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The Comparative Syntactic Enterprise

An Introduction

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1.1 Why Comparative Syntax?

Human language is the product of a cross-species unique cognitive capacity (cf. Berwick and Chomsky 2017). So far, no species has been discovered with a communication system that resembles human language. As far as we know, no animal communication system has a grammar that makes it possible to generate, produce, and process an infinite number of utterances on the basis of a finite set of language signs and combinatory rules.

Human language is central to human cognition. It integrates perceptual information with other cognitive functions such as memory, thought, and emotion. Together, this makes tasks like speaking, listening, writing, reading, signing (see Chapter 29), and debating possible, which in turn play a central role in almost all domains of human culture, such as science, technology, politics, law, trade, and art. Understanding human cognition, society, and culture requires understanding the nature of human language better.

Within Mental Grammar (i.e., the cognitive representation of the language knowledge of a native speaker) Syntax is pivotal (see Chapter 2). The Syntax module of the Mental Grammar determines how the units, that is, the grammatical features, morphemes (meaningful word pieces such as affixes), words, and collocations from the Mental Lexicon can be combined into phrases and sentences.

One of the most important findings of modern linguistics is that these combinatory principles do not involve linear concatenation but hierarchical composition. The hierarchical structures generated by the Syntax module interface with the modules for semantic and phonetic interpretation.

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In these modules, language information takes a different shape. Semantic interpretation requires, among other things, logical representation (see Chapters 23 and 26), and phonetic interpretation requires, among other things, linearization of hierarchical structure such that the latter can be uttered as a linear string of words (see Chapters 27 and 28). In all these modules, the arguments in favor of hierarchical organization are deeply rooted in cross-linguistic data; in fact, such data have often led to the strengthening of hierarchical representations in grammatical models. As the central module of the Mental Grammar, Syntax co-determines what the information in the lexical, semantic, and phonetic modules of the Mental Grammar can look like. Understanding Syntax means understanding Mental Grammar better.

The goal of this handbook is to highlight the progress achieved in the field of comparative syntax within the generative framework. We recognize that this is just one perspective on language and the language faculty, as various alternative viewpoints exist (consider Comrie 1981; Croft 1990). Important comparative work has been conducted within other frameworks. In fact, much comparative work on language was pioneered by Joseph Greenberg, in his seminal studies of language universals, starting with Greenberg (1963). Research outside the generative paradigm is acknowledged in this handbook (see especially Chapter 6 and references therein), and it is our hope that the boundaries between frameworks will become increasingly more transparent. The decision to limit the bulk of the work covered in this handbook by the generative enterprise was motivated by practical considerations (handbooks have space limits too) and by the desire to converse in a shared theoretical language. At the same time, it is our hope that advances in formal comparative syntax can bring it closer to other frameworks that have long focused on linguistic diversity.

From the onset of generative syntactic research in the 1950s (Chomsky 1957) the goal has been to discover the abstract combinatory principles that all human languages have in common and that determine the range and limits of cross-linguistic syntactic variation. The central research question is: What is an (im)possible human language? The answer to this question should explain why certain conceivable syntactic structures *do not or cannot* occur in any of the thousands of languages and dialects of the world, including those spoken by children at different stages of language development (see Chapter 9). Here, we would like to emphasize the difference between structures that are probable but have not been attested and ones that do not occur and could not occur (consider also Newmeyer 2005). The latter are impossible not just because of third factors (Chomsky 2005), but because the computational system won't generate them. A sizeable part of the comparative syntactic enterprise is developing theories that can make predictions about this split between the probable and the impossible.

Embedded in the discussion above is the hypothesis that all human languages share a common set of combinatory rules and operations. This

hypothesis, however, is not the only one possible. An alternative would be that each human language has its own unique, culturally determined and transmitted grammar. Comparative syntactic research of the past seventy years, however, has shown that human languages, spoken or signed, have many syntactic properties in common, even when those languages are not genealogically, historically, or geographically close. Such properties include, for example, clausal and phrasal architecture (see Chapters 2, 12, 13, 14, 15, 18), dependencies between two or more positions in a clause (see Chapters 19, 20, 21, 22, 24, 25), hierarchy of different types of adverbials (Chapter 2), hierarchy of different types of adjectives (Chapter 12), and syntactic relations that depend on hierarchical structure rather than linear order, such as anaphor binding (Chapter 22), polarity item licensing, quantification (Chapter 23), and agreement (Chapters 2, 19).

These shared properties strongly suggest that there is a biologically determined, universal syntactic blueprint underlying and restricting the, at first sight bewildering, cross-linguistic syntactic variation. This blueprint has been called Universal Grammar and it determines the innate capacity to acquire a human language. Other arguments in support of the Universal Grammar hypothesis are that humans are the only ones that have this capacity and that any child can learn any human language as their mother tongue, seemingly effortlessly, without explicit instruction or correction, at roughly the same rate, with the same developmental patterns, and without making some "mistakes" that one could in principle predict (consider Chapter 9).

To discover the abstract universal syntactic properties of human language, there is the choice to focus on an in-depth description and analysis of one language or to describe, compare, and analyze sets of languages. An argument for the first approach is the idea that if all languages are based on the same, universal, grammar then the principles constituting this grammar should be present and detectable in every single language. This is known as the Uniformity Principle (Chomsky 2001), a guiding principle of comparative syntactic research with important methodological consequences, as it invites the researcher to look for syntactic properties described for language A that may appear absent in language B. Furthermore, with this principle in mind, the researcher can test the hypotheses of the theoretical model of Universal Grammar, which is based on well-studied languages, on understudied languages and new syntactic structures.

The approach of focusing on single languages has some practical, methodological advantages. Syntactic research is largely based on acceptability judgments, that is, the judgments of speakers as to whether particular word sequences (sentences) do occur / are possible in their language (cf. Chapter 7). These judgments are often subtle and also require a full understanding of the meaning of the sentence. Judgment tasks should be seen as linguistic experiments (cf. Schütze and Sprouse 2014; see also Chapter 31 of this volume). The linguist manipulates sentences by permutations, substitutions, deletions, and doublings, and then asks the subjects what the impact of

these manipulations is on the grammaticality and/or interpretation of the sentence.

Given the subtlety of these judgments, only native speakers of a language can reliably judge a sentence of that language. Comparative syntactic research then requires multilingual speakers and/or sets of monolingual native speakers of different languages. Because of these theoretical and methodological considerations, in the first decades of its existence much of generative syntactic research concentrated on theoretically modeling one language, often the mother tongue of the researcher and their community (e.g., Bresnan 1972; Van Riemsdijk 1978; Rizzi 1982), but not always (e.g., De Rijk 1972 on Basque; Hale 1973 on Walbiri; Kayne 1975 on French; Kibrik et al. 1977 on Archi).

Over time, generative syntax has become strongly comparative, largely informed by the growing realization of uncanny similarities across languages. As the list of similarities started to grow, linguists became increasingly aware of the idea that not all properties of language structure are alike; it is only possible to build a theoretical model of Universal Grammar if one can distinguish between necessary and contingent syntactic properties of a language. One would also like to know if there are any (morpho)syntactic properties that correlate across languages and that are possibly the reflex of more abstract building principles. Furthermore, there are many phenomena that are not visible in all languages, at least not directly, and a language does not necessarily exploit all the options made available by Universal Grammar. For example, English does not show the complex syntactic agreement relations that we find in Georgian, Basque, Kaqchikel, or German Sign Language between verbs and their arguments. Yet, understanding agreement is crucial for our understanding of human language syntax, as agreement phenomena show that human language sentences are more than just combining the simplex meanings of morphemes and words into the complex meaning of phrases and sentences.

The increasing availability of studies of large numbers of syntactic structures in large numbers of languages has made comparative syntactic research much easier. This research is also facilitated by the increasing availability of online comparative language data collections and corpora (see Chapters 3, 4, 6, 7, 8). It is to be expected that such data collections and corpora will give rise to important methodological innovations, involving quantitative (Chapter 4) and computational (Chapter 5) approaches to syntactic variation. There are of course many reasons to build corpora and to base generalizations on them. Corpora may include structures that a researcher has trouble imagining. Corpora are useful for a better understanding of certain discourse-related aspects of the language (e.g., topic, focus, related word-order alternations – see also Chapter 30 for more discussion) and allow us to gain insight into which constructions are more "prototypical" or common in language than others (see also Chapter 17). However, it is essential to bear in mind the significant limitation of language data collections and corpora – they

invariably lack the negative data that are critical for linguistic theorizing. Meanwhile, one of the most significant insights of generative linguistics is the fundamental difference between the extremely-rare-but-perfectly-acceptable and the impossible.

The growing accessibility of extensive syntactic studies and language data collections and corpora across a multitude of languages promises to usher in methodological advancements, enriching our understanding of language structure and usage. Nevertheless, these new methodologies cannot replace the depth of linguistic theorizing; they just offer new ways to enhance it.

1.2 The Future of Comparative Syntax

In looking ahead and assessing where the field is going it is helpful to distinguish between significant advances and ongoing challenges. Not surprisingly, the two are often interrelated.

Among the unquestionable achievements, it is noticeable that comparative work has instilled in linguists great respect for data, for the variation in them, and for their fragility. Researchers are now open to testing their data's validity in more rigorous ways. There are many interesting analyses around, which supply us with a broad theoretical and analytical common ground. That in turn leads to new discoveries, more sophisticated examples of analytical syntax, and new generalizations based on these discoveries. The common ground in comparative generative syntax lies at the intersection of the core tenets of minimalist analyses (Merge, Agree), Distributed Morphology (which allows us to view morphosyntax as a unitary module), and cartography (cf. Chapter 2).

Another important development in comparative syntax has to do with the greater sophistication of analyses and our ability to formulate theoretical predictions based on existing data. It is now common for comparative syntactic approaches to extrapolate results from a given phenomenon or language and predict what may be found in a language with a number of correlated properties. To illustrate, there has been a lively line of research on indexical shift, the phenomenon where the interpretation of indexical elements, such as pronouns, demonstratives, tense, and aspect, changes when they are embedded in a different linguistic context. This is something that David Kaplan considered unthinkable. The term "monster," which is often used in discussions of indexical shift, goes back to Kaplan (1989), where he famously claimed that monsters – operators that shift the context – do not exist in English and "could not be added to it."

An example of indexical shift, drawn from Uyghur, is shown in (1a), in contrast to the unshifted version of the indexical in (1b).[1] These examples feature a first-person embedded subject: It is interpreted as shifted when it is

[1] Here and below, the abbreviations follow the Leipzig Glossing Rules.

in the nominative, and as non-shifted when accusative (this contrast is not limited to first person; it also happens with second-person pronouns).

(1) a. shifted
Ahmet [men ket-tim] di-di.
Ahmet 1SG.NOM leave-PST.1SG say-PST.3
'Ahmet$_i$ said that he$_i$ left.' (lit. "... that I left")
Impossible: 'Ahmet said that I$_{Speaker}$ left'

b. non-shifted
Ahmet [meni ket-ti] di-di.
Ahmet 1SG.ACC leave-PST.3 say-PST.3
'Ahmet said that I$_{Speaker}$ left.'
Impossible: 'Ahmet$_i$ said that he$_i$ left'
(Shklovsky and Sudo 2014: 386)

It is easy to show that embedded clauses in examples like (1a) are not direct quotations; it is impossible to extract *wh*-words from direct quotes (cf. the English example in (2)), but indexically shifted clauses allow such *wh*-extraction:

(2) *Who(m) did Tursun say, "I saw ~~who(m)~~"?

(3) Tursun [men kim-ni kör-dim] di-di?
Tursun 1SG.NOM who-ACC see-PST.1SG say-PST.3
'Who did Tursun$_i$ say that he$_i$ saw?' (lit.: "Who did Tursun say that I saw?")
(Shklovsky and Sudo 2014: 384)

Several theories of indexical shift have been proposed. In broad strokes, one can distinguish the view under which the shifted interpretation of indexical expressions arises when the "monster," that is, the quantificational operator, binds contextual variables associated with indexicals in its scope. In other words, the monster is an operator selected by the attitude verb (Shklovsky and Sudo 2014; Deal 2020; Bogomolova 2023, and references therein). This operator replaces the utterance context with the intensional context. This approach can be called the context-overwriting approach.

Under the more lexicalist view, the possibility of shift is always part of the lexical specification of attitude verbs. In more standard accounts, attitude verbs are treated as quantifiers over possible worlds, but to accommodate their shifting nature, they can be treated as quantifiers over contexts of thought or speech, thus allowing the quantification over worlds to be more flexible (Schlenker 1999: 2). In other words, all attitude verbs are monstrous, binding context variables in their scope. This approach can be called the quantifier binding view. However, indexicals themselves vary according to whether they never shift (as in English, satisfying Kaplan's predictions), always shift (e.g., first-person pronouns in Uyghur), or optionally shift (e.g., first-person pronouns in Amharic) under verbs. Further still, if a structure includes more than one indexical, they typically all shift (Shift Together) or all stay unshifted. As Sundaresan notes, the context-overwriting accounts and the quantifier binding account make different empirical predictions:

> For instance, the context-overwriting approach derives Shift Together for free; after all, if multiple indexicals, all shifty, are merged under a context-overwriting operator, they will have no choice but to all shift. The quantifier binding view must say something extra to capture this. Likewise, both analyses make distinct predictions about shifty variation across different intensional environments . . . Under the context-overwriting view, a monster is selected by a particular kind of attitude verb; thus, shifty variation across distinct attitude predicates can, in theory, be captured. Under the quantifier binding view, the monster cannot be separated from the verb, so shifty variation under different attitude verbs can be captured at its core. At the same time, something additional must be said to capture the fact that such variation is implicational . . . and is not random.
>
> *(Sundaresan 2021: 247–248)*

Under the embedded-root analysis, shift is associated with the complementizer, not with the attitude or speech verbs embedding the root clause containing the shifted indexical(s) (Sundaresan 2021; under review). On the assumption that the monster operator is associated with the complementizer, we can account for the absence of indexical shift outside embedded CPs (the claim is that the relevant complementizers are present even in some root clauses, e.g., in Tigrinya [Spadine 2020], and Georgian [Thivierge 2021]). Finally, in contrast to the three approaches outlined here, which all crucially rely on the presence of a special monster operator and differ in the location of that operator in syntax, the approach by Alok and Baker (Alok and Baker 2018; Baker 2018) simply postulates the presence of the special Hearer (~Addressee) DP in both the main and embedded clause, and derive the shift by the binding relation between the goal argument in the main clause and the pronominal argument in the embedded clause. In other words, the indexical in the embedded clause always gets reference from a (silent) argument in the main clause. On this approach, it is possible to unify the phenomena of indexical shift, including Shift Together, allocutive agreement (agreement with the phi-features of the addressee), and logophoricity.

This short discussion underscores both the advances and the challenges faced by comparative syntax. A heartening trend in the focus on indexical shift lies in the increasing integration of data from underrepresented languages (including sign languages – consider Quer 2005; Hübl et al. 2019), enabling the study of macro- and microvariation across a broader sample. However, as we just showed, this expansion of empirical data has led to a proliferation of analytical proposals, often relying on non-identical data, which makes direct comparisons and evaluations difficult. Because of this gap, the final analysis of indexical shift is still outstanding, and this short overview of the approaches shows that the choice of theory may ultimately depend on the type of the indexical being analyzed (pronoun, tense, deictic expression) and that this theory may end up not being uniform. What this short illustration is intended to show is that it is often hard to draw a line between theory per se and what

can be called "analytical syntax": a sophisticated description and analysis of a given phenomenon in a given language, with clear predictions both for that language and beyond. One of the challenges that remain is how to use the wealth of generalizations accumulated by analytical syntax to arrive at more satisfying answers about the nature of human language potential and at more restrictive theories of language.

As our knowledge of language patterns continues to expand, the issue of non-identical coverage will become more pronounced. Therefore, it is imperative for analysts to rigorously evaluate the empirical coverage of competing proposals across a wide spectrum of variation. This evaluation is crucial for understanding both the strengths and weaknesses of existing analyses and for developing formal models that can comprehensively encompass the entire typological space.

Another prominent challenge in our development of theoretical accounts has to do with the variation in assumptions among syntacticians, which often complicate meaningful comparisons. Examples are not hard to come by: Variation in derivations of particular word orders, vastly different approaches to scrambling (is it A-bar movement, A-movement, base-generated, or a mixed phenomenon?), and syntactic accounts to object shift are just a few that come to mind. Yet another challenge comes from the lack of comprehensive descriptions of quite a number of languages. As Lisa Cheng notes, "[a]n ongoing concern is that less-explored languages often receive attention from only one researcher, making effective data evaluation a formidable task" (pers. comm.). This observation also harkens back to the problem raised in section 1.1 of this chapter: How exactly do we know that patterns which do not occur are in fact impossible? This is where the connections between theorists and empiricists of any persuasion, be it typology or analytical syntax, become particularly important and need to be made stronger.

It should also be noted that even some assumptions widely shared by the field have sometimes led to a disconnect between theory and analytical syntax. As Marcel den Dikken (pers. comm.) observes, "the focus on features and designated functional heads has . . . tended to lose sight of what should always be the quintessential tenet of the formal approach to comparative syntax: *correlations* between various points of variation. . . .The assumption of variation in feature 'strength', a hallmark of early Minimalism, has mostly been unproductive, at best resulting in descriptive discoveries but never genuinely advancing our understanding of linguistic variation."

As we look forward, it would be advantageous for the field to consolidate efforts and address critical questions, including the identification of variables that exhibit variation and those that do not. Furthermore, it is essential to deconstruct these overarching inquiries into more specific, manageable subquestions. For instance, within the domain of noun phrases, precise queries should be formulated for the presence or absence of a determiner head, for the structural representation and order of modifiers, or for the status of

information structure within the DP, and these should be tested on understudied languages as well as by revisiting familiar ones.

In sum, there is reason both for optimism and concern as we look ahead. The field of comparative syntax has been making great progress descriptively, methodologically, analytically, and theoretically. The hypothesis of Universal Grammar, whatever its shape, is therefore very much alive. The recurrence of (morpho)syntactic patterns has been noted in language after language, regardless of historical links among languages. Among other factors, we owe our ability to note and register recurring patterns to the increasing availability of descriptions and analyses of underrepresented languages, both spoken and signed. The growth in digital data on natural languages will make quantitative and computational approaches to comparative syntax more feasible and reliable, and that in turn will enable us to test hypotheses in new ways and at a larger scale. At the same time, the field needs to pay attention to the ecological validity of data and descriptive adequacy of analyses. The variability of theoretical assumptions that we touched upon in this section sometimes makes it difficult to evaluate theoretical analyses, and the decreasing role of theoretically meaningful correlations between linguistic variables carries the risk of remaining at the level of description rather than providing an explanation.

1.3 The Chapters in This Volume

This handbook is subdivided into four parts (I–IV), each of which highlights a specific aspect of comparative syntax. Part I focuses on theory, methodology, and data collection, Part II explores the building blocks of syntax and their combinatorial properties, Part III examines various types of dependency relations and forms of dependency marking, and Part IV, finally, discusses comparative syntax from an interface perspective.

1.3.1 Comparative Syntax: Theory, Methodology, and Data Collection (Part I)

Part I of the handbook (Chapters 2–9) discusses comparative syntax from the perspective of theory (How do we account for aspects of uniformity and diversity in the build of natural languages?), research methodology (Which comparative research methodologies help us in gaining more knowledge about, and a deeper understanding of, syntactic variation?), and data collections (How do we store cross-linguistic data in a well-organized and useful way?). In what follows we summarize Part I's chapters.

In Chapter 2, *Theoretical Approaches to Comparative Syntax*, **Sjef Barbiers**, **Guido Vanden Wyngaerd**, and **Jenneke van der Wal** examine three main types of variation – order, silence, and doubling – from the perspective of four formal generative theories that have been proposed since the 1950s: (i) Transformational Generative Grammar (TGG) and Government and

Binding theory (GB), (ii) Minimalism (including Optimality Theory), (iii) Nanosyntax, and (iv) Distributed Morphology. They also discuss the different roles of the notion of parameter at various stages of theory development.

Chapter 3 is on *Databases for Comparative Syntactic Research*. **Jessica K. Ivani** and **Balthasar Bickel** focus on the role of linguistic databases in capturing syntactic variation. They offer a survey of a number of publicly available databases and propose a categorization of these resources along two main dimensions, units of descriptions and design principles. In addition, they address issues regarding the design of linguistic databases and present a list of desiderata for future modern databases.

In Chapter 4, *Quantitative Approaches to Syntactic Variation*, **Jeroen van Craenenbroeck** and **Marjo van Koppen** discuss quantitative approaches to studying syntactic variation, specifically those that pursue a combined quantitative-qualitative methodology, integrating components from both the formal-theoretical and computational-statistical tradition. After having introduced several case studies exemplifying such integration, they highlight the advantages and benefits offered by a quantitative-qualitative approach to syntactic variation.

Chapter 5 is on *Computational Approaches to Syntactic Variation*. In this chapter, **Tim Hunter** and **Robert Frank** focus on configurations of linguistic elements that are related by syntactic dependencies and argue that many of those dependency configurations can be described in terms of discontinuous constituency. They subsequently identify four computationally significant dimensions of variation that can be used to classify the syntactic patterns observed across natural languages.

In Chapter 6, titled *Comparative Syntax from Formal and Functional Perspectives*, **Polina Pleshak** and **Maria Polinsky** discuss two main approaches to the comparative study of human language: functional linguistic typology and formal comparative syntax. They introduce the tenets of the former approach, give an overview of the main differences between the two approaches, and discuss the basics of the comparative approach for formal syntax. For their comparison of the two approaches to syntactic variation, they use two empirical domains: word order and case.

Chapter 7 is called *Micro-Comparative Syntax, Dialectology, and Sociolinguistics*. **Sjef Barbiers** approaches syntactic variation from a micro-comparative perspective, that is, the comparative study of genealogically closely related language varieties (e.g., dialects of English). He discusses the development of micro-comparative research in three linguistic subdisciplines – theoretical syntax (specifically generative grammar), dialectology, and sociolinguistics – and considers studies that combine generative, dialectological, and dialectometrical work. The chapter further provides an overview of large-scale dialect syntax projects that have been carried out in recent years.

In Chapter 8, *Change: Comparative Syntax and Diachrony*, **Adam Ledgeway** reviews the role of the study of comparative syntax in advancing our knowledge and understanding of the mechanisms, triggers, and processes involved