

Phonology and Phonetics, a recurrent theme in European Structuralisms: the case of Otto Jespersen and André Martinet

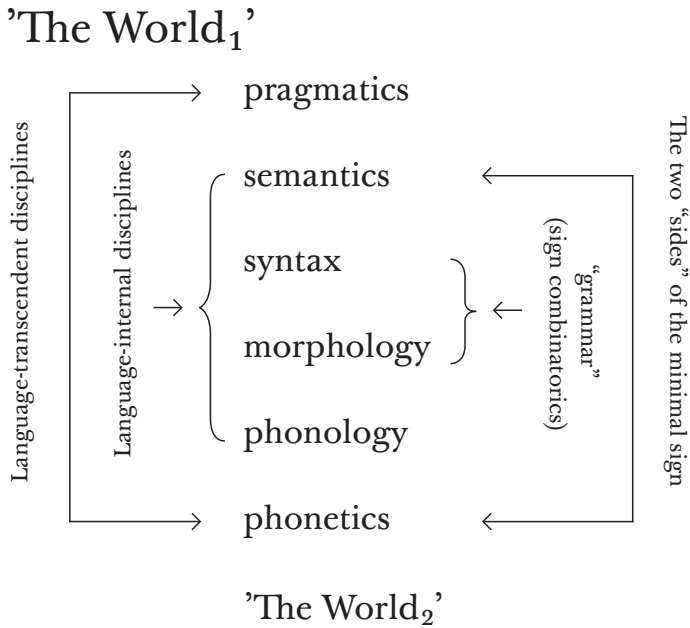
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Abstract. In this paper I illustrate my topic by selecting two outstanding examples of great European linguists: Otto Jespersen (1860–1943) and André Martinet (1908–1999) both of whom began as very good phonologists/phoneticians, and who became famous in those subjects before they continued their careers within other linguistic disciplines. My focus is upon the initial part of their careers, and the main parts of my paper are section 4, on Otto Jespersen, and section 5, on André Martinet. There are two important general issues that must be dealt with: (i) What is the relation between phonology and phonetics? And (ii) can Jespersen and Martinet both be considered structuralists, and if so, in what sense? The first of these issues is taken up in section 1, and the second particularly in the conclusion (section 6). I also include Louis Hjelmslev (1899–1965) in the discussion, and I conclude – in a detailed table – that Martinet is a prototypical phonologist who attaches particular importance to phonetics, Hjelmslev is a structuralist without phonetics, whereas Jespersen can hardly, or at most in a very limited sense, be considered a structuralist. But first, I discuss the relation between phonology and phonetics (section 1), and how phonology can be subdivided (section 2).

Keywords: Phonology, phonetics, prosodic, segmental, structuralism

1. The relation between phonology and phonetics: a European structuralist view of the main linguistic disciplines, starting from the linguistic sign

The relation between phonology and phonetics is viewed quite differently by different linguistic schools. Figure 1 illustrates what I take to be a common understanding, in particular by European structuralist linguists, of the relation between the central linguistic disciplines; thus ‘hyphen’-disciplines like socio-linguistics, psycho-linguistics and neuro-linguistics are not included in the figure, and the focus is on synchrony. The linguistic sign is the basis of Figure 1 that represents



NB: ’The World₂’ is meant as the totality of possible human speech sounds. It is properly included in ‘The World₁’.

Figure 1. The six central synchronic linguistic disciplines in a Saussurian(/glossematic) interpretation

a Saussurian understanding (from Saussure 1916), and it agrees in its fundamentals with many Glossematicians' interpretation.¹⁰²

The first distinction is between *language-internal* disciplines, viz. semantics, syntax, morphology and phonology, and *language-transcendent* disciplines, viz. pragmatics and phonetics. *Semantics* concerns Saussure's *signifié* (Hjelmslev's *content*), *phonology* Saussure's *signifiant* (Hjelmslev's *expression*). Each of the linguistic disciplines semantics and phonology thus concerns one of the two 'planes' or 'sides' of the linguistic sign. *Syntax* and *morphology*, on the other hand, both involve an interplay between *signifié* and *signifiant*, and can be characterized as *sign combinatorics*, viz. of *words* and *morphemes* (in the sense of minimal linguistic signs), respectively. For syntax, the domain is the sentence (ie. the combinatorics of words within the sentence), whereas for morphology, the domain is the word (i.e. the combinatorics of morphemes within the word). The term *grammar* is often used for syntax and morphology together.

In this conception of the linguistic sign, thus, the difference between *phonology* and *phonetics* is that the former is a 'pure' linguistic discipline, and the latter a discipline exhibiting both linguistic aspects (having to do with human speech sounds) and non-linguistic aspects (acoustics and physiology, for example). The term 'phonology' is now standard across schools, whereas in the middle of the twentieth century, it had connotations to the Prague school in particular (in contrast to the terms *phonemics* and *phonematics*). One could say that if phonology and phonetics together (i.e. their union in a logical sense) cover (human) speech sounds, then phonology studies their function – e.g. how the change of one speech sound of a word can lead to a change in the semantics of that word, i.e. change it into a different word – and phonetics studies them as sounds (acoustically and physiologically, for example).¹⁰³

102. Central in Glossematics' contribution to linguistics more generally is the idea of a parallel structuring of content and expression, as illustrated in J.M. Anderson 1992.

103. In Martinet's formulation (1994, 1327): "linguists distinguish in phonic matters between phonetics dealing with objective reality irrespective of its function, and phonology where matters are handled in reference to communicative relevance."

The key issue when discussing the delimitation of phonology and phonetics is the role of the phonetic substance in phonology. The positions cover a whole scale of opinions, going from a strong glossematic point of view: phonetic substance should play no role in the study of phonology (expression analysis in glossematic terms), to more generally accepted views at the other end of the continuum, viz. that it is impossible to do any reasonable phonological analysis while ignoring the phonetic substance. Both cases discussed in this paper – Otto Jespersen and André Martinet – placed strong emphasis on the phonetic substance in their analyses (further see section 6).

2. Divisions within phonology: a Praguian view

One way to subdivide phonology can be illustrated by Table 1. It is based upon a Praguian practice (see section 5.2), and exhibits two binary distinctions, viz. – in the vertical dimension – whether units are segmental or prosodic (supra-segmental), and – in the horizontal dimension – whether the domain is the word or the utterance (sentence), see Table 1.

	Domain: word	Domain: utterance (or sentence)
Segmental units (vowels, consonants)	Segmental Word Phonology	Segmental Utterance (Sentence) Phonology
Prosodic (supra-segmental) units (e.g. accents)	Prosodic Word Phonology	Prosodic Utterance (Sentence) Phonology

Table 1. Four compartments of phonology, in a Praguian interpretation

The four compartments can be characterized as follows: The *segmental units* of the top row are vowels and consonants, and in certain traditions there may be one or two further such categories (like semivowels or glides). Segmental units are those that have the smallest extent in the sound string. The *prosodic units* – also called supra-segmental – have a larger extent, as e.g. the syllable. The leftmost column considers *word phonology*, viz. phonological

phenomena taking place within the word, not across the boundaries between words. The rightmost column concerns *utterance phonology* (the term generally accepted to-day, rather than *sentence phonology*, the original Praguian term being, in German, *Satzphonologie*); utterance is a more apt term since it is not grammatically determined – being about speech, not written language.

Of the four compartments of phonology according to Table 1, *Segmental word phonology* has traditionally been the central field for both phonetics and phonology. *Segmental utterance phonology*, on the other hand, has in no way been given the same scientific attention, generally speaking, but has been studied intensely in particular cases like French liaison, for example (sometimes under the heading of *sandhi*, see H. Andersen 1986). *Prosodic word phonology* and *prosodic utterance phonology* have not always been clearly distinguished, and eg. stress and tonal phenomena can be part of either: tonal word accents – as found in Swedish and Norwegian, for example – versus intonation, and dynamic word accents (word stress) versus sentence accents, eg. nuclear stress in some Germanic languages, including English, but not Danish.

3. Two European examples of general linguists who began as phoneticians/phonologists: Otto Jespersen and André Martinet

I have selected two influential European linguists, of different generations, who began their careers with important phonetic and phonological works, viz. the great and universally acclaimed Danish linguist Otto Jespersen (1860–1943), and the more controversial but also great French linguist André Martinet (1908–1999). They knew each other personally, and they were both throughout their careers preoccupied with diachronic issues; here I focus on their phonetic and phonological work, particularly in the beginning of their careers. There is no doubt that Martinet can justifiably be characterized as a phonologist and a structuralist (see Joseph, this volume, where he also considers Martinet): Section 5, in particular 5.2, is full of examples where he establishes phonological systems and discusses how they interact, etc.

Whether Otto Jespersen can equally justifiably be called a phonologist or a structuralist – in addition to being an important phonetician and general linguist – is more doubtful, and eg. Fischer-Jørgensen (1975, 6–8) classifies him – as she also classifies Henry Sweet (cf. section 4.4) – as belonging to the “Forerunners within classical phonetics.”¹⁰⁴ Is he a structuralist at all, and if so, in what sense? Jespersen has an interesting discussion of his relation to the *phonological* (OJ’s emphasis) standpoint in *Linguistica* (1933, 210ff, under the title “Letzte worte” [last words], 205). He quotes (among many other examples) what he said about the system of plosives in (1904b):

Wir bemerken dabei einen gewissen parallelismus, indem jede sprache in gegensätzlicher verwendung (d.h. um wörter zu unterscheiden) nur zwei klassen hat, und zwar diejenigen, welche sich stark von einander unterscheiden, das dänische die erste und vierte, das norddeutsche und englische die zweite und fünfte, das französische und im allgemeinen die romanischen und slavischen sprachen die dritte und sechste. (Lehrb. 6.77).

[We note thereby a certain parallelism so that each language in contrasting usage (ie. in order to distinguish between words) only has two classes, viz. those that are strongly distinguished from one another: Danish the first and fourth, Northern German and English the second and fifth, French and in general Romance and Slavonic languages the third and sixth.]

I think this exemplifies a structuralist position (not unlike Daniel Jones’ which is normally classified as phonological, also by Fischer-Jørgensen 1975, 50–58). And, perhaps more importantly, there is no doubt that Jespersen’s analyses of prosody (section 4.3) can justifiably be considered structuralist.¹⁰⁵ I shall conclude this discussion

104. This agrees with Joseph’s evaluation (1994a, 4792): “Jespersen would expressly reject some of the key tenets of Saussure’s *Cours* and structuralism, making him the last great general linguist in the prestructuralist vein.”

105. Jespersen proposes (1933, 214) to use the term *phoneme* as follows: “Das wesentliche scheint mir zu sein, dass ein phonem zwei oder mehrere objektiv unter-

in section 6 where I also include the relation to Louis Hjelmslev and Glossematics (also cf. section 4.5).

4. The case of Otto Jespersen (1860–1943): a great phonetician (and a phonologist without adopting the term?) who became an internationally leading general linguist

Jespersen was incredibly wide ranging in his scientific (and also more applied) work, and his influence is enormous. The standard work on the history of linguistics in the Nordic countries, Hovdhauge et al. 2000, states that “The most influential, and by far the most productive, general linguist in the Nordic countries in this period [1900–1965] was Otto Jespersen [...] Jespersen was one of the most widely read and most frequently quoted general linguists of the first half of the twentieth century” (p. 344). His works on English are equally influential, and he also contributed significantly to auxiliary/constructed languages for international communication,¹⁰⁶ to practical works on the teaching of pronunciation and grammar in schools, to language acquisition,¹⁰⁷ to history of sound and comparative linguistics,¹⁰⁸ etc. Jespersen has also been acknowledged as an

scheidbare lautnuancen umfassen kann, aber innerhalb ein und derselben sprache insofern einheitlich ist, als es für begriffliche unterscheidungen zu verwenden ist. Zwei phoneme können demnach genügen um zwei worte auseinanderzuhalten.” [The essential seems to me to be that a phoneme can encompass two or more objectively distinguishable sounds, but within a particular language is unitary as far as differences in meaning are concerned. Two phonemes, on the other hand, can suffice to distinguish between two words]. Jespersen then suggests a common term (glottic) for phonemes and prosodic units that can make semantic differences.

106. Jespersen is the creator of *Novial*, and was involved also in *Ido* and *Interlingua*, see Larsen (1989).

107. Questions of child language occupied Jespersen throughout his career, see Vejleskov (1989).

108. Nielsen (1989, 62) used the term ‘Jespersen’s Law’ about an important sound law: “By this is meant the change in the 15th and 16th centuries of [voiceless obstruents, fortes] to [voiced obstruents, lenes] under conditions similar to those governing Verner’s Law (after a weakly stressed syllable).” In Jespersen (1909a, 83) he calls it “Det ‘vernerske’ skifte” [The Vernerian shift], and in (1909b, 199) “Verner’s Law in

important predecessor for Chomsky's generative-transformational grammar.¹⁰⁹ The focus of my paper will be his great handbook *Fonetik* [Phonetics] (1897–1899).

4.1 What in Jespersen's *Fonetik* (1897–99) is relevant still to-day?

Otto Jespersen's main contribution to phonetics is *Fonetik* (1897–99),¹¹⁰ a book of more than 600 pages. The main parts of it were translated into German, and brought up-to-date, in two books that both appeared in 1904.¹¹¹ The parts of *Fonetik* about Danish were not included in the two books in German, but were used for Jespersen's *Modersmålets fonetik* [Phonetics of the mother tongue] (see note 13); it became the standard textbook on Danish phonetics for several generations of students.

The grand old lady of phonetics – in Denmark as well as internationally – Eli Fischer-Jørgensen (1911–2010), gave (1979, 409–410) a concise evaluation of Jespersen's classic *Fonetik*, which agrees well with Rischel's later and more detailed account (1989). She points out that Jespersen did not introduce completely new aspects or methods in phonetics but that, basically, he followed his immediate predecessors, viz. mainly Sweet (see section 4.4). But Jespersen can be said to represent the culmination of what may be called 'classical phonetics', i.e. the description of the articulation of sounds based mainly upon what can be seen – by looking at the mouth – and be felt by a careful speaker, and from our knowledge of the relation between the articulation and what can be heard (p. 410). Jespersen

English." It was introduced already in Jespersen's dissertation (1891, 170–217) where it was called (p. 183, cf. 178) the "vernierske lov paa engelsk" [Vernerian law in English]. 109. Joseph (2002, 167) states that "the principal intellectual debts Chomsky has acknowledged apart from Saussure and Jakobson have been European rather than American, including the linguists of 17th-century France (see Chomsky 1966), Humboldt and Jespersen." Also see Akaso (2019).

110. *Fonetik. En systematisk fremstilling af læren om sproglyd* [Phonetics. A systematic presentation of the theory of the sounds of language] (1897–99). It was published in three volumes (1897, 1898, 1899), then combined into one volume (1897–99).

111. *Phonetische Grundfragen* [Basic Issues in Phonetics] (1904a) and *Lehrbuch der Phonetik* [Textbook of Phonetics] (1904b and later).

– being an eminent observer and listener – presents a wealth of good analyses of sounds that he could pronounce to the complete satisfaction of native speakers. Jespersen was always aware of the contrastive function of sound differences, and in my view he must thus be said to have a clear phonological understanding (see sections 3, 4.5 and 6). Thus his notion of ‘fonetisk økonomi’ [phonetic economy] of different languages (*Fonetik* 61ff) bears resemblance to phonological points of view.

What is outdated to-day in *Fonetik* are, in particular, the sections on acoustics (under “Syntese” [Synthesis], 361 ff.). This comes as no surprise, of course, since there has been, in the 20th century, an enormous progress in the technical possibilities in studying speech acoustics. But Jespersen was, in fact – according to Fischer-Jørgensen – sceptical towards the use of instruments, more so than some other phoneticians of his time. In this respect, he is in direct opposition to Karl Verner, who actually designed instruments for measuring different aspects of speech sounds.¹¹²

4.2 Jespersen’s contribution to phonetic transcription and segmental analysis

“Jespersen has also written about the phonetics of Danish, for the study of which he prepared a special system of notation, and Danish phonetic terminology is largely his invention,” says Paul Christophersen (1989, 2), a close collaborator of Jespersen’s in the 1930s (Juul 2002, 32). I totally agree, and this is true both of segmental phonetics (vowels and consonants), and of prosody (section 4.3).

Otto Jespersen created a system for the phonetic transcription of Danish: *Dania*, presented in Jespersen (1890). This system has been used ever since in most of the works written within the Danish philological tradition, that is, in the history of language, in dialect

112. See Verner 1903, LXXIII-LXXX and 365–372, and two detailed letters on instrumental phonetics and the theory and practice of acoustics from Karl Verner to the important Finnish phonetician Hugo Pipping, published (1912, with a translation into French) by Vilhelm Thomsen and the mathematician J. Gram.

descriptions, in dictionaries, and so forth (see section 4.6).¹¹³ Transcriptions in Dania are relatively easy to read if you know Danish orthography well – therefore particularly easy for Danes. Obviously, this is also a weakness, in relation to an international audience, in terms of comparison between languages, et cetera.

The importance of Otto Jespersen for the study of Danish phonetics in general, and also Danish phonology, is both theoretical and descriptive. Theoretically, his analysis of the syllable in terms of sonority is in my view his most important contribution, see section 4.3. But he also contributed to the theory of the segmental parts of phonetics (vowels and consonants), and his analyses of what lies behind phonetic transcriptions – eg. proposing so-called antalphabetic notations – were a noteworthy theoretical contribution. Descriptively, his detailed analyses of the pronunciations of Standard Danish from the early part of the twentieth century¹¹⁴ have contributed to defining the norm of what may now be called Conservative Standard Danish, even though it was in no way conservative when it was proposed by Jespersen.¹¹⁵

Paul Christophersen (1989, 10) also says: “Another work in the field of English which is seldom mentioned but deserves attention is the indication of pronunciation which Jespersen supplied to Brynildsen’s English and Dano-Norwegian Dictionary (1902–7). This is probably the first pronouncing dictionary of the century, and it uses a type of notation which in all essentials is identical with that which Daniel Jones was to use later on. The speech that

113. However, *Dania* is not used in studies written within an international linguistic and phonetic tradition, e.g. by Eli Fischer-Jørgensen, Jørgen Rischel, Nina Grønnum and myself. We have been using the *IPA*-system (on which Jespersen also left his mark).

114. This is true for the very influential *Modersmålets fonetik* = Jespersen 1906 (third edition 1934) which is followed in the large dictionary *Ordbog over det Danske Sprog* [Dictionary of the Danish Language] (1919–56, 28 vol.). See further sections 4.5 and 6 on the importance of this book in relation to the fathers of Glossematics, Hjelmslev and Uldall.

115. I refer in general to Brink (2011) who gives a number of detailed examples where Jespersen made observations on Danish pronunciation that had never been noticed before, even though they had been in the language for a long time.

Jespersen recorded was of course that of a generation which has now all but disappeared, the grandparents of present-day Englishmen. This gives the dictionary some historical interest, preceding as it does by quite a few years the first edition of Daniel Jones's dictionary in 1917."

In the preface to his large – and fine – dictionary, J. Brynildsen says that Professor Otto Jespersen's phonetic notation is probably one of the strongest assets of the book. In his introduction, Jespersen¹¹⁶ states that his transcription is only slightly different from the one used in *Le Maître Phonétique* – which later became the IPA-system – but that he has made it more readable for Danish and Norwegian readers. Interesting conventions introduced by Jespersen are the use of *italics* for sound segments that can be pronounced either 'clear' or more 'reduced', and superscript vowels for the second part of falling diphthongs, e.g. [me¹n, bo^un] *mane, bone*. He emphasizes that the pronunciations should be natural, and points out that native speakers often think they have a much more distinct pronunciation than they actually do.

4.3 Jespersen's contribution to the analysis of prosody: sonority, stress, tones and stød

Prosody is, as explained in section 2, a term for properties of the sound chain characterizing longer stretches than the individual segments (vowels and consonants), viz. (dynamic) *accents* (stress) – which are properties of syllables – and *tonal* phenomena, eg. word tones in Swedish or Norwegian, and intonation. Danish *stød* is also a prosody. I consider first Jespersen's analysis of syllabic structure in terms of the inherent sonority of individual segments.

Theoretically, his analysis of the syllable representing it as a mountain, that is a peak surrounded by valleys, of sonority, metaphorically speaking, where different sound types exhibit different degrees of inherent sonority thereby forming a sonority (or

116. "Om udtalebetegnelsen" [On the phonetic notation] (1902, XII-XIII) – see also his "Oversigt over udtalebetegnelsen" [Survey of the phonetic notation] (p. XIV).

strength) hierarchy,¹¹⁷ is a truly important achievement. Jespersen says (1897–99: 524) that the most sonorous sound (ie. the sound with highest sonority) is the one that – everything else being equal – can be heard over the longest distance.¹¹⁸

Jespersen was a true pioneer in his analysis of stress: he developed a whole system of types of stress and described it in detail: both syntactic principles of stress reduction (unitary stress, or unit accentuation), of compound stress, of value stress (different types of emphatic stress), and on the interaction with rhythmical principles. His chapter on “Tryk” [stress] in *Fonetik* (pp. 555–581) is a comprehensive and very original account of stress principles in general, and how they function in Danish, German, English and French.

According to Louis Hjelmslev (see section 4.5), every language has a particularly difficult descriptive problem around which the whole linguistic analysis must centre. For French, it is the interpretation of schwa, h, and the latent and optional consonants; for English, diphthongs and quantity. For Danish, the central structural problem is the *stød* (1951). Danish *stød* is a particular kind of laryngealisation (creaky voice) characterizing some Danish syllables. Only syllables with a long vowel or with a short vowel followed by a sonorant consonant, e.g. [n, l], and with stress can have *stød*.¹¹⁹

Jespersen’s contribution to the study of *stød* is important in two respects in particular: (1) Jespersen described *stød* synchronically in great detail, both phonetically and phonologically, and he also provided lots of minimally contrastive pairs of words, with and without *stød*, respectively, and he specified the morphological

117. Lesser sonority of a segment corresponds to higher (consonantal) strength, and vice versa.

118. He refers to an experiment by O. Wolf (1871, 58ff, 71) who measured, at night, how many steps away a specific sound could be heard, when it was shouted at maximal voice effort; there are many problems with such experiments, as Jespersen notices.

119. The absence or presence of *stød* – linguistically speaking: a laryngeal syllable rhyme prosody – can be the only difference distinguishing words having otherwise identical pronunciations, e.g. *ven, vend!* ‘friend,’ ‘turn!’ [ven ven?]; *musen, musen* ‘the muse,’ ‘the mouse’ [‘mu:sən ‘mu:’sən]; *vandet, vandet* ‘watery,’ ‘the water’ [‘vanəd ‘van’əd].

functions of *stød*; in these respects, he is a very important successor to Jens Høysgaard, the great Danish linguist of the Enlightenment who discovered and analyzed the *stød* (1743), (1747), see Basbøll (2018a). (2) Jespersen discussed in depth the relation between the Norwegian and Swedish tonal (‘musical’) accents and the Danish *stød*, and he contributed significantly to the understanding of the early development of tonal and laryngeal distinctions in Scandinavia; in these respects (not covered by Høysgaard), Jespersen is a truly grand name, together with Karl Verner, and building on Sweet (see section 4.4).¹²⁰

Jespersen represents the culmination of Danish prosodic terminology: Since Høysgaard’s pioneering analysis of Danish prosody (1769), which he saw as an interplay between ‘tones,’ vowel length, *stød* and stress, the terminology had been unstable and unclear throughout the 19th century. This development ended with Jespersen’s *Fonetik* which established the terminology that would be maintained in all essential respects throughout the 20th century and until this very day, viz. that vowel length, *stød* and tonal phenomena are consistently distinguished. It is not just a question of terminology – even though the terminology is extremely shifting and often vague – but it is also clear that the concept itself becomes sharper throughout the century until Jespersen ends the game, so to speak; for details see Basbøll 2018a, 38–40.

4.4 *Jespersen and two other great phoneticians: Sweet and Storm*

Otto Jespersen (1897–99, 50) calls Sweet “måske overhodet den største nulevende fonetiker” [perhaps after all the greatest phonetician alive]. Jespersen had a close relationship with Sweet, he visited him in Oxford and London, and after Sweet’s death, when Jespersen visited his widow in London, she called him “min mands kæreste og dygtigste elev” [my husband’s dearest and most able/clever pupil] (Jespersen 1938, 156 [1995, 180f]). He had known and admired Sweet’s work from his early days as a student of linguistics (1881).

120. Brink (2018) gives detailed analyses of Danish *stød* and other aspects of prosody in a historical context, emphasizing the importance of Jespersen’s contributions.

Henry Sweet (1845–1912) in his very first work analyzed Danish phonetics. His treatment of the Danish ‘Tonelag’ – a term here covering both Danish *stød* and Scandinavian tonal word accents – is generally very insightful for its time.¹²¹ Sweet’s *Handbook of Phonetics* (1877) was probably the most important single work on phonetics of its time (see Jespersen 1897–99, 50–53 and 146–148, Juul 2002).

One of the greatest influences on the young Otto Jespersen, even though they never met, was the German Felix Franke (1860–1886), and the influence was reciprocal as documented by their correspondence from 1884 until Franke’s premature death, see Kabell 2000; Jespersen translated and edited several of Franke’s works, and they both saw Sweet as their great idol.

Jespersen first became aware (1938, 28 [1995, 33f]) of Sweet’s works in 1881 by reading the Norwegian Johan Storm (1879). Storm (1836–1920), who was professor of Romance and English philology (1873–1912) at Oslo University, was a personal friend of Vilhelm Thomsen’s throughout his life, from the time they had travelled together in Italy in 1870, see Juul 2002, 24. Arne Juul has given a fascinating and well-documented account of Storm in *Den levende fonograf: nordmændenes professor Higgins* [The living phonograph: Professor Higgins of the Norwegians] (2002), including comprehensive correspondence between Storm on the one hand, and Jespersen, Thomsen and Sweet (among others) on the other hand. Juul (2002) demonstrates that Jespersen and Storm were both easy to offend,¹²² and several times Thomsen had to function as a mediator between them. In particular, Storm was hurt by Jespersen’s frequent claims that Storm was basically unsystematic, see eg. *Fonetik* § 46, 53–55, and Juul 2002, 111–114.

121. Sweet is sometimes unfair to earlier phoneticians, e.g. he says that “[the *stød*] was discovered by the Danish grammarian Høysgaard, who, however, contented himself with merely giving a number of examples” (1873 [1913, 348]); this is not at all a fair evaluation of the great Høysgaard, see Basbøll 2018a.

122. This applies to Sweet as well, as far as his relation to Storm is concerned.

4.5 Jespersen and 'structuralism'

After the death of Otto Jespersen in 1943, Louis Hjelmslev was the most important general linguist in Denmark, and he wrote an interesting obituary of Jespersen in *Acta Linguistica* III (1945); see Jørgensen (this volume) on the relation between Hjelmslev and Jespersen. Hjelmslev characterized Jespersen as a truly revolutionary spirit, and he called him the Jacobin¹²³ among the linguists (1945 [1973, 52]). He ends the obituary (1973, 53f) by expressing some surprise that Jespersen almost never adopted the points of view of others even when they seemed to be very close to his own,¹²⁴ perhaps for psychological reasons, Hjelmslev suggests.¹²⁵ Hjelmslev may have in mind his own theory of *Glossematics*, constructed together with Hans Jørgen Uldall in the 1930s.

Jørgen Rischel (1989, 56) has called attention to a hitherto scarcely noticed connection between Jespersen and Uldall: "it was planned that Uldall [...] should revise the *Lehrbuch* [1904b] with English-speaking readers in mind. [...] In 1935 they discussed various points (modifications of the an(t)alphabetic system, degrees of stress, and other topics). In the late thirties Jespersen (with reference to his own advanced age) expressed some jealousy over Uldall's collaboration with Louis Hjelmslev: 'Hjelmslev is young and he can wait better than I can'. In 1938 or 1939 the plan was changed; now it was to be a joint venture: 'Essentials of Phonetics and Phonology [altered from: with remarks on phonology] by Otto Jespersen and Hans Jørgen Uldall'. [...] Anyway, the war broke out and the work was never completed."¹²⁶

123. The Jacobins were members of an extremely radical movement during the French revolution in the most bloody period (i.e. the early 1790s).

124. Hjelmslev mentions Prague phonology, Ferdinand de Saussure, Maurice Grammont and Edward Sapir. Paul Christophersen (1995, xviii-xix) tells us that "Henry Sweet, himself very much of a loner, once said of Jespersen that it was 'as if he were determined to be original at all costs' (*The Sounds of English*, 1908, Bibliography)."

125. Paul Christophersen (1995) gives an interesting analysis of Hjelmslev (1945) and of Hjelmslev's relation to Jespersen.

126. Uldall writes in a letter to Hjelmslev (26.1.36) "Jeg har den sorteste samvittighed mht ham [Jespersen], jeg kan næsten ikke overvinde mig til at arbejde med

The leading Prague phonologist, the Russian prince N.S. Trubetzkoy (1890–1939), said (2001, 44) that “The distinction between languages with externally determined quantity and those with internally determined quantity was introduced into the study of sounds by our esteemed president, Otto Jespersen, and is now common knowledge”; and he adds (2001, 50) that “Phonology is interested only in languages with internally determined (or, as we would say to-day, phonologically relevant) quantity [...] [serving] the differentiation of meaning.” This is a clear recognition of Jespersen’s relevance for phonology, and in 1930 he (OJ) received a telegram stating that “La réunion phonologique internationale”¹²⁷ “recognizes you as one of the pioneers of the new methods in linguistics” (*Linguistica* 1933, 212). Another Prague phonologist, André Martinet (section 5 here), said (1993, 337), à propos *speech acts* and *shifters*, that much of this scarcely surpassed what Jespersen had said sixty years ago. I think this is typical for the respect paid by later linguists to Jespersen’s pioneering works.

The directness and pertinence, but sometimes also sharpness, in Jespersen’s formulations towards other researchers can be seen in the postcards Jespersen sent to a leading member of the Prague School, Bohumil Trnka (1895–1984), who was professor of English and author of the comprehensive *A Phonological Analysis of Present-Day English* (1935). The first postcard (19.6.1928) was written in Jespersen’s invention: the auxiliary language *Novial*, the others in English. 11.2.1930 Jespersen thanks Trnka for his paper on The phonological structure of English, and points out a couple of points

hans gamle, støvede bog, hvorfor den skrider overmaade langsomt. ... Naar jeg saa endda vidste, hvad han vil have mig til at gøre med den; han bebrejdede mig, at jeg ikke havde lavet mere om paa det, der er færdigt. Et mærkeligt menneske!” [I have the most black conscience concerning Jespersen, I can hardly overcome myself to work with his old dusty book, that is why it is progressing extremely slowly...I wish I knew what he would have me do with it; he blamed me for not having changed more in the finished parts. A strange man!]. Thanks to Viggo Bank Jensen for calling my attention to this letter.

127. It was a conference “Réunion Phonologique Internationale Tenue à Prague [The International Phonological Meeting Held in Prague] 18–21/XII 1930,” the proceedings of which are published as *Travaux du Cercle Linguistique de Prague IV* (1931).

where he disagrees with it; and he refers, as in other postcards, to many places in his own publications that Trnka should have paid attention to. Of general importance is the following: “I have [...] e.g. in my *Fonetik* [...] paid much attention to what you now call phonology, what I generally termed ‘economy of speech’” (cf. section 4.1). 17.5.1931 Jespersen thanks Trnka for his *Syntax of English Verbs*, mentions a number of disagreements, but ends “But on the whole I consider your book a valuable contribution to Engl. Syntax.” 2.2.1936 Jespersen thanks Trnka for having sent him Trubetzkoy’s book,¹²⁸ but adds that it is not easy reading, that he does not like his phonetic transcription, and Jespersen asks “What does he mean by capital letters?”¹²⁹ Perhaps he explains it somewhere: I have not found it yet.” Here and in the following postcards there are numerous concise points of criticism of Trnka’s claims. And the last one in the correspondence (1.3.1938) simply was “Dear professor Trnka, Thank you very much. But you will forgive me for saying that I do not think you have cleared up the matter. Yours sincerely (sign.) Otto Jespersen.”¹³⁰

4.6 *Jespersen’s heritage in Danish phonetics/phonology: The New Jespersen School (of phonetics)*

What I have termed the *New Jespersen School*¹³¹ is a group consisting of the main editors of the *SDU*,¹³² namely, Lars Brink, Jørn Lund and Steffen Heger, and their collaborators and pupils. Jørn Lund says, in his status report on the study of the Danish language (1993, 31), that the term *Ny-Jespersenianerne* make the authors, i.e. Brink and Lund, proud, and that they consider Jespersen as a much greater in-

128. This book must be *Anleitung zu phonologischen Beschreibungen* [Manual of phonological descriptions] (1935).

129. This must be Archiphonemes, a crucial notion in Prague phonology.

130. Postcards from Jespersen to Trnka, *Inventář Filozofické fakulty Univerzity Karlovy*, nr. 2132; thanks to A. Andronov. (I have not seen Trnka’s reactions.)

131. In Danish *Ny-Jespersenianerne*, Basbøll (1989, 93–97).

132. *SDU* stands for *Den Store Danske Udtaleordbog* [The comprehensive pronouncing dictionary of Danish] (1991), by Lars Brink, Jørn Lund, Steffen Heger and J. Normann Jørgensen.

spiration than Hjelmlev. Lars Brink (1981, 17) even called Jespersen “fonetikens store ledestjerne” [the Great Lodestar of Phonetics].

The main work of the *New Jespersen School*, apart from the *SDU*, is Brink & Lund (1975), a comprehensive history of the pronunciation of the Danish Standard language as spoken by people born between 1840 and 1955, based upon sound recordings from radio archives, their own tape recordings, and so on. This work is an important basis of the *SDU*, in methodology and not least with respect to factual knowledge. The *SDU* is one of the largest pronouncing dictionaries published for any language, with respect to information provided – in the dictionary part and the systematic part combined – with respect to pronunciation variants (regional, stylistic, etc.), information on pronunciation in inflections, and pronunciations varying with respect to stylistic reduction phenomena and ongoing sound change. It is not documented with respect to informants and social stratification, however, and the extremely detailed information in the *SDU* cannot always be verified systematically by others.

The New Jespersen School introduced an important definition of Dansk *rigsmål*,¹³³ i.e. Danish standard (spoken) language, and it has been adopted by other scholars as well. Essentially, *rigsmål* is not defined here as a “whole language (variant),” spoken by particular people, in particular institutions, or the like. Brink & Lund define a *rigsmål-form* as a pronunciation of a *specific word form* that can be heard with some people – not necessarily a majority – raised in all major regions of Denmark. This is more operational than definitions like “spoken at the Royal Theater,” “spoken by well educated people,” etc., and is methodologically sound. However, this definition presupposes that the pronunciation is rendered in a discrete – in the mathematical-logical sense – notation system since two different concrete pronunciations are never one hundred percent identical, if measured in the finest details. This means, in practice, that e.g. differences of intonation that cannot be reduced to simple answers to yes-no-questions, are not incorporated in this definition (Basbøll (1989), (2016)). Thus two pronunciations of a given word form can both be *rigsmål-forms* in this definition, even though they can be

133. Literally *rigsmål* means ‘the speech of the kingdom (or realm).’

clearly different with respect to intonation and thereby easily identifiable as, for example, Jutlandish vs. Copenhagen speech.

4.7 *Otto Jespersen's heritage in Danish grammar: a brief look*

I have just (in section 4.6) used the term *The New Jespersen School* about a specific group of Danish phoneticians. But Otto Jespersen, as would be expected, has had many other followers (also) in Denmark, within the study of English, of applied linguistics, of grammar, etc. I shall not discuss this vast field here, but only single out a study of Danish grammar strongly inspired by Jespersen, that includes also phonetic and phonological aspects, viz. Wiwel (1901).¹³⁴ Wiwel emphasizes in the preface the extraordinary importance Jespersen has had for this book. He mentions four “positive grammatical marks,” i.e. (i) inflectional forms, (ii) word order, (iii) prosody (tone, stress, stød) and (iv) pauses/interruptions. As an example, this approach leads to his enumeration of 30 different plural formations of nouns, including also phonetic/phonological criteria, both segmental and prosodic (pp. 98–100).

Jespersen himself mentions Wiwel's book briefly¹³⁵ where he says that Wiwel (1901) does not pretend to be a complete grammar, but that he criticizes traditional grammar with sagacity, and often presents new observations that are both fine and just; however, Jespersen adds, Wiwel can be blamed for overemphasizing the formal view and neglecting the logic of language. Louis Hjelmslev praised Wiwel (1901) highly, characterizing it (1928, 109f) as a work of the utmost importance for the principles of grammar. The truth is – according to Hjelmslev – that in all of Europe, Wiwel is the first to have argued, in a consistent, clear and rigorous way, for a pure linguistic synchronic standpoint (similar to, but antedating Saussure).

134. H.G. Wiwel (1851–1910), the author of *Synspunkter for dansk sproglære* [Viewpoints for Danish grammar] (1901), was a teacher at the Latin school (college) in the Northern Jutlandish city of Aalborg.

135. This is in Jespersen (1928 [1933, 27]); Wiwel is not mentioned in Jespersen's memoirs (1938).

Wiwel (1901) led to a strong controversy with ‘traditionalists.’ The leading expert of Danish grammar at the time, and a primary object of Wiwel’s harsh criticism, was Kr. Mikkelsen.¹³⁶ In the generation following Wiwel and Mikkelsen, the two most important grammarians of Danish were Aage Hansen¹³⁷ and Paul Diderichsen.¹³⁸ When the latter gave his final, very detailed, evaluation of Danish grammar in the 20th century (1965), he found that Wiwel’s criticism of Mikkelsen was basically unfair, and that Mikkelsen had contributed much more to our knowledge of Danish grammar than did Wiwel. Diderichsen also said (1965, 191) that the most decisive difference between Aage Hansen and himself was their relation to Otto Jespersen: Aage Hansen was deeply influenced by Jespersen’s scientific optimism that grammatical problems could be solved by using common sense and forgetting about the artificial traditional systems; Diderichsen, on the other hand, was more sceptical of Jespersen and found more inspiration in the structuralism of Hjelmslev and in earlier traditions. It is interesting to see how the new large scientific grammar of Danish, by Hansen & Heltoft (2011), treats the tradition: Høysgaard, Mikkelsen, Wiwel and Diderichsen (and to a lesser extent Aage Hansen) all play a significant role, and thus Jespersen indirectly – via Wiwel – still owns a heavy share of today’s tradition of Danish grammar.

136. Kr. Mikkelsen (1845–1924) was a teacher at the college (“Latin school”) of Roskilde. He was raised in the Latinate tradition, but his most important works, scientifically, were his grammars of Danish, viz. (1894), and the much expanded syntax (1911) with very detailed new observations.

137. Aage Hansen (1893–1983) edited more columns than anyone else of the largest Danish dictionary ever, viz. *Ordbog over det Danske Sprog* [Dictionary of the Danish Language] (1919–56, 28 vol.). He is also the author of several large philological works on Danish, culminating with (1967).

138. Paul Diderichsen (1905–1964) was the most important professor of Scandinavian Studies at Copenhagen University, and he dominated the study of Danish grammar, not least with his textbook (1946).

5. The case of André Martinet (1908–1999): a Prague phonologist who became a general ‘functionalist’, founding his own school

5.1 Young Martinet (*before the dissertations 1937*)

Martinet has given a detailed narrative of his life in *Mémoires d'un linguiste. Vivre les langues* [Memoirs of a linguist. Long live the languages] (1993, reviewed by Joseph 1994b) with the subtitle “Entretiens avec Georges Kassai et avec la collaboration de Jeanne Martinet” [Interviews with Georges Kassai and in collaboration with Jeanne Martinet].¹³⁹ He had been acquainted with Jespersen since 1928 and had worked on translating his *Language* (1922) into French (Martinet 1993, 249),¹⁴⁰ and he obtained a degree (agrégation) in English (1930). 1925–1930 he studied linguistics at la Sorbonne, and he got interested in Scandinavian languages (including Old Norse), in particular Danish. In 1928 he received a stipend to study in Copenhagen, and he became a specialist in Danish. In 1934 he married a Dane in Copenhagen at a non-religious ceremony with two official witnesses one of whom was Otto Jespersen (Martinet 1993, 42f).

In the thirties, Martinet closely followed the Prague phonologists, and from 1932 he had contacts in writing with Trubetzkoy. His first published paper is on French phonology (1933), his second is on the Danish *stød* (1934). His two doctoral dissertations were both published in 1937; the primary one is *La gémination consonantique d'origine expressive dans les langues germaniques* [Consonantal gemination of expressive origin in the Germanic languages] (1937a), and the secondary one is *La phonologie du mot en danois* [Word phonology in Danish] (1937b), on which see section 5.2. Trubetzkoy (2001, 257) writes the following favourable words in a letter to Roman

139. Martinet's role in French linguistics, where he was a strong but controversial figure, is treated in *Combats pour la linguistique, de Martinet à Kristeva* [Fights for linguistics, from Martinet to Kristeva] by Chevalier and Encrevé (2006), including an interview with him (pp. 55–63).

140. This translation seems never to have been published.

Jakobson (20 September 1937): “Both works by Martinet [1937a, 1937b] are quite professional and rather interesting. His study of Germanic gemination is still partly dependent on the ‘phonetic outlook,’ which is natural. But it is good that he dares criticize even such authorities as Meillet. His criticism of Meillet’s theory of the aristocratic and democratic strata in the Indo-European protolanguage is most apt.”

5.2 Second dissertation: *La phonologie du mot en danois* (1937)

Martinet (1937b) is the first comprehensive declared ‘phonological’ or structural analysis of the Danish sound system (Uldall 1936 is too short and sketchy in this respect); but as argued in sections 3 and 4.5, Otto Jespersen may in some respects be considered a structuralist (see also section 6). In Hjelmslev’s introduction to his analysis of the Danish expression system (1951 [1973, 247]), he refers to Martinet (1937b) for a phonological analysis of Danish.¹⁴¹ Poul Andersen’s *Dansk fonetik* [Danish phonetics] (1954) was the most important textbook of Danish phonetics for university students in the generations following the readers of Jespersen’s *Modersmålets fonetik* (section 4.2); Poul Andersen’s book introduced its phoneme analysis as follows (p. 326): “*André Martinet* establishes the following psychophonetic units that I shall term *phonemes* in the following.”¹⁴² But note that Martinet’s term is *phonèmes*! Poul Andersen uses Martinet’s inventory as a basis for a detailed phonetic description of each phoneme (pp. 328–350). Andersen’s prosodic analysis (pp. 309–326) – in contradistinction to Martinet’s – precedes, and is presupposed by, the segmental analysis; it is very different from Martinet’s, and utterly original.

141. It appears from Hjelmslev’s notes in his own copy of Martinet (1937b) – with the dedication “Hommage cordial de l’Auteur” [cordial homage of the author] – that he has read Martinet closely.

142. Andersen’s original: *André Martinet* opstiller følgende psykofonetiske enheder, som jeg i det følgende betegner *fonemer* (emphasis in the original).

The title of Martinet (1937b) can be illustrated by the following quotation from § 7–1:¹⁴³ “En danois, les variations de hauteur mélodique n’ont de valeur phonologique que dans la phrase, et non dans le mot. En conséquence, un examen de ces variations sortirait du cadre de la présente étude.” [In Danish, tonal variations only matter phonologically in the utterance and not in the word. Therefore, an investigation of such variations would fall outside the scope of the present study]. According to Table 1 (section 2), the work thus covers the lefthand column (with two boxes), and it is divided into three main parts: inventory of phonemes, combinations of phonemes (both part of segmental word phonology), and prosodic characteristics (obviously belonging to prosodic word phonology). I shall briefly present and discuss here Martinet’s main analytic phonological principles and his main results. The focus in the present context, however, is not the detailed analysis of Danish phonology, but rather the types of arguments that Martinet is using for his structural analysis, in particular to distinguish between purely structural arguments; arguments of a psychological or pseudo-psychological nature (quoting “la conscience linguistique”¹⁴⁴) that would never be accepted by strict structuralists (adherents to glossematics, for example); and, finally, arguments building upon phonetics.

5.2.1 *Martinet’s establishment of the system of phonemes*

Martinet’s analysis (1937b § 5–1) establishes 10 qualitatively different full vowel phonemes. He presents them in the following triangular system (§ 2–1), see Figure 2:

143. I am referring to paragraphs in Martinet (1937b) since the two versions of the dissertation have different page numbers. The version I have been using is the independent book (Hjelmslev’s copy, see note 40).

144. Martinet says about his Danish wife (§ 1–8): “Elle a été pour [l’auteur] un infatigable sujet d’expériences et lui a permis de rester toujours en contact avec une conscience linguistique qui, sans elle, aurait été absente.” [She has been an infatigable source of experience for the author and has permitted him to stay always in contact with a linguistic awareness [of Danish] that, without her, would have been absent]

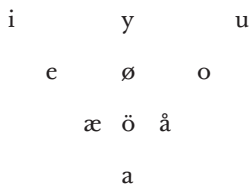


Figure 2. Martinet's triangular system representing the 10 full vowel phonemes of Danish (1937b, § 5-1).

This triangular system consists, he continues, of three series: palatal, rounded palatal, and velar, whereas the lowest vowel /a/ “en théorie, tout au moins, [...] n'est ni palatal, ni vélaire, ni arrondi” [in theory, at least ... is neither palatal, nor velar, nor rounded]. According to Martinet, all of them occur both with long and with short quantity,¹⁴⁵ except that he considers long [ö:] and [ø:] to be bound (combinatorial) variants with the argument that they cannot be demonstrated by (what Hjelmslev calls) the commutation test (minimal pair test); but Martinet admits (§ 2-4) that this is somewhat arbitrary since the distinction between *køre* ‘drive’ (with [ø:]) and *gøre* ‘do’ (with [ö:]) cannot be explained – phonetically or phonologically – by the difference between [k] and [g]. This seems to indicate that Martinet places great emphasis on the commutation test (in an overly mechanistic way, according to many phonologists).¹⁴⁶

However, his use of the commutation test raises further questions: In § 2-2,¹⁴⁷ he presents 15 minimal pairs as evidence of the phonemic status of all 10 short full vowels. But the number of all possible minimal pairs for 10 potential units (phonemes) is 45 (9+8+7+...+2+1), not 15! The *implicit* logic which Martinet seems to have followed, is (1) every rounded palatal V is paired with the

145. Martinet (§ 5-1) adds archiphonemes where the quantity distinction is neutralized for all these full vowels.

146. Bjerrum (1938, 4) accepts Martinet's conclusion, but with a different argument, viz. that the difference can never distinguish between two words in the same position of an utterance.

147. § 2-3 is lacking.

other vowels of the same height (= aperture); (2) for each of the three series, each vowel is paired with their neighbouring vowel (i.e. with minimal height difference); (3) a is paired with all neighbouring vowels.

Martinet does not explain what lies behind this procedure. A possible reason for it could be: (1) if a rounded palatal V is commutable (still Hjelmslev’s term) with the two vowels of the same height (in the other series), then these two are also commutable; (2) if it is true for all three series that vowels with (only) 1 difference in height are commutable, then it is true for the whole system (except *a*) that two arbitrary vowels with at least 1 difference in height are commutable; (3) if *a* is commutable with all vowels of next-lowest height, then rule (2) applies to the whole system (*a* included).¹⁴⁸ The phonetic substance is crucial for Martinet’s arguments, and his method does not allow overlapping manifestation as follows: there are only minimal pairs of short [y] and [ø] before non-nasals, and only minimal pairs of short [ø] and [ö] before nasals, as shown in the following diagram, see Figure 3.¹⁴⁹

	/y/				/ø/	
[y]		[ø]		[ø]		[ö]
<i>_non-nasal</i>		<i>_nasal</i>		<i>_non-nasal</i>		<i>_nasal</i>

Figure 3. Diagram illustrating the complementary distribution of the Danish short rounded front vowels before non-nasals and nasals: the vowels before nasals are lowered by one degree.

Thus, Martinet does not allow overlapping (as eg. Jakobson did), ie. identifying the same phonetic segment with two different phonemes, even though the distribution is systematic and can be accounted for by a simple principle.

Martinet establishes (1937b, §5–2) the following 18 consonant phonemes (in normalized notation here): /p t k (h) b d g f v s ð j ʎ

148. There are logical alternatives to the formulations above.

149. This is somewhat simplified when the whole vocabulary is taken into account, see Spang-Hanssen 1949, 66f.

r l m n ŋ/. The first group are the plosives ('occlusives'), and they are classified as non-aspirated (/b d g/) and aspirated (/p t k/). He says (§ 5-5) that the plosives are the only consonants that enter a *correlation* (in the Praguian sense). As for (h), Martinet considers it not as a normal phoneme, but as the marked member of a correlation between zero and aspiration before a full vowel.¹⁵⁰ The opposition between aspirated and unaspirated plosives is neutralized in certain positions, eg. after /s/, resulting in archiphonemes, eg. in /sB, sD, sG/ pronounced as unaspirated plosives, the *unmarked* members. Martinet discusses the alternative interpretation offered by Uldall (1936) – taking the dentals as examples¹⁵¹ – that there are two phonemes: /t/ and /d/, manifested as [t] vs. [d] initially and as [d] vs. [ð] finally. Martinet gives the following arguments for not identifying phonologically [d] and [ð] (thus resulting in three phonemes /t d ð/): the same sound [d] would be associated with two different phonemes, and this is problematic in itself (§ 3-19); if one would then – to avoid the force of the preceding argument – identify [t-] and [-ð], this would be against the “ordre de fermeté d’articulation décroissante” [order of decreasing articulatory closure] (also § 3-19), and this is for Martinet even worse than the first point; a quite different type of argument is that Danes would never pronounce English *ladder* with [ð] (§ 3-21).¹⁵²

150. Hjelmslev has added in the margin (in § 5-2) in his copy (see note 40) about this interpretation: “Brud paa det fonologiske princip!” [Violation of the phonological principle!].

151. The three series (labial, dental, velar) are not exactly parallel, but I shall not discuss this problem here.

152. In his *Économie des changements phonétiques* [Economy of phonetic changes] (1955, 376) Martinet presents a radical revision of these views, well hidden in the chapter “Les occlusives du basque” [The plosives of basque]. There he distinguishes three phonetic variants: “(1) la forte en position ‘forte,’ aspirée [strong in ‘strong’ position: aspirated]; (2) la forte en position ‘faible’ et la douce en position ‘forte,’ l’une et l’autre occlusives sourdes [strong in ‘weak’ position and soft in ‘strong’ position: both voiceless plosives]; (3) la douce en position ‘faible,’ spirante sonore” [soft in ‘weak’ position: sonorant spirant]. Except for the terminology, this analysis agrees with what many others, including Roman Jakobson, have proposed.

5.2.2 *Martinet's account of the combinatorics of phonemes*

In § 6 Martinet treats phoneme combinatorics, divided into the sections “initiale” [initial], “finale” [final], “combinaisons internes” [internal combinations], “caractéristiques des mots étrangers” [characteristics of foreign words], and “signes démarcatifs” [boundary signals]. Martinet does not give a formal definition of ‘word,’ but he defines the domain of his combinatorial descriptions to be monomorphemic native words in (what Martinet calls in § 6–7) the unmarked grammatical form, viz. undeclined nouns; adjectives in the positive, singular, common gender; and verbs in the infinitive.¹⁵³ This gives a phonologically homogeneous frame for the description, consisting mainly of monosyllables and disyllables whose last vowel is non-full, viz. either /ə/ or “i de très faible intensité” [i of very weak intensity].¹⁵⁴ When in this way the frame is monomorphemic words only, the final consonant combinations do not include complex clusters where suffixes like *-s*, *-t*, *-st*, *-sk* are added to the morpheme, nor internal consonant combinations resulting from compounding where the first part ends in a consonant and the second begins with one. In the tables of consonant combinations (initially § 6–13, finally § 6–16, internally § 6–25) the combinations are restricted as explained above, but in the text Martinet discusses far more types and many difficulties in making non-arbitrary decisions. In the section on foreign words, he often just appeals to “la conscience linguistique” [see note 43], and sometimes he suggests that the real object of study should be speech where any influence from writing was abstracted away (§ 6–29 on the word *chef*): “c’est évidemment vers les illettrés qu’on devrait diriger ses recherches” [obviously, one ought to direct one’s research towards the illiterate], but – unfortunately for the phonologist – “[les] adultes illettrés

153. It is important that verbs are not in the imperative (the stem), due to imperatives like *cykl!* ‘go by bike!’ etc., that are not well-formed syllables, cf. Uldall’s proposal (1936) that the Danish imperative is formed by subtraction (see Basbøll 2018b).

154. This category is a characteristic of Martinet’s approach. His argument for introducing it is the neutralization of the correlation of aspiration in examples like *hyppig* ‘frequent.’ This “i de très faible intensité” is most often found in derivatives with the suffix *-ig*, thus it is not very relevant when the frame is monomorphemic words.

[...] sont à peu près inexistantes au Danemark.” [illiterate adults are practically non-existent in Denmark]

5.2.3 *Martinet's word prosodic analysis*

In § 7, finally, Martinet treats “Les caractéristiques prosodiques” [prosodic characteristics], divided into “L’accent” [accent/stress] (§ 7-1-7-7) and “Le Stød” [the stød] (§ 7-8-7-23). Martinet shows (§ 7-2) that the accent has a “valeur phonologique” [phonological value] by examples like *forslag* which pronounced with main stress on *for-* means ‘proposal’ but with main stress on *-slag* means ‘enough’ (in idioms). In § 7-5 and 7-6, he discusses whether there are more than two degrees of stress, by examples like *sygeforfald* (with primary stress on *sy(ge-)* ‘due to illness’): (i) if the constituent *forfald* in isolation would be pronounced with primary stress on *for-*,¹⁵⁵ then (*have*) *sygeforfald* – pronounced with secondary stress on *for* – means ‘being prevented from attending due to illness’; (ii) but with secondary stress on *fald*, *sygeforfald* instead means ‘decay due to illness.’¹⁵⁶ Martinet concludes from such examples (§ 7-6) that one should distinguish three degrees of stress, viz. primary accent, secondary accent and non-accented syllable.¹⁵⁷ Martinet (*ibid.*) mentions rhythmical tendencies: change from primary-secondary-unstressed to primary-unstressed-secondary. One could reasonably argue, with important Danish structuralists (Hjelmslev, Fischer-Jørgensen and Rischel), that an analysis that posits only binary oppositions of stress, but at different levels, is preferable.¹⁵⁸

Martinet gives a phonological analysis of the Danish stød in his second publication (1934), and the arguments he presents there in favour of considering the stød as prosodic are employed again

155. (*have*) *forfald* with primary stress on *for* means ‘being prevented from’, i.e. case (i); in contrast, *forfald* with primary stress on *fald* means ‘decay,’ i.e. case (ii).

156. A rhythmical principle will lead to secondary stress, with stød, on the final syllable *fald* in both cases, so the main difference will be whether (i) *for* has secondary stress or (ii) is unstressed (*for* never has stød).

157. One could argue that there would then be a fourth degree as well, since Martinet operates with the phonological category of syllables with non-full vowel (/ə/ and “i de très faible intensité”).

158. Martinet later (1960, 86f, 1965, 145f) sharpened his view on accents.

in (1937b): Danes do not normally notice the stød; when the stød gets their attention, they call it ‘stødtone’;¹⁵⁹ then they say that it appears in a syllable or in a sound (not after);¹⁶⁰ stød is lost in singing which is probably a tradition going back to the time before stød had replaced tonal accents (§ 7–12). But Martinet emphasizes the structural arguments for a prosodic analysis of stød: that the position in the syllable is fixed (phonologically) so that it is on the vowel if this is long, otherwise on the following sonorant consonant (§ 7–13); and that the stød vowel has the quality of the long vowel in cases where the short vowel has a different quality (e.g. with /a/) (§ 7–15).

Martinet 1937b is a very important work in the history of Danish phonology, and it has been highly influential for later structuralist phonologies of Danish. It illustrates many aspects of Prague phonology, before its codification – its culmination many would say – in Trubetzkoy’s posthumous *Grundzüge der Phonologie* (1939), in particular the kind of psychological, historical and other arguments that are different from purely structural ones, but also the kind of structural arguments that were used. But this was only the beginning of Martinet’s scientific voyage.

5.3 Martinet and Glossematics

André Martinet was a key figure in the reception of Glossematics in France – partly in a positive sense, but in fact also negatively. He read and spoke Danish well, and, as we have just seen, he was a specialist in Danish phonology (section 5.2). He knew Hjelmslev personally and was received in his home, and he had close contacts with other participants in the *Cercle linguistique de Copenhague* as well, not least Eli Fischer-Jørgensen. He had long discussions of Glossematics with them.

159. Incidentally, ‘stødtone’ was the term used by Sweet, and Verner used the related term ‘tonestød,’ but both these terms were abolished by Jespersen in favour of simply ‘stød,’ with no tonal connotations (see section 4.3).

160. The timing and duration of the stød is highly variable (see e.g. Grønnum & Basbøll 2007).

Hjelmslev had read Saussure (1879, 1916) before 1928 (he was in Paris 1927–1928), but after that, he probably studied him again, intensely; and in Martinet’s words (1985, 17), Hjelmslev had “praticqué le *Cours* de Saussure beaucoup plus sérieusement qu’on ne le faisait alors en France” [practiced Saussure’s *Cours* much more seriously than was done in France at that time]. But concerning the Prague school, Martinet and Hjelmslev came to have opposite opinions. A key point of contention was whether the phonetic substance should be significant in the structural analysis of what Hjelmslev called *phonematics* in his and Uldall’s contributions to the London Congress of Phonetic Sciences (in 1935), the term later being changed to *cenematics*. Martinet said the following on this difference (1993, 256):

c’est dans la ligne d’une remarque de ma part, où je relevais cette inconsistency, puisque *phon-* indiquait une substance, qu’ils ont, au cour de l’année suivante, repensé le problème et rebaptisé la “phonématique” comme la “cénématique,” du grec *kenos* “vide” oppose à la “plérématique” du grec *plērēs* “plein,” étude du signifiant s’opposant à celle des signifiés. Mais ces choix lexicaux suggèrent plutôt la double articulation: plein de quoi, sinon de substance sémantique? C’est l’écho de nos conversations de l’été 1935 à Londres qu’on retrouve dans les premiers paragraphes de ma *Phonologie du mot en danois*. [It was following a remark from me, where I emphasized this inconsistency, since *phon-* indicated the substance, that they [Hjelmslev and Uldall], during the following year, thought again about the problem and rebaptized “phonematics” as “cenematics,” from Greek *kenos* “empty” as opposed to “plerematics” from Greek *plērēs* “full,” the study of the *signifiant* as opposed to the study of the *signifié(s)*. But these lexical choices would rather suggest (point to) the double articulation: full of what, if not semantic substance? It is the echo of our conversations in the summer of 1935 in London that one can find in the first paragraphs of my *Phonologie du mot en danois*.]

Martinet (1993, 238) explains:

[...] mes contacts avec lui [Hjelmslev] étaient longs, réitérés et amicaux. Mais ce qui reste à dire, et sur quoi il faut insister, c’est que la pensée

hjelmsléviennne a exercé sur la mienne le même genre d'influence que la pensée de Prague sur celle de Hjelmslev, c'est-à-dire une influence profonde, à certains égards décisive, mais négative. [...] Il faut dire et répéter que la pensée de Prague a été décisive pour guider celle de Hjelmslev. Sur moi, la pensée hjelmsléviennne a exercé une influence du même ordre [...] Dès que j'ai connu les développements post-praguois de la pensée de Hjelmslev, ma réaction immédiate a été de méfiance et de rejet. [my contacts with him [Hjelmslev] were long, reiterated and friendly. But what remains to be said, and on which one must insist, is that the Hjelmslevian thought has exerted the same kind of influence on mine as did the Praguian thought on Hjelmslev, i.e. a profound influence, in certain respects decisive, but negative ... It must be said and repeated that the Praguian thought has been decisive in guiding that of Hjelmslev. On me, the Hjelmslevian thought has exerted an influence of the same order/magnitude ... From the moment I came to know about the post-Praguian developments of Hjelmslev's thought, my immediate reaction was one of distrust and rejection.]

Thus Hjelmslev had strong reservations with respect to the Prague school principles – in particular their adherence to the phonetic substance – but Martinet also points to personal animosities: “Le refus de reconnaître toute dette envers Prague était, chez Hjelmslev, au moins partiellement déterminé par une hostilité personnelle – le mot n'est pas trop fort – envers Troubetzkoy” [The refusal to recognize any debt towards Prague was, for Hjelmslev, at least partially determined by a personal hostility – this word is not too strong – towards Trubetzkoy] (1985, 17).

Martinet wrote a detailed, and generally positive, review (1946) of Hjelmslev's *Omkring sprogteoriens grundlæggelse* (1943), before this important book was translated: “À tous les linguistes qui savent lire le danois nous recommandons vivement cet ouvrage d'une prodigieuse richesse, bien ordonné et bien écrit, clairement et rigoureusement pensé [...]” [To all linguists able to read Danish we strongly recommend this prodigiously rich work, well organized and well written, clearly and rigorously thought ...] (Martinet 1946, 42). An interesting correspondence between Martinet and Hjelmslev followed (see Arrivé 1985, Arrivé & Ablali 2001, Jensen & Cigana 2017).

Hjelmslev, naturally, wished for a French translation of *Omkring sprogteoriens grundlæggelse* (see Skytte 2016, 79–85), and Knud Togeby (1918–1974)¹⁶¹ provided one. André and his (second) wife Jeanne Martinet were asked in 1953 by Hjelmslev to review it, and they criticized it so harshly that it was abandoned (the ms exists): “[...] cette ‘relecture’ nous a réclamé quarante huit heures de travail et j’exagère à peine en disant que nous n’y avons pas laissé deux lignes consécutives sans corrections. Hjelmslev, on le comprend, était atterré.” [... this ‘rereading’ demanded forty eight hours of work for us and I hardly exaggerate when I say that we did not leave two consecutive lines without corrections. One can understand that Hjelmslev was appalled.] (Martinet 1985, 19).¹⁶²

André Martinet had, just before his harsh criticism of Togeby’s translation of Hjelmslev (1943), given an extremely negative review (1952) of Knud Togeby’s (1951) doctoral dissertation (Habilitationsschrift) *Structure immanente de la langue française* [Immanent structure of the French language] (in *Word* 9); there he criticizes both Togeby’s knowledge of French and Hjelmslev’s reduction of languages to ‘structures’.

Eli Fischer-Jørgensen, who was a good friend of both Martinet and Togeby, wrote in a letter: “Mon cher André [...] Quant à Togeby, je ne crois pas que votre ton “vous a réussi.” S’il vous a envoyé son livre c’est plutôt malgré ce ton. C’est un garçon sympathique qui s’intéresse beaucoup à la linguistique et très peu aux petites inimitiés des linguistes” [My dear André, ... Concerning Togeby, I do not think that your tone “was a proper one.” If he did send you his book, it is rather despite this tone. He is a nice guy who

161. Knud Togeby, a prominent member of the *Cercle linguistique de Copenhague*, professor at Copenhagen University since 1955 and surely the most influential Danish Romanist of his generation.

162. Later French translations of Hjelmslev (1943) are independent of Togeby’s attempt: 1) *Les prolégomènes à une théorie du langage*. Traduit du danois par une équipe de linguistes. Traduction revue par [Translated from the Danish by a team of linguists. Translation revised by] Anne-Marie Léonard. Paris, Éditions de Minuit (1968); and the much more satisfying 2) *Les prolégomènes à une théorie du langage*, traduction par Una Canger avec la collaboration de [translation by Una Canger with the collaboration by] Annick Wewer, Paris, Éditions de Minuit (1971). 2e éd. (1993).

has great interest in linguistics and very little interest in the small enmities of linguists] (28.11.1964, quoted in Skytte (2016): 85). To­geby wrote in a letter (29.2.1956) to Eli Fischer-Jørgensen, after his positive contribution to Martinet’s *Festschrift* (Togeb­y 1958): “It has amused me a lot to thank him in this way for his somewhat unpleasant attitude towards me.”¹⁶³

Martinet later (1985, 19), i.e. long after Togeb­y’s premature death (in a car accident, 1974), says that.

Je puis témoigner, pour m’être souvent entretenu avec lui, que Togeb­y parlait excellemment le français et sur tous les registres possibles, du plus raffiné au plus argotique. Que l’on consulte sa *Grammaire française* – malheureusement posthume – [...] et l’on pourra se convaincre qu’il connaissait la langue dans tous les détails. Mais il y a un monde entre pratiquer une langue pour s’exprimer et traduire dans cette langue un texte rédigé dans sa langue première. [I can testify, since I have often spoken with him, that Togeb­y spoke excellent French in all possible registers, from the most distinguished to the most slanglike. It suffices to consult his *Grammaire française* [French grammar] – regrettably posthumous – ... But there is a whole world between knowing a language in practice and translating into that language a text in one’s mother tongue.]

5.4 Martinet: *phonology, structure (with double articulation), dynamics*

For linguists whose formative years were during the Chomskyan Revolution, it is tempting to underestimate Martinet’s influence on linguistics at large.¹⁶⁴ He was an effective school builder during most of his career, in close collaboration with his second wife, Jeanne

163. Togeb­y’s original: “Det har moret mig meget at takke ham for hans noget ubehagelige holdning over for mig på denne måde” (Skytte 2016, 85).

164. A personal memory: My first professor of linguistics (in Copenhagen 1965) was Martinet, and when as a doctoral student in 1973 I came to the University of Vincennes in Paris (a very leftwing and Chomskyan university at the time), I was told that Martinet was the worst possible person even to mention.

Martinet, and with his co-author Henriette Walter who was also a close colleague for many years. In 1946–1955 Martinet was in New York; he became professor of general and comparative linguistics at Columbia University and he was the editor of the journal *Word* from 1947 to 1960; see Newmeyer (this volume) for Martinet’s important relations to American linguistics at that time. In 1955–1977 he was professor of general linguistics at the Sorbonne (Paris). Martinet founded the journal *La Linguistique* in 1965, and he edited many book series and other publications, all with a focus on his conception of *functionalism*. He has had direct pupils and others who follow his tenets all over the world. His introduction (1960) to linguistics *Éléments de linguistique générale* [Elements of general linguistics] (whose title is a deliberate parallel to Saussure’s *Cours de linguistique générale*) has been translated into about twenty languages.¹⁶⁵

Martinet has contributed within a very broad spectrum of topics, including comparative indo-european linguistics, language typology and auxiliary languages. Central in his view of structure is ‘double articulation. In his late presentation of his model of ‘Functional’ (meaning “adapted to achieve some end”) grammar, he identifies the main (1994, 1323f) traits of his “Empirico-deductive Approach” by defining natural languages as exhibiting: (i) communicative function; (ii) use of vocal¹⁶⁶ utterances; (iii) double articulation. (ii) is in sharp contrast to approaches – such as Glossematics – viewing spoken and written language in parallel, whereas Martinet sees written languages as a secondary phenomenon, also for e.g. ideographic writing systems. Essential in (iii) is the difference between significant units, viz. *monemes* in Martinet’s term – that are seen as being units of meaning¹⁶⁷ – and distinctive units (of phonology).

165. When Peter Harder (this volume) considers the ‘functionalism’ of Martinet, he quotes (1960) which represents a much later stage than Martinet’s publications in focus here.

166. Martinet says (1994, 1324) that ‘vocal’ implies ‘voice’ which implies ‘melodic curve’ which takes care of ‘intonation.’

167. Martinet argues (1994, 1324) that the term *morpheme* “suggests form rather than meaning,” and therefore *moneme* is preferable to him.

André Martinet's most important heritage may well be his contribution to diachronic phonology, exemplified by his great *Économie des changements phonétiques – traité de phonologie diachronique* [Economy of phonetic changes – study of diachronic phonology] (1955). This work eminently combines two key concepts in Martinet's view on language: *dynamics* and *structure*, as we shall see in the last section.

6. Conclusion: Jespersen, Martinet, and Hjelmslev

There are many parallels in the careers of Otto Jespersen and André Martinet: both began as phoneticians/phonologists, and they became famous as such before they had a career as general linguists. Both were important in the field of auxiliary languages: Jespersen as the creator of Ido and Novial, and Martinet started his work in New York as the Director of the International Auxiliary Language Association. Both worked internationally with phonetic transcriptions. Both contributed essentially to diachronic linguistics before they became truly general linguists. But a crucial question in this paper is their relation to “structuralism” and “phonology.” Jespersen used the word “phonology” in the third edition of *Modersmålets fonetik* (1934), with the section “fonologisk oversigt” [phonological survey] about consonant combinatorics.¹⁶⁸ In the introduction (p. 2) he says that “hvert sprog har sit fonologiske system” [every language has its phonological system], and he adds that the title of the book might as well have been “Dansk fonologi” [Danish phonology]. But this is not enough to make Jespersen a true phonologist in a structuralist sense.

I shall end by contrasting the approach to phonology – in a broad sense – of Jespersen, Martinet, and Hjelmslev (Hjelmslev and Uldall as phonologists are treated in Basbøll 2022, forthcoming).¹⁶⁹ Martinet (1994, 1323) makes a comparison between his own

168. In the preface Jespersen thanks both Hjelmslev and Uldall for their help with the book.

169. Hjelmslev begins his lecture on viewpoints on Danish phonetics (1935, 6) by distinguishing – within *fonik* – between the physical part which he calls *fonetik*, the

‘functionalist’ approach and Glossematics in that the latter is characterized by “(a) the constant parallelism between the two faces of the sign presented as expression and content; (b) the rejection of phonic and semantic substances in favour of pure relations, this leading to (c) the disregard of changes affecting substance, resulting in a tendency to equate the successive stages of a language and thereby leading to a purely static approach” (whereas Martinet’s own approach is dynamic).

Even though Hjelmslev is not a main topic of this paper, a few words on his relation to phonetics as a discipline – and to phonetic practice – is required, before we conclude. He considered it part of his professional duties to direct projects in phonetics, to get instruments for experimental phonetics, partly in collaboration with other institutions (e.g. for audiologopedics) (see Fischer-Jørgensen 1981, Skytte 2016, 81f). He also wrote (1954) an introduction to general phonetics published as a textbook by Copenhagen University together with Poul Andersen’s chapter on Danish phonetics (1954). The most interesting publication on phonetics by Hjelmslev is (1938), a long paper (in German) where he states his well-known formalist (Saussurean) position, but in fact uses most of the space to argue for adopting Eberhard Zwirner’s so-called phonometry (see Zwirner 1939, Fischer-Jørgensen 1985, Skytte 2016, 40–42), and sees that as an apt way to connect his “phonematics” to physical reality (cf. Hjelmslev 1943, 92). Hjelmslev accepts Zwirner’s two basic demands for such an approach, viz. that it shall use (i) acoustic data, not physiological (articulatory), and (ii) natural connected speech and not isolated words (see Fischer-Jørgensen 1981, 66f). Hjelmslev (1938) contains some hard dilemmas, see Gregersen (1991, vol. 1, 273–282).

In Table 2 I have tried to summarize the position on phonology – still to be taken in a broad sense here – of these three important linguists, as to whether (“yes”) or not (“no”) they can be said to

psychological part which he calls *fonologi*, and finally a purely linguistic (intra-linguistic or “immanent”) part which he calls *fonematik*, the term he adopts here and sees as the central part – in agreement with his own and Uldall’s papers on *phonematics* at the London Phonetics Congress 1935, viz. Hjelmslev (1936) and Uldall (1936).

operate with – or be characterized by – the content of the five boxes in the lefthand column.

	Jespersen	Martinet	Hjelmslev
Phonetic substance	yes	yes	no
Contrastive function (commutation)	yes	yes	yes
System with relations: segments	no	yes	yes
System with relations: prosody	yes	yes	yes
‘Immanent’ (no psychology nor sociology)	no	no	yes

Table 2. The position on phonology by Otto Jespersen, André Martinet and Louis Hjelmslev with respect to the five criteria in the left column

Table 2 (which is of course extremely simplified) indicates that Martinet – in the middle of the table – is the prototypical phonologist who emphasizes both the structural aspects and the phonetic aspects of phonology. Jespersen is, as I have argued throughout this paper, in some respects a structuralist, but in others not. Hjelmslev is surely a structuralist, but he is extreme – and thus not prototypically a phonologist – in his rejection of the phonetic substance (the first row), and also in his insistence on an “immanence” (the last row, implying prohibition of psychological or sociological factors to enter the analysis). Thus the table illustrates the broad spectrum in the positions on phonology by Otto Jespersen, André Martinet, and Louis Hjelmslev.

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