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## Syntax and its limits

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### 1.1 Introduction

Since its inception, generative grammar has pursued a ‘divide and conquer’ strategy with respect to the study of linguistic phenomena, inheriting from its predecessors in structuralist linguistics and traditional grammar the useful notion that different linguistic phenomena are amenable to modes of explanation which suggest the existence of clusters of linguistic phenomena, some related to sound, some to grammar, some to meaning, some to aspects of language use, and so on. To capture this, Chomsky (1955) formalized the notion of a ‘linguistic level’ and insisted on the relative autonomy of these levels. The differentiation of linguistic levels was far from new in itself, of course, but it takes on a new significance given Chomsky’s mentalist perspective, delivering a view of the language faculty, and by extension cognition, as something *structured*, with differentiated subcomponents, including minimally a lexicon, and phonological, syntactic, and semantic components, each with their own structural characteristics, in stark contrast to the then-dominant behaviourist view of the mind as a unitary black box.<sup>1</sup>

Naturally a theory containing multiple distinct levels of representation raises immediate questions. How many levels are there, and what exactly do the different levels do? Is it an accident that the levels enumerated in the previous paragraph correspond so closely to the classical levels of linguistic analysis in structuralist and earlier linguistics? What can a level of linguistic representation look like?

Equally, questions arise immediately about interactions between representations, now commonly discussed under the term *linguistic interfaces*: what does the output of each level look like and how does it feed into the next level(s)? How

<sup>1</sup> Connectionism, in many ways the descendent of behaviourism, is similarly distinguished by its rejection of operations over the structured symbolic representations pervasive in classical cognitive science — see Fodor and Pylyshyn (1988) for extensive critical discussion.

do the multiple levels interact to produce the range of empirical phenomena that non-theoreticians happily label with the umbrella term ‘language’?

The types of representation employed in linguistic analysis at different levels vary quite substantially. Such variability is consistent with Fodor’s (1983) description of the modularity of mind, where modules are characterized partially by their informational encapsulation: cognition is modular in part because information legible to one system may be illegible to others. Such a state of affairs places the question of interactions among linguistic representations (sometimes referred to as *internal modularity*), and between linguistic and other cognitive representations (*external modularity*), at the forefront of current theoretical concerns arising from the gross logical architecture of the language faculty.

Our concern in this volume is primarily with questions of internal modularity, and in particular the status of the module which is taken to underlie the linguistic patterns studied under the rubric ‘syntax’. Syntax forms a core part of the debate over the modular architecture of the language faculty, for several reasons. On most assumptions about the architecture of grammar, syntax is in the centre, between modules more closely related to sound and modules more closely related to meaning. Moreover, because of this centrality, syntax is often also considered as more abstract than semantics (doubtless grounded to an extent in nonlinguistic conceptual structure) or phonology (plausibly grounded in phonetics). Finally, following Chomsky’s foundational work, it is often assumed that formal properties of the syntactic component are responsible for the creativity of language, often described with reference to Humboldt’s ‘infinite use of finite media’. This has entailed a continuous focus on the description of the formal properties of syntactic structures, detailing not just the creative potential of the syntactic component, but also, following Ross (1967), the restrictions on that creative potential.

Because of this focus on the formal properties of syntactic structure, there are now two different objects which can be studied under the heading of ‘syntax’. One is essentially descriptive: we study the attested and unattested orders of words in phrases and sentences. The other starts from the formal characterization of syntactic structures initiated by the likes of Chomsky and Ross, and asks which observable phenomena fall under that formal characterization.

Naïvely, one might expect these two objects of study to coincide. In fact, though, dissociations between the two were already observed in the 1960s. For example, Miller and Chomsky (1963) suggested that an observable, descriptive fact about the order of words in phrases (the impossibility of multiply centre-embedded relative clauses like (1)) follows not from principles of sentence grammar, but from the limits of the human parser’s ability to pair strings with structures.

- (1) The rat the cat the dog chased killed ate the malt.

Conversely, and more controversially, but also closer to the concerns of this volume, Generative Semanticists argued that locality constraints on unbounded dependencies were also active in lexicosemantic composition of complex meanings from semantic primitives, and in the calculation of scope and other relations (see Lakoff 1971 for a summary). For example, McCawley (1973*b*) proposed that *x killed y* was derived transformationally from an underlying structure like (2a), but that there could be no verb *flimp* with a meaning equivalent to (2c), because combining KISS, GIRL, and ALLERGIC transformationally into a single word meaning would violate Ross' Complex Noun Phrase Constraint.

- (2) a. CAUSE *x* [BECOME [NOT [ALIVE *y*]]]  
b. \*Bert flimped coconuts  
c. \*Bert kissed a girl who is allergic to coconuts.

On the assumption that the locality constraints are basically syntactic, this underpins an argument that the empirical domain of syntactic structures extends beyond the order of words in sentences, to constrain the set of possible word meanings. If the claims of Miller and Chomsky and of Generative Semantics both turned out to be correct, we would have a double dissociation: there are phenomena (like centre-embedding) relating to the distribution of words and phrases which are outside the empirical domain of syntactic theory, and there are phenomena (like restrictions on word meaning) within the empirical domain of syntactic theory, which are not primarily concerned with the distribution of words and phrases.

Examples along these lines have multiplied in the intervening half-century. For instance, it has become common, following Chomsky (1976), May (1977), Kayne (1981), and Huang (1982), to assume that syntactic transformations derive a level of Logical Form, representing basically semantic relations such as scope and binding. Recently, however, more nuanced questions have arisen concerning the interaction of syntax with pragmatics, and with notions of new and old information, aboutness, and contrast, typically grouped under the rubric of 'information structure', following Halliday (1967). It is not clear that information structure is a structure in the same sense that phrase structure, prosodic structure, and so on are structures. Instead, 'information structure' currently appears to be used more as a cover term for a (fixed, probably quite small, and probably universal) range of options for marking distinctions within the semantic content of an utterance on the basis of the immediate linguistic and nonlinguistic context (this may, of course, be a placeholder for a more integrated theory of information structure developed along lines stemming ultimately from

Kamp 1981 and Heim 1982). Several papers in this collection pursue the hypothesis that information structural notions are extraneous to syntax, constraining the distribution of words and phrases from afar; while others propose that information structural notions are more or less directly reflected in syntactic structure, as initially proposed in detail by Rizzi (1997), allowing at least in principle for the possibility that information structural effects on well-formedness might be reducible to classical syntactic explanations.

Likewise, the use of syntactic tools to constrain the distribution of sub-word-level units, after a post-Generative Semantics hiatus, has flourished both in morphology (following Baker 1988 and Pollock 1989) and in lexical semantics (following Hale and Keyser 1993 and Marantz 1997). Meanwhile, a whole raft of researchers have taken up the challenge of formulating nonsyntactic descriptions of constraints on possible assemblages of words into sentences. These constraints can be based on processing considerations, following Miller and Chomsky’s lead (see also Bever 1970, Frazier and Fodor 1978, Crain and Steedman 1985, and countless others), but they can also be based on semantic (Szabolcsi and Zwarts 1993), discourse-pragmatic (Erteschik-Shir 1973, Morgan 1975, Kehler 2002), or other concerns.

Clearly, this reflects an analytical tension. If we think that some descriptive generalization  $G$  is due to syntactic factors, but it is demonstrated that factors apparently extraneous to syntax influence the applicability of  $G$ , then there are three choices: either we complicate our model of syntax to accommodate these new factors; or we shrink the empirical domain of our theory of syntax by excising principle  $G$ , and leave the challenge of accounting for the pertinent empirical facts to some other domain, possibly with concomitant complication of the theory of that domain; or finally, we leave the theories of the syntactic and nonsyntactic components much as they were if considered in isolation, but build a more complex theory of the interface between those two components. Generalizations like  $G$  are therefore particularly interesting because they raise acute questions concerning the empirical domain of syntax and its relation to other modules. Such generalizations may entail a degree of irreducible complexity, but close analysis of such ‘interface phenomena’ sometimes allows us to address the overarching question: Where exactly are the limits of syntax?

This is the central question addressed, in various ways and with respect to various empirical phenomena, by the work presented in this volume. The answers are rarely straightforward, but rather typically take the form of a trade-off: all else being equal, do we end up with a simpler theory if we analyse the phenomenon in question in syntactic terms, in nonsyntactic terms, or at the interface? This must of course be decided on a case-by-case basis, and so there is no pretense here (or anywhere) to have provided a definitive characterization of the limits of syntax. Rather, the papers in this collection aim to provide precise and explicit hypotheses about the balance between syntactic and nonsyntactic

modes of explanation in several areas where this question is currently debated particularly intensely, including various facets of the relationship of syntax to the lexicon, phonology, morphology, semantics, and information structure.

Hand in hand with this question of the limits of syntax comes the question of what is beyond syntax. What is the nature of the other levels of representation with which syntax interfaces, and how do they interface with syntactic structures? Again, these are big, open-ended questions, and no general theory currently even aims to address them all in detail. However, they are crucial to the current enterprise: postulating a nonsyntactic theory of some phenomenon entails having a theory of the workings of some nonsyntactic module, and how it relates to syntax. Several papers in this collection reason in exactly these terms, by attempting to make precise the limit of lexical influence on syntactic structure, by investigating the nature of the process of mapping syntactic structure onto semantic or phonological representations, or by clarifying the relationships between syntax, semantics, and information structural notions such as ‘topic’, ‘focus’, and ‘contrast’, for example.

In the previous discussion, we have mentioned the centrality of syntax to questions relating to language architecture. In the rest of this section, we concentrate on one particular interface, namely the relationship between the lexicon and syntax, in order to illustrate how close analysis of concrete empirical phenomena has been brought to bear on broad architectural questions. As it transpires, this is an area in which one’s assessment of the empirical facts is particularly directly related to one’s assumptions about the modular architecture of the grammar.

Broadly speaking, two main views regarding the interactions of linguistic modules currently predominate. One approach proposes that, although syntactic and other representations do not interact directly, correspondences between these representations are enforced by a superordinate ‘übermodule’, which interacts with syntactic, semantic, and other representations in parallel. For example, the line of research developing out of Montague’s work (e.g. Montague 1973) emphasizes parallel computation of multiple representations, as exemplified in Montague’s rule-by-rule correspondences between strings of terminal symbols and semantic representations. Today, this approach is pursued in the different varieties of Construction Grammar (including Head-Driven Phrase Structure Grammar as presented in Pollard and Sag 1994; the ‘Berkeley Construction Grammar’ of Kay 2002; Sign-Based Construction Grammar, the successor of HPSG and BCG, as described in Boas and Sag 2012; and the Parallel Architecture of Jackendoff 2002, among others). The various forms of Categorical Grammar (for example Steedman 1996) develop Montague’s architecture in quite distinct ways, but share the provision for the parallel computation of multiple representations, on the basis of stored associations among syntactic, semantic, and phonological representations. For such theories,

then, the übermodule to which all others are answerable is the lexicon, the repository of such stored information.

On the other hand, in architectures growing out of the Revised Extended Standard Theory (e.g. Chomsky and Lasnik 1977), building on the logical necessity of less-than-total encapsulation of the information manipulated by different modules, syntax plays a central role, but it is not a übermodule. Rather, one or more phrase-structural representations are generated, and phonological and semantic structures are derived from those phrase-structural representations as permitted by mapping rules and constraints on the representations in question. In other words, each module uses its own primitives and operations, but certain elements legible to one module must also be legible to other modules: syntax generates representations which are legible in some respects to the modules with which it interfaces, but it does not impose any constraints on what those other modules subsequently do with the representations that it generates. In other words, the nature of the interfaces for such models is determined by the information passed along from the phrase structure which is ‘legible’ to the phonological or semantic components.<sup>2</sup>

Within this latter model, questions arise about the nature of the lexicon and the extent of its influence over syntactic structure-building. The lexicon here does not automatically have the übermodule status afforded it by Construction Grammar and cognate theories, but there are still numerous reasons to suppose that the lexicon is not simply a set of items serving as an input to a computational system which manipulates those items. The first concerns semiproductivity among word forms, as investigated by Jackendoff (1975), following Chomsky (1970). Many alternations look more or less rule-governed, but admit several exceptions and idiosyncrasies: there are cases in which a rule fails to apply, or the output of the rule displays irregularities of form or meaning in some cases. In such cases, the regularity makes us want to treat these

<sup>2</sup> Alongside these major architectural distinctions, numerous hybrids and alternatives exist. For example, the Parallel Architecture of Jackendoff (2002), as well as making reference to the lexicon as a Construction Grammar-like übermodule, also contains small interface modules that regulate correspondences between the structures to which they connect. Unlike certain post-Montagovian theories, then, in the Parallel Architecture the derivations of phonological, syntactic, and semantic representations are not only related indirectly, through the lexicon, but also through direct interfaces. Meanwhile, Representation Theory (Williams 2003) postulates numerous levels of representation (at least eight), with no übermodule and no module with the privileged status of syntax in recent Chomskyan theories, but instead a general constraint on correspondences between levels, making reference to homomorphisms from one representation into another and varieties of disruption of those homomorphisms. We set these aside here, although the debate ultimately involves them just as much as the options outlined in the main text.

alternations within the computational system (typically, syntax), but the idiosyncrasies make us want to treat the alternations as stored.

A further compelling reason to suspect that the lexicon is less than maximally simple concerns the treatment of phrasal idioms. The phrasal syntax of idioms is generally identical to the syntax of non-idiomatic constructions, which appears to suggest a rule-governed compositional element to the structure of idioms. However, the interpretation of those idioms cannot be determined on the basis of the interpretations of their component parts: even with apparently compositional idioms such as *let the cat out of the bag*, although *the cat* is in some sense interpreted as ‘the secret’, this interpretation is only available in this particular phrasal context. For construction grammarians, such facts provide the impetus for essentially treating all syntactic composition like the composition of idioms: the lexically guided construction of phrasal units is all there is. Among Minimalists, in contrast, idioms are not treated as a reason to eschew lexicon-independent principles of syntactic composition, but rather as an indication that the meaning of a lexical item can be sensitive to syntactic context within a particular locality domain. For example, it is generally assumed, following Marantz (1984) and Kratzer (1996), that there are no idiomatic external argument–verb combinations that exclude internal arguments (although see Nunberg, Sag and Wasow 1994 for possible exceptions). On the assumption that the verb is syntactically closer to the internal arguments than to the external arguments, this could be taken to suggest a syntactic locality constraint on idiom formation (see below for further discussion). As with semiproductivity, as described above, there is a clear tension here: idioms are largely syntactically regular, largely semantically irregular, and there are some grounds for assuming that there is a syntactic limit on that semantic irregularity. Once again, this empirical area highlights the complex interactions between lexical storage of idiosyncratic material and rule-governed computation of complex structures.

How to handle this tension remains an open question. Two major approaches can be defined. One, the lexicalist approach initiated by Jackendoff (1975) and Wasow (1977), and adopted in frameworks such as Lexical-Functional Grammar, relies on devices such as redundancy rules performing a limited amount of pre-syntactic computation, to capture relations among lexical items without predicting the complete productivity that we would expect from mechanical application of a regular syntactic rule. The other, antilexicalist, approach, based on work by Hale and Keyser (1993) and subsequently adopted by a range of Minimalist researchers, insists that all rule-governed behaviour affecting both sound and meaning, even below the word level, is basically syntactic, and that idiosyncrasies are confined to a special domain at the bottom of a tree (the domain of *L-syntax* in Hale and Keyser’s terms).

The architectural commitments of lexicalist and antilexicalist theories are quite divergent. For lexicalists (see for example Wasow 1977, Reinhart 2002, or

Koontz-Garboden 2009, in addition to the above references), the lexicon is much more than a stored list of correspondences between sounds, meanings, and syntactic features. Rather, it has a fairly complex internal structure of its own, deriving many alternations between word forms, with corresponding simplification of the phrase structure. In contrast, Hale and Keyser’s alternative gives rise to the hope that syntactic notions will prove useful for the analysis of lexical alternations as well as phrasal phenomena (see also Travis 1994 and Kratzer 1996, among others). One promising line of inquiry focusing on the derivation of verb argument structure and stemming from Hale and Keyser’s work aims to show that the syntactic position of arguments determines key aspects of their interpretation, and so ultimately ‘verbs at least in part mean what the syntax allows them to mean’ (Rosen 1999:8 — see also Ramchand 2008).

Perhaps the poster child for the L-syntactic approach is the incorporation of locality effects into theories of word-level structure, as anticipated in the Generative Semantics literature mentioned above and subsequent research like Baker’s (1988) description of patterns of noun incorporation. Recent research has focused in particular on the hypothesis that a particular head delimits the domain of L-syntax.<sup>3</sup> This hypothesis has in turn inspired many attempts to identify the head in question. For instance, that head could be the same head which introduces an agent, the head which introduces ‘eventive’ semantics, the head which converts a category-neutral root into a verb, some combination of these (if a single head has multiple functions), or none of the above. All of these possibilities continue to be actively investigated (including by many chapters in this volume), but none is currently universally accepted. The eventual choice from among these options will directly inform our understanding of the syntax of idiosyncrasy, and the idiosyncrasy of syntax.

These issues are particularly foregrounded by research in Distributed Morphology (DM, Halle and Marantz 1993, Marantz 1997, see also Harley and Noyer 1999, Embick and Noyer 2007, and Harley, to appear, for recent overviews). DM adopts the antilexicalist position, often referred to as ‘syntax all the way down’, that there is no word-formation component distinct from syntax: morphemes are syntactic terminals, and multimorphemic words are represented by particular configurations of those terminals. More complex morphological phenomena are handled in a post-syntactic morphological component which allows for further manipulation of terminals prior to insertion of phonological forms, while interpretive phenomena are handled by the Encyclopedia, which determines the interpretation of a terminal in a given syntactic context. In a DM

<sup>3</sup> Following Ramchand (2008), the domain of L-syntax is sometimes referred to as the *first phase*, the idea being that that syntactic limits on lexicosemantic phenomena are a special case of the general notion of phases as units of sound–meaning correspondence (Chomsky 2000 *et seq.*).



approach, then, the lexicon is not an übermodule: the syntactic, semantic, and morphological computations retain some autonomy. However, in contrast to classical architectures from the Standard Theory through to GB, the lexicon’s contribution is also not entirely presyntactic: it influences operations in multiple places throughout the derivation. For DM, in other words, syntactic and morphological structures are interrelated, because they are partially the same thing: the generative system responsible for phrase structure is also partially responsible for word formation. This makes it particularly natural to extend analyses based on cyclicity and other syntactic locality conditions into the domain of classically ‘lexical’ phenomena; as a corollary, operations which clearly violate such conditions, such as lowering of T onto V in English, must be treated postsyntactically, in a separate module with its own rules (Embick and Noyer 2001).

Many chapters in this volume (particularly those in Part III) investigate this range of architectural alternatives, arriving at pleasingly consistent conclusions on the basis of diverse data. Many more chapters are interested in the other questions raised above. The same goal runs through all the chapters, though: to find ways to bring concrete evidence to bear on important, but abstract, architectural questions and in the process to help us come a step closer to understanding the place (and the limits) of syntax within the architecture of language. The rest of this introduction contains brief summaries of the empirical coverage of each chapter; the point of the foregoing is to give a taste of why those empirical questions are worth investigating.

## 1.2 New theoretical perspectives

### 1.2.1 Part I: Architectures

We begin with a series of papers addressing architectural issues concerning the nature of syntactic representations and the way in which they relate to representations at other levels. Lechner (Chapter 2) is concerned with the relationship between syntax and interpretation. Building on Gajewski (2002), in particular, Lechner distinguishes two structural representations of meaning. One (the input to the *Deductive System*, or *DS*) represents abstract entailment relations, in the absence of nonlogical lexical items. Optional operations, such as scope shifting, are all represented at DS. The second level (*Logical Form*, or *LF*) provides the input to model-theoretic interpretation, and is the locus of last-resort operations such as type-driven QR, where a quantifier moves locally to avoid a type mismatch. DS and QR are serially ordered: DS precedes lexical insertion and overt syntax, while derivation of LF follows overt syntax. The

empirical basis for assuming this architecture comes from a generalization, the Condition on Extraction out of Copies, which states that if a lower copy of a complex phrase XP is interpreted, then elements contained within XP must be interpreted locally to XP, and cannot, for example, participate in long-distance binding or scope inversion. Lechner derives the CEC from the properties of DS and LF: in brief, the CEC holds because independent conditions related to reconstruction mandate that movement out of a silent copy must be (local) movement at LF, rather than (possibly nonlocal) movement at DS.

Truswell (Chapter 3) argues for a chain-based theory of reconstruction effects, based on an examination of cases where reconstruction effects are found in the absence of movement relations, and the dissociations between reconstruction for scope and for binding first documented by Lechner (1998). In Truswell’s account, each type of reconstruction effect is associated with a different type of chain, and the partial autonomy of the two types of chain derives the dissociations. This approach to reconstruction further suggests that movement (which, uniquely, displays both scope and binding reconstruction) can be treated as a composite: ‘movement’ is nothing more than the cooccurrence of a scope chain and a binding chain. Although Lechner’s and Truswell’s investigations are based on similar basic observations, their analyses develop in quite different directions. Reconciling their approaches will be an interesting future challenge.

Lohndal and Samuels (Chapter 4) are concerned with the relation between syntactic and phonological structures, and in particular with the analysis of certain effects (such as the ungrammaticality of extraposition of a zero-relative across an adjunct) classically reduced to the ECP. The authors group the cases in question in an interesting way: they assume, building on Chomsky (2004), that adjuncts are largely absent from the ‘primary’ syntactic representation, and are only represented by a null placeholder. These ungrammatical constructions are then distinguished by structures containing strings of adjacent null elements (including null placeholders for adjuncts). They can then be prohibited as a special case of a theory of linearization which cannot linearize two featurally identical sisters. Crucially, that theory is only viable if a specific ordering of operations in the mapping from syntax to phonology is assumed. In common with many recent theories of this interface, then, Lohndal and Samuels advocate a sequential application of operations to transform phrase-structural representations into phonological representations, in which linearization crucially precedes vocabulary insertion, integration of adjuncts, and marking of copies for deletion.

Finally in Part I, O’Bryan, Folli, Harley, and Bever (Chapter 5) address the question of what kind of linguistic information is available during the first stages of sentence processing. Evidence from three new experiments and a reanalysis of previously published results shows that garden path effects induced by a local ambiguity between main clauses and reduced relatives (Bever 1970) are

conditioned independently by both transitivity and telicity. The former finding is quite well-known and relatively unsurprising; the latter is new and surprising, but amenable to explanation if telicity is represented syntactically, as suggested by Ramchand (2008) and others and hence is available to the parser in the first stages of processing. This chapter therefore contributes to the debate about the interaction of syntax and grammatically encoded semantics in on-line syntactic processing.

### 1.2.2 *Part II: Syntax and Information Structure*

Part II consists of three papers exploring the relation between information structure and syntax. Information structure is of particular interest because it spans at least three intricately interacting types of phenomena (prosodic, syntactic, and discourse-semantic). A central question is whether information structure is a distinct level, or an aspect of syntactically determined compositional semantics. The three papers in this section (in contrast to Chapter 18, Haegeman and Hill’s paper) all argue for the existence of an independent, syntax-external information structure. Such a view is particularly interesting as a counterpoint to the serialist, syntactocentric architecture typically assumed in early Minimalist work on interfaces, and maintained here with respect to distinct empirical questions by Lechner, and Lohndal and Samuels.

Eilam (Chapter 6) proposes an analysis of focus intervention effects based on constraints on information structure. His main argument rests on the demonstration of patterns of unacceptability in declarative sentences mirroring putative focus intervention effects in  $A'$ -dependencies, which would be surprising if the degradation were related to the  $A'$ -dependency. Instead, Eilam proposes a simple theory, building on earlier work by Satoshi Tomioka, in which the degradation is due to presence of multiple information structural foci in an environment in which only one such focus is permitted. This explains why certain information structural manipulations can ameliorate the examples in question, and also why the effects are not restricted to interrogatives, instead showing up across a wider class of sentences with typically fixed focus structure.

De Cat (Chapter 7) argues for an information structural characterization of root phenomena, based on data from fragments containing dislocated topics in French, and politeness markers in Japanese fragments, both restricted to root environments. De Cat argues that these cases are not straightforwardly captured by approaches to root phenomena based on clausal syntax, not least because of the existence of root fragments with no clausal equivalent, and proposes instead an account based on the hypothesis that root phenomena are degraded in structures that are thetic, and so not articulated on the level of information structure.

Vermeulen (Chapter 8) provides evidence that the mapping between syntax and information structure is not fully determined by properties of syntactic structure or information structure, but must instead be described with reference to the mapping between the two levels. She assumes three primitive information structural features, [focus], [topic], and [contrast], which may be combined to represent contrastive foci or contrastive topics. In Korean, any contrastive phrase, topic or focus, can be scrambled to medial or initial position. The same is true for Japanese contrastive foci. Japanese contrastive topics, however, behave like noncontrastive topics in that they can only be scrambled to initial position. In other words, Korean contrastive topics behave like other contrastive phrases, while Japanese contrastive topics behave like other topics. The surprising architectural implication is that there exists a parameter that distinguishes languages based not on factors related to syntactic structure or information structure alone, but on the patterns of sensitivity of syntactic structure to information structure, a conclusion which appears to fit most naturally with a conception of these two levels as existing in parallel.

### 1.2.3 *Part III: Syntax and the Lexicon*

Part III explores the relationship between syntax and the lexicon. The main questions, addressed from many different angles, concern the limit of lexical influence on syntactic structure, and the amount of syntactic structure contained within a word.

Piggott and Travis (Chapter 9) refine Piggott’s previous work on underlying VV sequences in Ojibwe. They claim that the choice between vowel deletion, consonant epenthesis, and the *status quo* is determined by the interaction of the timing of Spellout. Piggott and Travis propose that Spell-out is triggered when internally complex modifying heads are transferred from one derivational workspace to another, following Uriagereka’s (1999) treatment of phrasal CED effects. Because of this, vowels can remain in hiatus across a boundary between modifier and modifiee: the two units are spelled out separately, and so the phonology of the two units is determined independently. Consequently, phonotactic constraints apparent elsewhere in Ojibwe do not apply.

Gehrke (Chapter 10), and Arsenijević and Simonović (Chapter 11), explore different aspects of the contrast between lexical and postlexical word formation. Gehrke is concerned with the distinction between adjectival and verbal passives in German, standardly taken to reflect formation in the lexicon and in the syntax, respectively. Gehrke shows that the diagnostics do not fully support this neat distinction. In particular, *by*-phrases, a hallmark of verbal *werden*-passives, are also possible in some cases with adjectival *sein*-passives. Gehrke proposes instead a primarily semantic analysis: *sein*-passives, like *werden*-passives, are

formed in the syntax, and the distinction between lexical and postlexical passives is consequently rejected. Rather, *sein*-passives are distinguished in that they describe event kinds (as independently diagnosed by the distribution of *so*-proforms) and the modifiers possible with *sein*-passives are those which are independently admissible in event kind descriptions.

Arsenijević and Simonović distinguish two types of deadjectival nominal in Serbo-Croatian: once again, one is more lexical, and one is more syntactic. One type (‘structurally complex deadjectival nominals’, or SDNs) is productive, syntactically complex, and stem-stressed. The other type (‘lexical deadjectival nominals’, or LDNs) is syntactically less complex and insensitive to the surface prosody of the base. Strikingly, the phonological differences between SDNs and LDNs do not always correspond to the major semantic division Arsenijević and Simonović draw, between nominalizations that can only describe tropes, and nominalizations that can describe tropes, events, or properties. Typically, SDNs must describe tropes, while LDNs are less constrained. However, this is to some extent a blocking effect: in some cases, only SDNs exist, and in those cases, the SDN is not constrained to describe a trope.

The papers by Anagnostopoulou and Samioti (Chapter 12) and by Harley and Stone (Chapter 13) both approach the relationship between the syntax and the lexicon from the same DM, ‘syntax all the way down’, perspective. Given common minimalist assumptions on the low portion of the clause assuming several functional heads above V, possibly including a ‘verbalizer’  $vC$ , an element  $vE$  adding ‘eventive’ semantics to the root, and another head (Voice) related broadly to agentivity, it is natural to hypothesize that one of these heads corresponds to the upper bound on possible idiomaticity. Anagnostopoulou and Samioti, and Harley and Stone, investigate these hypotheses, based on data from Greek participles, and idioms in English and other languages, respectively. The two papers therefore complement each other nicely, as one is concerned with word-level idioms and the other with phrasal idioms. Greek participles are particularly useful for investigating these questions, because the morphology of Greek sometimes gives clear indications of the relative height of attachment of verbalizing  $vC$  heads and participle-forming morphemes. The two papers arrive at similar conclusions. Anagnostopoulou and Samioti’s Greek data show that neither  $vC$  or  $vE$  can be the upper bound on idiomaticity, but that Voice plausibly is that upper bound. Harley and Stone, revisiting a seminal idea from Marantz (1997), reach the same conclusion concerning agents, defending the ‘no agent idioms hypothesis’ against a class of putative crosslinguistic counterexamples. Both papers therefore suggest that the introduction of functional structure is ultimately responsible for delimiting the domain of idiomatic interpretation.

#### 1.2.4 *Part IV: Lexical Items at the Interfaces*

Our collection ends with a series of case studies describing the distribution of individual lexical items. Often, debates about the lexical items in question can be framed in a broader perspective: which modules are responsible for constraints on a lexeme’s distribution?

First in this series, Pearson (Chapter 14) focuses on the semantics of Japanese comparatives formed with the postposition *yori*. Elaborating on Kennedy’s (2009) distinction between explicit and implicit comparison, (which could be thought of in terms of whether the standard of comparison is an argument or an adjunct at LF), Pearson introduces a subsidiary distinction between weak and strong implicit comparison, where strong implicit comparison makes no use of comparative morphology (as in English *Compared to Mary, John is tall*), but weak implicit comparison does use comparative morphology (*Compared to Mary, John is taller*). Pearson shows that, despite the absence of any overt comparative morphology, and despite the fact that Japanese does have strong implicit comparatives (formed with *kurabetara* or *kuraberuto*), *yori*-comparatives fall into the weak implicit class, thereby motivating an argument for a null comparative morpheme in Japanese.

Alexopoulou, Folli, and Tsoulas (Chapter 15) consider a number of differences in the realization of noun phrases in Greek and Italian. Despite the similarity in the use of Clitic Left Dislocation to mark topics, the two languages differ in the dislocation of indefinite topics: in Italian, indefinite topics can undergo CLLD, while their Greek counterparts can only be topicalized. This correlates with a number of other differences. Greek lacks a partitive construction and productively allows bare NPs, while bare nominals are restricted in Italian, with partitives being used for the expression of indefinite meanings. Secondly, Greek allows argument drop exactly for the range of nominals that can be bare, while internal argument drop is unavailable in Italian. Thirdly, Greek shows ‘bare’ subnominal deletion, but Italian does not. Alexopoulou *et al* relate these differences to the structure of bare nouns in the two grammars and to the semantic contribution of the Num head. They argue that Greek bare nouns in argument positions are Number Phrases (NumPs) lacking a D head, an option not available in Italian because of differences in the semantics of number in the two languages. The Num head in Greek takes on the nominalizing role that D has in Italian, licensing bare singular and plural arguments. Therefore, they argue, the syntactic behaviour of nominals in the two languages is partly determined by the semantics of number in the two languages. Like Pearson, this paper highlights a case in an unrelated language where a null morpheme has a crucial semantic effect, affording weak implicit comparison in Japanese and type-shifting in Greek nominals.

Daskalaki and Mavrogiorgos (Chapter 16) argue against treatments of Greek indirect object resumption based on morphological manipulation of copies at PF, demonstrating that according to a number of morphological and semantic diagnostics, the resumptive pronoun in question behaves distinctly from regular copies and behaves instead like a clitic in clitic doubling constructions. Such an account argues for an attempt to keep the distinction between movement and resumption in the syntax, and contributes to the project of distinguishing between morphological form determined by post-syntactic manipulation of syntactic structure, and lexically determined morphological form.

The papers by Michelioudakis and Kapogianni (Chapter 17) and Haegeman and Hill (Chapter 18) both deal with the syntax of non-truth conditional elements. Michelioudakis and Kapogianni develop an account of ethical datives, a problematic class of pronominals which have certain syntactic properties in common with regular argumental clitics, despite not forming part of verbal argument structure. Their contribution thereby hints at a mismatch between syntactic and lexicosemantic forms of argumenthood. The compromise that Michelioudakis and Kapogianni endorse involves assigning a specific array of regular pronominal features to ethical datives (which are responsible for most of the argument-like behaviour of the clitics), while forcing late Merge of the clitics, thereby keeping them separate from selected arguments.

Haegeman and Hill’s paper examines the distribution of discourse particles in Romanian and West Flemish, a topic which raises issues related to the syntax–discourse interface discussed in Part II. In clear contrast to those earlier papers, though, Haegeman and Hill use facts pertaining to inflection on particles, selection by particles, and word order restrictions among particles and vocatives, to argue for a syntactic treatment of the distribution of discourse particles, a phenomenon which we might expect to be explicable in purely discourse-based terms. In particular, their approach involves expanding the cartographic methodology of Rizzi (1997) and Cinque (1999) beyond CP, to encompass an articulated left-peripheral series of Speech Act Phrases, in a manner broadly reminiscent of Ross (1970).

Finally, Bjorkman (Chapter 19) addresses so-called asymmetric uses of *and*, where the coordination carries some extra temporal or causal implication above and beyond logical conjunction. Contradicting the usual assumption that asymmetric uses arise from pragmatic enrichment of a basic symmetrical coordination, Bjorkman shows on the basis of distinct interpretations of CP- and TP-coordination that the distinction between symmetric and asymmetric coordination is syntactically conditioned, which is unexpected on the pragmatic enrichment account. This is used as one piece of evidence supporting the construction of a primarily asymmetric semantics for coordination, where symmetric readings emerge in cases where the asymmetry has no interpretive consequences. As with the preceding two papers, then, closer inspection reveals

a syntactic basis to distributional facts where our intuitions may tell us to appeal to discourse pragmatics.

What do we learn from this collection as a whole? One pleasing observation is that relatively few substantial incompatibilities are in evidence, and they are outnumbered by the points of substantial consensus, despite the diversity of the data under consideration. As ever in linguistic theory, the hypothesis space offered by the near-simultaneous advent of the Minimalist Program, Distributed Morphology, and Hale and Keyser’s approach to L-syntax is vast, and the evidence required to discriminate between alternatives is subtle, and contingent on several other partially theory-internal choices. It is always encouraging, then, to see independent lines of argumentation, based on disparate empirical data, converge on the same conclusion or pointing to a need for further investigation of a more complex set of phenomena, when conclusions are not at hand. Of the two most striking examples of such convergence here, one comes from Anagnostopoulou and Samioti’s and Harley and Stone’s findings concerning the role of agentivity in delimiting L-syntax. The other striking convergence concerns the general agreement on the utility of using a representation of information structure to constrain syntactic operations. There are many other points of contact between the chapters, but these two stand out because of the uniformity of the conclusions drawn, and the diversity of the evidence used to draw those conclusions.

In a sense, these are small victories, but because of the relatively limited options available within a post-REST architecture, they have significant consequences. Anagnostopoulou and Samioti’s and Harley and Stone’s findings significantly narrow the options for a syntactic characterization of the scope of lexical operations, while the postulation of a semi-autonomous representation of information structure functioning to constrain syntactic operations poses clear challenges to a literal interpretation of the Y-model, according to which information flows from syntax to other models, but not in the other direction. Once again, options are available to preserve the Y-model, but such evidence serves to narrow down those options. One important message is that the investigation of how the different components of a modular grammar interact is crucial to our understanding of the workings of the language faculty in general, if we are to account for fine-grained aspects of grammatical phenomena. Overall, the volume represents an example of classic generative methodology in practice: gradual progress resulting from strong hypotheses confronted with careful empirical cross-linguistic investigation.