

## General Introduction

§ 1 The aim of this book is to establish prosodic reconstruction as a new sub-field of Indo-European (IE) linguistics. It is concerned in particular with Ancient Greek, and takes Herodotus' *Histories* as a starting point for systematic research on the prosody of that language.

§ 2 *Prosodic reconstruction* is a thriving new branch of research, which introduces the rigour of modern phonological theory into the study of the phonology of ancient IE languages and also takes interest in phrase-level prosody, an object of research which – as opposed to segmental and word-level phenomena – has played only a marginal role in IE phonology so far, cf. e.g. Fox's (2015) recent overview on "Phonological reconstruction" as well as Byrd's (2015: 252f.) plea to include higher-level prosodic units.

§ 3 Recent attempts at integrating phrasal prosody into the picture have been characterized by two interrelated features: They tend to adopt the descriptive concepts of modern phonological theory unquestioned, and/or they focus in their empirical research on quantitative rather than qualitative methods. Such an approach is licit, but problematic – for several reasons.

First, although huge advances have been made in modern-language phonology since the advent of appropriate recording techniques and devices around the middle of the 20<sup>th</sup> century, there are still considerable gaps in our knowledge of the prosody even of living languages. Theoretical phonology as well as psycho-linguistic research have been biased towards a particular language type, viz. stress- or intonation-languages, and among these especially English, German, and Dutch. Also, research has focused on certain issues more than others. Most importantly, although the predominant framework in prosodic research is called *autosegmental-metrical theory* (short: *AM theory*), "metrical" or "rhythmical" issues have played a marginal role since the 1980s after the seminal works of Liberman (1975) and Liberman and Prince (1977). Instead, the focus has very much been on intonational features of languages, including both word-level tone as well as phrase-level intonation, as reflected in textbooks such as Cruttenden 1997, Ladd 1996, <sup>2</sup>2008 and Féry 2017. Yet attempts at unifying the information about word- and phrase-level intonation are rare; among the exceptions are Jun 2005a, 2014, and Féry 2017: chs. 7 and 8.

Second, general linguistics has kept working within a model of language architecture that prioritizes semantics over pragmatics in *formulation*, and syntax over prosody in *encoding* (on the notions of formulation and encoding cf. FDG 2008: sect. 1.2.2). Such a model is well applicable to modern, highly literate language varieties, which are mainly used in particular illocutionary contexts. But empirical research has shown that it is inappropriate both for the analysis of modern spontaneous spoken language (e.g. Cresti 2000) as well as that of Ancient Greek texts (Scheppers 2011). Instead, this corpus-based research suggests a primacy of pragmatics over semantics, and of prosody over syntax<sup>1</sup>.

Third, most scholars would say that prosody is not encoded in the texts, insofar as the latter don't contain any accentual markings or punctuation signs. Yet even reconstruction needs to have a material basis it can start from. For example, in classical phonological – i.e. segmental

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1 Cf. also, from a typological and documentary linguistic point of view, Simard/Schultze-Berndt 2012.

– reconstruction, we deduce from the writing system and spelling conventions used to encode the respective language its synchronic phoneme system. On the basis of this phoneme system and its comparison with those of other ancient IE languages, we develop hypotheses about the phoneme system of Proto-IE, which may then feed into the interpretation of the phoneme systems of the attested daughter languages, or intermediate proto-languages, e.g. Proto-Germanic. The segments as encoded in the texts in the form of individual letters or syllabic signs thus provide a material basis for this reconstruction. But how should we reconstruct intonational contours if the texts do not give any indications about tone heights in the first place?

§ 4 For a work such as the present one, three tasks emerge from this assessment: First, reflection on prosody as the object of study as well as on the models and concepts used to describe it. Second, a re-assessment of our current state of knowledge on the prosody of ancient languages as well as of the methods and sources used in prosodic reconstruction. Third, a demonstration of how prosodic reconstruction works, and what kinds of results it may yield, when based on an alternative model of language architecture that ranks pragmatics over semantics, prosody over syntax.

§ 5 As far as theory and methodology are concerned, the present work aims at establishing a general framework applicable to all IE branches and historical language stages, while it will limit itself to one single branch and one particular text in terms of empirical enquiry.

Among the branches of the IE language family, Ancient Greek stands out as the ideal test case for prosodic reconstruction based on discourse-pragmatic criteria. First, Ancient Greek texts are on the whole rather well-established due to a tradition of philology and scholarly interest spanning more than two millennia (cf. Reynolds/Wilson 2013 for an introductory overview). Second, linguistic research on Ancient Greek has made the greatest advances both in prosodic and pragmatic research on which the present work can build for the more encompassing goal of IE prosodic reconstruction. In terms of pragmatic research, both information-structural studies (Dik 1995, Matic 2003a, Bertrand 2010) need to be mentioned as well as the direct line of research leading from Wackernagel's „Über ein Gesetz der indogermanischen Wortstellung“ via the works of Eduard Fraenkel to Scheppers's 2011 monograph *The Colon Hypothesis*. The development of these two research strands has been summarized by the present author in Freiberg 2017[2018]. Scheppers's work will be discussed in more detail and developed further in ch. 6. Prosodic work, most notably Devine/Stephens 1994 (henceforth DS 1994) and Goldstein 2010, 2016a will be reviewed in ch. 4. – Hellenists have also been particularly eager to integrate new findings into up-to-date grammatical descriptions, cf. the recent *Cambridge Grammar of Classical Greek (CGCG)* that has been devised in the theoretical framework of Simon Dik's *Functional Grammar (FG)*. In Freiberg 2020, a first test is provided of FG's successor *Functional Discourse Grammar (FDG)* as a framework for the systematic integration of both pragmatic and prosodic information into the synchronic grammatical description of Attic, viz. early Platonic, Greek.

We will concentrate on the analysis of Herodotus' *Histories*. Being the first completely preserved literary prose text, the account follows the natural prosodic laws of the language rather than stylized metrical constraints. Likewise, it is not subject to stylized rhythmical constraints of slightly later, classical, prose to the same extent. Hence it provides a good baseline against which the latter can be compared. Furthermore, Herodotus' account has figured prominently

in information-structural, prosodic and orality research, cf. Dik 1995, Slings 2002a, 2002b, Allan 2006, 2016, Goldstein 2010, 2016a. Historical narrative represents not only a well-researched but, at least in its ancient form, also a rather basic genre. Therefore, results obtained for this genre may provide a good starting point for research on more specific text types. As it is a genre practised throughout virtually all periods of Greek and contained also in the corpora of other ancient IE languages, historical narrative provides a good starting point for comparative research, too. A further advantage of Herodotus is that we can avail ourselves of several excellent, yet philologically quite diverse critical editions (Stein, Hude, Legrand, Rosén, Wilson; also Reitz/Schäfer and van Herwerden), one of which is also accompanied by a „Spezialgrammatik“ (Rosén 1962). The same scholar happened to be interested in information-structural questions (cf. Rosén 1957, 1987).

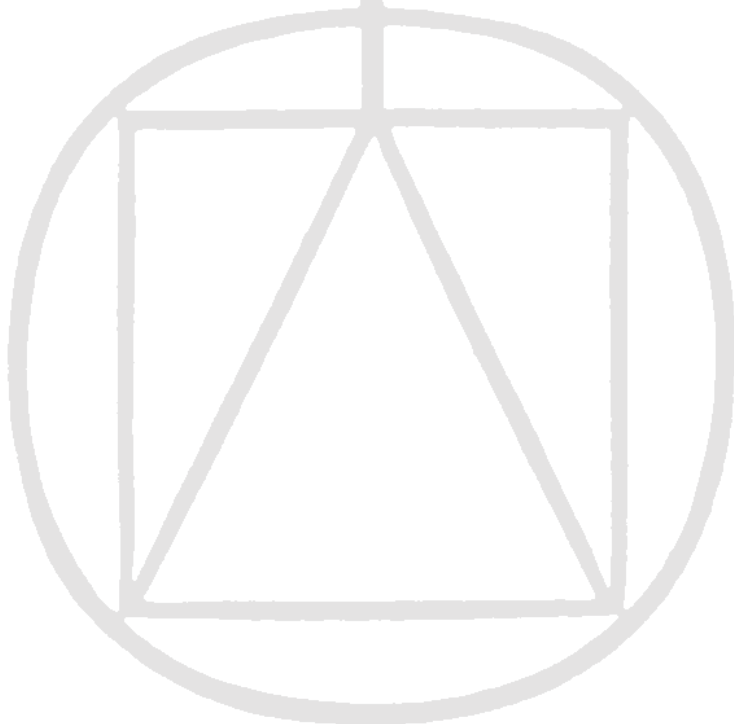
Our corpus will consist of the Lydian *logos* in book I (Hdt. 1.6-94). Text-internally, the *logos* is centred around Croesus as the first Eastern aggressor against Greek city states, which is why I will refer to it as the *Croesus logos* throughout the book. The *logos* is self-contained; the preceding context, constituting a methodological and mythological introduction, represents a different level of the overall discourse. A similar choice was made by Dik (1995), who analysed the first 60 pages of Hude's edition, i.e. Hdt. 1.0 – 1.108.3. Also, several of the episodes contained in the Croesus *logos* have figured prominently in other relevant literature, cf. Freiberg 2017[2018] concerning passages from the Gyges episode (Hdt. 1.8-13/14). Taking Hude's edition as a basis, the Croesus *logos* corpus amounts to 11,734 words<sup>2</sup>, which have been annotated in a style first described in Freiberg 2017[2018], but expanded and refined as per ch. 6 below. Analysing a well-defined sub-corpus in detail (rather than superficially skimming the whole text) constituted not only a practical necessity for the present approach, but also ensured that the results obtained in the analysis can feed into new hypotheses which can be tested in turn against the rest of the *Histories*.

**§ 6** The remainder of this book will be structured as follows: Chs. 1 and 2 propose an alternative view of language and linguistic structure to the still prevalent Chomskyan notions, and integrate pragmatics and prosody into the notion of the linguistic system as developed in structuralist work. Against the background of this general view on the role of prosody, we will discuss in ch. 3 previous approaches to prosodic structure, most notably that of AM theory, and develop an alternative proposal grounded in the physiological preconditions of human language production and processing as well as the nature of speech as sound. One of our main tenets will be that the inherently complex rhythmical nature of speech sound furthers, and is a prerequisite for, the development of first prosodic, later also syntactic phrase structure. While one of the main aims of our work is thus to turn the interaction between different “language modules” right side up again, we still want to retain insights gained in previous phases of research, both in general phonology as well as in the study of Ancient Greek prosody. We will therefore incidentally review in chs. 3 and 4 the most important contributions to both these fields of the last thirty to forty years. The introduction of a new theoretical approach to prosodic structure entails a review of the existing sources for prosodic reconstruction in Ancient Greek and potentially also other IE languages as well as of the methods hitherto applied to them. Such a review will be the topic of ch. 5. The last section of that chapter (dealing with

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2 I thank Kierán Meinhardt for efficiently conducting the word count based on my corpus files.

literary prose texts) will also explain in more detail our choice of corpus as the empirical foundation for our study. Ch. 6 will introduce a new method for prosodic reconstruction based on discourse pragmatics that allows us to systematically study prose texts, too. We will first define the basic building blocks of pragmatic structure, which we will call *pragmatic primitives* and *derivatives*. We will then outline the mechanisms by which these virtual action segments manifest in actual prosodic segments, and how these mechanisms shape the evolution and diachronic development of prosodic structure. Ch. 7 will summarize the most important results we were able to glean from the Croesus logos through the application of our method. It will present in a nutshell the first systematic overview of phrasal prosody in one particular Greek author, and substantially improve the quality, or depth, of prosodic reconstruction of that language through the identification of a coherent subsystem of potential intonational contours. It also lays the groundwork for a next phase of research within which rhythm should be given more prominence as a counterforce to pragmatically induced prosodic structuration. A general discussion will round off the book.



## I Language and the Linguistic System

§ 7 *Language* is the central means by which humans understand the world and communicate with each other<sup>3</sup>. In both these functions it is flanked by other such means – in the epistemic or cognitive function e.g. by other modes of perception; in the social or communicative function e.g. by body language, sign language or olfactory signals. There are several other complex activities that humans perform both in order to understand the world as well as to communicate, e.g. painting, play-acting, or making music. But for some reason, these are usually not regarded as fundamental to and constitutive of human nature in the way that language is. For example, one is able to participate in human society quite well if one is – in terms of general understanding – completely amusical. The same is not true if one is not able to speak or write. Language-based communication is vital for participation in modern human societies.

§ 8 Drawing a dividing line between different modes of communication is to some extent arbitrary. In a particular communicative situation, several modes of communication may be used in parallel<sup>4</sup>. Likewise, given a particular epistemic problem, only the combination of several epistemic modes may help solve it. Accordingly, these different epistemic and communicative modes may reasonably be assumed to draw on the same basic cognitive faculties and predispositions. First of all, they are all *pragmatic* in the sense that they constitute specific, complex types of human behaviour. The ultimate goal of human behaviour is *autopoiesis*, i.e. the self-organization and self-preservation of the living organism (Maturana/Varela 1980). Any action carried out by a human agent can be explained and evaluated by its participation in a teleonomic hierarchy of lower- and higher-order actions contributing to the (partial) fulfilment of that ultimate goal. Second, they are all *semantic* in the sense that they draw on different representation-modes of the environment or *scene* against the background of which the action in question is carried out. For painting, this would be the visual mode, whereas for language, it would be the auditive mode, for example. These modes of representation are part of the physiological equipment of mankind; the specific epistemic-communicative modes derived from them are to a large extent learned and culture-specific. Hence semantics involves conventionalized referential meaning with regard to a certain mode of representation. Just as German speakers are used to refer to a [DEAD BODY] as a *Leiche* and English speakers as a *corpse*, so Europeans still tend to associate with mourning the colour black, whereas in Buddhist and Hinduistic societies the colour of mourning is white. Third, they are all *syntactic* in the sense that they involve the rule-based combination of meaningful elements. For example, if I combine in painting the colour black – which may also be associated e.g. with elegance or sexiness – with the depiction of a lily or a cross, it becomes clear that what I want to express is sorrow. My depiction of the lily and its arrangement against the black background will follow general rules of visual aesthetics; for example, I could place it at the center of the picture, or determine its placement in accordance with the golden ratio or the Fibonacci spiral. Similar

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3 Thus Lehmann s.v. Die Sprache in ihrem Umfeld, [https://www.christianlehmann.eu/ling/ling\\_theo/index.html?https://www.christianlehmann.eu/ling/ling\\_theo/umfeld.php](https://www.christianlehmann.eu/ling/ling_theo/index.html?https://www.christianlehmann.eu/ling/ling_theo/umfeld.php) [last access: 2021-07-09].

The following account is substantially inspired by Lehmann's ideas as well as Scheppers 2004a, 2011.

4 Cf. Murphy 2021: 80 on the possibility of a multi-modal origin of language.

aesthetic preferences or “laws” exist regarding the auditive mode. Language is no different from the other epistemic-communicative modes in that respect, and neither pragmatics nor semantics nor syntax should be regarded as cognitive faculties specific to and solely operative in language.

What distinguishes language from almost all other epistemic-communicative modes is its mode of representation and its medium. As stated above, language draws on the auditive mode. In this respect, it is set apart from e.g. painting, sculpture, or photography, which all draw on the visual mode. But this criterion is insufficient to distinguish it from instrumental music, singing, clapping, or whistling because these also draw on the auditive mode. However, only language and singing primarily draw on the medium of sound as produced by the human vocal tracts<sup>5</sup>. Hence – to carry the argument to its conclusion – we may say that a specific characteristic of language is that it is *phonological*.

§ 9 I emphasize this point because some scholars, most notably those working in the generative tradition, tend to distinguish *language* (defined on a syntactic-semantic basis) from *speech* (defined on a phonological-pragmatic basis), and to regard only the former as the proper object of linguistic study. If we accept the premises outlined in the previous paragraph, this is not a viable option. Rather, I see the following alternatives: The first one is that we “do away” with language in the wider sense, i.e. any concept that tries to relate syntactico-semantic to pragmatic-phonological aspects, and replace the study of language and other communicative and epistemic modes by a more general study of cognitive processes. Studying language (in the narrower or wider sense) in isolation from the other modes will – given the current state of our knowledge about cognition and neurobiology – not lead to any interesting, insightful results about cognition. Such an approach only labours under the misapprehension of things created by the paramount *social* importance attached to language and the secondary transfer of language in the wider sense from the auditive to the visual mode of representation in writing, which encourages the impression that language is the medium of thought as such. Metaphorically speaking, I would suggest that the modularity of the brain should be studied “horizontally” instead of “vertically” (cf. Hurley 1998, Scheppers 2004a: sect. 4): What is common to all epistemic and communicative modes should be studied *across* these modes, not *per each mode* individually. Note that Hauser/Chomsky/Fitch 2002: 1571 already took a substantial step into this direction by proposing that the general cognitive-syntactic mechanism of *recursion* was a or the fundamental mechanism involved in language as defined above, but that recursion in turn should be studied across other fields of application, too. – The second alternative is that, if we – as linguists – are interested in language in its own right, we try to correct our view on language, and accept (a) the fundamental role of pragmatics in organizing and shaping linguistic utterances, (b) phonologicity as the *differentia specifica* of language as opposed to other epistemic-communicative modes, and (c) the derived character of written language (on the last point, cf. especially Koch/Oesterreicher 1985: sect. 4). In both cases, this brings us back to Aristotle’s original view, according to which language was a particular kind

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5 Whistling is a borderline case. I would tend to view it as involving even stronger “instrumentalization” of the human voice than singing. On the other hand, communication systems based on whistling can be studied much in the same way as language, cf. Busnel/Classé 1976.

of sound, (a) paired with meaning by convention, and (b) in principle recursively structured and applicable, cf. the relevant passages quoted in Zirin 1980 and sect. 2.3 below.

§ 10 Meanings and sounds both have to be *formed*, i.e. the unordered mass of sensory impressions and thoughts have to be moulded into discrete *ideas* in order to be communicable, while the continuous flow of sound waves has to be segmented into *phonological events* appropriate for conveying some intended meaning. The creation of both linguistic expressions and contents (in the terminology of Hjelmslev 1953) consist in recursive processes of abstraction<sup>6</sup> and digitalization or hierarchization.

§ 11 According to classical structuralist theory, the creation of linguistic contents is the task of semantics, and the creation of linguistic expressions as materializable objects is that of phonology. Linguistic contents and expressions are mapped onto each other in grammar and lexicon: Grammar creates regular analysable signs, while the lexicon provides holistic and (potentially) idiosyncratic signs. Grammar in turn is said to consist of morphology and syntax. Pragmatics is not allotted a separate slot in the model because it is thought not to be concerned with the linguistic system (*langue*), but with language in use (*parole*).

speech act			
modalized proposition			illocution
proposition		modality	
situation	temporality		
participants	core situation		

Figure 1 Levels of meaning in a clause (Lehmann, s.v. Situation: [https://www.christianlehmann.eu/ling/lg\\_system/sem/index.html?https://www.christianlehmann.eu/ling/lg\\_system/sem/situation.php](https://www.christianlehmann.eu/ling/lg_system/sem/index.html?https://www.christianlehmann.eu/ling/lg_system/sem/situation.php) [last access: 2023-06-23]).

In a compromise version, pragmatics has been regarded as an extension of semantics, i.e. a higher, more complex level of meaning, as it were. Pragmatics then represents the functionalization of truth-conditional content in context, so by necessity it adds another, outer layer to the semantic layers of meaning leading up to the layer of the proposition (cf. fig. 1 above reproducing a figure by Lehmann<sup>7</sup>). What is problematic about this view, however, is that the expression of pragmatic meaning then presupposes propositional meaning, although it is becoming more and more clear that this view is untenable, cf. e.g. Matic's (2022) critique on the research paradigm of information structure<sup>8</sup>.

This critique does not apply to the proposal of *Functional Discourse Grammar (FDG)*, where-in pragmatics and semantics form different levels of linguistic formulation, the different layers of which can be mapped onto each other relatively freely. FDG architecture is represented in fig. 2. The Interpersonal Level represents pragmatics, and the Representational Level takes care of semantics. One drawback about the FDG model is that – as a model of grammar – it does not distinguish properly between semantics as one level of formulation, and the lexicon

6 As stated e.g. by Ternes 2012: 18-21 with regard to phonology.

7 Lehmann's proposal is inspired by Hengeveld 1989.

8 The role of propositions in linguistic communication has been reevaluated in a dedicated monograph by Hanks (2015).

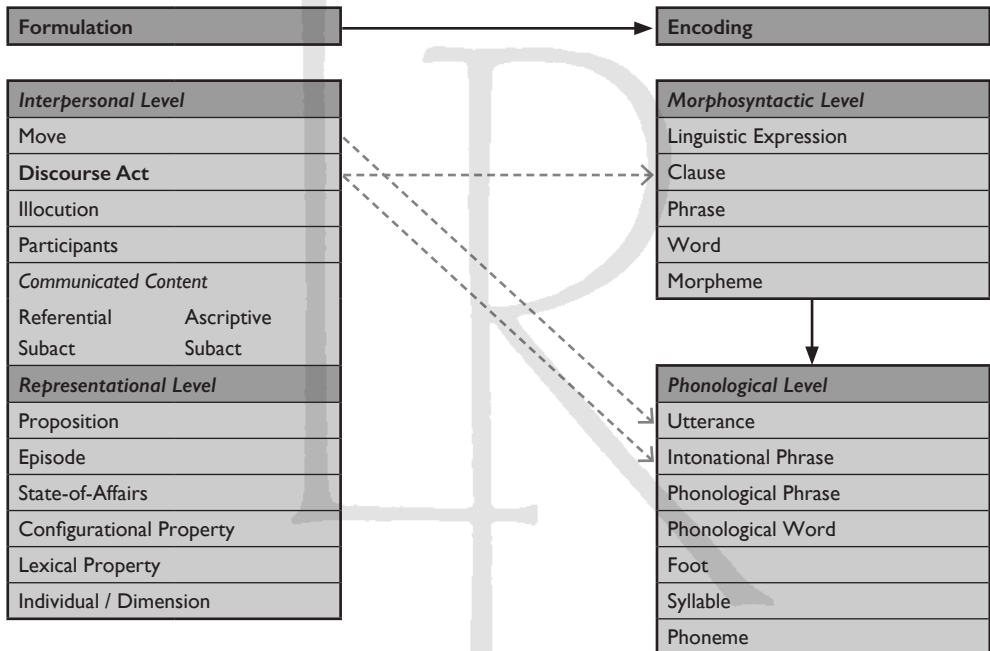


Figure 2 FDG architecture including standard correspondences between individual layers of grammar (= extended version of Freiberg 2020: 245 fig. 9.3).

as another level or module involved in encoding alongside the morphosyntax and phonology. Another feature that is problematic from my point of view is that FDG still attaches a certain precedence to morphosyntax over phonology<sup>9</sup>.

§ 12 I will thus suggest a model in which pragmatics alongside semantics are responsible for the creation of linguistic contents, prosody takes on the role of a primary level of the encoding of linguistic expressions, and morphosyntactic and lexical units derive from prosodic units, cf. fig. 3. Segmental phonology may be regarded both as an interacting factor in the generation of prosody and the ultimate spell-out of linguistic content and form, cf. the bi-directional arrow between prosody and segmental phonology in fig. 3.

§ 13 My concept is mainly influenced by the work of Frank Schepers and the independent tradition of Emanuela Cresti's *Language into Act Theory (L-Act)*. FDG remains another important source of inspiration. All three approaches share both the conviction that theory building should be grounded in broad empirical research and a concern for the cross-linguistic applicability of their results. This might not be obvious in the case of Schepers 2011, but becomes clear if we take into consideration earlier work on spoken language data by the same author as well as his purely theoretical works (most notably Schepers 2004a).

The need to distinguish in prosodic reconstruction the language-specific from the cross-linguistically applicable is what forbids the adoption of a rather similar model developed by Cal-

9 Note that in FDG levels may also be skipped if irrelevant for the analysis of particular linguistic units.



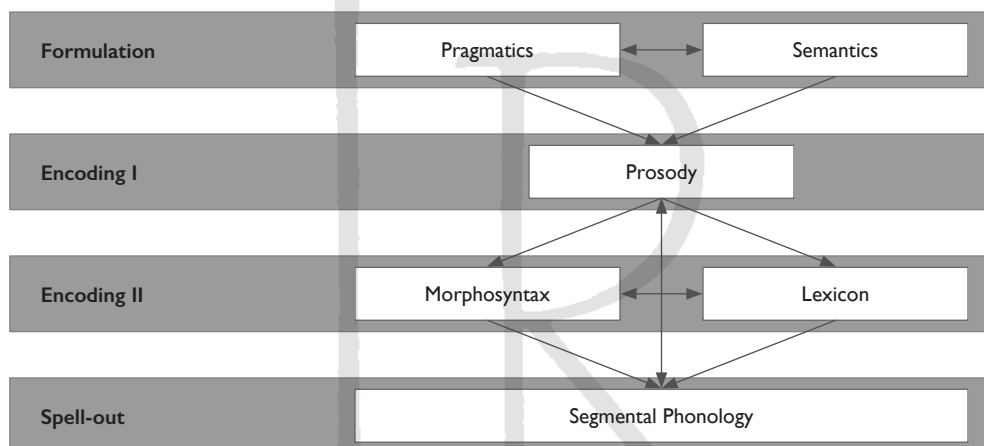


Figure 3 The linguistic system and the language production process.

houn (2006, 2010a, 2010b) following Levelt (1989) on the basis of corpus-data from modern English. Still, I am grateful to Isabelle Frank (p.c.) for drawing my attention to Calhoun's work, which will provide a useful point of comparison at some stages of the ensuing discussion. The most intriguing feature about Calhoun's work is in my view that she wants to allot to rhythmic structure a fundamental role in speech production. However, she does not explain in sufficient detail how rhythmic structure is generated; nor is she able to demonstrate on the basis of her corpus data that rhythmic structure<sup>10</sup> – as a core element of prosodic structure – is indeed independent from discourse and information structure (cf. especially Calhoun 2010a: sect. 4). I take this to be a confirmation of my view, wherein discourse-pragmatic formulation precedes prosodic – and hence also rhythmic – encoding<sup>11</sup>.

§ 14 In terms of the diachronic development<sup>12</sup> of linguistic structure, we will largely follow work by Givón (2001, 2005, 2018), who suggested that grammar constitutes an automated processing strategy, i.e. linguistic items and the relationships between them are being standardized<sup>13</sup> in order to facilitate production and processing, cf. fig. 4 below. Morphosyntax as a

<sup>10</sup> Calhoun herself speaks of a rhythmically constrained metrical structure, i.e. “an abstract hierarchical binary branching structure of s(trong) and w(eak) nodes within prosodic phrasing structure (Liberman 1975)” (Calhoun 2010a: 3). This conflation of prosodic phrasing, prominence assignment, and rhythm is part of the reasons why Calhoun's metrical structure is not separable from discourse and information structure. This is a general problem of autosegmental-metrical theory, which we will try to remedy in chs. 3 and 6.

<sup>11</sup> Another aspect to bear in mind is that the importance of rhythmic structure is greater, and more evident, in pre-planned prose than it is in spontaneous speech; cf. also sect. 4.2.1 below on rhythm in Ancient Greek.

<sup>12</sup> Diachronic development of historically attested or reconstructible language stages is not the only aspect where Givón's model becomes relevant, but the one that primarily interests us in prosodic reconstruction.

<sup>13</sup> In the same sense, the lexicon might just as well be called a storage of standardized semantic references distilled out of the input from various linguistic interactions.

pragmatic/pre-grammatical processing	syntactic/grammaticalized processing
a topic-comment constructions	subject-predicate constructions
b loose clause-chaining (simple clauses)	tight hierarchic subordination (complex clauses)
c separate intonation contour over simple clauses	unified intonation contours over complex clauses
d flexible-pragmatic word order	rigid-grammatical word order
e nearer to 1:1 noun-to-verb ratio in text	higher noun-to-verb ratio in text
f no grammatical morphology	rich grammatical morphology
g slower, attended processing	faster, automated processing
h higher error rate	lower error rate

Figure 4 Characteristics of pre-grammatical and grammaticalized processing modes (Givón 2018: 164 (21), 216 (3)).

linguistic phenomenon represents grammaticalized pragmatics. As regards word order, this is exactly what Goldstein 2010: 71 fn. 106, 230 has proposed for Ancient Greek, and I would like to suggest that prosody plays an important role in the grammaticalization process.