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SYMMETRY BREAKING IN SYNTAX

In this illuminating new theory of grammar, Hubert Haider demonstrates that there is a basic asymmetry in the phrase structure of any language, whatever sentence structure it takes. Moreover, he argues that understanding this asymmetry is the key to understanding the grammatical causality underlying a broad range of core syntactic phenomena. Until now, Germanic languages have been seen to fall into two distinct classes: those which take an object-verb sentence structure (OV) or a verb-object one (VO). However, by examining the nature of this universal underlying asymmetry, Hubert Haider reveals a third syntactic type: 'Type III'. In particular, he employs the third type to explore the cognitive evolution of grammar which gave rise to the structural asymmetry and its typological implications. *Symmetry Breaking in Syntax* will appeal to academic researchers and graduate students involved in comparative and theoretical syntax and the cognitive evolution of grammar.

HUBERT HAIDER is Professor of linguistics at the University of Salzburg. He specializes in the theory of syntax, comparative syntax and syntax and the brain. His previous publications include *The Syntax of German* (Cambridge University Press, 2010).

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Preface

This volume puts forward a good deal of the harvest of twenty years' occupation with verb–object/object–verb (VO/OV) as a main syntactic divide across languages. The enterprise got going in 1991, when I gradually became conscious of the fact that syntactic structures are universally asymmetric.¹ Languages share a uniform syntactic asymmetry. Their phrase structures are *right-branching*. Left-branching projections are not employed.

This volume contains only part of the harvest, though. The other part has already been published in 2010. Although the title of the publication *The Syntax of German* tells that the volume has a pre-assigned focus on German, it is nevertheless a book on the OV/VO-dependent syntactic properties, illustrated mainly with data from German, in comparison with English and other Germanic languages. Half of the itemized agenda below is covered there, namely the structuring of the verb phrase (VP) in OV and VO, the clause structure of SVO and SOV, VO-triggered constraints on *wh*-movement, scrambling, extraposition and verb clustering.

At the beginning back in 1991 stood a conjecture, viz. the '*basic branching conjecture*'. In the following years, I kept on investigating various domains of the right-branching hypothesis and its consequences for:

- *A-bar movement* Haider (2004a, 2005, 2010a: ch.3)
- *adjuncts* (adverbials and attributes) Haider (2000a, 2002, 2004b)

¹ I remember a friend and colleague of mine at the University of Stuttgart at this time, Werner Frey, asking me why in a German NP, a PP-contained anaphor may be bound by a preceding genitive, although the genitive would not c-command the anaphor in a left-branching NP structure. All of a sudden I realized that the German NP, just like the English VP, had been mistaken as left-branching for a long time. They are right-branching. The next step was generalizing the basic hypothesis (i.e. universality of right-branching) to any complex phrase and to study the effects of the head-initial vs. head-final architecture. The first international presentation of this idea was on 9 December 1991, at the *Conference for Lexical Specification and Lexical Insertion* at Utrecht University (published in Haider (1992) and in the conference proceedings that appeared in 2000).

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- distribution of arguments in phrases and clauses Haider (1992, 1993, 1997c, 2010a: ch.4)
- *extraposition* (no movement to the right) Haider (1995a, 1997a, 2010a: ch.5)
- *functional* projections, functional subjects Haider (1993, 2005, 2010a: ch.2)
- secondary *predicates*, including particles Haider (1997b)
- the deduction of OV and VO Haider (2000b, 2005, 2010a: ch.1)
- the discovery of a third type, viz. Type III Haider (2005, 2010a: ch.4.4, 2010b)
- the *evolution* of grammars Haider (1998, 1999, 2001a)
- the Germanic *diachrony* of OV and VO Haider (2005, 2010b)
- the *typological* implications Haider (1997d)
- *verb clustering* and clause union in OV Haider (2003, 2010a: ch.7)
- *word structure* Haider (2001b)

After two decades of continuous investigation into these matters, I feel justified in renaming the ‘basic branching *conjecture*’ and dare to construe the acronym BBC henceforth as the ‘basic branching *constraint*’ of universal grammar (UG). The capacious network of diverse but interdependent analyses that support each other has become tight enough so that my confidence in the basic soundness of the approach has grown proportionally.

Additional backing comes from the comparison with competing models, when it turns out that straightforward major predictions of the BBC and PDI (Principle of Directional Identification) model necessitate complex and ad hoc measures in other models. I learnt that what these models understand as universal syntactic properties have been tailored too tightly to SVO languages. After all, these theories were built almost exclusively on SVO data. OV data had to be ‘squeezed’ in. Obviously, it should not come as a surprise if an SOV grammar does not fit neatly into a ‘universal’ model that has inadvertently been designed for SVO. Typically, a patch-up strategy is used for deriving OV from VO. As a result, either the SOV grammar or the underlying grammar theory perceptibly suffers from collateral damage and invites additional ad hoc remedies.

What we deserve is a grammar theory that elevates the standpoint above the narrow horizon of VO languages. VO is not more basic than OV, and vice versa. In fact, there is no language type that is ‘more basic’ and could serve

as the source for the derivation of all other types.² But there are structural invariants that are basic, and they determine the grammar of any type of languages.

One of these invariants is a universal constraint on structure building: syntactic structures are invariably right-branching, contrary to naive apprehension. This constraint in combination with the directionality *parameter* for the identification relation between heads and dependants (PDI) defines a system space that provides room for OV, VO and a type that has not received the appreciation it deserves yet, namely the *Type III*. It went unnoticed because these languages are still misinterpreted as atypical VO languages. This book describes the system space and its empirical reflections in diverse domains of the grammar, synchronically and diachronically (Germanic OV/VO split).

Even if syntactic structures are perfectly described, they are not fully understood as long as they are characterized in isolation.³ It is an underestimated commonplace that syntactic structures are put to use in language processing (production and reception). They are put to use and they have an adaptive design for the conditions of usage. A functionalist typically interprets this in a *form-follows-function* perspective. This perspective is misleading, however (Haider 1998, 2001a). Adaptive design in language is not functionalist design, viz. the design of the invisible hand of a tool maker. In Chapters 1 and 2 it is argued that adaptivity in language is the result of an ongoing process of evolution. It is ‘*cognitive*’ evolution and it shares the basic principles of evolution with *biological*, neo-Darwinian evolution, without sharing the substrate. Biological evolution is selection on the genome level; cognitive evolution is selection on the level (of the format) of mental representations. They are subject to the substance-neutral conditions of evolutionary processes for reproductive systems, based on variation and selection.

The (cognitive) *co-evolution* of the structuring system (as a dimension management system) with the systems that utilize it (acquisition, parsing and production systems) is ultimately responsible for the basic asymmetries (and for *symmetry breaking*). Already in 1881, Darwin had seen the point of the close parallel between the descent of species and the diachronic development of

² But there is always a language that is mistaken as a model language. From the time of the mediaeval grammarians (e.g. the Modistae) until the nineteenth century, the model language was Latin. Today it is English.

³ Syntax cannot be explained with reference to syntax only, unless you (mis-)treat it as a purely Platonic object. This would be much like the situation of the Englishman in the Chinese room, in John Searle’s ingenious Chinese room thought experiment. The contexts of use are an essential part of the understanding of a system that is continuously put to use.

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languages in the context of a theory of evolution (Darwin 1871, vol. I: 59).⁴ Linguists of those days, however, were concerned with a different aspect of the impact of language on the theory of biological evolution. From the beginning, the fact that there is a language-gifted species was seen as a serious challenge for Darwinian evolution,⁵ but apparently no one took up Darwin's own linguistic point during the past 130 years. His point was and still is that the process of evolution is substance neutral. Genetic evolution is just one possible instantiation of evolution. Another possible instantiation is cognitive evolution. Structures of human languages owe their adaptivity to *cognitive* evolution, just like the adaptivity of organisms is a result of *biological* evolution. All it requires is variation and selection. The selector in the cognitive evolution of grammars is the processing brain and its constraints on information processing. Functionalists (e.g. Croft 2009) assume that the selector is the society (and its 'needs'). This seems to be a misguided idea, however. Selection, unlike (social) engineering, is not driven by future purposes. *Variation* is driven by social factors but constrained by the nature of possible grammars (Wilson and Henry 1995). The nature of possible grammars is determined by the language-processing brain. This is the source of selection and it is the locus of the reproduction of grammars, too.

Here are the topics of the following nine chapters in a nutshell

Chapter 1 prepares the scene and presents the subject matter, namely *symmetry breaking*, as a fundamental property of syntactic structures and of grammars of human languages that determine these structures. For ease of reference, part of the chapter is a synopsis of the issues relevant for symmetry breaking that have already been covered in Haider (2010a).

Chapter 2 focuses on *cognitive selection* as the key for understanding the universal conditions on grammars in determining the structural architecture of complex phrases. The recipient side is the selector and the ultimate source of symmetry breaking. BBC as a principle of UG guarantees that core grammars

⁴ Charles Darwin (1871: 59) had already appreciated the parallel between the evolution of languages and biological evolution: 'The formation of different languages and of distinct species, and the proofs that both have been developed through a gradual process, are curiously parallel.'

⁵ 'Language is the Rubicon which divides man from beast, and no animal will ever cross it ... The science of language will yet enable us to withstand the extreme theories of the Darwinians, and to draw a hard and fast line between man and brute.' (Friedrich Max Müller's lectures: 'The theoretical stage, and the origin of language', delivered at the Royal Institution of Great Britain in April, May and June, 1861. Published 1862 in: *Lectures on the Science of Language*. London: Longman, Green, Longman and Roberts).

provide data structures that are parser friendly, as an economical solution to the problem of limited resources on the recipient side. This should not be read as a *functionalist* commitment, however. It is *adaptation by cognitive selection*, that is, a substance-neutral application of the Darwinian principles of evolution, applied to the selection of the cognitive representations of grammar systems.

Chapter 3 is an updated and amended version of work from the birth days of the BBC in 1991. The first three subsections present the originally surveyed empirical evidence for a principle that was presented as a conjecture at that time. Section 3.5 defends the BBC against apparent counterevidence from Slavic languages. The defence is turned into an argument for recognizing Slavic languages as Type III languages. The concluding section lists additional evidence that investigations since then have brought to light, plus a summary of the consequences of the BBC in combination with the PDI.

Chapter 4 deals with the BBC on the *typological* scale. Its focus is, on the one hand, on *missing types and structures*, as a consequence of the BBC, and on the other hand, on the exposition of the predictions of the BBC in a cross-linguistic and typological perspective. It argues for more fine-grained standards of investigating data adduced for broad typological generalizations.

Chapter 5 proposes a solution for a long-standing diachronic puzzle, namely the split into VO and OV types in the development of the Germanic language family. The solution is based on the insight that the PDI offers room for the existence of a *third* type, namely a type with *flexible* directionality, in addition to the strictly head-final (OV) and the strictly head-initial (VO) options. The Germanic split, which contrasts with the uniform development towards VO in the Romance family (arising from the Type III language Latin), is argued to follow from the coincidence of the development of the V2-property (fronting the finite verb) and the change from the third type to a type with fixed directionality.

The basic change in the diachronic development of the Germanic languages (and the Romance languages, too) is a change from *flexible* to *rigid* directionality of identification. In principle, the implementation of rigid directionality based on a predecessor language with flexible directionality provides a choice between two equally well-suited instantiations, and each of these options has found its adopters, as usual. As a consequence, one group of Germanic languages has ended up as OV, and the other group has become VO. A crucial ingredient for the balanced availability of the choice was the simultaneous emergence of the V2-property of Germanic languages.

Chapters 6 and 7 concentrate on particular empirical domains and their PDI-triggered grammatical properties. Chapter 6 describes the characteristic

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distribution of adverbials in OV and VO, respectively, as a consequence of the PDI. This requirement triggers *compactness* and thereby reduces the available positions for adverbials in VO. The grammar of *secondary predicates (result predication)* in the light of the BBC and the PDI is the subject of Chapter 7. The stranding pattern of result predicates in VO is immediate evidence for a shell structure in VO and its absence in OV.

Chapter 8 is devoted to nominal structures. First, it demonstrates that the BBC applies not only to syntactic structures at the phrase level but to the *word structure* as well. A restriction on recursive compounding that discriminates between the frequent head-final and the highly restricted head-initial word structures provides direct support for the BBC. Second, the properties of NPs as head-initial phrases in German are shown to coincide with the properties for head-initial phrases attested for English and other strictly head-initial languages. Third, the nominalization of verb clusters is shown to provide direct evidence for base-generating the typical verbal clusters of clauses based on head-final VPs, rather than deriving them.

Chapter 9, finally, compares in detail the BBC model with the LCA (linear correspondence axiom) model of Kayne (1994) and subsequent work. The comparison focuses on their relative success in accounting for the OV/VO correlates in particular, and the issue of symmetry breaking in general. The two explanations are in a complementarity relation: the LCA model derives OV from VO by massive *phrasal movement*, while the BBC model frames the account in terms of alternatively available *head positions*. Both approaches share the conviction that syntactic structures are principally right-branching. The chapter presents arguments for the empirical as well as theoretical (in-)adequacy of each of the competing models, with a superior record for the BBC, not surprisingly.

This volume, together with the volume from 2010, draws a coherent picture of syntactic structures as it emerges when a lot of pieces of a puzzle have been put together successfully (for a small but essential area of a vast empirical terrain).

Final remark: The majority of the chapters are organized as self-supporting parts. This brings about an inevitable amount of overlap. Instead of being too often redirected to other parts of the book while you are reading a chapter (in the paper version), you may occasionally encounter data and arguments already familiar to you from a chapter you consulted before. No chapter has been published before in its present form and with its present content, but of course, the book integrates the outcomes of previously published investigations.

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Acknowledgements: This volume has benefited greatly from the time and efforts two anonymous reviewers invested into the draft version. I am very grateful for their questions, suggestions, critical remarks and their constructive reading. In the hopefully unlikely but unavoidable case – Murphy’s law! – that you nevertheless encounter blunders, you have to blame it on, and tell it to, the author, of course.

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Abbreviations

ACC	accusative
ANS	Algemene Nederlandse Spraakkunst (grammar of standard Dutch); abbreviation for the title of Geerts <i>et al.</i> (1984) or Haeseryn <i>et al.</i> (1997)
BBC	basic branching constraint
BG	Burzio's generalization
C.PR	complex predicate
CED	condition on extraction domains
CL	clitic
COMP	complementizer (position); C°
DAT	dative
DIR	directive
DO	direct object
DS	deep structure (= syntactic representation before any transformation has applied)
ECP	Empty Category Principle
EIC	(Principle of) Early Immediate Constituents (see Hawkins 1994)
EPP	Extended Projection Principle = _{def.} ' <i>clauses have subjects</i> ' (Chomsky 1982: 9–10)
F°	functional head (cover term for any category of functional head)
FEM	feminine
FIN	finite
FUT	future
GEN	genitive
I°	functional head for inflection features
IC	immediate constituent
INF	infinite
INTRANS	intransitive

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IO	indirect object
IPP	<i>infinitivus pro participio</i> , Latin for ‘infinitive instead of participle’, in German: <i>Ersatzinfinitiv</i>
LCA	linear correspondence axiom (Kayne 1994)
LF	logical form
LOC	locative
MASC	masculine
ME	Middle English
MLC	Minimal Link Condition
NEUT	neutrum, neuter
NOM	nominative
OBJ	object
OE	Old English
OV	type of language with a head-final VP, that is, ‘object–verb’ order
P&P	Principles and Parameters Model (Chomsky 1981)
Part	participle
PASS	passive
PDI	Principle of Directional Identification
PF	phonetic form
PO	prepositional object
POSS	possessive
PRO	silent subject in clausal infinitival constructions
PRT	particle
RC	relative clause
REFL	reflexive
RES	resultative
S.CL	small clause
SF	semantic form (i.e. a syntactic representation as interface to conceptual structures)
SUBJ	subject
TRANS	transitive
Type III	third word-order type (= type with <i>underspecified</i> canonical directionality)
T3	Type III
UG	Universal Grammar
V°	category of the lexical element ‘verb’, as the head of the VP; zero-level (= terminal) category in terms of phrase structure

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- V' category of sub-tree of a verb phrase that is neither the zero-level category V° nor the phrase-level category VP
- VC verb cluster
- VO type of language with head-initial VP, that is, 'verb-object' order
- XP phrase of an arbitrary category (x serves as a variable for the head category)