

Locality and the argument/adjunct distinction: Structure-building vs. structure-enrichment

1 Rationale and research context

The overarching theoretical aim of this collaborative project is to develop a new analysis of the foundations of syntactic structure that predicts central restrictions on syntactic dependencies. Empirically, the project is grounded in the interactions between two core areas: the **argument/adjunct distinction**, and **locality**. Current views on the relation between these areas are too simplistic to capture a range of cross-linguistically attested empirical facts, and form a poor fit with current assumptions across many major syntactic theories. The open questions around these topics thus form a particularly promising research area, not least because these clear and relatively simple questions can potentially directly inform theoretical advances on topics of fundamental interest to syntactic theory.

The argument/adjunct distinction Syntactic theories recognize a distinction between **arguments**, which are **selected** by a lexical head such as a verb, and **adjuncts**, which are not. In many cases, omitting arguments (or including superfluous, unselected ones) leads to ungrammaticality, whereas adjuncts may be freely omitted. For instance, the contrasts between *Kim dined*/**Kim devoured*, and *Kim devoured the sushi*/**Kim dined the sushi*, show that intransitive *dine* does not select an object (or **complement**), while transitive *devour* does. However, the adjunct *at 7pm* can be optionally added in either case. In this project we focus on contrasts between adjuncts and complements, as potential confounds may arise with subjects and other argument types.

Many theories treat the argument/adjunct distinction, wholly or in part, as a primitive. For instance, Government and Binding theory (GB, Chomsky, 1981) has a phrase-structure rule used only for incorporating adjuncts into syntactic structures, and Head-driven Phrase Structure Grammar is broadly similar (Pollard and Sag, 1994). Lexical Functional Grammar includes labels for different types of arguments (e.g. SUBJECT and OBJECT), and a disjoint set of labels for adjuncts. The version of Minimalism in Chomsky (2004) distinguishes two types of the structure-building operation Merge: one (Pair-Merge) for adjuncts and one (Set-Merge) for everything else. Other theories reduce the distinction to the more primitive notion of selection. In GB, selected complements are ‘properly governed’, but unselected adjuncts are not. In Categorical Grammar (e.g. Steedman, 1996), adjuncts select their hosts, rather than the other way round. Such ideas, to which we return below, allow scope for reducing properties of adjuncts to more primitive notions.

Locality A more subtle distinction between complements and adjuncts concerns patterns of nonlocal dependencies such as ‘movement’, and constraints on those dependencies. In many languages, movement out of complements is ‘unbounded’: it can span arbitrarily many complement clauses:

- (1) What_{*i*} did Kim say [that she thought [that you’d said [that she had eaten *t_i*]]]]?

Movement out of adjuncts is much less free. In fact, it is commonly assumed (Cattell, 1976; Huang, 1982) that adjuncts are **islands**, or barriers to movement. Examples like (2) motivate this assumption.

- (2) *What_{*i*} did Kim feel full [after she ate *t_i*]?

On some analyses, this is taken as a basic distinction between adjuncts and complements. Other analyses, such as Huang’s, relate this distinction to the fact that complements are selected but adjuncts are not. Alternative accounts, such as Nunes and Uriagereka (2000), reduce the distinction to a phrase-structural configuration: adjuncts (like subjects) are phrases which do not project, and whose sister is also a phrase.

The tension There are several reasons to be sceptical about any of these approaches. First, (2) is not representative, in that *wh*-movement out of adjuncts sometimes *is* possible (Chomsky, 1982; Cinque, 1990). Truswell (2011) relates the perceived ungrammaticality of movement from adjuncts to a semantic condition which rules it out unless the adjunct and its host jointly describe a single event (Single Event Condition). This is satisfied in (3) but not in (4). We describe other patterns relating to movement out of adjuncts in §2.1.

- (3) What_{*i*} did Maria drive Jill crazy [whistling *t_i*]?

- (4) *What_{*i*} did Maria work [whistling *t_i*]?

Moreover, movement is not representative of all syntactic dependencies. Adjuncts are transparent to the syntactic dependency of obligatory control (OC), which determines the reference of the empty category *EC* in (5) (Landau, 2013; McFadden and Sundaresan, 2018).

(5) Maria_i went home [EC_{i,*j} after talking to Jill_j].

In contrast, long-distance agreement (LDA, an agreement pattern where the target is in a host clause and the controller is in an embedded clause) is possible across a complement clause boundary (Hindi-Urdu, (6a)), but know of no language that allows the analogous pattern with the controller in an adjunct schematized in (6b):

(6) a. Vivek-ne [kitaab parh-nii] chaah-ii b. *Vivek worked-f [to buy(-f) the book.f]
V-erg book.f read-inf.f want-pfv.fsg

‘Vivek wanted to read the book.’ (Bhatt, 2005)

In fact, there is currently no theory which predicts why some syntactic dependencies (like OC) regularly cross adjunct and complement boundaries, some (like LDA) cross complement boundaries but apparently not adjunct boundaries, and some (like movement) can often cross complement boundaries but only cross adjunct boundaries under certain circumstances. This means that syntactic theory, in its current state, requires an account that can derive why different syntactic dependencies exhibit different behaviours in this respect.

Our contribution Our main goal in this project is to address the lacuna just described, based on comparison of the locality profiles of different dependency types, across several languages, with particular focus on the complement/adjunct distinction. We believe that these comparisons promise to be a rich source of information about the natures of those dependencies. This is particularly exciting because the taxonomy of dependencies that we have glimpsed in our research to date appears to cross-cut more established taxonomies. The best-known of these is the **A/ \bar{A} distinction**. A-dependencies involve the syntax of nominal arguments, including agreement, control, binding, case-marking, and movement of noun phrases to subject or object position. \bar{A} -dependencies involve movement of phrases in question-formation, relativization, and grammatical constructions for marking topic, focus, and other information-structural phenomena. Strikingly, the A-dependencies include one (obligatory control) which crosses adjunct boundaries and one (LDA) which apparently never does, while our intermediate case (*wh*-question formation) is an \bar{A} -dependency.

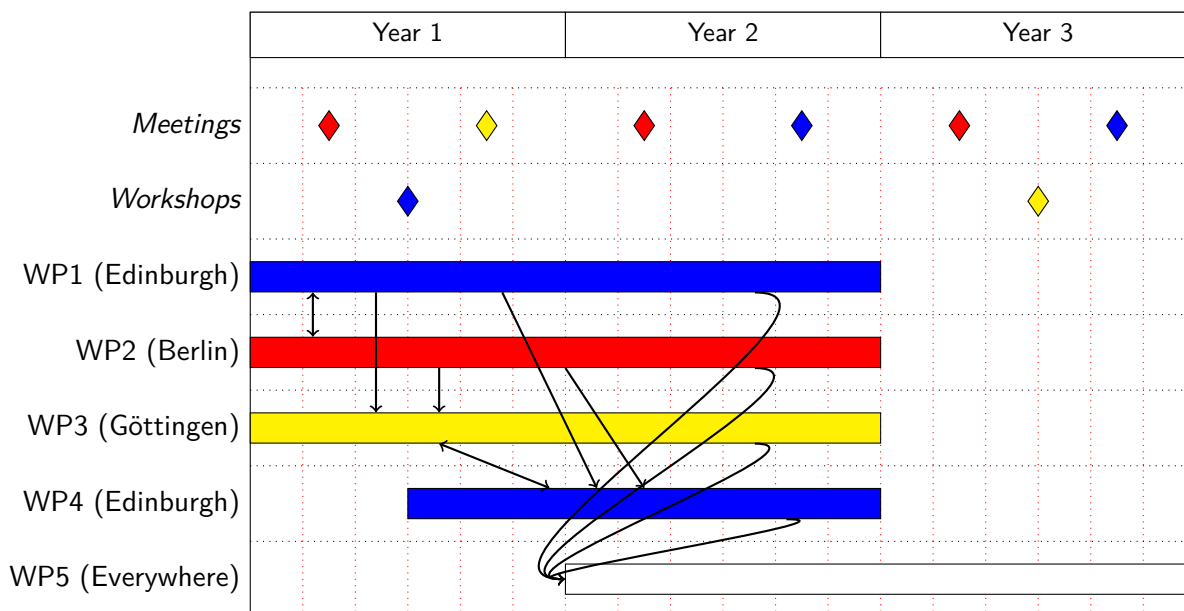
This empirical research is integrated with the development of a theoretical framework, designed to connect the distinct locality profiles of the various dependency types to interacting structural primitives. We have two initial hypotheses. The first is that there is a fundamental distinction between operations of **structure-building**, which establish the basic phrase-structural shape of a sentence, and **structure-enrichment**, concerned with the redistribution of grammatical features in a structure, and furthermore that the application of the latter is parasitic on the former. The various types of syntactic dependencies are built up out of distinct combinations of these basic operations, and this underlies the different locality profiles. For example the variable behaviour of *wh*-questions may be related to the idea (e.g. Cinque, 1990) that there are multiple superficially similar ways of forming such questions. In our terms, some of these involve only structure-building, and others also involve structure-enrichment.

Our second hypothesis concerns the nature of the complement/adjunct distinction. Following an insight mentioned above from Categorical Grammar, we assume that adjuncts select their hosts, whereas complements are selected by their hosts. The characteristic property of adjuncts is then that they select a host of a certain category (e.g. VP) and are configured in such a way that they produce a larger phrase of that same category when the selectional requirement is satisfied. This links back to our first hypothesis because such selectional requirements are the key element determining the course of structure-building. Jointly, the two hypotheses will lead to a perspective on grammar where structure-building is triggered by selectional features and where selectional relations determine when and in which direction structure-enrichment can take place. Given the fact that complements (and specifiers) are selected, but adjuncts are selectors of their hosts, differences in the locality of adjuncts vs. complements will then receive a natural explanation.

2 Work programme including proposed research methods

The project consists of 5 work packages (WPs). **WP1** (Edinburgh, RA1 & UK PI) is a comparative investigation of restrictions on \bar{A} -dependencies, **WP2** (Berlin, RA2 & German PI) a parallel investigation of restrictions on A-dependencies. **WP3** (Göttingen, RA3 & Göttingen Col) builds the project’s theoretical toolbox. **WP4** (Edinburgh, UK PI) is a comparative investigation of interactions between the dependency types in WP1 and WP2 against the background of WP3. **WP5** (all locations, PIs and Col) is the theoretical synthesis, constructing an explanatory theory of restrictions on syntactic dependencies with respect to the complement/adjunct

distinction. The following chart indicates the timing, colour-coded locations, and interactions between the project elements.



WP1–2 will operate in parallel, adopting a methodology that strikes a balance between broad comparison and in-depth analysis of individual languages (Baker, 2010). We will proceed in two steps: first, a broad cross-linguistic overview of the phenomena at hand based on the secondary literature, and second, in-depth primary research on a subset of the languages from the first step. We will select languages for both steps using several criteria: the selection must be as broad and typologically representative as possible, and also informative about multiple dependency types (to allow the study of interactions in WP4). However, the samples will be constrained by the cross-linguistic distribution of some of the dependencies and by the limited availability of careful empirical work on these patterns in most languages. Moreover, we will take into account access to native speakers, for example in expat communities, as the project does not include a fieldwork component.

2.1 WP1: \bar{A} -dependencies and the complement/adjunct distinction (Edinburgh)

This WP will establish some ground truths about \bar{A} -dependencies crossing adjunct and complement boundaries, and develop a firm theoretical understanding thereof. This will establish explananda for WP3–5 with respect to \bar{A} -movement out of adjuncts. Our findings in prior research are that \bar{A} -extraction out of adjuncts is possible, but subject to restrictions on the syntax/semantics of the extracted element, the syntactic/semantic nature of the adjunct, and potentially the specific \bar{A} -dependency. Moreover, there is substantial cross-linguistic variation in the availability of \bar{A} -extraction out of adjuncts.

As discussed in §1, the consensus view that \bar{A} -dependencies cannot cross adjunct boundaries is inaccurate and theoretically unmotivated. Grammatical examples like (7–9) show that such extraction is possible.

- (7) Here is the influential professor who_i John went to college [in order to impress t_i]. (Chomsky, 1982)
 (8) Which car_i would you prefer it [if I fixed t_i]? (Postal, 1998)
 (9) What_i did John drive Mary crazy [whistling t_i]? (Truswell, 2007)

Still, there are at least two restrictions on \bar{A} -extraction from adjuncts. First, extraction from some classes of adjunct really is ungrammatical.

- (10) * Which challenges_i did you get here [despite t_i]?
 (11) * Which dish_i did you do nothing [while he prepared t_i]?

Second, even those adjunct clauses that are transparent to movement only allow ‘referential’ noun phrases (12–14) to be extracted. This suggests that English adjuncts are ‘weak islands’ (Postal, 1998; Truswell, 2011), a class of constituents which restrict extraction in this way. However, there is currently no account of why adjuncts should be weak islands, and existing theories of weak islands (Cinque, 1990; Abrusán, 2014) are not straightforwardly extensible to them.

- (12) Which book_i did John drive Mary crazy [reading t_i]?
 (13) * How much money_i did John drive Mary crazy [spending t_i]?
 (14) * Under which table_i did John drive Mary crazy [hiding t_i]?

Moreover, there is cross-linguistic variation in the availability of extraction out of adjuncts. As well as English, it is possible in North Germanic languages (Engdahl, 1980), but parallel examples, such as (15), are always ungrammatical in German, and indeed most western European languages.

- (15) * Was_i bist du hierher gekommen, [um t_i zu kaufen]?
 what are.2sg you here come for to buy
 'What did you come here to buy?'

Almost nothing is known about patterns like these outside of western European languages. There has been little attention paid to the question in the theoretical literature (doubtless because extraction from adjuncts is still widely assumed to be universally impossible), and descriptive grammars rarely investigate it in the detail mandated by the above observations. We are only aware of one hypothesis, from Truswell (2008), concerning the cross-linguistic distribution of \bar{A} -extraction from adjuncts. However, Truswell's language sample barely goes beyond Romance and Germanic, and the broader cross-linguistic accuracy of his claim has not been tested.

A first, foundational, task for this work package, is therefore to establish a firmer descriptive foundation in these respects. This will improve our understanding of the dimensions of cross-linguistic variation and uniformity. We will then (if appropriate, depending on the empirical investigation) explore the theoretical underpinnings of weak islandhood, in relation to contrasts like (12–14) and to the theory developed in WP3. Weak islands may hold implications for our understanding of the range of dependency types. On the approach to weak islands in Cinque (1990), there are multiple types of \bar{A} -dependency, and only one type can escape weak islands. On other approaches (Starke, 2001; Abrusán, 2014), weak islands reduce to other factors. As a major goal of this project is a new taxonomy of dependencies, our understanding of adjuncts *qua* weak islands will stand in a mutually informative relation to our understanding of syntactic dependencies in general.

2.2 WP2: A-dependencies and the complement/adjunct distinction (Berlin)

The primary aims of this work package closely parallel those of WP1, but for A-dependencies. Thus, we will establish basic cross-linguistic facts about A-dependencies crossing adjunct boundaries in contrast with complement boundaries, based on a comparative investigation, and produce a preliminary theoretical assessment to feed into the work in the later WPs. Our starting point based on prior work is as follows:

- A-dependencies across adjunct boundaries are possible, but heavily restricted based on the nature of the dependency, the properties of the nominal element(s) involved, and the nature of the adjunct.
- A-dependencies across complement boundaries are also restricted, but the restrictions are of different types and considerably less severe than for adjuncts.
- There is substantial cross-linguistic variation in both of the preceding points.

The various types of A-dependencies, including agreement, control, binding, case marking, and NP movement, have all long been known to have locality restrictions. However, early work frequently treated each dependency as *sui generis*, involving specific argument types (e.g. **subject**-verb agreement, raising-to-**object**) and with its own specific locality conditions. Only gradually did researchers come to think of A-dependencies in more unified terms, identifying abstract structural configurations subject to general restrictions. Thus in place of e.g. a special agreement dependency between a verb and its subject, more abstract operations like Agree were posited, dealing in general structural relationships, divorced from specific argument functions, and potentially operating at some distance (Chomsky, 2000, etc.). Such an operation could then at least potentially be extended to handle all A-dependencies (see e.g. Landau, 2000; Reuland, 2001, for Agree-based accounts of control and binding, respectively), subject to a unified set of locality restrictions. However, this progressive theoretical unification is not fully supported by detailed empirical work on the restrictions on different A-dependencies across languages. There is evidence that 'phi-agreement' (agreement for person, number, and gender) has different structural properties than many other syntactic dependencies (see Preminger, 2014; Bjorkman and Zeijlstra, 2019, and §2.3 below), that anaphoric binding privileges features like person differently from other dependencies (Sundaresan, 2020), and that the mechanism for case assignment works differently from Agree (McFadden, 2004; Baker, 2015).

Relatively little work has been done with respect to restrictions on A-dependencies across the adjunction structures at the heart of this project. This may be a holdover of the traditional perspective that A-dependencies relate only to arguments. However, given a general-purpose operation like Agree, there is no a priori reason why a verb should be unable to agree with a nominal across an adjunct boundary. As noted above, some A-phenomena *can* in fact involve adjuncts, including at least OC (in (5) above). Given this and the (restricted) transparency of adjuncts for \bar{A} -dependencies that is the focus of WP1, we must recognize the need for a broader examination of long-distance A-dependencies to see whether and under what circumstances they can cross adjunct boundaries. Even adjunct OC, which clearly illustrates this possibility, remains relatively understudied. For English many of the basic facts, including how precisely the various points of detail compare to complement OC, are still being established, and beyond English very little careful empirical work has been done on the subject (Landau, 2013; Green, 2018).

WP2 will address this situation by carrying out three surveys. Survey one will be devoted to adjunct OC, aimed at broadening our understanding of the basic conditions that apply to it and the ways in which it compares to complement OC, e.g. in the availability of interpretive variants including exhaustive, partial, split, and ‘proxy’ control (Landau, 2013; Doliana and Sundaresan, to appear). Survey two will be concerned with locality restrictions on phi-agreement, collecting reported instances of agreement across clausal boundaries of all kinds (i.e. LDA) and across adjunct boundaries, in either direction. The only instances we know of agreement involving adjuncts have the target contained in the adjunct or being the adjunct itself, with the controller in the host. For example, adjectives in many languages show ‘concord’ with the nouns to which they are adjoined (cf. German *klein-es Haus* ‘small-NEUT house’ vs. *klein-e Burg* ‘small-FEM castle’). Cases where the controller is in the adjunct and the target in its host, seem to be unattested, as noted in the discussion of (6b) above (e.g. there is no mention of such patterns in surveys like Corbett, 2006). However, this has never been systematically tested across a probative selection of languages. Survey two will fill this gap. Finally, survey three will focus on cross-clausal A-movement patterns, and in particular the limits on the types of clause boundaries such movement can cross. The traditional understanding based on a relatively small number of languages is that such movement is only possible across types of structurally reduced, nonfinite complement clauses, as in (16a) vs. (16b):

- (16) a. Rebecca_i seems [_{t_i} to have won]. b. *Rebecca_i seems [that t_i has won].

This picture has been complicated by recent work on languages that allow raising across full-sized finite clauses (Deal, 2017; Halpert, 2019; Wurmbbrand, 2019). This further raises the question of whether there might be instances of such ‘hyper-raising’ not just out of large complement clause types, but even out of adjunct clauses, analogous to the \bar{A} -movement out of adjuncts discussed in WP1. Even if no such cases turn up, that would be an important negative result, and therefore a crucial part of survey three.

2.3 WP3: A novel theoretical approach to the complement/adjunct distinction (Göttingen)

One thing that sets aside adjuncts from arguments is that adjuncts are not selected by their hosts. This means that arguments can be characterized in terms of selection, but does not yet establish how adjuncts are integrated into the structure. It is common to assume that adjuncts are less integrated than arguments into syntactic structures. However, the A- and \bar{A} -dependencies observed across adjuncts above show that adjuncts are not fully opaque to the rest of the structure.

To maintain the idea that arguments are indeed selected by their respective heads, but to ensure that adjuncts are no less integrated in the structure, Zeijlstra (2020) argues that an adjunct selects its host rather than being selected by it, and that this is encoded using the same formal features that encode all syntactic dependencies (under Agree). Concretely, an uninterpretable (or better referred to as ‘dependent’) feature [uG] on a head F encodes a dependency that F needs to merge with an element carrying a matching interpretable (or ‘independent’) feature [G]. Formal features thus determine all distributional properties of syntactic elements, including selectional requirements. If an element F selects for an element G, F carries a feature [uG].

Consider then what happens when an element bearing features {[F], [uG]} merges with an element bearing the feature {[G]}. The element carrying {[F], [uG]} is an element of category F that needs to be merged with an element of category G. But that means that the categorial properties of the resulting top node will be

different, in that it will be an element of a category F that lacks this need to be merged with category G. In other words, it lacks the feature [uG]. Since the element carrying [G] fulfilled this particular need, [G] can no longer remain active and should not be available on the top node either. The features of the top node are nothing but the result of the left sister acting as a function applied to the right sister, as formulated in (17):

- (17) Let A and B be two sets of formal features. If A merges with B, for any pair $\langle [F], [uF] \rangle$, such that $[F] \in A$ and $[uF] \in B$, or $[F] \in B$ and $[uF] \in A$, neither $[uF]$ nor $[F]$ percolates up; all features that do not stand in such pairs do percolate up.

This proposal is very similar to ideas of Categorical Grammar (where F/G applied to G would result in F), or type theory (where $\langle e, t \rangle$ applied to e yields t). It also implies that the traditional view of labelling as ‘projection by selection’ (Chomsky, 1995) is essentially correct. If a head selects for a particular complement, the independent features of the selecting head will provide the label of the top node; and similarly, if the head has two selectional features, it will first select for its complement, and second for its specifier, and both selectional features, as well as the matching features of the head and complement, will fail to percolate, resulting in the top node solely carrying the independent features of the head.

Let’s now apply this approach to adjunction. One property of adjuncts is that they do not change the categorial status of the element they merge with: *often sleep* is categorially identical to *sleep*. A second property of adjuncts is that they are not selected, but select their hosts. We can encode this by assuming that adjuncts have ‘symmetric features’: they carry an independent and a dependent feature of the same category. An adverb like *often* carries [V] and [uV]. Adverbs are in this sense verbs that select verbs, just as in Categorical Grammar they are functions from verbs to verbs. Now when a verb like *sleep* and an adverb like *often* merge, it is not *sleep*’s [V] feature that projects, because this is selected, but rather the [V] feature from the adverb.

WP3 will explore the consequences of this proposal for the locality of A- and \bar{A} -dependencies. Under this approach *all* feature checking, including complement- and adjunct-selection, takes place under sisterhood. However, every dependent feature that does not stand in a sisterhood relation with a matching independent feature will percolate up. This means that the checker can be merged in a structurally higher position, c-commanding the dependent feature. This allows us to understand feature checking as in terms of (percolated) selection as well, and understand why feature checking appears to apply in an ‘upward’ fashion (cf. Wurmbrand, 2011, 2012; Zeijlstra, 2012; Bjorkman and Zeijlstra, 2019). Formally:

- (18) A feature [uX] on a Probe P is checked by [X] on a Goal G only if G c-commands P.

At the same time, it is well-known that some instances of agreement deviate from the configuration in (18), having the goal (the agreement controller) structurally lower than the probe (the agreement target) (cf. Preminger, 2013, 2014; Preminger and Polinsky, 2015). Crucially, though, all these counterexamples involve instances of so-called feature valuation (the mechanism underpinning structure-enrichment) and not checking (cf. Preminger, 2014). As Bjorkman and Zeijlstra (2019) argue, only elements that *already* stand in some kind of a selectional, i.e., feature checking, relation can also featurally enrich each other. Disentangling structure-building from structure-enrichment (Pesetsky and Torrego, 2007; Arregi and Nevins, 2012) thus allows us to resolve this apparent conflict. That is, the operation that triggers both external and internal merge, i.e., **structure-building**, always applies in an upward fashion, whereas **structure-enrichment**, like valuation, applies to elements that already stand in previously established structure-building relations. This opens up the way to linking the locality of syntactic dependencies to the nature of the syntactic operation involved (structure-building vs. structure-enrichment) and further to the direction of selection, and allows us to hypothesize that elements inside a domain that is selected are accessible for valuation of elements outside the domain, but not the other way round.

One prediction that follows is that material in an adjunct may be valued or checked by material in the host (plausibly explaining adjunct OC, where the EC subject in the adjunct gets referential information from an argument in the host), but may not itself value material in the host (plausibly explaining why adjuncts are opaque for LDA). More generally, it would render unselected domains outwardly — but not inwardly — opaque to structure-enrichment, whereas such domains can still participate in further structure-building. Locality then applies in a directional fashion. This hypothesis will be fully elaborated in WP3. The central aim will be to further develop this proposal unifying selection and agreement in such a way that a theoretical handle is

provided on (i) how to distinguish adjuncts from complements (and specifiers) in such a way that all of them are fully integrated in the structure, (ii) to spell out how differences in opacity between adjuncts (and within adjuncts) and complements/specifiers can be reduced to the selectional asymmetries between them, and (iii) spell out the relevant empirical predictions.

2.4 WP4: Interactions between A- and \bar{A} -dependencies dependencies (Edinburgh)

WPs 1–3 aim to establish, on empirical and theoretical grounds, a improved taxonomy of syntactic dependencies cross-cutting current distinctions. Key considerations include selection, structural relations including adjunct boundaries, and the nature of the dependency (including at least agreement, control, A-movement, and several types of \bar{A} -dependency). On the assumption that the findings from WPs 1–3 indicate that there is more than one type of syntactic dependency (and the contrasts given in the introduction suggest that that conclusion is inevitable), the question then arises of how the different dependency types interact.

In the theoretical literature, such interactions have been studied under two main headings. The first is ‘improper movement’, a development of the observation (Chomsky, 1981) that A-movement can feed \bar{A} -movement (19), but not vice-versa (20). Subsequent work (Williams, 2003; Abels, 2008) expanded the notion of improper movement into a general theory of feeding and bleeding relations between movement types.

(19) What $t_{\bar{A}}$ seems [t_A to be the problem]?

(20) * He seems [t_A \emptyset [$t_{\bar{A}}$ is a problem]].

The other main class of interaction is reconstruction effects (Higgins, 1973; Chomsky, 1976; van Riemsdijk and Williams, 1981). The classic example is that a constituent undergoing \bar{A} -movement can enter into binding relations in its pre-movement position. For instance, a reflexive pronoun like *herself* in (21) must be c-commanded by its antecedent. In (21), *Mary* doesn’t c-command *herself*, but does c-command the trace of *herself*. The conclusion is that the binding relation can be established in spite of the movement of *which story about herself*. There are various theoretical elaborations of this idea: perhaps the binding relation is established before \bar{A} -movement, the binding relation involves ‘chains’ of constituents related by movement rather than individual nodes, or the logical form over which binding relations are computed has *herself* in the trace position rather than in the position where it is pronounced.

(21) Which story about herself_{*i*} did Mary_{*i*} invent t_i ?

Reconstruction is typically taken to be tied to movement. However, Truswell (2013) shows that reconstruction (for quantifier scope) is also found across OC dependencies in examples like (22), despite obligatory control differing from movement in a number of key respects (Culicover and Jackendoff, 2001; Landau, 2003, *contra* Hornstein, 1999; Boeckx, Hornstein, and Nunes, 2010). Truswell shows that the possibility of interpreting (22) with wide scope for *every book* must be due to interpretation of *someone* in the position of the empty category EC rather than its surface position.

(22) Someone_{*i*} is trying [EC_{*i*} to read every book in the library]. ($\exists > \forall, \forall > \exists$)

Truswell goes on to show that different dependencies allow reconstruction for different relations. OC allows scope reconstruction, as in (22), but there is no reconstruction across OC dependencies for binding relations — no OC equivalent of (21). This opens up a general question concerning reconstruction effects: which syntactic dependencies show reconstruction effects for which properties? Williams (2003) and Abels (2008) have given compelling answers for the special case of movement dependencies (answers which, in fact, yoke reconstruction and improper movement tightly together), but the question has not been addressed in the general case.

Our focus on the taxonomy of syntactic dependencies in WP1–3 makes it natural, and important for WP5, to expand our understanding of feeding and bleeding relations like improper movement, and reconstruction effects, beyond the well-studied movement cases. One reason for this is that the special status of movement within current syntactic theory has radically diminished, to the point where any implicit or explicit special theoretical status for movement deserves scrutiny. The other reason is that the range of properties that we propose to explore simply requires statements about their interactions if it is to be reasonably complete. This is the task of WP4.

2.5 WP5: Towards an integrated theory of locality (all places)

The final work package of this project concerns the formulation of an overall theory of locality across adjuncts and complements. Given the outcomes of WP1–4, the following questions, whose exact formulation will of course depend on the empirical findings that emerge in the project, will need to be addressed:

- Why is it that dependencies vary cross-linguistically and language-internally in the extent to which they can cross adjunct boundaries?
- What underlies the restrictions we do find on syntactic dependencies across adjunct boundaries, most notably with respect to the direction of the dependency? For example, why is OC from a host into an adjunct fine, whereas valuation by an element in an adjunct of a probe in the host is (apparently) not?
- How can a theoretical architecture sketched along the lines of WP3 explain the observed interaction between types of A and \bar{A} -dependencies?

In this WP we will develop an integrated theory of locality that is formulated not in terms of hard-wired constraints on specific domains, but rather in terms of **pathways** of accessibility defined in terms of the transitive closure of selection relations (that is, if X selects Y and Y selects Z, this will define an accessibility path from X to Z, via Y). In short, we take the availability of particular syntactic dependencies to be the result of previously established selectional relations. In other words, structure-enrichment is parasitic on structure-building, as suggested in §2.3.

Such a perspective may already explain some of the major differences between adjuncts and complements. Since complements are selected by their heads, a complement is able to value any unvalued features on the head. In the same vein, feature values on a verb can value the features on any head that selects this verb (for instance, v or T). The assumption that selectional pathways are transitive means that v/T and any other member of the extended projection of V also stand in a (mediated) selectional relation with V's complement, and consequently, this complement can value these higher probes as well. Moreover, if the complement is an extended projection itself, material inside the complement should be able to value all heads in the extended projection of the verb that selects it. On the other hand, since adjuncts are not selected, there is no accessibility path into them for material from outside to probe for a value. In this way, the apparent generalization that an element in the host can only be valued by material contained inside a complement, but not inside an adjunct, is naturally explained.

This does not mean, however, that adjuncts are fully opaque. They are only opaque for valuation, i.e., for structure-enrichment, when an element in the adjunct would value a feature in the host. Valuation is possible in the other direction, as we have seen. That is, there are cases where an element inside an adjunct can be valued by an element in the host. This is exactly what we see for adjunct OC: because the adjunct selects the host clause, the EC subject in the adjunct clause can have features valued by a controller in the host clause, thus controlling its reference. The apparent absence of the converse of this pattern may reflect the different selectional pathways established in adjunction relations, compared to complements.

A second case where the opacity of an adjunct might be obviated is when it participates in two different selectional pathways simultaneously. Nothing forbids cases where an adjunct selects its host, but where at the same time the host also selects the adjunct. Given our definitions of adjuncts and complements, this means that it is possible for a phrase to be both at the same time. This, we hypothesize, may underlie instances where movement out of an adjunct is possible. We will entertain the conjecture that cases of \bar{A} -movement out of adjuncts characterized by Truswell (2011)'s Single Event Condition require just such a configuration. Since this makes the adjunct similar to a complement in some respects, it becomes transparent for *wh*-extraction. The additional selectional relationship must then also underlie the particular semantic effect that is observed for predicates that allow *wh*-extraction out of adjuncts. This also makes new empirical predictions. One is that in languages where *wh*-extraction out of adjuncts is possible, valuation out of adjuncts should also be possible under the same conditions, provided that the language exhibits long-distance agreement in the first place.

Taking locality restrictions to be derived in this way rather than involving constraints that are hard-wired into specific syntactic domains also opens up ways of understanding the attested cross-linguistic variation. Since selectional features are encoded on functional heads, cross-linguistic variation with respect to what exactly is selected is expected, especially given the Borer-conjecture that differences among languages reduce

to variation in terms of features present on functional heads. The reduction of locality to selectional pathways also allows us to further understand the intricate relations between different types of dependencies. The notion that the adjunct selects its host may also provide the possibility that scope-taking elements inside the host may reconstruct into the adjunct. That such a thing is not possible for binding may be informative about the interactions of binding relations with patterns of selection. The primary task for WP5 will be to work out the formal implementation of the ideas sketched above, using the tools provided by WP3, which will naturally give rise to additional questions. The further development in the remainder of WP5 will of course be fundamentally guided by the precise findings from the earlier stages of the project. However, the reasoning outlined above already shows how looking at complement/adjunct distinctions and correspondences already may result in refinements and improvements of the basic tenets of grammatical theory and our understanding of language.

3 Added value of international cooperation

The proposed project of building a novel, general model of locality is highly ambitious in scope, involving analysis and comparison of many different types of syntactic phenomena, integrated with high-level theory construction. The cooperation between Germany (Berlin, Göttingen) and the UK (Edinburgh) is crucial for bringing together all of the relevant expertise, which is well distributed across the three locations for the project, as reflected in the localization of the WPs. The named researchers on the project have complementary expertise and could not bring this project to fruition without this degree of international collaboration. Furthermore, the project will benefit from access to colleagues and facilities in Edinburgh, Göttingen, and Berlin, which far surpasses what would be available at any one institution on its own. This includes colleagues in Edinburgh working on Categorical Grammar and Dependency Grammar, colleagues in Göttingen working on HPSG, the syntax–semantics interface, and on language variation (including sign language), and the group at ZAS working on the thematically relevant research topic ‘Domains across modules’. Without this international collaborative component the ambitious goals of this project could not be adequately met.

4 Ethical issues

None. See Data Management Plan for ethics procedures.

5 Any additional information

None.

6 Planned and past cooperation with other researchers

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