in underpinning A-dependencies, but then turn to instances in which A-dependencies are established in the absence of case. As we will see, the existence of A-dependencies without case suggest that agreement or perhaps other factors can yield the basic properties discussed in §1.

2.1 Case as a Driving Force of A-dependencies

At least since Mahajan (1990), A-positions are usually either those in which arguments are introduced or in which case or agreement dependencies can be established. In this section, we summarise the long-held assumption that case assignment can be a trigger for the establishment of A-dependencies.

The view that case assignment regulates the licensing of nominals is embodied by the Case Filter:

(6) Case Filter: *$\text{NP}_{[-case]}$

(Chomsky, 1981)

The application of this principle can be witnessed by a raising paradigm like the following:

(7) a. Mihaela is likely [$_{\text{TP}}$ *t* to win a gold medal].
b. * It is likely [$_{\text{TP}}$ Mihaela to win a gold medal].
c. It is likely [$_{\text{TP}}$ (*it) to snow in early April].

In (7a), the DP *Mihaela* cannot be assigned case in the embedded infinitival clause, so it raises into the matrix clause, where it can be assigned nominative case by the finite T. The resulting derivation complies with the Case Filter (6). That the matrix finite T is responsible for assigning case to *Mihaela* is further supported by (7b), where the expletive *it* fills the matrix subject position, preventing its embedded counterpart from raising, ultimately yielding a violation of (6). An auxiliary assumption is that the expletive must itself be assigned case, as indicated in (7c). In sum, what (7) illustrates is that an A-dependency like raising can be modelled as the result of the need to assign case to a DP.

The same argument can be demonstrated with passive (8) and unaccusative (9) paradigms:

(8) a. The books were read *t*.
b. * It was read the books.

(9) *Standard Brazilian Portuguese*

a. As crianças chegaram *t.*
the children arrived.3PL
'The children arrived.'

b. * Chegou as crianças.
arrived.3SG the children
Intended: 'The children arrived.'

Different theories of case assignment have been proposed. One early influential way to think about syntactic case is as the result of the operation Agree, whereby a probe enters a relationship with an Active goal that has matching features (e.g. Chomsky, 2000, 2001). In the original Chomskian formulation, case and ϕ-agreement result from a single Agree process, driven by a probe's search for ϕ-features, but yielding case valuation on the goal as a direct consequence. This is schematised in (4) above. At the same time, however, much subsequent work has argued that ϕ-agreement is a distinct process from case assignment, though implementations for each process and ideas about how they relate to each other (or do not) vary (e.g. Georgi, 2014; Preminger, 2014; Baker, 2008, 2012; Baker and Vinokurova, 2010; Bárány and Sheehan, 2022).

We can contrast theories in which specific case values arise through Agree and feature valuation with those in which case arises through other properties of the syntax. For example, Nanosyntactic approaches to case (e.g. Caha, 2009, 2020; Harðarson, 2016; Starke, 2017), posit that the specific cases are in structural containment relationships to each other, realised as functional structure (with a node for each case feature in the hierarchy) sitting on top of basic nominal structure. Syntactic heads of different types select for nominals with a certain amount of case structure, yielding a particular morphological result.

Configurational approaches to case treat specific case morphology as the result of an interplay between particular selecting heads and the hierarchy of nominals within a certain domain. This family of theories encompasses most Lexical Functional Grammar (LFG) approaches to case (see Butt, 2008), as well as currently popular dependent case theories (e.g. Bittner and Hale, 1996; Marantz, 1991; McFadden, 2004; Baker, 2015, a.m.o.). Some approaches to dependent case assume that some form of abstract structural licensing must take place for nominals in the syntax, but that the process for determining morphological case is independent (e.g. Marantz 1991, among others).

In recent work, Bárány and Sheehan (2022) argue that languages with global case splits, in which case on a particular element is determined based on the properties of multiple elements, pose a serious challenge to dependent case approaches. In such languages, they propose that ϕ-agreement with multiple nominals necessarily feeds case assignment and cannot be accomplished with dependent case processes. Bárány and Sheehan follow approaches that conceive of ϕ-agreement and case as separate processes, arguing that they can be ordered differently in different languages, accounting for crosslinguistic variation in whether ϕ-agreement seems to feed case (as in global case splits) or case feeds ϕ-agreement (e.g. Bobaljik 2008; Preminger 2014). While Bárány and Sheehan argue that at least sometimes case assignment must be Agree-based, they leave open the possibility that there may be multiple modes of assigning case, and that perhaps dependent case plays a role in other contexts.

2.1.1 Alignment

When we consider languages without agreement or case morphology, Sheehan and Van der Wal (2018) suggest that we find consistent evidence that predictable structural conditions must be met to license arguments in A-positions. In languages that do display morphological markers for

either case or agreement, examining how languages align morphology with arguments can inform theories of the basic A-dependencies.

As we compare case alignment patterns across languages, it is important to develop general, comparative notions of the cases that can be applied uniformly, which may be different from language-specific uses of the same terms (Haspelmath 2021 for discussion). In particular, we will need to compare the behaviour of *intransitive subjects* (S_{INTR}), *transitive subjects* (S_{TR}), and *transitive objects* (O). With this three-way comparison, we find four basic possibilities for alignment:

(10) *Rough cut of alignment possibilities*

a. "Accusative" alignment: $S_{INTR} = S_{TR} \neq O$

b. "Ergative" alignment:[1] $S_{INTR} = O \neq S_{TR}$

c. "Tripartite" alignment: $S_{INTR} \neq S_{TR} \neq O$

d. "Neutral" alignment: $S_{INTR} = S_{TR} = O$

While much work on the typology of alignment and on theories of case and agreement has focused in particular on the difference between accusative and ergative alignment patterns, using approximately these rough cuts, Zwart and Lindenbergh (2021) argue in recent work that we need a much more fine-grained alignment typology, proposing eighteen different alignment types. In particular, they add a notion of "completeness", distinguishing between complete alignment types, in which *all* grammatical functions are morphologically marked for a particular phenomenon, and incomplete types, in which one or more grammatical function may be unmarked for a particular phenomenon. With this fine-grained typological picture, they conclude that there is no straightforward connection between case alignment and agreement alignment. A language may have different alignments for case and agreement, and it is difficult to find entailment relationships between alignment patterns across different phenomena.

2.2 A-dependencies without Case

As mentioned above, Mahajan (1990) suggested that case is the driving force behind all A-dependencies. However, there are two types of evidence that suggest that we cannot maintain such a position universally. First, in some languages that display morphological case licensed in the expected ways, we find A-movement occurring that is clearly *not* for case reasons. For example, as Keine (2018) discusses, Hindi shows clear evidence for A-movement that displays the typical A-properties, such as Weak Crossover obviation (11) and ability to bind anaphors (12).

(11) a. [us-kii$_{1/*2}$ mãã-ne] har bacce-ko$_2$ dekhaa.
[s/he-GEN mother-ERG] every child-ACC saw
'His/her$_{1/*2}$ mother saw every child$_2$.'

b. har bacce-ko$_1$ [us-kii$_1$ mãã-ne] t_1 dekhaa.
every child-ACC [s/he-GEN mother-ERG] saw
'For every child x, x's mother saw x.

(Keine, 2018, (10, 11))

(12) a. * [ek-duusre-kii1 bahinõ-ne] [raam aur prataap]-ko$_1$ maaraa.
[each other's sisters-ERG] [Ram and Pratap]-ACC hit
'*Each other's$_1$ sisters hit [Ram and Pratap]$_1$.'

[1] See Deal (2015) on the necessity of breaking this down into separate ergative and absolutive properties, something that a typology proposed by Zwart and Lindenbergh (2021) captures.

b. [raam aur prataap]-ko$_1$ [ek-duusre-kii$_1$ bahinõ-ne] t_1 maaraa.
[Ram and Pratap]-ACC [each other's sisters-ERG] hit
'[Ram and Pratap]$_1$, each other's$_1$ sisters hit t_1.'

(Keine, 2018, (11))

This type of movement can cross TP clause boundaries. When it does, however, the moving element already has case before this A-movement takes place:

(13) a. har laṛke-kaa$_1$ [us-kii$_1$ bahin-ne] [$_{TP}$ [$_{DP}$ t_1 khat] paṛhnaa] caahaa.
every boy-GEN [s/he-GEN sister-ERG] [[letter] read.INF] wanted
'For every boy *x*, *x*'s sister wanted to read *x*'s letter.'

b. [raam aur prataap]-ke$_1$ [ek-duusre-kii$_1$ bahinõ-ne] [$_{TP}$ [$_{DP}$ t_1 khat] paṛhne] caahe.
[Ram and Pratap]-GEN [each other's sisters-ERG] [[letters] read.INF] wanted
'[Ram and Pratap]$_1$, each other's$_1$ sisters wanted to read their$_1$ letters.'

(Keine, 2018, (21))

(14) siitaa-{kaa/*ko/*se/*∅}$_1$ raam-ne [$_{TP}$ [$_{DP}$ t_1 khat] paṛhnaa] caahaa.
Sita-{GEN/*ACC/*INSTR/*∅} Ram-ERG [[letter] read.INF] wanted
'Ram wanted to read Sita's letter.'

(Keine, 2018, (23a))

If Hindi A-movement can target nominals that already have case and do not need it or get it through the A-movement, then not all A-dependencies are driven by a need to license nominals.

Second, while Hindi shows that at least some A-dependencies in a language need not be case-driven, evidence from other languages suggests that dependencies with A-properties may exist in the absence of a system of case-licensing. Diercks (2012) and Sheehan and Van der Wal (2018) argue that structural case, which Sheehan and Van der Wal dub 'Vergnaud licensing', should be parameterised, with some languages showing no evidence for it. For example, several Bantu languages look like they have A-movement fed by ϕ-agreement, but no evidence for Vergnaud licensing. In Luganda, as Sheehan and Van der Wal show, we find a number of patterns that are at odds with the expectations of case/Vergnaud-licensing that they identify: overt subjects of infinitives (15), subject agreement with non-subjects (16b), hyperactivity (17), and unmarked passive agents (18b).

(15) a. [Okukola eensobi] ki-bi
[15.make 9.mistake] 7SM-bad
'To make mistakes is bad.'

b. [Joel okukola eensobi] ki-bi
[1.Joel 15.make 9.mistake] 7SM-bad
'(For) Joel to make mistakes is bad.'

(Sheehan and Van der Wal, 2018, (22))

(16) a. Omuwala a-beera mu-nyuumba eno
1.girl 1SM-live 18-9.house 9.DEM
'A/the girl lives in this house.

b. Mu-nyúúmb' eeyó mú-bééra-mú omuwála
18-9.house 9DEM 18SM-live-18LOC 1.girl
'In that house lives a/the girl.'

(Sheehan and Van der Wal, 2018, (25))

(17) Abaana **ba**-labika **ba**-beera mu-nyuumba eno
2.children 2SM-seem 2SM-live 18-9.house 9DEM
'The children seem to live in this house.
Lit.: '(The) children seem live in this house.'

(Sheehan and Van der Wal, 2018, (27b))

(18) a. Abaana ba-a-soma ekitabo
2.children 2SM-PST-read 7.book
'The children read a book.'

b. Ekitabo ky-aa-som-ebwa abaana
7.book 7SM-PST-read-PASS 2.children
'The book was read (by) the children.'

(Sheehan and Van der Wal, 2018, (29))

Based on their survey, Sheehan and Van der Wal conclude that all of the languages that, like Luganda, clearly lack case/Vergnaud licensing are ones with rich ϕ-agreement.[2] They suggest that perhaps the parametrisation of nominal licensing might only be available in rich agreement languages, while those without case or agreement morphology universally have typical structural licensing. They further suggest that in languages like Luganda, some other feature, such as discourse/information structure, might play the licensing role that case plays in most languages. Such an approach, where A-properties are characteristic of particular features, such as ϕ-features, rather than particular positions, aligns with Van Urk's (2015) characterisation of A-properties as a specific byproduct of ϕ-agreement. In fact, it follows from Van Urk's featural definition of syntactic positions that a single position can display both A- and Ā-properties, as long as it is created by a combination of these features.[3]

While a ϕ-based approach may be able to capture the patterns we have seen in this section, when we interrogate the role that case might play in A-dependencies, we find non-identity in two respects. On one end of the spectrum, languages like Hindi, which have case that is predictably associated with local A-dependencies but does not inhibit subsequent A-movement, show us that not all A-movement in the language is case-driven. On the other end, we see that languages like Luganda have ϕ-dependencies that have A-properties, but otherwise show no evidence for morphological case or structural licensing.

2.3 Interim Conclusion

What do theories of basic, clause-internal A-dependencies need to capture? As we have now seen, within the clause, case or some form of structural licensing seems to be associated with typical A-positions in most languages. Sheehan and Van der Wal (2018) show that languages with

[2]Their survey includes a discussion of languages that lack both case and agreement morphology; of the subset of diagnostics that can be tested in these languages, Sheehan and Van der Wal (2018) argue that they align with the existence of case/Vergnaud licensing.

[3]The prediction is borne out in e.g. Dinka Bor (Van Urk, 2015) and Khanty (Colley and Privoznov, 2020). For a more nuanced view of composite probes, see Scott (2021) and references therein.

no evidence of structural licensing for arguments do have overt ϕ-agreement in roughly similar configurations. The emerging picture, then, is that rather than looking to case as the driver for all A-dependencies, ϕ-agreement may be the basic A-dependency, with case implicated to varying degrees, in varying languages. On this type of view, any trends we see in A-positions would simply reflect the crosslinguistically typical distribution of ϕ-features. To put it another way, while there may be considerable uniformity in the basic operations underlying A-dependencies, the specific positions associated with A-dependencies arise as a secondary property and can vary across languages.

Another point of variation that we find in the realm of basic A-dependencies concerns alignment. As we discussed in 2.1.1, we find variation, between and within languages, in how the morphological reflexes of case and agreement are distributed. Beneath the surface variation, we still find considerable uniformity in the specific syntactic configurations in which nominals are licit.

We conclude this section by noting that basic approaches that seem to account for a broad variety of surface A-dependencies at the clause-internal level are ones that treat A-dependencies as probing relations driven by specific features, like ϕ (or case). In the next section, we will see that common approaches to cross-clausal A-dependencies are built on this type of basic assumption, with added complexity induced by the clausal boundary.

3 Cross-clausal A-dependencies

So far, we have examined A-dependencies within a single clause. In this section, we explore two A-dependencies across a clausal boundary: raising and control. These dependencies can yield identical surface strings, with an overt nominal in the matrix clause that fills a gap in the embedded clause:

(19) a. Fazad$_k$ seems [__$_k$ to enjoy powerlifting].
b. Fazad$_k$ hopes [__$_k$ to enjoy powerlifting].

Nonetheless, a number of structural properties distinguish raising, which establishes an A-dependency between a matrix functional head an embedded subject, and control, which establishes a binding dependency across two A-positions.

3.1 Clause Size and Long-distance A-dependencies

If A-dependencies typically involve nominals and heads or positions implicated in ϕ-agreement and/or case, what does it take to establish such a dependency across a clause-boundary? One prominent factor in many analyses of cross-clausal A-dependencies is the size of the clause the A-dependency is established across.

Many approaches build on a dichotomy between finite and nonfinite clauses, which is frequently modelled in Minimalist approaches in terms of phases (Chomsky, 2000, 2001, 2008). Finite clauses are headed by a complementiser that is a phase head, which makes it a boundary across which cross-clausal dependencies cannot be established. Nonfinite clauses are not phases, and so heads in the higher clause can probe material inside the nonfinite clause, establishing long-distance dependencies that can result in movement.

Beyond a basic distinction between finite and nonfinite clauses, a number of approaches focus on differences in size between different types of nonfinite clause. A paradigmatic example of this line of reasoning is Wurmbrand (1998, et seq.), who proposes that infinitival clauses have a

flexible size, ranging from a full CP to a bare VP. According to the proposal, the more complex an infinitival clause is, the less permeable it will be to dependencies established across the infinitival boundary. By the same token, the smaller a clause is, the more it will allow (or even require) dependencies with matrix resources. Wurmbrand dubs these differences in size of the infinitival clause 'different degrees of restructuring'. Restructuring will also be discussed in §3.3 below.

These size differences could underlie the explanation of a long-standing puzzle in syntactic theory: the fact that subjects of nonfinite clauses selected by desiderative predicates cannot be passivised. Notice that, on the surface, such clauses are identical to ECM complements, which do allow passivisation.

(20) a. * Hidilyn is hoped [*t* to win].
b. Hidilyn is believed [*t* to have won].

In recent work, Sheehan and Cyrino (2022) argue that some puzzling contrasts in passivisation patterns from certain nonfinite clauses can be explained if differences in the size of such is coupled with a particular definition of the Phase Impenetrability Condition (Chomsky, 2000, 2001).

A recent incarnation of a theory where clause size takes centre stage is Pesetsky's (2021) Exfoliation theory. In this analysis, however, a nonfinite clause with a reduced structure is not a primitive of the grammar, but rather the result of the operation 'Exfoliation'. Pesetsky's starting point is the observation that cross-clausal A-dependencies like raising are often correlated with a smaller clause size. According to the proposal, that reduction is derivative, in that it results from an operation that eliminates clausal layers from a clause that starts as full finite CP. An outcome of this proposal is that it relates A-dependencies like subject extraction from a (derived) nonfinite clause to a seemingly independent phenomenon, namely *that*-trace effects. More precisely, nonfinite clauses are the result of a more radical form of exfoliation where so many layers of the clausal spine are deleted that the subject ends up on its edge. In turn, sentences that display *that*-trace effects provide a glimpse into the deletion process, in that fewer clausal layers are exfoliated.

In a similar vein, Müller (2017) proposes that besides the structure-building operation Merge, there is another operation that achieves the opposite result: Remove. Just as Merge is feature-driven, a head *H* may bear a feature specification that causes removal of an element that *H* had previously merged with. Müller models a range of phenomena in terms of Remove, including passivisation. Müller proposes that the seemingly contradictory evidence that a null agent in passives is syntactically present for some phenomena (e.g. the licensing of secondary predicates Baker et al., 1989; Collins, 2005, a.m.o) and absent for others (e.g. its inability to be bound by a matrix quantifier or controller) can be accounted for if the implicit agent in passives is merged into the structure, at which point it can license a secondary predicate, but the later undergoes Remove, at which point it cannot be bound by a matrix element. Müller analyses dependencies across a restructured complement in terms of structural removal as well. Like Exfoliation, Remove is successful in accounting for such cases of derivational opacity.

In the following sections, we will see that while many approaches presuppose a basic distinction between finite clauses, which are assumed to prohibit cross-clausal A-dependencies, and nonfinite clauses, which are assumed to permit them, the crosslinguistic picture suggests that a more nuanced approach is required.

3.2 Raising

Raising-to-subject is a dependency between the subject position of an embedding clause and the subject position of the embedded clause, which is typically nonfinite and has a phonologically

null subject, as illustrated in (19a) (Rosenbaum, 1965; Postal, 1974). In contrast to subject control phenomena, discussed in §3.3 below, the matrix subject in raising receives a θ-role in the embedded clause, where it cannot receive case due to the embedded TP being nonfinite (as we saw in the previous section). Rather, it Agrees with/receives case from the matrix finite T, which is commonly analysed as triggering movement to the matrix subject position. Raising predicates are, thus, unaccusatives that take a clause as their argument and do not assign a θ-role to external arguments. In any language, the set of raising predicates will be a subset of possible clause-selecting unaccusatives; languages also vary in the type of clauses that permit raising (see Halpert, 2019, for discussion).

A potential universal in raising is that it only targets subjects. This requirement can be reduced to different restrictions. By Minimality (Chomsky, 1986, 1995; Rizzi, 1990), because A-dependencies target DPs, the embedded subject will always be most local to heads in the main clause and will block lower DPs. By the Activity Condition (Chomsky, 2000, 2001), the subject of an active nonfinite clause will be the only DP without case, and therefore the only target available for raising. Alternatively, if A-dependencies are regulated by ϕ-features, as discussed in §2.1, a ϕ-probe in the matrix clause triggers raising and the closest DP that have matching features is the embedded subject.

A point of variation lies in the position where the subject is pronounced. Typically, the subject is pronounced in the matrix clause, but *backwards raising*, where the overt subject is in the embedded clause, with a gap in the main clause is also possible, as in Adyghe/West Circassian (Potsdam and Polinsky, 2012). In (21), an unaccusative verb selects a nonfinite clause whose overt subject bears ergative case and agrees with the nonfinite verb. Surprisingly, the matrix verb also agrees with the embedded subject, but uses absolutive agreement, which is unexpected since ergative DPs typically do not trigger absolutive agreement in the language.

(21) ~~a-xe-ʁ~~ [a-xe-me se s-a-š'e-new]
DEM-PL-ABS [DEM-PL-ERG 1SG.ABS 1SG.ABS-3PL.ERG-lead-INF]
∅-fjež'a-ʁe-x.
3ABS-begin-PAST-3PL.ABS
'They began to lead me.'

(Potsdam and Polinsky, 2012)

This construction alternates with "canonical" raising, where the raised subject surfaces in the matrix clause bearing absolutive case and triggering absolutive agreement in the raising verb, as expected. Potsdam and Polinsky argue that the matrix absolutive agreement in (21) results from a local A-dependency, created by movement, as in forward/"canonical" raising constructions, except that this operation can be covert in Adyghe. This pattern is, in fact, expected by the Copy Theory of Movement (Chomsky, 1993).

In Standard Arabic, (Haddad, 2012), backward raising manifests as word order differences. In forward raising, the raised subject immediately follows, and agrees with, the main verb. In backward raising, the subject surfaces in post-verbal position inside the embedded clause, but still triggers agreement on the matrix verb, which Haddad analyses as movement of the embedded subject into the matrix clause, with the embedded subject linearised in the embedded clause.

(22) kād-at ta-tawaqqaf-u ḥarakat-u l-sayyārāt.
was.about-3FS 3F-stop-S.IND the.movement-NOM the-cars
'The cars almost stopped moving.'

(Haddad, 2012, (25))

Interestingly, a similar backwards construction is also available in control, which we turn to in §3.3.

As the discussion in §3.1 implies, a phase-based approach to cross-clausal A-dependencies like raising predicts that A-movement is possible out of nonfinite clauses but impossible out of finite ones. Combined with the typical case properties of finite and nonfinite clauses discussed in §2.1, this approach leads to a crosslinguistically uniform view, where raising out of nonfinite clause is obligatory, since the subject cannot be licensed otherwise, while raising out of a finite clause is prohibited because (among other reasons) the subject can be licensed without raising. These predictions are, in fact, inaccurate once we consider raising patterns beyond well-studied languages like English. Polinsky and Potsdam (2006) and Halpert (2019) show that languages can have different raising profiles, and that raising is neither restricted to, nor obligatory in, nonfinite clauses in all languages. Zulu, for example, disallows raising out of a nonfinite clause but optionally permits raising out of a finite clause.

(23) a. * **iqhina**$_i$ **li**-bonakala [t_i uku-(zo)-phuma embizeni]
AUG.5steinbok$_i$ 5S-seem [INF-(FUT)-exit LOC.3cooking.pot]

b. ku-bonakala [ukuthi **iqhina** **li**-zo-phuma embizeni].
17S-seem [that AUG.5steinbok 1S-FUT-exit LOC.3cooking.pot]

c. **iqhina**$_i$ **li**-bonakala [ukuthi t_i **li**-zo-phuma embizeni].
AUG.5steinbok$_i$ 5S-seem [that 5S-FUT-exit LOC.3cooking.pot]
'It seems that the secret will come out.'

(Halpert, 2019, (19))

We discuss raising out of a finite clause ('hyperraising'), and its theoretical implications, in §3.5. As Halpert discusses, there can also be variation in which nonfinite clauses types permit raising.

So far, we have seen cross-clausal A-dependencies established between matrix and embedded subject positions. In (24), on the other hand, an A-dependency is established between the embedded subject and an object-related element—an object position and/or a head that can license object case—in the matrix clause. The sentences in (24) involve the subjects of embedded nonfinite clauses apparently licensed with accusative case, a pattern known as 'Exceptional Case Marking' (Chomsky, 1981).

(24) a. Fazad believes Sabbi/her to be the best candidate for the job.
b. Fazad had intended [for Sabbi's parents/them to be present].

(24a)'s linear order is consistent with either an ECM (25a) or a raising to object analysis (25b). In the latter, the embedded subject moves into a matrix object position, yielding local accusative case assignment.

(25) a. Fazad v believes [$_{TP}$ Sabbi to be the best candidate for the job]
ACC

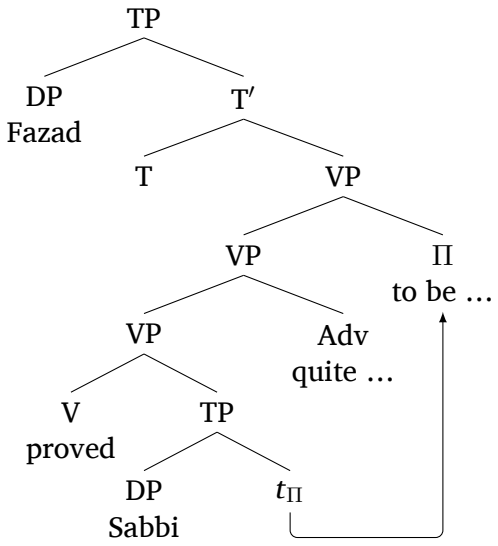
b. Fazad v believes Sabbi [$_{TP}$ t to be the best candidate for the job]
ACC

In contrast, in (26a) and (26b), the embedded subject precedes a matrix element, leading to analyses in which the embedded subject undergoes A-movement into a matrix object position (Rosenbaum, 1965).

(26) a. Fazad proved Sabbi/her quite conclusively to have committed the crime.
b. Fazad made Sabbi/her out to be a liar.

While (26a) and (26b), appear to require a raising-to-object analysis, since the embedded subject (*Sabbi*) precedes unambiguously matrix material, Neeleman and Payne (2020) argue such cases do not require cross-clausal A-movement. They propose instead that part of the embedded clause is extraposed:[4]

(27)



Neeleman and Payne provide empirical and experimental support for the extraposition analysis sketched in (27), building on Lasnik (1999), who observes that a sentence that is ambiguous between an ECM and a string-vacuous raising-to-object analysis may be scopally ambiguous. However, when the embedded subject is followed by matrix material, as in (26a) and (26b), only surface scope is available.

While theories developed to account for raising typically focus on nonfinite embedded clauses and follow Mahajan (1990) in assuming a case-driven approach to A-movement, we will see in §3.5 that recent work on an expanded empirical picture has necessitated new approaches to raising.

3.3 Control

Control is another cross-clausal A-dependency between two nominals. Here, we focus on obligatory control into complement clauses.[5] Unlike raising and Exceptional Case Marking, control

[4] Halpert and Zeller (2015) propose a similar analysis for raising-to-object in Zulu, though they argue that in Zulu, right dislocation of the embedded clause can follow rightward extraposition of the raised embedded subject.

[5] There are, in fact, different configurations that give rise to a control dependency. Landau (1999) draws a distinction between obligatory and non-obligatory control. Obligatory control is further divided into exhaustive (29) and partial control (1a), while non-obligatory control can be long distance (1b) or arbitrary (1c).

(1) a. Sindhu$_k$ decided [PRO$_{k+1}$ to eat lunch together]. *partial control*
(cf. *Sindhu ate lunch together.)
b. Sindhu knows that it would help her manager to control herself in public. *long distance control*
c. [PRO controlling oneself] can be difficult. *arbitrary control*

For a thorough overview on control, including the constructions in (1), see Landau (2013).

involves two thematically independent positions: an argument in a thematic position inside the matrix clause (the controller) binds (controls) the embedded subject. The controlled subject, notated 'PRO', is typically phonologically null.

(28) $[_{CP}\ DP_{controller}\ \ldots\ PREDICATE\ \ldots\ [_{CP/TP}\ PRO\ \ldots]]$

binding

PRO displays signature properties of bound variables, including obligatory coreference with the controller, obligatory de se reading, and sloppy reading under ellipsis. The diagram in (28) captures (29a) and (29b), which illustrate a matrix subject and matrix object controller, respectively.

(29) a. Sindhu$_k$ tried [PRO$_k$ to choose a new book].
b. Faatu convinced Sindhu$_k$ [PRO$_k$ to choose a new book].

The status of PRO (as e.g. a sui generis category, the residue of movement, an underspecified pronoun) varies from theory to theory. They also differ in how the syntactic and semantic relationship between PRO and the controller is established. Theories cover at least two aspects of control: *(i)* how it is interpreted/how the control relation is established and *(ii)* how its phonological properties are established.

In Government and Binding (GB, Chomsky 1981), the behaviour and properties of PRO are determined by the PRO theorem, which states that PRO is ungoverned. This theorem follows from the axioms of Binding Theory, combined with the stipulation that PRO is an empty category that is both pronominal and anaphoric. More precisely, Principle A requires that anaphors be bound in their governing category, while Principle B requires that pronouns be free in their governing category. It follows that PRO can only comply with both principles at the same time if it is ungoverned. Because PRO is ungoverned, it also follows, within GB, that PRO cannot be assigned case, since case assignment also occurs under government (i.e. the case assigner must govern the case assignee).

These assumptions are later dismissed in Minimalist analyses of control. The null case theory (Chomsky and Lasnik, 1993; Martin, 2001) is an early Minimalist take on control, according to which certain types of infinitival T are able to assign null case to PRO (and, crucially, only PRO). Martin (2001) notes that, in its basic form, this theory wrongly predicts that PRO can be the subject of any infinitival clause. To capture the distinction between raising and control, Martin proposes that only control infinitivals have some tense, allowing them to assign null case, while raising infinitivals do not. Wurmbrand (2014) later shows that this tense-based distinction between ECM and control is empirically unfounded.

A prominent Minimalist approach is the Movement Theory of Control (Hornstein 1999; Boeckx et al. 2010; Hornstein and Polinsky 2010). According to the MTC, control reduces to A-movement into a second thematic position, so that "PRO" is in fact the trace of movement. An MTC analysis of a sentence like (29a) is diagrammed as follows:

(30) [Sindhu tried [$_{TP}$ ~~Sindhu~~ to [$_{vP}$ ~~Sindhu~~ choose a new book]]]

θ

In (30), the controller *Sindhu* is base-generated inside the embedded clause, where it receives its first θ-role. This DP then moves into another θ-marked position in the matrix clause, unlike in the raising cases in the previous section, where the higher position was θ-less. However, instead of moving into a case-marked position, in control, the DP moves into a θ-marked position. According to the MTC, the phonological nullness of PRO reduces to the mechanisms that regulate

the phonological properties of lower copies of movement (e.g. linearisation requirements, Nunes 2004, a.o.).

The MTC has faced extensive criticism. This theory is particularly ill-suited to account for partial control. For extensive arguments against the MTC, see, among many others: Culicover and Jackendoff (2001); Landau (2003, 2007); Modesto (2007, 2011); Bobaljik and Landau (2009); Ndayiragije (2012); Wood (2012, 2017); Sato (2011).

Yet, the MTC is well-equipped to account for two phenomena: backwards control and copy control. PRO is overwhelmingly phonologically null crosslinguistically. In backwards and copy control, however, a DP that is fully identical to the controller is pronounced in the position where one would expect a phonologically null PRO. Nonetheless, the relationship between a matrix argument and the pronounced embedded subject is one of binding, which also characterizes the phonologically null PRO. In backwards control, the matrix controller position is unpronounced, while in copy control, both the controller and PRO positions are pronounced and identical to each other.

Backwards control has been documented in a fairly diverse set of unrelated languages, including Tsez (Polinsky and Potsdam, 2002a), illustrated in (31), Malagasy (Polinsky and Potsdam, 2002b; Potsdam, 2009), Romanian (Alboiu, 2007; Alexiadou et al., 2010), Greek (Alexiadou et al., 2010), and Ndebele (Pietraszko, 2021).

(31) ~~kidbā~~ [**kidbā** ziya bišra] yoqsi.
[girl.ERG cow.ABS feed.INF] began
'The girl began to feed the cow.'

(Polinsky and Potsdam, 2002a, (2))

According to a movement analysis, a sentence like (31) has the structure in (30), except that the lower copy of the movement chain is pronounced.

Copy control has been documented in San Lucas Quiaviní Zapotec (Lee, 2003), shown in (32), and Telugu (Haddad, 2009).

(32) R-càà a'z **Lia Paamm** [g-ahcnèe **Lia Paamm** Gye'eihlly].
HAB-want FEM Pam [IRR-help FEM Pam Mike]
'Pam wants to help Mike.'

(Lee, 2003, (62), adapted)

The controller *Lia Paamm* is realised in both the matrix and the embedded clause, hence the name of this construction. Backwards control and copy control have been advanced as empirical arguments in favour of the MTC, coupled with the Copy Theory of Movement (Chomsky, 1993).[6]

Some approaches have sought to reconcile the advantages of the MTC with the significant theoretical and empirical challenges it faces by proposing a hybrid theory. Van Urk (2010) and Grano (2015), for instance, develop theories where movement and licensing of PRO coexist, with PRO occurring in partial control and a movement-based derivation in (some instances of) exhaustive control.

In Van Urk's (2010) analysis, control constructions that are derived by θ-movement and those that are derived by licensing PRO can be empirically distinguished: control derived by movement displays one case feature across the two positions, while PRO-licensing yields independent cases in the two positions, as the contrast between (33a) and (33c) illustrates.

[6]Because of space constraints, this paper omitted discussion about other types of control, including crossed control (Polinsky and Potsdam, 2003, 2008; Sato, 2010; Kurniawan, 2013; Arka, 2014a,b; Natarina, 2018; Berger, 2019; Kroeger and Frazier, 2020; Paul et al., 2021) and proxy control (Doliana and Sundaresan, 2022).

(33) a. **Ólafi** fannst gaman að vera **fyrstum**.
Olaf.DAT found fun to be.INF first.DAT
'Olaf found it fun to be number one.' *case sharing in control*

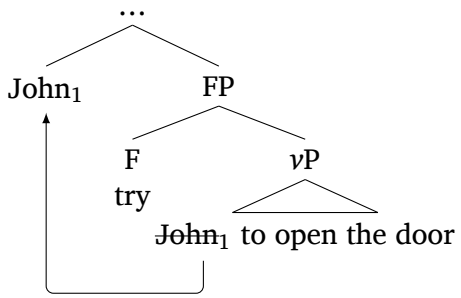
b. Ég tel **strákana** hafa verið **kitlaða**.
I.NOM believe boys.ACC have.INF been tickled.ACC
'I believe the boys to have been tickled.' *case sharing in raising*

c. **Bræðurnir** æsktu þess að vera **báðum** boðið.
brothers.NOM wish.PAST it to be.INF both.DAT invited
'The brothers wished both to be invited.' *case independence in control*

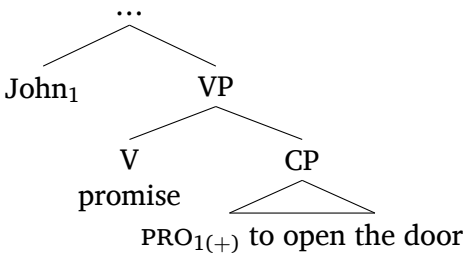
(Van Urk, 2010)

Grano (2015) proposes another hybrid theory of control, in which movement vs. binding of PRO depends on the selecting predicate: exhaustive control predicates are functional heads that combine with lexical verbal projections, while partial control predicates select a whole clause. Each one of these strategies is involved in different control structures selected by different predicates. Specifically, exhaustive control predicates are functional heads and the embedded subject moves from the embedded clause into the matrix clause. The result is a monoclausal structure, given that the control verb belongs to the functional portion of the clause; the lexical portion is instantiated by the embedded verb. The dependency between the matrix subject or object position and that of the embedded subject is thus the result of movement and only the latter is θ-marked. Subject-oriented restructuring predicates like *try* and *manage*, according to Grano's proposal, incorporate a variable that is necessarily bound.

(34) *Exhaustive control*



(35) *Partial control*



(Grano, 2015, p. 5)

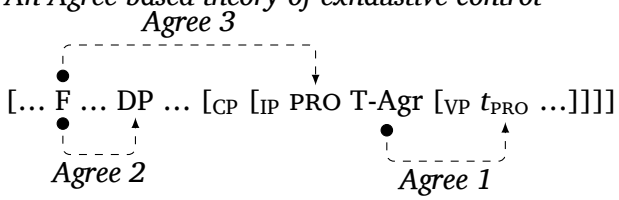
This proposal avoids some of the problems faced by the MTC, a notable example being its difficulty in accounting for partial control. In Grano's theory, this issue is sidestepped by restricting control as a consequence of movement to a certain class of predicates. Partial control only arises with different predicates and, consequently, with a different structure, where control is the result of binding of PRO. While Grano's theory involves movement (in the derivation of exhaustive control sentences), only a single θ-position is involved in his version of movement control, unlike in typical MTC approaches.

Agree-based theories are another category of minimalist control theory. In Agree-based theories, the syntactic properties of controlled PRO are the consequence of the workings of the operation Agree (Chomsky, 2000, 2001). A notable point of difference among theories of this type is whether the agreement relationship links PRO and the controller directly or whether there is some other element intermediating it.

Landau (1999, 2004, 2006, 2008) proposes that exhaustive control, diagrammed in (36), occurs when some matrix functional head F (e.g. T in subject control or *v* in object control) agrees

first with a matrix DP (the controller) and, subsequently, with PRO, transmitting the totality of the controller's ϕ-features to PRO. Partial control arises when T agrees with the embedded C, which lacks number features, before it can Agree with PRO, entailing that number is not transmitted from the controller to PRO. The empirical motivation behind this distinction is one of tense: Landau argues that exhaustive control complements are truly tenseless, while partial control complements are tensed, with tense being encoded at C.

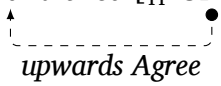
(36) *An Agree-based theory of exhaustive control*



(Landau, 1999, p. 17)

McFadden and Sundaresan (2018), in turn, propose that there is no PRO per se. This Agree-based theory, thus, shares with the MTC the desideratum of simplifying the grammar by reducing its primitives, though the authors do not reduce PRO to the residue of movement. Rather, there is a minimal pronoun *UPro*, which becomes PRO in certain environments. For example, obligatory control PRO emerges when *UPro* Agrees upwards (Bjorkman and Zeijlstra, 2019) with an argument in the matrix clause.

(37) [Sindhu tried [TP *UPro* to run a marathon]]



Landau (2015) points out some theoretical inadequacies of an Agree-based theory of control, proposing what the author terms a 'Two-tiered Theory of Control' that takes into account both semantic and grammatical properties. In particular, attitude complements are tensed and allow partial control, while non-attitude complements are untensed and require exhaustive control. Based on this division, obligatory control can then be divided into two types: predicative and logophoric.

Predicative control is built from non-attitude predicates that take a property-denoting projection as a complement. Logophoric control, by contrast, is built from attitude predicates that take as complement a proposition-denoting projection built by an additional layer (tier) on top of the property-denoting projection. While predicative control involves a direct relationship between the controller and PRO, logophoric control involves an indirect relationship, mediated by a variable in the embedded Spec,CP.

In predicative control, PRO is assumed to be a minimal pronoun (i.e. a feature bundle [D, ϕ]). It is base-generated as the subject of the embedded clause and then moved to its edge, thus creating a λ-predicate. This predicate is selected by non-attitude predicates. The matrix controller then saturates the predicate that results from the combination between the embedded λ-predicate and the non-attitude predicate.

(38) [John managed [FinP {*D*, ϕ} Fin[*uD*] [TP *t* to stay healthy]]]

(Landau, 2015, p. 29)

On the other hand, in logophoric control, the base is the predicate created by the movement of PRO, a minimal pronoun, to the edge of a clause. This predicate then merges with a complementiser that hosts the logophoric center. Logophoric control emerges when the control predicate is of the attitude type. The matrix controller is eventually introduced in the structure and it binds the variable at Spec-CP. The relationship between the controller and PRO is therefore "indirect", mediated by the coordinate variable at Spec-CP. The controller binds this variable after the embedded predicated is predicated of it.

(39) [John λx ~~John~~ intends [$_{CP}$ *pro* [$_{FinP}$ {*D*, ϕ} Fin$_{[uD]}$ [$_{TP}$ *t* to visit Athens]]]]

binding *binding*

(Landau, 2015, p. 44)

As is evident from the discussion in this section, even the basic picture of control is quite complex, giving rise to a number of competing approaches. As will see in §3.4 below, and then in §3.5, theories also have to take into account an even richer picture of crosslinguistic variation.

3.4 Crosslinguistic Variation in Control

As we have already seen, languages vary in the properties of their control constructions. A few key dimensions along which control can vary crosslinguistically include:

(40) a. Which element (controller or PRO) is pronounced?
b. How is PRO pronounced?
c. What is the size of control clause?

The property (40a) was already touched on above. While typically, the controller is an overt DP while the controlled embedded subject is phonologically null, in languages like Tsez, backwards control (31) involves an overt DP in the lower clause and a null DP upstairs. In copy control in languages like San Lucas Quiviní Zapotec, (32), both positions are identical overt DPs.

Another main point of variation is how PRO is realised. While PRO is overwhelmingly a null element, the crosslinguistic picture also includes cases where PRO has overt phonological content. In Tamil (Dravidian), for example, PRO can be a reflexive:

(41) ramani **taan** saadatt.ai saappi.ḍ.a paa.tt.aan.
Raman.NOM self.NOM rice.ACC eat.INT try.PST.3M.SG
'Raman tried to eat the rice.'

(Sundaresan, 2010)

Similarly, in Mandarin (Li, 2021), Bùlì (Sulemana, 2021), illustrated below, Chirag (Ganenkov, 2022), and Wolof (Fong, 2023), the subject of control clauses is an overt pronoun:

(42) a. Asouk$_i$ tìerì *(**wà**$_{i/*j}$) dā gbáŋ.
Asouk remember *(3SG) buy book
'Asouk remembered to buy a book.'
b. Mí túlím Asouk$_i$ zúk *(**wà**$_{i/*j}$) dā gbáŋ.
1SG turn Asouk head *(3SG) buy book
'I convinced Asouk to buy a book.'

(Sulemana, 2021, p. 96)

A potential generalisation from Li's, Sulemana's, and Fong's analyses of overt PRO's (as well as from Lee's 2003 analysis of copy raising in Zapotec) is that pronounced controlled PRO only occurs in bigger clauses. Bùlì and Mandarin, also have control clauses with unpronounced PRO, but these seem to be smaller, in comparison to clauses with a pronominal PRO. Likewise, in Romance languages (Szabolcsi, 2009; Barbosa, 2018), in Hungarian (Szabolcsi, 2009), and Tamil (Sundaresan, 2010), the pronounced PRO is associated with focus. Assuming that focus also requires a more complex left periphery, the generalisation seems to be that a pronounced PRO correlates with a more complex structure. This emerging generalisation still leaves a number of questions, including why a complex clausal structure would correlate with the need to pronounce a bound variable and why this property is so rarely attested, with the overwhleming majority of languages requiring unpronounced PRO in all instances.[7]

The third point of variation concerns the size of control clauses (40c), also discussed in §3.1 above. This point of variation, as we have seen, can be instantiated within a single language, with multiple types of control involving different embedded clause sizes. We have already seen that a number of theories of control hinge on the size of the embedded clause. In particular, as Wurmbrand (1998) observes, exhaustive control correlates with a smaller embedded clause, that many accounts treat as an instance of restructuring, where a seemingly biclausal structure behaves as if it were monoclausal with respect to clause-bound phenomena. Partial control predicates do not show restructuring behaviour. The crosslinguistic stability of this generalisation suggests that it is a key component to understanding control; accordingly, as we have seen, it features prominently in a number of accounts. Approaches to restructuring share the view that embedded, restructured clause is truncated (i.e. it contains fewer layers in the clausal spine), but differ in how this truncation comes to be. A main point of distinction is whether the truncation is a base-generation property (i.e. restructured clauses start out small) or occurs derivationally (i.e. these clauses start with some functional layers that are eliminated during the course of the derivation). Yet another alternative that we saw above is that restructuring predicates are themselves functional heads, rather than full lexical embedding predicates, so that the monoclausality characteristic of the phenomenon is simply the byproduct of there only being one clause.

These different approaches to restructuring yield differences in how the dependency between a matrix argument and the subject of the restructured clause can arise. If the restructured complement is truncated by base-generation, there simply is just one argument (the matrix controller), of which the matrix and embedded verb are predicated. This distinction is later taken up by much control literature (e.g. Landau in the Agree theory 1999 and the two-tiered theory 2015, as well as in Grano's 2015 hybrid theory).

3.5 A-dependencies across a Finite Clausal Boundary

The paradigmatic cases of raising and control usually involve nonfinite clauses. A few commonly held assumptions predict that this should be the correct state-of-affairs. Nonfinite clauses are taken to have fewer layers and resources than their finite counterparts. As such, the subject of a nonfinite clause is taken to depend on matrix resources for e.g. case licensing (cf. §2.1). This may involve A-movement or ECM, with A-movement targeting a θ-position (control) or not (raising). By the same token, the lack of these resources ensure that a PRO subject not be governed within its own clause. We might expect that this theoretical intuition reflects a universal, that raising and control are only licensed in nonfinite clauses. However, the crosslinguistic picture includes many

[7] An answer to this question based on a null *self* morpheme is offered by Boeckx et al. (2010). We thank an anonymous reviewer for this remark.

instances where both raising and control dependencies are established across a finite clause. This is what we turn to next.[8]

3.5.1 Finite Control

Ferreira (2000, 2009) observes that finite control (43b) is possible in Brazilian Portuguese, alongside the more typical control into a nonfinite clause (43a). The embedded clause in (43b) is headed by a complementiser and the verb is inflected for tense and also for subject agreement. In both types of control, the embedded subject is null and obligatorily coindexed with the matrix subject.

(43) a. A Maria$_1$ tentou [PRO$_{1/*2}$ comprar um bolo].
the Maria tried [buy.INF one cake]
'Maria tried to buy a cake.'

b. A Maria$_1$ acha [que PRO$_{1/*2}$ vai comprar um bolo].
the Maria thinks [that go.FUT.3SG buy a cake]
'Maria thinks that she will buy a cake.'

BP, like many other languages that exhibit finite control, is a *pro*-drop language. That the null embedded subject in (43b) is an instance of control PRO and not of a dropped subject is established by a series of diagnostics that identify bound variables, including an obligatorily sloppy reading under ellipsis:

(44) João acha [que PRO vai ganhar a corrida e Maria também].
João thinks [that goes win.INF the race and Maria too]
Only: 'João thinks that he will win the race and Maria thinks that she will win the race.'

(Ferreira, 2009, (15a))

Finite control is also documented in e.g. Persian (Ghomeshi, 2001; Darzi, 2008; Ilkhanipour, 2014) and Korean (Lee, 2009). Landau (2004) examines finite control out of a subjunctive clause in Balkan languages and Hebrew.

Finite control defies common assumptions about the impossibility of establishing A-dependencies across a finite clause boundary. Approaches to finite control capitalise on independent properties of the language where finite control is found and/or enrich existing approaches to control to accommodate finite control.

The rich literature that finite control in BP has engendered illustrates approaches from the first camp. Ferreira (2000, 2009) proposes that finite CPs in Brazilian Portuguese are formally ambiguous between being ϕ-complete or not. If the CP is ϕ-complete, a non-control sentence is derived with a subject that can be a lexical DP. If the CP is ϕ-incomplete, the embedded subject cannot be case-licensed, so that it raises into a thematic position inside the matrix clause in Hornstein's (1999) sense. A similar movement-based proposal that takes advantage of impoverished morphology is advanced by Rodrigues (2004). Modesto (2007, 2011) relies on another independent property of Brazilian Portuguese, its status as a topic-prominent language, arguing that the null embedded subject in sentences like (43b) is an elided topic.

[8]These constructions are often distinguished from prolepsis, a dependency that we do not discuss here (for an overview, see Salzmann 2017). Work on hyperraising and finite control typically goes to great lengths to distinguish these constructions from prolepsis, though see Lohninger et al. (2022) for an approach that proposes an approximation between these two constructions.

There are also analyses of finite control that modify existing theories in order to accommodate the theoretically unexpected A-dependency across a finite domain. Landau (2004), for example, extends an Agree theory of control to accommodate subjunctive control, proposing that the combination of tense and agreement features in subjunctive control clauses is what gives rise to a non-referential (i.e. bound) subject. Terzi (1997) offers an analysis of subjunctive control in Balkan languages that is based on null case (Martin, 2001).

While finite control seems to be relatively rare, compared to its nonfinite counterpart, it figures prominently as a challenge to the assumed dychotomy between finite and nonfinite clauses, as well as attendant concepts, like phasehood.

3.5.2 Hyperraising

Like finite control, we also find instances of raising that cross a finite clause. See Zyman (2023) for a recent overview of the phenomenon and its theoretical implications.

We can see an example of hyperraising in Brazilian Portuguese in (45b). As with finite control, hyperraising in Brazilian Portuguese is available out of both nonfinite (45a) and finite (45b) clauses. Standard diagnostics for raising (e.g. idiom preservation) apply for both (45a) and (45b).

(45) a. A Maria$_1$ parece [$_{TP}$ *t* ter comprado um bolo].
the Maria seems [have.INF bought one cake]
'Maria seems to have bought a cake.'

b. A Maria$_1$ parece [$_{CP}$ que *t* comprou um bolo].
the Maria thinks [that bought a cake]
Lit.: 'Maria seems that bought a cake.'

Hyperraising of an embedded finite subject can target both subjects and object positions. The former is illustrated in (45b) and has been documented in many Bantu languages (Carstens and Diercks, 2009; Carstens, 2011; Halpert, 2019, a.m.o), illustrated in (46) with an example from Zulu, and Brazilian Portuguese (Ferreira, 2000, 2009; Rodrigues, 2004; Nunes, 2008). Hyperraising to object is illustrated with the Nez Perce data in (47) and has been documented, e.g. in many Altaic languages (Tanaka, 2002; Yoon, 2004; Fong, 2019, a.m.o), Bantu languages (Halpert and Zeller, 2015), and in P'urhepecha (Zyman, 2018).

(46) **uZinhle** **u**-bonakala [ukuthi *t* **u**-zo-xova ujeqe]
AUG.1Zinhle$_i$ 1S-seem [that 1S-FUT-make AUG.1steam.bread]
'It seems that Zinhle will make steamed bread.'

(Halpert, 2019, (3))

(47) Taamsas-nim ~~mamay'as-nim~~ hi-**nees**-nek-se [**mamay'as-nim**
Taamsas-ERG 3SUBJ-O.PL-think-IMPERF [childre-ERG
poo-payata-six Angel-ne].
3/3-help-IMPERF.S.PL Angel-ACC]
'Taamsas thinks the children are helping Angel.'

(Deal, 2017, (11))

(47) illustrates an instance of covert hyperraising to object: the embedded subject surfaces in the embedded clause, but triggers object agreement in the matrix clause. Cf. backwards standard raising in (21) and (22).

Hyperraising poses a series of challenges to theories that were designed to enforce A-dependencies across nonfinite clauses and ban them in their finite counterparts. One such challenge concerns case assignment. The subject of a finite clause receives case within the clause (e.g. nominative in the Brazilian Portuguese). Under a theory where case assignment deactivates a DP (Chomsky, 2000, 2001), the subject of the embedded finite clause would be unable to raise into the matrix clause. Solutions to circumvent this difficulty involve doing away with the Activity Condition (an extrapolation of a proposal made by Nevins 2004 for different facts) or exploiting a particular view of unmarked cases like nominative (in the dependent case sense, Marantz 1991). For example, Kornfilt and Preminger (2015) argue that hyperraising is possible in Sakha (Baker and Vinokurova, 2010) because the unmarked case that the embedded subject bears is in fact the exponence of an unvalued case feature, so the embedded subject can raise into the matrix clause without violating the Activity Condition. This solution is not adequate for cases where hyperraising targets an ergative DP, as in (47), since dependent cases like ergative would not reflect an unvaluated case feature. Another approach to case puzzles in hyperraising is to relax the Activity Condition and allow for case stacking, as attested in Korean hyperraising (Yoon, 2007). Finally, work on hyperraising in Bantu languages has appealed to the notion of hyperractivity, i.e. a feature or set of features that remain active even after they have undergone Agree. Hyperraising is possible because the embedded subject, even though it undergoes Agree in the embedded finite clause where it is base-generated, it remains active and, thus, a candidate to hyperraise into the matrix clause and undergo another Agree operation there (cf. Carstens and Diercks 2009; Carstens 2011, a.o.).

Hyperraising, like finite control, is challenging in that an A-dependency is established across a finite boundary, a possibility ruled out by Phase Theory (Chomsky, 2001). Three main classes of solutions can be distinguished in the hyperraising literature. They differ in whether or not the phasal status of the embedded CP is negated or reinforced

One type of approach to hyperraising capitalises on deficiencies of the embedded clause, just as we saw for finite control accounts. In a language like Brazilian Portuguese, for example, embedded CPs may be defective and, therefore, non-phasal (Ferreira, 2000, 2009). This type of approach falls short as a crosslinguistically robust solution to hyperraising, due to the empirical challenge from languages like Zulu, which as (46) illustrates, permits hyperraising out of indicative clauses with no evidence of deficiency, but bans it out of infinitives (Halpert, 2015, 2019).

Another family of approaches maintains the phasal status of the embedded finite CP, but proposes that hyperraising may make use of the edge of the CP phase as an escape hatch (e.g. Alboiu and Hill, 2016; Fong, 2019; Zyman, 2018; Tanaka, 2002). These edge proposals can then be divided into two subgroups, depending on whether Spec-CP is an A-position (Fong, 2019; Tanaka, 2002) or an $\bar{\text{A}}$-position (Alboiu and Hill, 2016). The latter strand of research points to the theoretical relevance of hyperraising as a window into the study of the nature of syntactic positions, specially as it pertains to the A vs. $\bar{\text{A}}$-distinction.

Fong (2022), in fact, argues that hyperraising-to-object that passes through the embedded Spec-CP poses a problem to Safir's (2019) explanation of the A/$\bar{\text{A}}$-distinction as an epiphenomenon. Likewise, hyperraising-to-object poses a problem to theories of Improper Movement based on the Williams Cycle (e.g. Poole), according to which syntactic dependencies cannot relate two positions such that the c-commanding one is lower on some assumed hierarchy than the c-commanded one, e.g. CP $\gg$ TP $\gg$ *v*P. Hyperraising-to-object relates an embedded subject position that occupies Spec-TP or Spec-CP to a matrix Spec-*v*P position. While an extraposition analysis could account for raising-to-object (Neeleman and Payne, 2020), the same seems harder to apply in hyperraising-to-object, especially in head-final languages like Mongolian, Japanese, and Korean.

A third type of approach argues the embedded CP may *become* non-phasal during the derivation, as a consequence of e.g. inherent case assignment (Nunes, 2008) or as a consequence of Agree

(Halpert, 2019; Lee and Yip, 2022). Halpert suggests that the raising pattern in a given language is the byproduct of the conspiracy between independent properties of a language . Halpert's theory does not necessarily implicate phases, instead treating raising as an emergent phenomenon predictable from other properties that a given language exhibits. As Zyman (2023) points out, such an approach may not be crosslinguistically tenable without incorporating phases.

Lee and Yip (2022) show that not every verb allows for hyperraising in Cantonese (48).

(48) a. **Coeng jyu** gamgok / tengman [waa __ m-wui ting].
CL rain feel.like / hear [C not-will stop]
'It is felt/heard that the rain will not stop.'

b. * **Coeng jyu** gamgok-dou / zidou [waa __ m-wui ting].
CL rain feel-ACCOMP / know [C not-will stop]
Intended: 'It can be felt/is known that the rain will not stop.'

(Lee and Yip, 2022, (1, 2))

The deciding criterium is evidentiality: only attitude verbs that encode an indirect evidential component allow hyperraising.

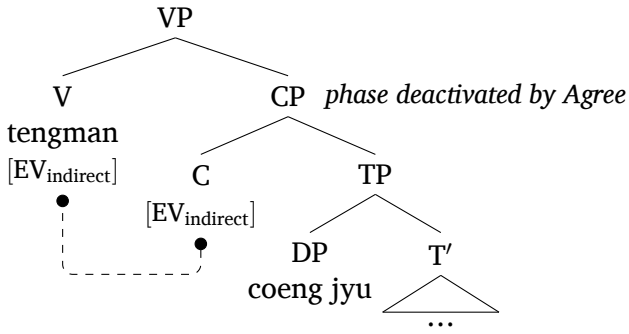
(49) *Context with reportative evidence: Your friend told you that that Ming is playing piano at his home.*

Ngo tengman / #ten-dou Aaming taan-gan kam.
1SG hear / #hear-ACCOMP Ming play-PROG piano
'I heard (from someone) that Ming is playing piano.'

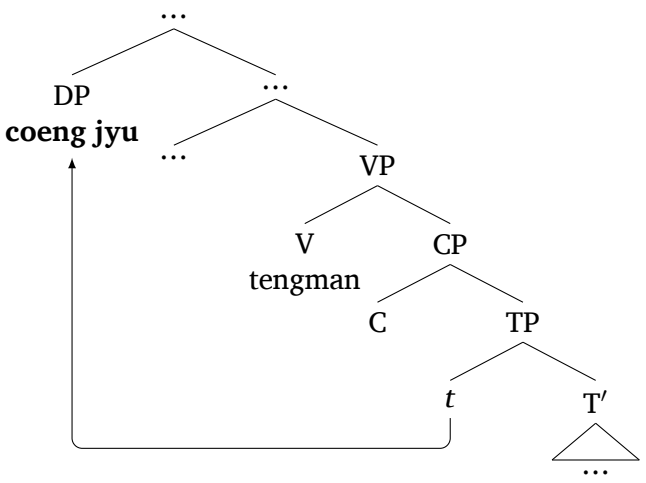
(Lee and Yip, 2022, (9))

In Lee and Yip's analysis, indirect evidence is encoded by a feature [$EV_{indirect}$]. This feature is uninterpretable in a verb, but interpretable in a complement CP. As a consequence of Agree between the main verb, which bears the [$EV_{indirect}$] probe, and the embedded CP, the [$EV_{indirect}$] goal, the CP phase is deactivated, allowing the embedded subject to hyperraise into the matrix clause.

(50) a.



b.



(Lee and Yip, 2022, adapted)

Besides furnishing additional evidence to the phase deactivation solution first advanced by Halpert (2019), Lee and Yip (2022) provide insight into another challenge imposed by hyperraising, the fact that, even when this construction is allowed in a given language, it is usually not available across the board (Nunes, 2008).

3.5.3 Taking Stock

In this section, we have seen that our theories must account for the existence of both control and raising dependencies that take place across finite clause boundaries. While some languages, like Brazilian Portuguese, have both finite control and hyperraising that occur in the same clause type, it remains an open question whether there is any implicational relationship between the availability of the two dependencies in a given language.

Both of these phenomena have motivated multiple modifications to theories of A-dependencies, either by adding nuance to the theories of phases or clause boundaries, or by relying on a CP-edge position to mediate the dependency. It remains to be seen whether a uniform approach for different instances of A-dependencies across a finite boundary is possible or even desirable.

4 Concluding Remarks

What have we learned from our crosslinguistic exploration of A-dependencies? Amidst all of the variation in the driving properties, the relevance of ϕ-features in many of these dependencies and common theoretical approaches is a recurring theme, in line with what Van Urk (2015) proposes. The degree to which structural case is implicated appears to be a point of variation, both within languages that show clear evidence of case and languages that perhaps do not have structural case. We have also seen that while it seems that A-dependencies established across a nonfinite boundary are more frequent, a non-insignificant amount of languages have mechanisms that allow for A-dependencies across full finite CPs. It is clear that a broad crosslinguistic view is needed to broaden our understanding of A-dependencies, and we see comparative investigations into the full raising and control profiles within a language to be a promising area for future research. Theoretically, it is also apparent that such an investigation has implications to fundamental aspects of the grammar, specially as they regard the nature of clausal boundaries, their size, and degrees of permeability.

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