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7 A survey of word prosodic systems of European languages

7.1. Introduction

This chapter offers a survey of word prosodic systems of European languages. In the preface of this volume, it was explained why, unfortunately, this book does not contain chapters on all (major) European languages or language (sub)-families. A full coverage of all European languages could not be a goal of the project on which this volume is based. To realize the magnitude of such an objective it is useful to note that 99 languages are spoken in the European part of the former USSR alone (Grimes 1988). We wish to make it clear that we do not consider the languages that have not been treated in separate chapters in any way less important than those that have. To make up for the gaps, and to extend the basis of this overview, § 7.2.2 of this chapter supplies elementary information about a number of the latter languages.[1] In § 7.2.1 we first offer summaries of the language-oriented chapters in this volume.

The material discussed in § 7.2.1 and § 7.2.2 is subsequently used in § 7.3.1 to present brief discussions per language (sub)family, including comparative remarks and, in a few cases, a brief excursion on diachronic developments. In § 7.3.2 we then offer a typological classification of all the European systems that have been discussed in this chapter, ignoring the boundaries of genetic classification and aiming at an areal illustration of the typology by providing a number of maps.

7.2. Language summaries

7.2.1. Languages analyzed in this book

In each subsection we will summarize one of the language-oriented chapters. With some exceptions, we refrain from giving comments or alternatives. Where we go beyond a summary, our intention will be to draw the readers' attention

to alternatives that we believe are worth considering without implying a preference on our part. Comparative and historical remarks on primary accent location that go beyond what the chapters themselves offer are postponed until § 7.3.1.

7.2.1.1. Word accent in Germanic languages (chapter 8)

The modern Germanic languages, except for Icelandic and Faroese, no longer have dominant initial primary accent, as their older ancestor, Common-Germanic, did (cf. chapter 6.2, where it is more precisely stated that primary accent was *root*-initial). These modern reflexes which have lost the initial pattern do not have "unpredictable" or "free (or lexical) accent", as is often remarked. Rather the dominant pattern is one of right-edge accent. The exact location is dependent on syllable weight, morphological structure and lexical marking, and primary accent in underived words always falls within the so called three-syllable window.

English (8.1.1)
In spite of the traditional opinion that English word-accent is unpredictable, (metrical) generative analyses have shown that the system can be described by a number of fairly simple rules, or parameter settings. In metrical terms the accent system for underived words in English can be described as follows: a quantity-sensitive system with bounded, trochaic feet which are assigned from the right word edge, final extrametrical syllables, and main accent on the head of the rightmost foot. The quantity sensitive nature of the English word-accent system appears from the fact that primary accent falls on the antepenultimate syllable when the penultimate syllable is open and contains a short vowel, whereas it falls on the penultimate syllable if it is closed or has a long vowel. There is a distinction, then, between 'light' open syllables with a short vowel and 'heavy' syllables which are closed or contain a long vowel. This pattern calls for extrametricality of the final syllable. Apart from final syllable extrametricality there is also a rule of final consonant extrametricality in English. This rule ensures that final closed syllables with a short vowel count as light rather than heavy. Trommelen and Zonneveld, who use a notation that is closest to the 'grid-only' metrical variant (cf. chapter 1.4.3.1), analyze heavy syllables as having a line 1 grid mark inherently, whereas light syllables may obtain a line 1 grid mark by position, resulting from right-to-left 'trochaic' perfect gridding (cf. Prince 1983), which is much like trochaic footing, except that no

foot boundaries are supplied. All grid columns reaching line 1 bear secondary accent, except for the rightmost one that receives a line 2 grid mark due to the 'End Rule', indicating primary accent.

In derived words one of the major distinctions that is important to accent assignment is the one between 'accent-sensitive' (Class I) and 'accent-neutral' (Class II) affixes. When Class II affixes are added to a stem the position of accent is not influenced. Hence, accent may fall outside the three-syllable window to which it is limited in underived words. Class I affixes do influence the position of accent, the rules of accent in derived words with accent-sensitive affixes being the same as those in underived words.

In compounds with two members primary accent usually falls on the first member. The rules for compounds with more than two members are more complicated, the accent pattern being dependent on the morphological constituency of the compound.

Phrasal accent in English tends to fall on the primary accent of the rightmost word in the phrase, although rhythmic considerations may cause accent shifts.[2]

Dutch (**8.1.2**)

Although there are considerable similarities between the Dutch and the English accent systems, Dutch differs from English in a number of respects. Like English, Dutch has a quantity sensitive system which assigns binary trochaic perfect gridding (or trochaic feet) starting at the right word-edge, with final extrametricality and right-edge end rule. The most basic differences between English and Dutch lie in the nature of the extrametricality rule and the way in which quantity is computed. Unlike English, Dutch treats all open syllables as light, and only closed syllables as heavy. Vowel length correlates with syllable closure in that open syllables always contain long vowels, whereas short vowels can only occur in closed syllables. Closed syllables with long vowels (so called superheavy syllables) occur, but only in word final position. They can be analyzed (as Trommelen and Zonneveld do in chapter 8.1.2) as open syllables followed by a 'degenerate syllable' consisting of only a consonant.

The Dutch extrametricality rule, as Trommelen and Zonneveld show, functions at a higher level than the English rule. Whereas in English all final syllables are extrametrical, in Dutch only final syllables that are the head of a foot (or, in a grid only framework, that have a grid mark at line 1) are extrametrical. In practice this concerns mostly final closed syllables that contain a short vowel (cf. chapter 1.3.8.6).

In derived words, Dutch, like English, distinguishes between Class I and Class II affixes. In compounds accent falls on the rightmost member if it is an

adjective or a preposition and on the leftmost member if the rightmost member is a noun or a verb. An interesting phenomenon of Dutch, which occurs in English and many other languages as well (cf. chapter 3) is the adjectival accent-shift, due to the so called Rhythm Rule. This phenomenon is treated in depth in chapter 3 and chapter 8.1.2.5.5.

German (8.1.3)

In his section on German, Jessen compares different proposals with respect to the German accent system, discussing their advantages and drawbacks. He formulates the basic generalizations concerning primary accent location in terms of a number of "restrictions", some of which are more robust than others. He concludes that, even though the "Dutch" accent rule is not fully matched in German, they are very similar nonetheless. In fact, contrary to many proposals in the literature, the German accent system appears to be closer to the Dutch system than to the English system. Hence, in order to arrive at a metrical analysis of the German accent system an analysis of the Dutch system will probably prove to be a useful starting point. It would seem that the generalizations and thus the analysis are the same, the main difference lying in the fact that German has more exceptions.

With respect to accent in derived words, Jessen shows that German shares a number of properties with most Germanic languages, including a distinction between Class I and Class II suffixes and the pattern of accent in compounds. He also discusses the different behavior that prefixes show with respect to accent and a process of accent shift caused by inflection.

Norwegian (8.2.1)

In the section on Norwegian, Rice compares a number of Norwegian words with different syllable patterns to their Dutch counterparts. This comparison between Dutch and Norwegian shows that the accent systems of the two languages are strikingly similar. The only systematic differences occur in words that have final geminate consonants in Norwegian. Final syllables that are closed by a geminate consonant pattern with final syllables closed by a consonant cluster, i. e., they are superheavy.

Dutch does not have final geminate consonants and the final syllables of the equivalent Dutch words are therefore not superheavy. The rule of extrametricality in Dutch mentioned above causes these words to have either penultimate or antepenultimate accent (depending on the weight of the penultimate syllable), whereas the Norwegian equivalents with their superheavy final syllables

have final accent, e. g., Dutch *álmanak* vs. Norwegian *almanákk* 'almanac'. This contrast reflects a difference in the phonotactics of Norwegian and Dutch rather than a difference in the accent system, however. In fact, the accent systems of underived words in Dutch and Norwegian seem to be exactly the same, with accent on superheavy final syllables and heavy syllable extrametricality. Rice, who adopts an Optimality theoretic approach (cf. chapter 1.5.4), especially discusses the nature and representation of the extrametricality rule.

Swedish (8.2.2)

For Swedish word prosody, attention has usually been directed at the tonal opposition that occurs in this language. However, accent occupies a key position in Swedish word prosody especially in serving as an anchor point for the word tones (which are discussed separately in chapter 9.1). In his section, Bruce concentrates on primary word accent, addressing the two widespread prejudices that we have also mentioned for the other Germanic languages, namely that its position is largely unpredictable, and that it occurs early in the word. Both prejudices are shown to be incorrect. According to Bruce, accent is assigned from the right word edge and often occurs later in the word than in English. (This is due to the fact that English has general syllable extrametricality; cf. above). Swedish is closer to Dutch and German. Bruce also mentions Danish as having a very similar system. (Cf. Rischel 1982 for a discussion that focuses on derived and compounded words in Danish.)

Derivational affixes (suffixes as well as prefixes) can be divided into two main groups: those which apparently form a separate domain of accent assignment (i. e., when affixed they make the word function as a compound with respect to accent) and those which form one domain with the stem. The suffixes in the latter group can be subdivided into those which, when added to a stem, do not influence the position of accent and those which do. Inflectional suffixes never influence the position of accent.[3]

In compounds, the word accent of the first element has the primary accent, the accent of the second element being less prominent and therefore referred to by Bruce as secondary accent. In compounds consisting of more than three members the internal structure is apparently not relevant to the position of secondary accent in Standard Swedish, although it is in both the dialect of Swedish spoken in Finland and in Danish. The fact that secondary accent always occurs on the final member of compounds in Standard Swedish, independent of their internal structure may, according to Bruce, be due to rhythmic considerations. In chapter 3, Visch discusses such differences in compound accenting in other Germanic languages.

Icelandic and Faroese (8.2.3)
Árnason presents an analysis of the realization and location of word accent in Icelandic. The Faroese system is described in comparison with Icelandic. Like the other Germanic languages, Icelandic and Faroese appear to have trochaic feet. Unlike the other Germanic languages, the accent system of these two languages are completely quantity insensitive. The main difference with the other Germanic languages, however, is that the End Rule promotes the leftmost foot in Icelandic and Faroese, i. e., these two languages have (preserved) the initial accent that we also find in Common Germanic.

Árnason also addresses in depth the question as to whether or not monosyllabic feet are allowed in Icelandic and presents several arguments in favour of the existence of such "degenerate feet".

Both Icelandic and Faroese are said to have a "left strong" compound accent rule but a "right strong" phrasal accent rule. This is not unlike to what we find in the other Germanic languages. The fact that the phrasal accent rule is rightheaded is seen by Árnason as a possible factor for the apparent shift in the location of primary word accent in Faroese to the right edge.

7.2.1.2. Word tone in Germanic languages (chapter 9)

Scandinavian languages (9.1)
Word-tones (or tonal accents) occur in addition to accent in most dialects of Norwegian and Swedish.[4] In Danish another phonetic property, generally referred to as stød, related to intensity, subglottal pressure and constriction of the vocal folds, occurs on accented syllables. Both Swedish and Norwegian distinguish two different tonal accents, usually called Word Tone I and Word Tone II, but also Accent I and Accent II. Historical reconstruction of the origin of these word tones indicates that they derive from an original difference between monosyllabic and polysyllabic words. When, through a number of morphological and phonological processes, a lot of originally monosyllabic words became polysyllabic the two tones came to stand in phonological opposition.[5] In his section Bruce presents some general regularities by which the choice of word tone in Swedish and Norwegian can, at least partly, be synchronically predicted. He shows that in simplex (non-compound) words the main factors determining the choice of word tone are primary accent location and the morphological make-up of a word. In compounds the factors determining the choice of word tone vary in different dialects.

Danish stød seems to correspond to Word Tone I, the equivalent of Word Tone II simply being the absence of stød. Stød may occur on the primary ac-

cented syllable of simplex words and in compounds on the accented syllable of the compound members. Unlike the word tones, the presence or absence of stød is determined by the weight of the accented syllable.

A Limburgian dialect (9.2)

Like Swedish and Norwegian, most Limburgian and Rhenish dialects (situated in the south-east of the Netherlands and the southern part of Germany) have a contrast between two word-level tones. These are usually referred to as 'falling tone' (Dutch: stoottoon) and 'dragging tone' (Dutch: sleeptoon). Hermans discusses the Limburgian dialect which is spoken in and around Maasbracht, a village near Roermond in the Netherlands. In this dialect, the falling tone starts on a relatively high pitch and makes a rather steep fall to a relatively low pitch. The dragging tone is realized at a level high pitch when followed by another syllable in the utterance, but as a fall-rise in utterance-final position. The dragging tone is accompanied by significant lengthening of the syllable. There are quite a number of monosyllabic words which differ only at the tonal level, but it is hard to find minimal pairs among polysyllabic words, although near-minimal pairs are found. Hence, the distribution of tone is not (fully) predictable in monosyllabic or in polysyllabic words. Still, there are a number of environments in which the choice of tone is predictable.

In his section Hermans sums up the relevant environments and presents an analysis that accounts for the predictability of tone in these environments. Two of the main restrictions on the distribution of tone are related to primary accent: tone contrast is only possible on the syllable that bears primary accent, and only dragging tone occurs when the primary accented syllable is followed by another (secondary) accented syllable in the same word. Other restrictions concern the number of sonorant segments in the nucleus of the syllable, the voicing of the elements in the coda of the accented syllable, and the status of the vowel.

In Hermans' analysis, the falling tone is lexically marked by the presence of an L tone, whereas the dragging tone is lexically unmarked.[6]

7.2.1.3. Word accent in the Romance Languages (chapter 10)

The Romance language family comprises five official state languages, a number of other languages with a more or less official status, and numerous dialects. Roca limits his discussion to the five state languages (French, Spanish, Portuguese, Italian and Rumanian) and the more or less official area languages Occitan, Catalan, Sardinian and Rhaeto-Romance (Romanish). Of these, the accent

system of French is the odd one out and will be discussed separately in this summary. Because the accent systems of the other Romance languages have so much in common they will not be discussed individually but as a group.

Spanish, Portuguese, Italian, Rumanian, Romanisch, Catalan, Occitan, and Sardinian

The position of accent in these Romance languages discussed by Roca is generally restricted to the three-syllable window at the right edge of the word. In this respect, then, the Romance languages (except French) are typologically very similar to the Germanic languages (except Icelandic & Faroese).

Most Romance nouns consist of a stem and a desinence. In stems that occur without a desinence, accent is usually restricted to the final two syllables. Desinences are systematically accentless. Roca achieves this by formulating a rule which assigns extrametricality to all desinences, the Romance Extrametricality Rule (RER). The RER allows for antepenultimate accent if one assumes that feet are leftheaded binary. This system, then, seems very close to that of Latin with its trochaic feet and final extrametricality. Latin, however, had a quantity sensitive accent system in which closed syllables and syllables with long vowels were heavy. Accent fell on the penultimate syllable if heavy otherwise on the antepenultimate syllable. Although contrastive vowel length has disappeared in the modern Romance languages, accent still falls on the penultimate syllable in most words which have a closed syllable in that position and also in many words with an open penultimate syllable (i. e., those that used to have a long vowel (in most cases). Accent has thus become partly unpredictable and potentially contrastive. Roca proposes to analyze words with penultimate accent as undergoing the Romance Accent Rule (RAR), which places an accent on the stem-final syllable. Words which do not undergo the RAR must be lexically marked as [− RAR]. In these words a leftheaded binary foot will be built on the final two syllables of the stem, resulting in antepenultimate accent when the stem is followed by a desinence. Due to the RAR or the final trochee, words will bear an accent on either the final or penultimate stem syllable. Right edge primary accent results from elevating this accent to primary accent status.[7]

In the verbal system accent is computed by means of a number of, partly language specific, rules. The most general of these is the Romance Verb Accent Rule (RVAR). This rule places an accent on the theme vowel, the vowel that determines the conjugation class of the verb. In the future tenses this rule is overruled by the Future Accent Rule (FAR), which places accent on the future suffix. In the present tense the position of accent is predicted best by the RAR, which also determines the position of accent in nouns. Some languages have a

fourth rule, the 1st plural/2nd plural Accent Rule (1/2pl.), which moves the accent one syllable to the right only in the first and second person plural. This rule does not apply across the board in the languages in which it exists, but needs additional morphosemantic contextualisation. All non-finite forms generally undergo the RVAR. The generalizations for finite forms can be summarized in the table on p. 434.

Thus Roca's analysis suggests that the accent system of nouns and verbs is different in nature. In the former, primary accent location is based on accent rules (the RAR and trochaic footing), whereas in the latter we rather deal with a lexical accent system in which the rightmost accent is elevated to primary accent.

Apart from some compound-like suffixes (to be mentioned below) Romance affixes may be divided into two classes, as in Germanic. Roca describes this division as one between cyclic and non-cyclic affixes. Cyclic affixes are added to a stem in a separate phonological cycle, at the beginning of which all metrical information and structure of the preceding cycle is erased by the Accent Erasure Convention (SEC). Non-cyclic suffixes are added to a stem in the non-cyclic phase, which follows all cyclic phases but in which, crucially, the SEC does not apply. Cyclic affixes, then, are comparable to the Germanic Class I affixes, in that the same accent rules apply to a stem with Class I affixes as to a stem in isolation. Non-cyclic affixes can be compared to Class II affixes in that the original accent pattern of the stem is left intact. The difference between Romance and Germanic languages is that whereas the Germanic Class II affixes are completely accent-neutral, the Romance non-cyclic affixes are affected by the Romance Accent Rule. Thus, although the metrical structure of the stem is left intact when it enters the non-cyclic phase, the non-cyclic suffixes may affect the surface position of accent all the same. There do not seem to be any completely accent-neutral affixes in Romance.

In Romance compounds primary accent falls on the second member. There has been a lot of debate on whether or not the accent of the first member of compounds is retained. Although this first member does not have a clearly prominent syllable in all languages, certain segmental processes (or the non-occurrence of such processes) indicate that the accent on that member is still present. Thus, the syllable that would be accented when the first member occurs in isolation will fail to undergo reduction in, e. g., Romanish, is lengthened like other accented syllables in Italian, diphthongizes in Spanish, etc.

French

French has predominantly final accent. Only words ending in a syllable containing a schwa have penultimate accent. Word-final schwa in French is only

	PAST					PRESENT		FUTURE
		Pluperfect	Preterite	Imperfect		Present		Future
	ind.	ind.	ind.	subj.	ind.	subj.	ind.	ind.
Occitan		RVAR	RVAR 1/2 pl.	RVAR	RAR 1/2 pl.[b]	RAR 1/2 pl.	FAR	FAR[a]
Spanish	N/A	RVAR	RVAR	RVAR	RAR	RAR	FAR	FAR
Catalan		RVAR	RVAR	RVAR	RAR 1/2 pl.	RAR 1/2 pl.	FAR	FAR
Portuguese		RVAR	RVAR	RVAR	RAR	RAR	FAR	FAR
Italian		RVAR 1/2 pl.	RVAR 1/2 pl.	RVAR	RAR[c] 1/2 pl.	RAR 1/2 pl.	FAR	FAR
Sardinian		RVAR	RVAR	RVAR	RAR	RAR	N/A[d]	N/A
Romanish		RVAR	RVAR	RVAR	RAR 1/2 pl.[e]	RAR	FAR	FAR
Rumanian	RVAR	RVAR	RVAR	RVAR	RAR[c] 1/2 pl.	RAR 1/2 pl.	N/A	N/A

Notes

a: Because of syllable merger in the 2nd and 3rd conjugation, the Tense/Aspect/Mood marker rather than the Theme Vowel appears to be stressed in these conjugations in the Occitan indicative of the imperfect and the conditional.

b: Only in the second and third conjugations in Occitan.

c: Italian and Rumanian have lexical exceptions to the Romance Accent Rule in verbs.

d: In Sardinian and Rumanian the future and conditional are periphrastic.

e: In Romanish, the 1/2 pl. Accent Rule in fact only applies to the 2 pl. in the present indicative.

pronounced under very specific circumstances nowadays and may be considered epenthetic in most cases (cf. van Oostendorp 1995). Leaving aside the final schwas that are not epenthetic, the French system can be described as a bounded system with rightheaded feet which are assigned from right to left and rightheaded word accent.

Given the presence of alternating rhythm (as described in Dell 1984), one may also entertain a trochaic foot-based analysis assuming that a monosyllabic foot is placed on the final syllable (unless this contains a schwa) under the pressure of the overruling principle that accent must be 'as final as possible' (cf. van Oostendorp 1995).

It has been argued, however, that accent in French is not a word-level phenomenon (e. g., Pulgram 1970, Dell 1984) but operates on the phrase level.

7.2.1.4. Word accent in Slavic languages (chapter 11)

The Slavic languages show a great diversity of word-prosodic systems. Thus, most West-Slavic languages have bounded weight-insensitive accent, whereas the East-Slavic languages have lexical accent (but see chapter 11.3 for a different analysis of Russian). In the South-Slavic languages three different systems are represented: bounded weight-insensitive accent, lexical accent, and tonal accent systems with tone-sensitive primary accent. These three groups of languages are treated in separate sections of chapter 11.

Czech, Slovak, Sorbian, Polish, Polabian and Kashubian (Slovincian) (11.1)
In this section Dogil describes the accent systems of Czech, Slovak, Sorbian, Polish, and the now extinct languages Polabian and Kashubian. He uses an Idsardian model (cf. chapter 1.4.3 and chapter 4.2), which captures the differences between the languages of this group in a simple and unified way.

All the West-Slavic languages that are still spoken today have weight-insensitive systems, i. e., the position of accent is independent of the phonological and morphological make-up of the word. In Czech, Slovak, and Sorbian primary accent falls on the initial syllable. The rules for secondary accent in Czech are different for formal and colloquial speech. In formal speech, secondary accents fall on odd-numbered syllables counting from the left edge of the word, whereas in more colloquial speech they fall on alternating syllables counting from the right edge of the word (i. e. on the penultimate syllable and on alternating syllables before it). In Slovak secondary accents occur on alternating syllables counting from the left edge, but (depending on the accentual norm) the final syllable of odd-numbered words may or may not be accented.

According to Dogil, Sorbian can be seen as a bridge between Czech with primary accent on the initial syllable and Polish with primary accent on the penultimate syllable. Sorbian has primary accent, realized as higher or rising pitch, on the initial syllable and secondary accent, realized as lengthening of the vowel, on the penultimate syllable of words with four or more syllables. Rhythmic accent is weak. This pattern is the same as that of words in Polish under narrow focus, since in words under narrow focus the 'normal' prominence relation is reversed: primary accent occurs on the initial syllable and secondary accent on the penultimate syllable. In a subset of Polish words, which must be regarded as lexically marked, primary accent occurs on the antepenultimate or final syllable.

The extinct Slavic language Polabian seems to have had a bounded weight-sensitive accent system. Accent is said to have occurred on the final syllable if it was heavy and on the penultimate syllable if the final syllable was light. Unfortunately not all the logical combinations of long and short syllables within the final two-syllable window occur in surviving Polabian materials. Slovincian, the northernmost dialect of Kashubian, also had a weight-sensitive system. It may have formed a bridge between the South and East Slavic languages on the one hand and the weight-insensitive West Slavic languages on the other. Like Slovene, Serbian and Croatian (cf. below) it appears to have had some sort of tonal accent system, with lexical marking like the East-Slavic languages. The default in Slovincian, however, is initial accent. The Slovincian system can in fact be described as an unbounded LAST/FIRST system: accent occurs on the rightmost tonal accented syllable or on the first syllable. Since many of the historical weight and accent distinctions were eliminated through levelling processes the major part of Slovincian words ended up with initial accent, like the other West-Slavic languages. In the other Kashubian dialects initial accent has indeed become the rule.

Bulgarian, Macedonian, Slovene, Serbian, Croatian (11.2)

The South Slavic linguistic area can be divided into eastern South Slavic (Bulgarian and Macedonian) and western South Slavic (Slovene, Serbian and Croatian). The word prosodic systems of the eastern and the western South Slavic languages differ considerably. Whereas Macedonian has a fixed accent system, with regular antepenultimate accent and Bulgarian has a lexical accent system, in which accent has to be diacritically marked (much like Russian, see below), the western South Slavic languages (or at least their standard varieties) have tonal-accent systems and surface primary accent that is dependent on tone.

Gvozdanović focuses on these latter systems. Of the three western South Slavic languages standard Serbian and Croatian (which until recently were clas-

sified as one language: Serbo-Croatian) have the same word-prosodic systems. In her description, they have lexically marked high tone which spreads one syllable to the left where possible. Postlexically, primary accent falls on the first syllable bearing tone. In words with more than one tone (or tonal accent), all but the rightmost tones are deleted before primary accent is assigned; cf. also Inkelas & Zec (1988). In toneless words accent falls on the first syllable. Serbian and Croatian appear to have a FIRST/FIRST accent system: primary accent falls on the leftmost high tone or on the first syllable. However, if we add to this that the high tone that triggers primary accent, must be the rightmost tonal accent, we might say that we are dealing with a LAST/FIRST/FIRST system.

The Slovene system differs considerably on the surface. It has lexically marked low tone as well as high tone, and the low tones may be diacritically marked as strong. Accent falls on the first strong tone in a word or, in the absence of a strong tone, on the last 'normal' tone. In toneless words accent falls on the first syllable. Accent in Slovene, then, can be described as a FIRST/LAST/LAST system. Gvozdanović shows that the complicated word prosodic system of this language is undergoing a simplification process whereby alternations within the paradigm of a stem are for the most part eliminated.

Russian (11.3)

In most analyses, Russian accent is analyzed as being dependent on lexical accents that morphemes may have or cause to be placed or deleted in neighbouring morphemes. Given the lexical accents, word accent is located on the leftmost (first) accented syllable or on the first syllable if there are no accents. Thus, in this analysis Russian is a FIRST/FIRST system.

Contrary to this tradition, Kodzasov argues that there is no need to consider the Russian accent system a lexical accent based system. Even though there are quite a number of Russian words in which the position of accent is unpredictable and which therefore appear to be lexically accented, the position of accent in Russian can basically be predicted by what he calls the "prosodic features" of a word. The main prosodic features in Russian are Articulatory Accent (realised phonetically as a short impulse of articulatory stiffness at the beginning of a certain vowel) and Phonation Shift (e. g., a shift from modal voice to creaky or breathy voice). The presence or absence of these two features distinguish three main accentual classes in Russian. Within these classes accent is largely predictable, although in a subset of words different "prosodic features", like Reduction and Expansion may shift the accent, causing these words to appear exceptional. However, if one knows all the prosodic features of a word,

the position of its accent is in most cases predictable. The Russian accent system in this analysis is based on inherent phonetic or phonological properties rather than lexical accents.

7.2.1.6. Word accent in Baltic Languages (chapter 12)

The Baltic languages are: Lithuanian, Latvian and Old Prussian. The latter, which was the only West Baltic representative, has become extinct, and little is known about its word prosodic system.

Lithuanian (12.1)
Lithuanian has a system in which primary accent is, as in most analyses of Russian, dependent on lexical accents. Roots, suffixes and desinences may all be accented or unaccented. Primary accent occurs on the first accented syllable of a prosodic word, and if the word is completely unaccented, on the first syllable. It thus qualifies as a FIRST/FIRST system, like Russian. The special feature of the prosodic system of Lithuanian is that primary accent occurs with three different phonetic exponents. Bimoraic syllables may have either a so-called "acute" accent or a "circumflex" accent. The choice between these two exponents is again a matter of lexical marking. Monomoraic syllables have a "grave" accent, which is phonetically very much like the circumflex accent, but shorter. According to Dogil these phonetic exponents do not, as often has been proposed, primarily involve pitch, since this is not the main distinctive mark of increased prominence in Lithuanian (cf. also chapter 6.1.3). Although the type of exponent does not play a role in the basic principles which govern accent-assignment, the position of accent is influenced by the exponent-type. This is the result of an accent advancement rule, called Saussure's Law, which causes a rightward shift of the accent when circumflex or grave, but not in the case of acute accent, in certain situations. There are also dialectal complications to the Lithuanian system. Dogil finds that in every situation the circumflex and the grave accent behave as one natural class, whereas the acute accent seems to constitute a different class. He therefore proposes an analysis of the Lithuanian system in which the acute accent has a different underlying representation than the grave and the circumflex accent.

Latvian (12.2)
According to Dogil the Latvian word prosodic system establishes a link between the West-Slavic languages on the one hand, and the South and East Slavic

languages (excluding Macedonian) and Lithuanian on the other hand. Latvian has strictly initial accent, like most of the West Slavic languages. Unlike, the West Slavic languages, however, it does not have alternating secondary accent. In fact, the occurrence of secondary accent is not reported at all. The link with Lithuanian and most of the South and East Slavic languages can be found in the rural southern dialects of Latvian. These dialects have preserved some of the accentual differences that are characteristic of Lithuanian, i. e., they have lexical accents. However, whereas in South and East Slavic languages as well as Lithuanian the position of primary accent is dependent on these lexical accents, in Latvian primary accent can be called 'accent insensitive'.

7.2.1.6. Word accent in Greek (chapter 13)

Accent in Greek falls on one of the final three syllables of the word, the so-called 'three-syllable window'. It may in principle occur on any of the syllables within the three-syllable window but the antepenultimate position seems to be the default. This means that Greek can be described as a language with a bounded trochaic foot system and an extrametrical final syllable. Words with accent on the penultimate syllable will have to be marked as exceptions to extrametricality, while words with accent on the final syllable will have to be represented with a lexical mark on that syllable. Lexical marking can occur with individual stems, but is more often a property of a certain class of words. The lexical marks appear to be mostly remnants of vowel length contrasts that occurred in Classical Greek (which was a quantity sensitive language) but have since disappeared. Postlexical (rhythmic) secondary accents seem to be optional in Greek. Secondary accent may occur either on alternating syllables preceding the main accent or word-initially.

The addition of suffixes to a stem will cause a shift of primary accent when it would otherwise fall outside the three-syllable window. Drachman and Malikouti-Drachman call this 'transparent' accent shift. Suffixes may also be lexically marked as causing accent shift. In that case the shift can be said to be 'opaque' since there are no phonological reasons for it. Enclitics that are added to a word with antepenultimate accent do not cause accent-shift but rather induce an extra accent.

Greek compounds may either constitute one accent-domain (prosodic word) or consist of two separate domains. When a compound consists of two prosodic words generally the rightmost bears primary accent. Prefixes generally behave like the first member of a compound.

7.2.1.7. Word accent in Basque (chapter 14)

Hualde presents an overview of the different accentual systems found in Basque dialects. He distinguishes three main accentual types: the *western* type, which is a lexical system with unaccented and accented stems and suffixes, the *central* type in which accent is assigned from the left word edge, and several *eastern* systems, in which accent seems to be assigned from the right word edge. Hualde shows that one cannot speak of 'the Basque accentual systems', because systems with very different properties are found in different varieties of Basque.

In the *western* type the position of a prosodically prominent syllable is lexically determined. This prominence is in some parts realized as a pitch drop following the accented syllable (a H*L melody) and in other parts as accent. In lexically unaccented words a default rule gives prominence to the final syllable when the word occurs in phrase final position.

In the *central* type accent is regularly assigned to the second syllable, although bi- and monosyllabic stems may have initial accent due to a general tendency that avoids word-final accent in this variety of Basque. In certain Central dialects the position of the accented syllable is partly determined by morphological factors.

In the *eastern* area quite a lot of variety occurs. The Hondarribia dialect appears to be quantity-sensitive, since a moraic trochee is built at the right edge of the word, whereas the other dialects of this type are quantity insensitive, with mainly penultimate accent. In some of these dialects the position of accent is partly determined by morphological factors (which may be translated into lexical accents on certain morphemes).

7.2.1.8. Word accent in Daghestanian languages (chapter 15)

The Daghestanian languages are Caucasian languages spoken in the north-eastern area of the Caucasus. They can be subdivided into three groups: a *northern, central* and *southern* group. Kodzasov presents examples from languages in both the northern and the southern group. These languages show a considerable diversity in their word prosodic systems.

Andi, Akhvakh, Avar, Godoberi, Bagvalal

The northern languages tend to have paradigmatic tone (the exact acoustic correlate of which is not yet clear) rather than accent, although some of the languages have both tone and accent. Andi is an example of a language with four tones and no accent. The tones are High, Low, Falling and Rising. The

Falling and Rising tones can in most, but not all instances, be interpreted as sequences of High and Low. Almost all possible tonal combinations are found in disyllabic words. In Akhvakh, a language closely related to Andi, the tonal combinations are restricted. Generally it can be stated that the tone of the second syllable must be less or equally prominent than that of the first syllable (R > H > F > L). Kodzasov points out that such a system may be the first step towards an accentual pattern with initial accent. Already tonal differences are accompanied by differences in length and duration.

Apart from these purely tonal languages Kodzasov mentions a number of languages with accentual prominence based on tone or "quasi-tonal" properties. Avar, the lingua franca of North Daghestan, has such an accent system which is sensitive to tone. In disyllabic stems Avar distinguishes only between High and Low, and all four possible combinations of these tones occur. Clearly, the High tone is the most prominent one in Avar and this influences the position of accent. In a HL word accent falls on the first syllable, in a LH word on the second. When the tones on the stems are the same, i. e., HH, or LL) two other factors start playing a role, namely the presence of an "Articulatory Accent", and syllable weight. In Godoberi the accent system is of a similar complexity. The position of accent is dependent on the presence or absence of an Articulatory Accent, on the presence or absence of breathy voice, and on the tone pattern of the stem. When both Articulatory Accent and breathy voice (which triggers final accent) are absent, accent falls on the first high tone and if there is no high tone, on the last syllable, i. e. we have a tone-sensitive FIRST/LAST system. Syllable weight does not play a role in the process of accent assignment in Godoberi.

Apart from these systems with tone and accent there are also North Daghestanian languages in which the presence of accent seems to be a lexical feature. In Bagvalal words may be completely unaccented, weakly accented, or have a strong, clearly perceptible, accent. The position of the strong accent is unpredictable, the weak accent usually occurs on the right edge and seems to be weight-sensitive (falling on the final syllable if it is heavy and on the penultimate when the final is light). In words that are completely unaccented a slight intensification of the first syllable may be perceived.

Lezgian, Archi, Tsakhur

The southern Daghestanian languages have no tone systems. Accent is mostly restricted to the first two syllables of the word. Lezgian is a weight-sensitive language in which accent falls on the second syllable if the first syllable is open (i. e., light) and on the first or the second syllable if the first syllable is closed (i. e., heavy). In the latter case the position must be lexically indicated. Archi,

too, is a weight-sensitive system in which accent is restricted to the first two syllables of the word. In Archi, however, weight is based on vowel quality and, to a lesser degree, on syllable closure. The vowels /e/ and /a/ count as heavy, the other vowels (/i, u, o/) are light. Basically accent falls on the first syllable if it contains a 'heavy' vowel followed by a 'light' vowel, and otherwise on the second syllable. Syllable closure can play a role when both syllables have either a 'heavy' or a 'light' vowel. Vowels in pre-accent position tend to be reduced.

In the South Daghestanian language Tsakhur there are stems with and without accent. Accent is restricted to the final syllable, but can be analysed as weight-sensitive. In Tsakhur the weight-scale looks as follows: CVC(C) > CV: > CV. In each syllable type the vowels /a, e, o/ are 'heavier' than the vowels /i, u, y/. In nouns there is a general restriction that lighter syllables may not precede heavier syllables. This means that the final syllable is always at least as heavy as the syllables preceding it and hence, that if accent is weight-sensitive it is expected to occur on the final syllable. For verbs the accentual patterns and phonotactic restrictions are slightly different.

We see that in the Daghestanian languages a whole array of word prosodic systems occur. The southern languages are accent languages in which the position of the accent is determined mainly by weight and edge. The northern languages, which seem to be more archaic phonologically, are tone languages in which accent, if it occurs, is tone-sensitive. Some of the northern languages may be in a transitional stage in that an accentual pattern seems to be developing out of a purely tonal pattern.

7.2.2. Languages not analyzed in this book

For practical reasons it has not been possible to devote separate chapters to all (major) European languages or language families. This section fills a number of the gaps, but, due to space limitations, we only offer information on representatives from families or subfamilies that do *not* fall within the scope of a separate chapter. Thus, we pay attention to the Celtic languages, Albanian, Armenian, Turkic, etc. since these (sub)families have not been treated in any of the language-oriented chapters.

7.2.2.1. European languages: Genetic affiliations

The concept of "European languages" is linguistically rather arbitrary. The set of languages under study does not form a genetic unity and neither does it form

a predefined linguistic area; cf. Haarmann (1977), Lewy (1964). Languages that are considered to be "European" come from six families:

Indo-European
Basque
Caucasian
Uralic
Altaic
Afro-Asiatic

But besides European languages belonging to these families, many other languages are (sometimes widely) used within Europe, among others: varieties of Arabic (Moroccan, Western Colloquial, Cypriot), Kabyle (Berber), Inuit, Wolof, Hindi, Urdu, Mandarin Chinese, Cantonese, Indonesian, Papiamentu, Sranan, Tibetan, Suryoyo (cf. Grimes 1988). It is reasonable to assume that an areal study must consider languages that have been in use for a longer time span in some area, but eventually some, if not many of the decisions on the (non)-European status of specific languages will be difficult if not impossible to make.

In our genetic classification of European languages we have ignored some of the lower levels of genetic grouping and suppressed the entire internal structure of families that we do not consider in this section because they are dealt with in a separate chapter. For these (sub)families we have added a reference to the relevant chapter. (Sub)families in capitals are treated in this section through the bold-faced representatives.

Genetic affiliation of European languages[8]

- *Indo-European*, Germanic (cf. chapter 8)
  Italic (cf. chapter 10)
  Balto-Slavic, Slavic (cf. chapter 11)
  Baltic (cf. chapter 12)
  Greek (cf. chapter 14)
  CELTIC, Insular, Goidelic: **Manx, Scottish Gaelic, Irish**
  Brythonic: **Cornish, Breton, Welsh**
  Continental: Gaulish
  ARMENIAN: **Armenian**
  ALBANIAN: **Albanian**
  INDO-IRANIAN, Indic, Romany: **Romany**
  Iranian: Talysh, Kirmanji, Tati, **Ossetic**
- *Basque* (cf. chapter 14)

– *Caucasian*, Daghestanian (chapter 15)
Nakh: Ingush, Chechen, Bats
Abkhaz-Adeghean: Ubyx, Kabardian, **Adyghe**, Abaza, **Abkhaz**
Kartvelian: **Georgian**, Svan, Laz, Mingrelian

– *Uralic*, Finno-Ugric, Finnic, Balto-Finnic: **Estonian, Finnish**, Vepsian, **Votic**, Olonest, Ingrian, **Livonian**, **Karelian**, Ludic
Samic: Eastern, **Northern**, Southern
Permic: **Komi-Permyak, Komi-Zyryan,** Udmurt
Volgaic: **Mari, Mordvin**
Ugric: **Hungarian**
Samoyedic: **Nenets**

– *Altaic,* Turkic, Common Turkic, Western: **Bashkir**, Karachay-Balkar, Kumyk, Karaim Baraba, Crimean Tatar, **Tatar**
Southern: Crimean Turkish, Gagauz, Azer-Baijani, **Turkish**
Central: Nogai
Bolgar: **Chuvash**
Mongolian: **Kalmyk**

– *Afro-Asiatic*, Semitic, West, Central: **Assyrian, Maltese**

In the next six sections we will give brief characterizations of the word accentual system of some representatives of language families or subfamilies that do not fall within a superordinate group that is dealt with in a separate chapter. In each case we mention our sources and, if possible, further references. We would like to make it clear that this section makes no serious attempt to go beyond the sources that we have consulted and we do not, then, intend this section to be more than a service to the reader of this volume, a first step toward the languages that, unfortunatelaty, could not be treated more extensively. The languages to be discussed in this section will also appear in the typological classification that we give in § 7.3.

7.2.2.2. Indo-European languages

In this section we discuss four members of the Indo-European language family: Celtic, Armenian, Albanian, and Indo-Iranian.

Irish Gaelic, Scots Gaelic, Manx, Welsh, Cornish, Breton (Celtic)

The Celtic languages can be divided into two groups: the Gaelic (or Goidelic) languages, consisting of Irish Gaelic, Scots Gaelic and Manx, and the Brythonic languages, comprising Welsh, Cornish and Breton. Although Cornish has been extinct since before 1800 as a first language it is currently being revived for cultural purposes. Manx is no longer a first language either, but is still spoken as a second language by 200 to 300 people and used for some public functions.

The Gaelic Celtic languages have basically weight-insensitive initial accent (e. g., Scottish Gaelic /'ahəRəxiən/ 'changes') although there is some dialectal differentiation. Munster Irish, for instance, appears to be weight-sensitive in that words in which the second syllable contains a long vowel have accent on that long second syllable independent of the length of the initial syllable, e. g., [a'se:nti:xt] 'disagreement', [di:'wi:n] 'idle', but ['soləs] 'light'. In trisyllabic words with a short vowel in the first and second syllable and a long vowel in the third syllable, primary accent will even fall on the third syllable, with secondary accent on the first syllable: [ˌmarkə're:r] 'mackerel'. Rowicka (1994), from which these examples are taken, presents an analysis of Munster Irish within Optimality Theory and shows that this system can best be described using trimoraic feet. Gussmann (1994) gives an exhaustive account of the accent facts of Munster Irish in a metrical framework. Manx resembles Munster Irish in that it also shows signs of weight-sensitivity.

In the Brythonic languages accent is assigned from the right word-edge. In Welsh accent in native words falls on the penultimate syllable, although the contraction of stems ending in vowels with suffixes beginning with vowels has resulted in a number of words with final accent, e. g., *cyfleus* [kəv'leɨs] 'convenient' (< cyfle ['kəvle] 'opportunity'). A special feature of Welsh is that the final syllable, rather than the accented penultimate syllable, has the most prominent pitch-movement (cf. chapter 5.2.4.2). The final syllable has a tendency to occur with rising pitch and is pronounced with much greater force than in English. Modern Breton is divided into four major dialects, three of which have penultimate accent. The fourth dialect, Gwenedeg (or Vannetais), mainly has final accent, which can be traced back to the period of transition from Old Breton to Middle Breton (about AD 1000), when the overall shift from final to penultimate accent failed to take place in this dialect. As for Cornish, although there is very little evidence concerning the accent-pattern of the original language (as opposed to the revived language), it would seem that, like in Welsh and most dialects of Breton, primary accent fell on the penultimate syllable and secondary accent on alternate syllables preceding the primary accent.

Armenian

This language has two standard dialects, an eastern and a western dialect, which can each be subdivided into many dialects. Most of these dialects have accent on the final full (= non-epenthetic) vowel (e. g., *yerp^{h}éməп* 'sometimes') but some have accent on the penultimate full vowel (e. g., *kútemnə* 'cress'). In all dialects secondary accent regularly falls on the initial syllable. In words that do not have any full vowels primary accent falls on the initial syllable. The dialects with final accent, then, can be described as LAST/FIRST systems: accent falls on the last syllable containing a full vowel or, if there is no full vowel, on the first syllable. In the few dialects with penultimate accent the situation is more complex. Vaux (1995) presents an analysis of both final and penultimate systems, within an Idsardian framework.

Albanian

Accent in Albanian generally falls on the final syllable of stems, unless this syllable contains a schwa (orthographically <ë>) in which case accent falls on the penultimate syllable. Most derivational suffixes are accent-sensitive. The rightmost suffix will bear the primary accent, while the originally accented syllable will bear secondary accent: *púnë* 'work', *pùnëtór* 'worker'. Certain derivational suffixes (notably all non-verbal suffixes ending in <a, e, o>) and nearly all inflectional suffixes are accent-neutral; when added to a stem they do not change the position of the primary accent. Thus, word accent in Albanian remains invariant throughout the inflectional paradigm of a stem: *mál* 'mountain', *mále* 'mountains', *máleve* 'of mountains'. The definite article, which in Albanian is added to the end of the noun, is also accent-neutral. In compounds primary accent falls on the second member: *zémër* 'heart' + *gjérë* 'broad' = *zèmërgjérë* 'generous'. Phrase-accent falls on the final word in a phrase (cf. Bevington 1974; Newmark 1982).

Romany (Indic), Ossetic (Iranian)

The only Indic language that is spoken in Europe is Romany, the language of the Gypsies. This language of a nomadic people is spoken all over Europe and the Near East. As a result of a long period of separation from the other Indic language Romany has developed many peculiarities of its own, and many regional variants, although all of these are still clearly Indic in their morphology and basic vocabulary. Romany consists of three major mutually unintelligible dialects: Syrian (or Asiatic), Armenian and European (Comrie 1981). The European dialect group in turn consists of a number of subdialects. The dialect

described here is a North Russian dialect. Our description is based on Ventzel (1983).

In Romany, primary accent always falls on the final syllable in underived native stems. In derived words accent only falls on the penultimate syllable of nouns in oblique case forms and in certain inflected verbs: *romés* 'man, Gypsy (nom.)', *romésk*e 'man, Gypsy (dat.)' It would seem then that inflection is mainly accent-neutral. Antepenultimate accent only occurs on adjectives with possessive or diminutive suffixes and abstract nouns. These all have two-syllable suffixes which must be considered to be accent-neutral. Other derivational suffixes seem to be accent-sensitive.

Ossetic (Hayes 1995: 261), an Iranian language spoken in Russia and Georgia, has accent on the initial syllable of the phrase if this syllable contains a long vowel; otherwise the second syllable of the phrase is accented. Accentless short vowels in initial position tend to reduce or delete. The Ossetic accent system thus appears to be weight-sensitive and lacking a word-level accent rule.

7.2.2.3. Non-Daghestanian Caucasian languages

The Caucasian languages fall into four distinct groups; Kartvelian (South Caucasian), Abkhaz-Adeghean (North-West Caucasian), Nakh (North-Central Caucasian) and Daghestanian (North-East Caucasian); the latter two presumably form a subfamily. So far not much has been published on the word prosodic systems of Caucasian languages. In chapter 15, Kodzasov discusses a wide variety of word prosodic systems in the Daghestanian languages, which form the bulk of the Caucasian languages. Here, we will briefly describe the word prosodic systems of some non-Daghestanian languages of the Caucasus.

Abkhaz, Adyghe (North-west Caucasian)

An example of a North-West Caucasian language is Abkhaz spoken in Abkhazia, an autonomous republic of Georgia, as well as in Turkey, and closely related to Circassian. Although the accent system of Abkhaz has not been analyzed in detail, it could be lexical since the position of accent does not seem to be predictable from purely phonological information (Hewitt 1979: 264) and there are numerous minimal pairs distinguished only by the position of accent (e. g., *árac^{w}a* 'plurality', *arác^{w}a* 'coal', *arac^{w}á* 'bark from a walnut tree'). Apparently, two classes of words have to be distinguished: those with non-movable accent, in which accent falls on the same syllable throughout a paradigm, and words with movable accent. Words with non-movable accent are nominal

bases consisting of one closed syllable and nominal bases of more than one syllable with non-final accent. The group of words with movable accent can be subdivided into words with 'progressive' movement of accent (i. e., accent always moves to the final syllable of the word) and words with 'regressive' movement of accent (i. e., accent always moves to the initial syllable of the word). No comprehensive set of rules that determine to which of these classes a word belongs has been established, however.

A second North-West Caucasian language is Adyghe, also called West Circassian. This language is spoken in Turkey, Jordan, Syria, and Israel as well as in the Caucasus. According to Smeets (1984) words "usually have a prominent syllable, but one cannot predict with certainty which syllable will be the accented one". Accent usually falls on one of the final two syllables of the stem. (A stem consists of a root and its affixes, excluding the inflectional endings.) Penultimate accent appears to be the default, as in *seláze* 'I am working'. An unaccented stem-final vowel that occurs in word-final position (i. e., is not followed by any inflectional endings) is often dropped, resulting in final accent at the surface level (*wəbətə́* 'catch it-IMP'). In longer words, a secondary accent often falls on the first syllable, but is not obligatory. In fact, Smeets gives an example of a four-syllable word with five possible accent patterns: penultimate accent, final accent, initial accent, initial secondary and penultimate primary accent, and initial secondary and final primary accent. Not surprisingly with so many options, the functional load of accent is said to be extremely low. In running text words that do not occur in phrase-final position often have no prominent syllable at all. Since accent has no fixed position it can be, and often is, used to emphasize one of the constituent morphemes of a word. This is possible because the language is a highly agglutinative language.

Georgian (Kartvelian)

The main representative of the Kartvelian, or South Caucasian languages is Georgian. According to Aronson (1982) accent in Georgian is very weak, so weak that "linguists have not been able to agree on exactly where it falls". There is no difference in quality between vowels in accented and in unaccented syllables. In words up to three syllables accent falls on the first syllable. In words of four syllables accent is said to fall either on the first or on the second (antepenultimate) syllable, as in *Sákartvelo* ~ *Sakártvelo* 'Georgia'. In words of more than four syllables two accents are reported, one on the first and one on the antepenultimate syllable (*mdgómaréoba* 'situation'). In certain words of more than four syllables the initial accent may optionally drop: *énatmecniéreba* ~ *enatmecniéreba* 'linguistics'. According to M. Butskhrikidze (p. c.) Georgian has initial primary accent.

7.2.2.4. Uralic languages

The Uralic family consists of the large Finno-Ugric subfamily and the Samoyedic subfamily. The term Finno-Ugric languages comprises a group of languages spoken from Scandinavia and Hungary into the Asian part of Russia. The Finnic part contains four language groups: Volgaic, Permic, Balto-Finnic and Samic; the latter two appear to be closely related, forming the northern Finnic group.

Estonian, Finnish, Karelian, Votic, Livonian (Balto-Finnic)
All the Balto-Finnic languages appear to have fixed initial primary accent. When it comes to secondary accent, however, there are a number of differences. In Estonian secondary accents in words that do not contain an overlong syllable "are assigned iteratively from left to right at intervals of two or three syllables" (Hayes, 1995: 317). Whether these intervals consist of two or three syllables depends on the weight of the second syllable following the stressed syllable. If this syllable is heavy (i. e. is closed and/or contains a long vowel) it is accented: *párimàtteltt* (**párimattèltt*), if it is light (i. e., CV) secondary accent may optionally go to the following syllable, causing a ternary rhythm: *téravàmaltt* ~ *téravamàltt*. However, final syllables can only bear secondary accent if they contain a long vowel or are closed by at least two consonants. Thus, both CV and CVC syllables never bear accent in word-final position: **ósavamà*. The fact that CVC syllables behave like CV syllables in final position, whereas they pattern with the heavy syllables word-medially points to final consonant extrametricality in Estonian.

The Estonian accent system is considerably complicated by the phenomenon of overlength. Overlength is analyzed by Harms (1962: 11−12) as a type of "postponed" accent, which occurs only on long syllables and is accompanied by lengthening of the already long syllable. Prince (1980), based on Hint (1973) focuses on the nature of overlength in Estonian, presenting a metrical analysis, as does Hayes (1995).

The accent system of Finnish resembles that of Estonian, but there are some differences. Firstly, Finnish has no overlength, which makes the Finnish system less complex than the Estonian system. Secondly, ternary rhythm in Finnish only occurs when the second syllable following an accented syllable is light and is followed by a heavy syllable, in which case it is not optional but obligatory: *rákastunèita* (**rákastùneita*) 'infatuated lovers'. When the second syllable following an accented syllable is followed by a light syllable there is always binary rhythm, irrespective of whether or not the second syllable is heavy:

ópiskèlija (**ópiskelija*) 'student'. Like Estonian, Finnish does not allow secondary accent on final CV or CVC syllables, which indicates that Finnish, too, has final consonant extrametricality. The Finnish secondary stress pattern has been analyzed by Grijzenhout (1992).

Of the other Balto-Finnic languages, Karelian apparently has a system which is in between Finnish and Estonian (Hayes 1995: 329–330). Like Finnish, it does not have overlength but ternary rhythm appears to be optional as in Estonian. The (nearly) extinct language Votic (Ariste 1968) appears to have secondary accents on odd-numbered syllables. Also, final syllables can take secondary accent irrespective of whether they are heavy or light, except for case suffixes, which are never accented. Livonian is reported by Sjögren (1861) to have primary accent on the first, secondary accent on the third, and tertiary accent on the fifth syllable. Final odd-numbered syllables carry accent, independent of their weight.

Samic

According to Itkonen (1955: 25) the accentual pattern of most Samic (Lappic) languages closely resembles that of the Balto-Finnic languages. Central Norwegian Samic (Northern Sami) has initial primary accent. Secondary accent occurs on odd-numbered syllables. Although a secondary accent has been reported on the third and final syllable of trisyllabic words, it does not seem to occur on the final syllable of five-syllable words. In Sami spoken in Finland, on the other hand, the presence or absence of secondary stress on the third syllable of trisyllabic words is determined by the number of syllables the word originally had. If the word used to have four syllables the third syllable has a strong secondary stress. If the word was originally trisyllabic the second syllable bears secondary stress: *káp'erìst* 'in the hat' (from **küpärästä*) as opposed to *káp-p'èreh* 'the hats' (from **küpärät*).

Komi, Udmurt (Permic)

The Yaz'va dialect of the Eastern Permic language Komi-Zyryan is an example of an unbounded weight-sensitive FIRST/LAST system. Accent falls on the leftmost heavy syllable, and if there is no heavy syllable on the rightmost syllable. The notion weight is rather complex in Komi-Zyryan, however. Apparently "all non-high vowels behave as heavy, while most high vowels are treated as light in some instances and heavy in others" (Hayes 1995: 297).

In western Permyak, or Komi-Permyak, there are certain dialects which resemble the Zyryan system, but there are also dialects which have a completely

different type of accentuation. In these dialects the position of the accent cannot be predicted by phonological rules only but is partly morphological. Accent always occurs on the stem, suffixes are never accented. Thus, minimal pairs can occur, like *juán* 'a drink' vs. *júan* 'you drink' (Itkonen 1955).

In Udmurt (or Vortyak) words have final primary accent, and sometimes a secondary accent on the first syllable: *kòrkajosmí* 'our room' (Itkonen 1955: 30). This, for a Finno-Ugric language unusual, accentual pattern may be explained as being caused by the influence of Turkic languages, especially Tatar.

Mordvin, Mari (Volgaic)

The two languages within the Volgaic group of Finno-Ugric languages are Mordvin and Mari (also called Cheremis). The accent systems of both these languages are described by Kenstowicz (1994). The Mokshan dialect of Mordvin has two groups of vowels that behave differently with respect to accent: the 'narrow' vowels (/i u ə/) and the 'wide' vowels (/e o ä a/). According to Tsygankin and Dabaev (1975: 32–33) wide vowels attract word accent, i. e., they function as heavy syllables for the purpose of accent assignment. Accent falls on the first syllable containing a wide vowel. In words with only narrow vowels, accent falls on the initial syllable: *tucʲáńʲä* 'cloud', *púvəndəms* 'to press'. The Mokshan system is thus an example of an unbounded weight-sensitive FIRST/FIRST system. Just like in Komi, weight is determined by vowel quality rather than quantity. It is interesting to note that the Erzyan dialect of Mordvin does not distinguish between heavy and light syllables but simply has fixed initial accent.

In Mari the position of accent is also conditioned by vowel quality. Mari distinguishes full and reduced vowels, full vowels acting as heavy for the purpose of accent-assignment. In Literary Mari accent falls on the last full vowel and in words with only reduced vowels on the initial syllable. Literary Mari is thus an example of an unbounded weight-sensitive LAST/FIRST system, the mirror image of Komi. One complicating factor in Literary Mari is that final open syllables are never accented. We must assume that these are extrametrical.

In the northwestern dialect of Mari all final syllables reject accent. Accent falls on the last non-final syllable containing a full vowel, and if all non-final syllables in a word contain reduced vowels accent falls on either the first or the second syllable, apparently depending partly on whether the reduced vowel is rounded or unrounded.

Hayes (1995: 297) lists Western Mari as an example of a LAST/LAST system with final extrametrical syllables, but this is probably due to a misinterpretation of examples like *tɔvórgaš* 'to curdle', in which accent falls on the last

syllable if one disregards the extrametrical final syllable. However, examples like *mɔrɔ́ktɔlaš* 'to thunder', show that it is the second not the last syllable that is accented. Moreover, examples with the unrounded reduced vowel /i/ show that accent may fall on either the initial or the second syllable: *tsɪtɾäš* ~ *tsɪ́tɾäš* 'to shake-REFL'. Hence, it would seem more accurate to classify Northwestern Mari as another example of a LAST/FIRST system, albeit with some complications.

The easternmost dialects of Mari, being strongly influenced by Tatar, show a tendency for word-final accent (Itkonen 1955).

Hungarian (Ugric)

The only Ugric language that is spoken in Europe is Hungarian, the other two members of the Ugric group, Khanty and Mansi, being spoken in Western Siberia. Hungarian is not only geographically far removed from the other two, but also linguistically.

Primary accent in Hungarian is fixed on the initial syllable. According to Varga (1994: 234) a primary accented syllable has extra intensity and can carry the intonational pitch-accent. Secondary accented syllables also have extra intensity but can not be linked to intonational accents. There is some controversy as to the position of secondary accent in Hungarian. Szinnyei (1912) and Lotz (1939) describe secondary accent as falling on the third and fifth syllable or (if the third syllable is light) on the fourth and sixth syllable, but never on the last syllable. This would be a pattern very close to that of Finnish. On the other hand, the system described by Balassa (1890), Hall (1938) and Sövijarvi (1956) is completely weight-insensitive with secondary accent on odd-numbered syllables following the primary initial accent. According to Hammond (1987) the non-primary accents are not all of equal intensity. He states that secondary and tertiary accents alternate, secondary accents occurring in odd-numbered non-initial feet. On this ground he postulates an intermediate level between the foot and word level in Hungarian, the so-called "cola". In his examples odd-numbered syllables in final position do bear accent: *mégvestègethêtetlèneknêk* 'unbribable (ones)' (secondary accent is marked /ˆ/, tertiary accent /ˋ/). The difference in the descriptions may, according to Hayes (1995), represent a dialect split.

Nenets (Samoyedic)

Samoyedic is one of the two major branches of the Uralic language group, the other branch consisting of the Finno-Ugric languages. The speakers of the three

Samoyedic languages Nenets (Yurak), Nganasan and Selkup live scattered across large areas of Northern and Central Siberia. Of these only Nenets extends into Europe. It is spoken across a vast area stretching from the White Sea in European Russia to the delta of the Yenisei river in Asia. Décsy (1966) describes the position of accent in Nenets as follows: "Stress usually falls on one of the first, second, third, fifth, or seventh syllables". Since he presents only two-syllable examples it is not quite clear how this description should be interpreted. That the position of accent cannot be entirely predicted from phonological factors appears from minimal pairs like: *téva* 'tail, stern' and *tevá* 'to reach'. According to Décsy vowels in unaccented syllables are often pronounced 'unclearly' (reduced, weakened). Selkup, related to Nenets, has been described as a FIRST/FIRST system (e. g., Idsardi 1992). We will not include Nenets in our typological and areal survey below.

7.2.2.5. Altaic languages

The Altaic languages are divided into three main groups: Mongolian languages, Turkic languages, and Tungusic languages. Of these, only one Mongolian language (*Kalmyk*) and about half of the Turkic languages are classified as European languages. The main emphasis in this section on the Altaic group will therefore be on the Turkic languages.

Bashkir, Tatar (Western Turkic)

According to Poppe (1960), the situation is reversed in the Turkic languages. The musical tone on the final syllable is much stronger than in Mongolian and the stress-accent is much weaker. Because of the prominence of the final tone, Turkic languages are usually regarded as having final (pitch-)accent.

Bashkir, a Turkic language spoken in the autonomous Republic of Bashkir in the Russian Federation, for instance, is described by Poppe (1964) as having final accent in its native vocabulary (loanwords from Arabic, Persian and Russian, among other languages, keep their original accent pattern). When suffixes are added to a stem the accent shifts, with a small number of exceptions, to the latter. When several suffixes are added the last one takes the accent: *kitáp* 'book', *kitaplár* 'books', *kitaplarïbíð* 'our books', *kitaplarïbïððán* 'from our books'. The same holds for *Tatar*, a language spoken in Tatarstan and adjacent areas within the Russian Federation, e. g., *balá* 'child', *balalár* 'children', *balalarə́* 'his children'.

Turkish (Southern Turkic)
Common Turkish is the most intensively studied of the Altaic languages. Its accent system has been described by many different linguists using many different theoretical frameworks. One of the latest studies is Inkelas (1995). The examples presented here are taken from that study. Turkish accent generally falls on the last syllable of the word, except if the word contains one of a small number of lexically accented or pre-accenting suffixes, or when the root is lexically accented, as in *penére* 'window'. When a lexically accented root occurs with a lexically accented or pre-accenting suffix, like -'mı 'interrogative', the word accent falls on the first lexical accent, the one on the root: *penjéremi* 'window-INT'. This indicates that it is indeed the first 'special' syllable that is accented. If there are no special syllables the last syllable is accented. Turkish can thus be described as a lexical accent sensitive FIRST/LAST system (cf. chapter 1, section 3.3 for a more detailed description).

Chuvash (Bolgar)
A rather divergent Turkic language spoken in the Chuvash Autonomous Republic in the Russian Federation, has an accentual system that is remarkably similar to that of Armenian (cf. § 7.2.2.2). The accent falls on the last syllable of a word unless this contains a reduced vowel /ĕ, ă/, in which case it falls on the last syllable that has a full vowel: *sarlaká* 'widely', but *álăk* 'door'. If a word has only syllables containing reduced vowels accent falls on the first syllable: *tă̊tămăr* 'we got up'. Thus, Chuvash can be analyzed as a LAST/FIRST system, in which full vowels count as heavy (cf. Krueger 1961 and Hayes 1995).

Kalmyk (Mongolian)
According to Poppe (1960) a distinction should be made between accent (increased loudness) and tone in Mongolian languages. Accent appears to be quantity sensitive and unbounded, falling on the first syllable containing a long vowel or diphthong, and in a word with only short vowels on the first syllable; this points to a FIRST/FIRST system. For Khalkha and Buriat, two non-European Mongolian languages, this analysis was later revised, however (cf. Poppe 1970; Walker 1995). These languages are claimed to have a LAST/FIRST rather than a FIRST/FIRST system, but this is obscured by the fact that final syllables never have stress if another heavy syllable occurs in the word, e. g., Khalkha *morióoroo* 'by means of his own horse', leading to the mistaken idea that this is a FIRST/FIRST system. Examples like Khalkha *ulaanbaatríinxan* 'the residents of Ulaanbaatar', however, show that stress does not fall on the first heavy syllable, but rather on the last heavy syllable as long as that syllable does not

occur in word-final position. It is possible that this same pattern is present in Kalmyk as well. According to Poppe (1960), a weak "musical tone" always occurs on the final syllable.

7.2.2.6. Semitic languages

The only two Semitic languages spoken in Europe are Assyrian (spoken in Iraq, Iran, Turkey, Georgia, Armenia, and Azerbaijan), and Maltese (spoken on the island of Malta).

Assyrian
In Assyrian, accent is usually placed on the penultimate syllable, as in *ärmíltä* 'widow'. When a suffix is added, accent moves to the newly formed penultimate syllable. Final accent occurs in plural feminines and in plurals indicating place of origin. In both these cases two syllables have collapsed (*hatvái* 'sisters' < *hatváti*; *urusnái* 'Russians' < *urusnáii*). Loanwords are mostly accented on the penultimate syllable, but some Turkish loanwords are accented on the final syllable. Accent affects the quality and the length of vowels (cf. Tsereteli 1978).

Maltese
Maltese has a weight-sensitive system in which accent falls on the final syllable if it contains a long vowel or diphthong or is closed by two consonants, and otherwise on the penultimate syllable. Maltese thus has final consonant extrametricality and a weight-sensitive trochaic pattern (Brame 1974).

Only in "learned formations or loan words which have not adapted themselves to the genius of the language" (Sutcliffe 1936) can accent occur before the penultimate syllable. Examples are loan words from Italian, such as *stúpido* 'stupid'. When suffixes are added to a Maltese stem, the accent may shift. If the suffix consists of only a consonant and is added to a syllable closed by one consonant, accent will shift from the penultimate to the final syllable: *bájjad* 'he whitened', *bajjádt* 'I whitened'. When a whole syllable is added accent will shift to the newly formed penult, as in: *sállab* 'he crucified', *sallábna* 'we crucified'. If the suffix contains a long vowel, accent will shift to the final syllable: *ħallíel* 'thief', *ħallelín* 'thieves'. Accent in Maltese (as in all Semitic languages) is closely linked to vowel quality and syncope. A long vowel which loses its accent because of suffixation becomes short, a diphthong loses its glide. Short unaccented /e/ on receiving the accent generally changes to long /i:/. Unaccented /a/ in an open syllable on receiving the accent will change into the

diphthong /ie/. Vowels in unaccented syllables are often dropped. Thus, Italian *govérno* 'government' has become *gvern* in Maltese. Similarly, in verbs with a short vowel in the first syllable, this vowel drops when accent shifts to the right, as in: *sama'* 'he heard', *smajt* (<*sama'* + *-t*) 'I heard'. However, when a word has a short unaccented vowel in the stem-final syllable it is this vowel rather than the originally accented one which is dropped when a syllable is added to the stem. In these cases accent does not shift because the originally accented syllable is still in penultimate position (unless of course the suffix has a long vowel in which case the accent shifts to the new final syllable): *tfájjel* 'small boy', *tfájla* (< *tfajjel* + *-a*) 'small girl'. Hence, we need two syncope rules in Maltese, one that takes place before accent shift and affects only short unaccented vowels in stem-final syllables in the context of a newly added syllable, and one that takes place after accent shift and affects short vowels in all other contexts.

7.3. Classification by type

In this section we offer summaries and classifications that treat all the systems discussed so far together, i. e., those discussed in this book (summarized in § 7.2.1) and those that we briefly sketched in § 7.2.2.

Firstly, we offer a summary of each language family (§ 7.3.1), allowing ourselves in some cases to make comparative observations in those cases where relevant languages have been treated by various authors in the previous chapters, or to comment on the accentual changes that may have led to the attested diversity. Of course we are aware of the fact that accentual change is a highly complicated topic. With respect to all language families as well as to more global perspectives many specialized works have been written, defending sometimes opposite or at least incompatible reconstructions and historical scenarios. In this section we make no attempt to evaluate the specialized literature; we refer to chapter 6.9.

Secondly, in § 7.3.2, we turn to a typological and areal classification.

7.3.1. Classification by type per (sub)family

Indo-European: Germanic languages

The Germanic languages must be subdivided into two groups with respect to accent. The first group consists of Icelandic and Faroese which have retained the old Germanic system of initial weight-insensitive accent. In all other Ger-

manic languages, a synchronic analysis leads to postulating a right edge, quantity-sensitive system. Within this group, English occupies a special position, differing from the other members in several ways. Firstly, although all Germanic languages allow antepenultimate accent, only in English extrametricality can be said to be a systematic part of the system, at least in the nominal system. A second difference involves the definition of syllable weight. In English closed syllables and syllables with long vowels count as heavy, whereas in the other languages only syllable closure appears to perform this role. The latter difference may be dependent on the phonological character of tense vowels in the various languages. It has been argued, for example for Dutch (van Oostendorp 1995) and German (Vennemann 1992) that tense vowels are not long. If this route is taken, the difference between the systems of the Germanic languages (except Icelandic and Faroese) are thus very slight (involving extrametricality only) and partly caused by independent differences in segmental inventory between the languages.

Chapter 6 offers an historical perspective on the accentual systems of the modern Germanic languages, taking the (root) initial primary accent of Proto-Germanic as a point of departure.

Indo-European: Romance languages

The Romance languages are the most uniform group in the Indo-European family with respect to accent. Except for French, they all have the same basic system with only very slight language-specific deviations. Basically, accent occurs on one of the final two syllables of the stem. Synchronically the exact position is not always predictable because syllable quantity distinctions in Latin have not carried over into the Romance languages, although the Latin accent pattern has been retained. Thus, the position of accent in the modern languages must be governed by some sort of accent rule. According to some researchers, French seems to lack a word accent rule, accent being more of a phrase-final phenomenon.

In § 7.2.1 we already offered a family-based summary (following the design of chapter 10), we will not repeat that here. Again, we refer to chapter 6 for a study of the historical changes from Early Italic to the modern Romance languages.

Indo-European: Balto-Slavic languages

The Balto-Slavic languages show a great diversity of accentual systems, ranging from very complex ones (in which word accent is based on tone) to very simple edge-based accent systems. There seems to be a significant split into languages

in which word accent is bounded and usually purely edge-based (i. e., weight-insensitive) and unbounded systems. Czech, Slovak, Sorbian, Polish, and Macedonian belong to the former category while Russian, Ukrainian, Byelorussian, Bulgarian, Serbian, Croatian, Slovene, and Lithuanian belong to the latter. Only the now extinct languages Polabian and Kashubian (Slovincian) are somewhat difficult to classify, but it would seem that the latter was probably unbounded (LAST/FIRST), whereas the former could be the only example of a right-edge bounded weight-sensitive system (PENULT/FINAL).

Within the group of languages that have bounded accent a division can be made between systems in which accent is assigned to the left edge of the word and those where the position of accent must be determined with respect to the right edge of the word. The first group comprises Czech, Slovak, Sorbian and Latvian, all with fixed initial accent. Polish and Macedonian, with penultimate and antepenultimate accent respectively, and Polabian with weight-sensitive penultimate/final accent make up the second group of bounded systems.

The weight-sensitive unbounded systems can also be subdivided, depending on the criterion for weight. Serbian, Croatian, Slovene, and Lithuanian (as well as Slovincian) are usually analyzed as pitch-accent systems (but see Dogil, chapter 12, this volume, for an analysis of Lithuanian as a lexical accent system). In such systems the position of word accent is dependent on tone, which is itself analyzed as either lexically present, or as assigned to lexical accent marks; cf. chapter 1.5). See Zec (1995) for an analysis of Neo-Stockavian in which the position of the lexical tone/accent is predictable from phonological and morphological information).

The East-Slavic languages and Bulgarian are languages in which weight is "diacritic" (cf. chapter 1.2.2.2). Thus the position of accent must be specified lexically for an important part of their vocabulary. Systems of this kind are usually called lexical accent systems.

The diversity of the stress patterns of Slavic languages has always been a challenge to typological and historical linguistic research. The endeavour has been to find a common core for languages which:

i. show quantity (or pitch) sensitivity (apparent in by now extinct Polabian and marginal in Slovincian (West Slavic), and clearly present in Slovene and Serbo-Croatian (South Slavic));

ii. show quantity insensitivity with a syllabic trochee as a basic foot type, like Polish, Czech, Slovak, Sorbian, Macedonian and Kashubian;

iii. show prosodic marks on specific – mostly lexically designated – morphemes (Russian, Ukrainian, Byelorussian (East Slavic); Bulgarian, Slovene, Serbo-Croatian (South Slavic)).

The traditional reseach into Slavic accentology has attempted to reconstruct the diversity of the observed system in a single proto-system (cf. Kuryłowicz 1952; Stang 1957; Garde 1976; Dybo 1981; Stankiewicz 1993). Most of the researchers (see Stankiewicz 1993 for a different position) see such a proto-system in the vicinity of the accentual system as represented by the Baltic languages, and particularly Lithuanian. The main accentual properties of historical Baltic (and present day Lithuanian) are rich enough to comprise the parameters found in the Slavic accentual systems:

- Lithuanian has "accent" realizations ('acute' and 'circumflex') which are quantity-sensitive (see i above)
- dialects of Lithuanian, and particularly Latvian, show regular foot based fixed accent locations (see ii above)
- Lithuanian possesses a wide range of root morphemes, which have an ability to receive and preserve accent location in a paradigm, as well as affixal morphemes, which may exert an influence on the accentual properties of stems (see iii above).[9]

Indo-European: Celtic languages

The Celtic languages that are still (or were until quite recently) alive can be divided into two groups with respect to accent: those in which accent is assigned from the left edge of the word and those in which it is assigned from the right edge. Interestingly, this division corresponds with the split into what are normally called Goidalic (Gaelic) and Brythonic languages. Apparently the Goidalic languages have retained the older Celtic system with initial accent whereas in the Brythonic languages accent has shifted to the right, much like in the Germanic language group where the same kind of division between left-edge and right-edge systems is found (cf. Thurneysen 1883–1885; Loth 1890; Wagner 1987; Schrijver 1995). Brythonic Celtic then underwent a shift to the penultimate syllable, which as a result of apocope in proto-Brythonic became the final syllable (preserved in the Gwenedeg (or Vannetais) dialect of Breton). At a subsequent date (about AD 1000) the accent shifted to the penultimate syllable (if present), thus restoring the older state of affairs, but leaving a "trace", i. e., a perceptually quite salient pitch characteristic, on the final syllable.[10] Although most Celtic dialects have a basically weight-insensitive system, Munster Irish and Manx show quantity-sensitivity.

Basque

The Basque dialects present a great diversity of word-prosodic systems, especially when one takes into account the size of the area in which Basque is

spoken (only about 135 × 35 km.). The Basque word-prosodic systems range from lexical pitch-accent and stress-accent systems in the Western dialects to weight-insensitive accent on the second syllable in some Central Basque dialects and weight-insensitive accent on the penultimate syllable in Eastern dialects. Thus, there is not only a distinction between different accent realizations and between weight-sensitive and weight-insensitive systems, but also, within the weight-insensitive accent systems, accent can be assigned from either the right or the left edge. This enormous variety in such a small territory is reminiscent of the situation in the Caucasus.

Perhaps the most important contribution to the study of Proto-Basque accentuation has been made by Michelena (1958, 1977). Michelena observes that the aspiration in Basque dialects with this feature almost never falls beyond the second syllable of the word. With the same suffix, we find alternations between forms with and without aspiration, as in *sor-thu* 'to be born' vs. *ager-tu* 'to appear', depending on the position of the suffix with respect to the beginning of the word. From these and other facts, Michelena concludes that aspiration was linked to prosodic prominence in Proto-Basque and that the accent fell on the second syllable of the word at the stage he reconstructs (the first centuries of our era). Then, he shows how the systems with penultimate accent found nowadays in eastern dialects could have derived from his reconstructed system. Not all present-day Basque accentual systems, however, appear to be derivable from Michelena's reconstruction. In particular, the western accentual type cannot easily be derived from Michelena's reconstructed system and, in fact, is incompatible with it (Hualde, to appear). This is because old borrowings from Latin and Romance accented on the second syllable, such as *kipúla* 'onion', present an anomalous accentual pattern in western varieties. This would not be the case if at the time of the borrowing post-initial accentuation was the regular pattern. The western Basque accentual type can be derived, instead, from an earlier system without contrastive accentuation, where the word or phrase-final syllable received accentual prominence (Hualde 1993).[11]

Caucasian languages

The Caucasian languages exhibit a great variety of word prosodic systems. From purely tonal systems in the northern Daghestan languages to bounded weight-sensitive accent systems. In those Caucasian languages that have accent, its position may be lexical (Abkhaz), determined by pitch-accents or tone (Avar, Godoberi), quantity sensitive (Lezgian), sensitive to vowel-quality (Archi), or fixed (Tsakhur). Both bounded and unbounded systems occur. In some of the languages accent seems to fluctuate (West Circassian), in others it is so weak that there is no agreement among linguists as to where it occurs (Georgian).

There even appear to be Caucasian languages in which not only the position but the very presence of accent is lexically determined (Bagvalal). Thus, examples of most types of word prosodic systems can be found in the Caucasus.

The great typological diversity of accentual systems raises the question about the prosodic system of the proto-language. So far there has been no attempt to reconstruct this system and to follow its evolution into the modern systems. With respect to the Daghestanian accentual systems, only a very tentative opinion on the topic was expressed in a recent fundamental work written by Nikolajev & Starostin (1994). They believe that the prosodic type presented by such Northern languages as Andi and Akhvakh (no stress, syllabic tones, open syllables) is the oldest. Stress seems to be a rather late development. Arising in the North, it reflected the inherent tonal structure of words (i. e., tonal and quasi-tonal properties). Arising in the South, it was oriented towards the edge and quantity sensitive. This difference is probably due to the fact that the inherent prosodic structure of words was already different in these two groups at the moment that stress arose.[12]

Uralic languages

Most of the Uralic languages (the Balto-Finnic languages, Samic and Hungarian) have fixed initial accent. In the Volgaic languages accent is weight-sensitive (weight being determined by vowel quality) and unbounded in most dialects. The default is the initial syllable (in one of the dialects of Mari, the initial or the second syllable). One of the dialects of Mordvin has weight-insensitive initial accent. The Permic languages are the odd ones out with respect to accent. Komi-Zyryan and some dialects of Komi-Permyak have weight-sensitive systems that resemble the systems of the Volgaic languages. The default here, however, is final accent. Komi-Permyak also has dialects in which accent is partly morphologically determined. In Udmurt accent is final, with secondary accent on the initial syllable. According to Itkonen (1955) this is due to the influence of the Altaic language Tatar, which has final accent. It is, of course, possible that Komi dialects with default final accent have also been influenced by surrounding Altaic languages. It seems clear at least that initial accent is the unmarked option in the Finno-Ugric languages. Due to lack of data on the Samoyedic accent systems it is not clear if initial accent plays an equally important role there. Primary accent in the Finno-Ugric languages is either weight-insensitive or sensitive only to vowel quality (except in some Permic dialects). Secondary accent, which occurs only in the languages with weight-insensitive primary accent, may be sensitive to vowel length and syllable closure.

According to Sammalahti (1987) primary stress was on the first syllable in Proto-Uralic as in most present-day Uralic languages. Secondary stress fell on

non-final odd-numbered syllables. Through vowel reduction and an accompanying rejection of stress by these reduced vowels, the unbounded systems of the Volga region (Mordvin, Mari) came into being. Bereczki (1987) suggests that the LAST/FIRST system of Mari originated through the influence of the Turkic language Chuvash.

Altaic languages

The European Altaic languages all appear to have unbounded systems. The Mongolian languages would seem to have initial accent as the default option, whereas the Turkic languages have final default accent. According to Poppe (1960) these different systems have developed from a common source which had accent on the first heavy syllable and a musical pitch-accent on the final syllable. In the Turkic languages the final pitch-accent has apparently attracted the default accent.

Chuvash, also a Turkic language, is quite different. It shares the default initial accent with Mongolian, but has reversed the heavy syllable clause. Chuvash is also divergent in that the position of accent is dependent on vowel quality. It may have inherited some features of the Volgaic (Uralic) languages, which are its neighbors geographically. This would mean that there has been a mutual influence between Chuvash and Cheremis, Cheremis having inherited the LAST value from Chuvash, while Chuvash has inherited the default FIRST value from Cheremis. In the Volgaic languages, accent is also determined by vowel quality. One of the Volgaic languages, Mari, has a LAST/FIRST system, the other, Mordvin, has a FIRST/FIRST system.

The occurrence of unbounded systems in geographically close, but genetically unrelated languages strikes one as an areal feature.

7.3.2. Classification by accent location

In this section we offer an overview of the European word prosodic systems by type, focusing on accent location. We present two diagrams, one with the bounded systems and one with the unbounded systems. In these diagrams only the position of the primary stress is indicated. The diagrams are not completely exhaustive. Some of the languages mentioned in this chapter cannot be classified because we do not have enough information about the accentual system (e. g., Tatar, Nenets), and some just do not seem to fit into the diagram. This is the case for some of the Caucasian languages in which the very presence of stress appears to be lexically determined. The languages that we could not classify with reasonable accuracy have not been included in the diagrams.

The accentual systems can be divided into those with fixed, weight-insensitive accent, and those with weight-sensitive accent. The weight-sensitive systems, in turn, can be subdivided into quantity-sensitive systems, tone-sensitive systems, and diacritic weight-sensitive systems. The term quantity-sensitive here refers to those systems in which the position of the accent is sensitive to vowel length, syllable closure, or vowel quality. Tone-sensitive systems occur in tone or pitch-accent languages in which accent occurs on, say, the first or last syllable with high pitch. Diacritic weight-sensitive systems are those in which the position of the accent cannot be determined by purely phonological information, but is at least partly lexically determined. All these accentual systems may have extrametrical syllables at word edges. For some systems more than one analysis is possible. In these cases one of the options is represented in the diagram, while the alternative is indicated in a footnote.

The bounded systems may have left-headed (LH) or right-headed (RH) feet. Feet may be assigned from the left (LR) or from the right (RL) word edge, with concomitant promotion of the leftmost or rightmost foot. Thus, a language with bounded weight-insensitive stress, in the LR, LH column has fixed initial stress (e. g., Czech). A quantity-sensitive system with RL, LH feet has stress on the final syllable if it is heavy and otherwise on the penultimate syllable (e. g., Maltese).

The unbounded systems are usually weight-sensitive with a default option in case no "prominent" syllables occur. Latvian is an exception with its weight-insensitive unbounded system. In this language only the default option is used in accent assignment, resulting in fixed initial stress. The reason that we have classified Latvian as an unbounded system is its close relation to Lithuanian, an unbounded FIRST/FIRST system combined with the fact that Latvian lacks the rhythmic secondary accent which is usually considered the phonetic manifestation of bounded foot structure. The weight-sensitive unbounded systems have accent on the left- or rightmost prominent syllable and if there is no prominent syllable on the right- or leftmost syllable. This results in four possible combinations: FIRST/FIRST, FIRST/LAST, LAST/FIRST and LAST/LAST. We have found no instances of the latter type of system, although Slovene with its FIRST/LAST/LAST system comes close. The other three systems are all attested in European languages.

7.3.3. Classification by area

In this section we present four maps of Europe in which the different accentual types are indicated by means of shading. Map 1 shows the areas in which pitch-accent or tonal systems occur. Maps 2–4 focus on accent location and the

	Bounded systems																	
	Weight-sensitive												Weight-insensitive				Extrametricality	
	Quantity				Tone				Diacritic									
	LR (ER:L)		RL (ER:R)		LR (ER:L)		RL (ER:R)		LR (ER:L)		RL (ER:R)		LR (ER:L)		RL (ER:R)			
	LH	RH	LH	RH	LH	RH	LH	RH	LH	RH	LH	RH	LH	RH	LH	RH	left	right
Icelandic/Faroese													X					
Other Germanic langs.			X															X[a]
French																X		X[b]
Other Romance langs.									X[c]									X
Czech/Slovak/Sorbian													X					
Polabian	X																	
Polish															X			
Macedonian															X			X
Greek											X							X
Munster Irish/Manx		X?																
Scots and Irish Gaelic													X					
Brythonic Celtic															X			
Albanian			X[d]															
Romany																X		
Ossetic		X																
Lekeitio Basque											X					X[e]		
Central Basque														X				X
Hondarribia Basque			X															
Old Labourdian B.															X			
Akhvakh (Daghestan)					X													

Lezgian (Daghestan)	X								X[f]	
Archi (Daghestan)		X[g]								
Tsakhur				X[h]						
Adyghe					X					
Georgian							X			X
Assyrian							X			
Maltese			X							
Balto-Finnic/Lapp						X				
Udmurt								X		
Hungarian						X				

Notes

a: In a number of the Germanic languages extrametricality is ‘late’ and applies to monosyllabic final feet, i.e., heavy final syllables.

b: In the Romance languages final extrametricality generally applies to desinences only. There are exceptional forms that have to be lexically marked as having a final extrametrical syllable. French is exceptional in that all final syllables with a schwa are extrametrical.

c: In the Romance languages (except French) stress may fall on the stem-final or penultimate syllable. This variation is a remnant of Latin quantity sensitivity. Roca treats stem-final stress, which is predominant, as being induced by the Romance Accent Rule (RAR). Words that are lexically marked [-RAR] do not undergo this rule and get stem-penultimate stress, because the Romance foot is leftheaded by default (except in French).

d: Only final syllables containing schwa count as light. Thus, Albanian has final stress unless the final syllable has a schwa. This could also be analyzed as extrametricality of final schwallables (cf. French).

e: Lekeitio Basque has a very unusual system of ‘displaced accents’. If a word has a lexical accent on any of its morphemes the penultimate syllable will be accented, if no lexical accents occur in the word it gets final accent in phrase-final position.

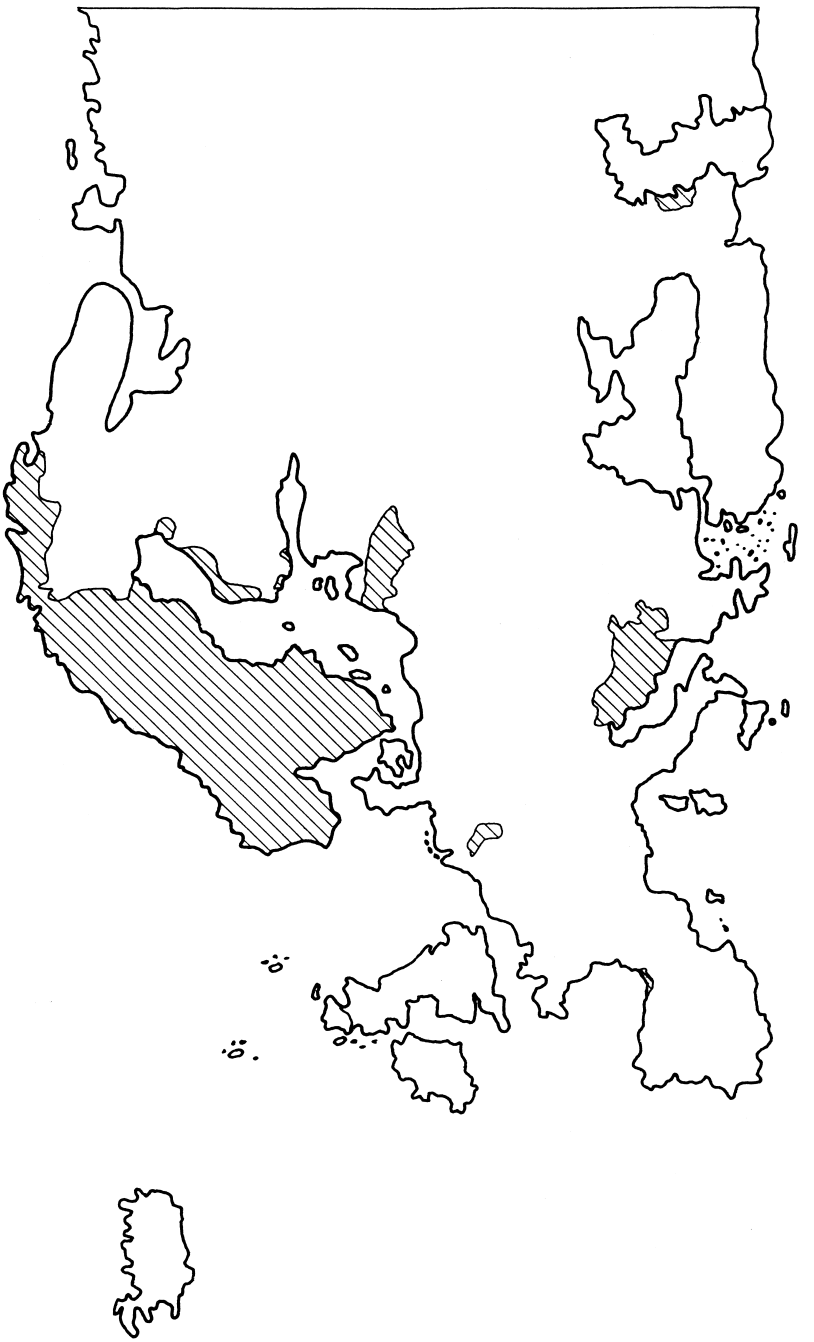
f: In Lezgian light initial syllables are extrametrical, heavy initial syllables may or may not be extrametrical. Thus, there is a certain amount of lexical marking as well as quantity-sensitivity.

g: Archi could also be analyzed as having extrametrical light initial syllables and trochaic feet, like Lezgian.

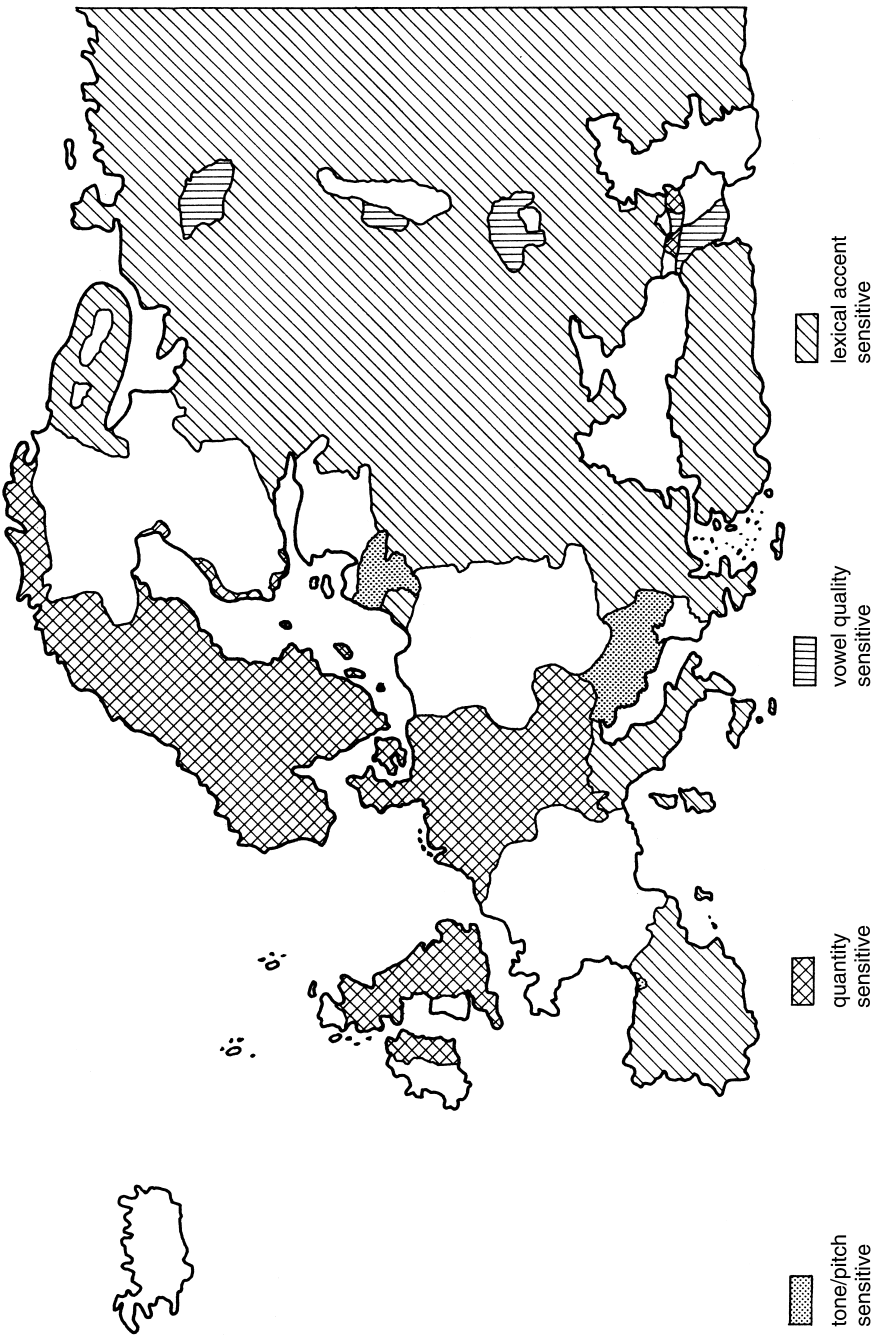
h: Tsakhur has fixed final stress, but can still be analyzed as sensitive to vowel quality like the related languages Lezgian and Archi, since in Tsakhur the ‘heaviest’ vowel always occurs in the final syllable.

	Unbounded systems									
	Weight-sensitive						Weight-insensitive (default weight-sens.)		Extrametricality	
	Quantity		Tone		Diacritic					
	left	right	left	right	left	right	left	right	left	right
Slovene			X[i]	X				X		X[j]
Serbian/Croatian			X				X			X
Slovincian (Kashubian)						X	X			
East-Slavic/Bulgarian					X[k]		X			
Lithuanian					X		X			
Latvian							X			
Armenian		X					X			
Gernica Basque						?		X[l]		
Godoberi (Daghestan)			X					X		
Turkish					X			X		
Chuvash		X[m]					X			
Kalmyk	X						X			
Komi	X							X		
Mokshan (Mordvin)	X						X			
Literary Mari		X					X			

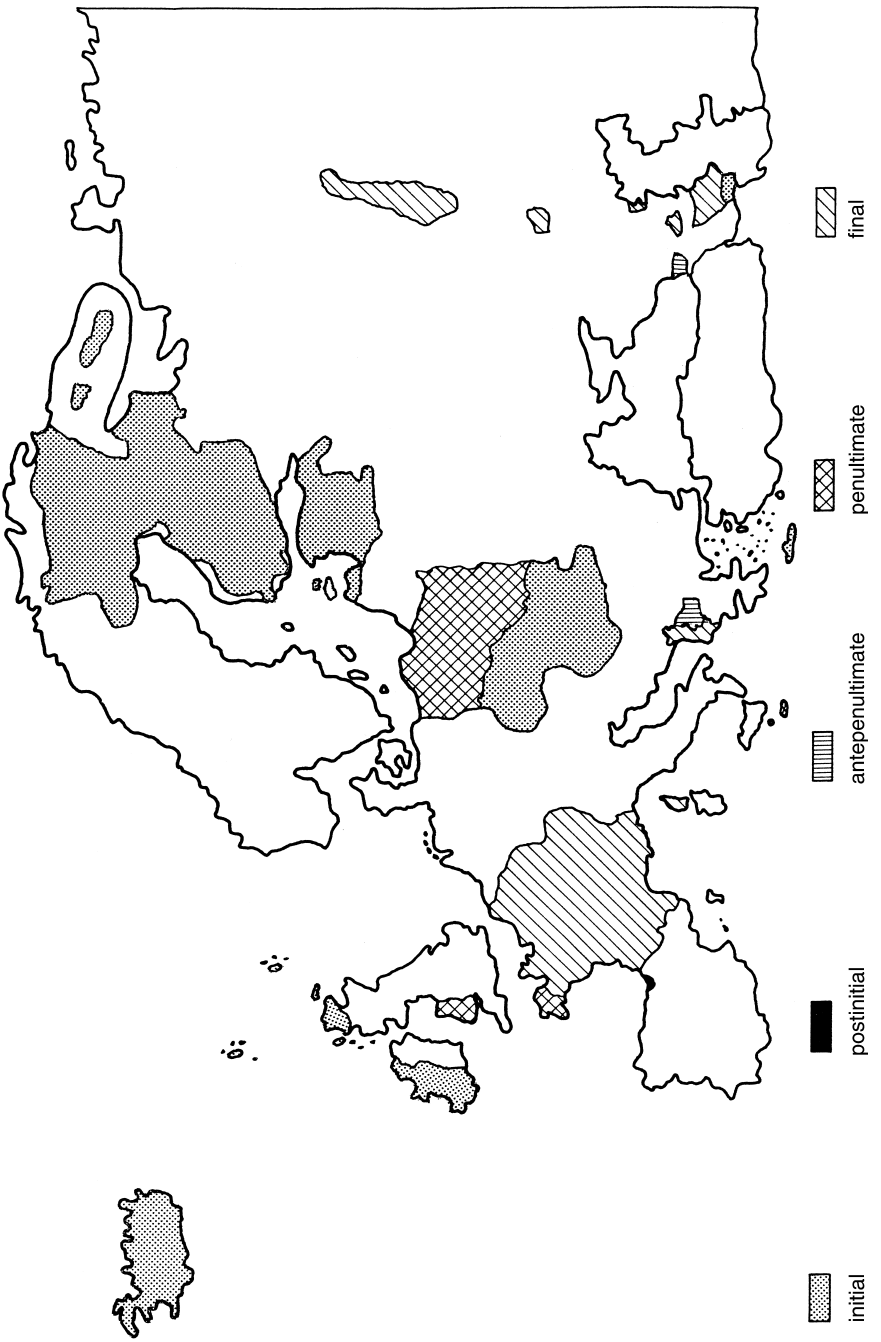
i: Slovene has a first/last system: stress falls on the first 'strong' low tone, or on the last tone, or on the last syllable.
j: In Slovene as well as Serbian and Croatian a levelling process has been moving stress from the final (desinential) syllable to the penultimate (stem-final) syllable in certain environments. This can be described as extrametricality of the final desinence in these environments.
k: See for an alternative analysis chapter 11.4 on Russian.
l: The default is only assigned in phrase-final position.
m: In Chuvash as well as the Permic and Volgaic languages stress is sensitive to vowel quality rather than quantity.



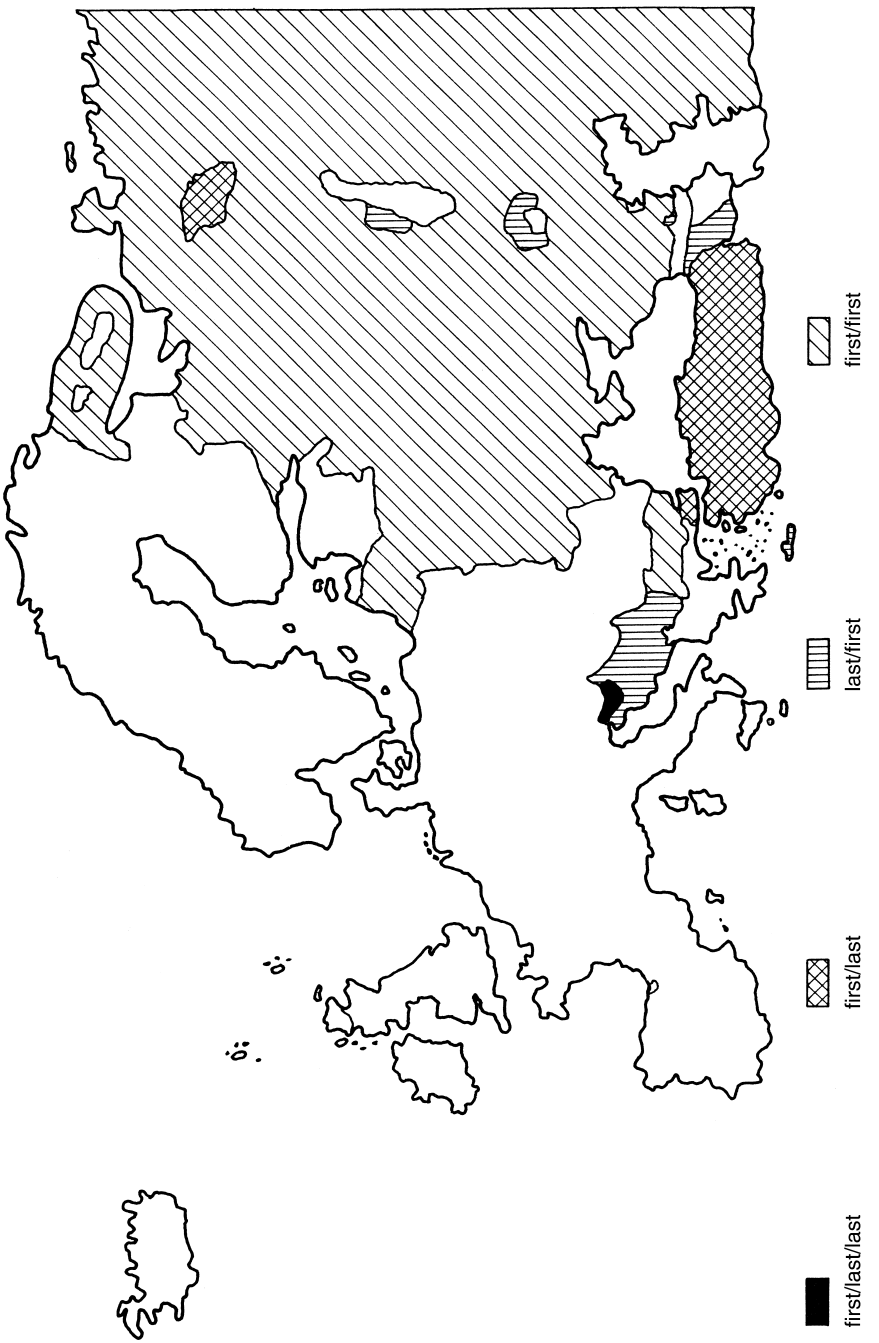
Map 1. Pitch-accent/time systems in Europe.



Map 2. Weight-sensitive system in Europe.



Map 3. Weight-insensitive system in Europe.



Map 4. Unbounded systems in Europe.

factors that can influence the position of primary accent, such as quantity, vowel quality, tone, and diacritic weight. Map 2 shows the geographical distribution of weight-sensitive systems, separated out into syllable quantity-sensitive systems, vowel quality-sensitive systems, tone-sensitive systems, and diacritic-weight-sensitive systems. The areas that are unshaded have fixed accent location. These are shown in Map 3, which gives an overview of the distribution of fixed initial, pen-initial, antepenultimate, penultimiate and final accent. Map 4 shows the unbounded weight-sensitive systems, distinguishing between FIRST/FIRST, FIRST/LAST, LAST/FIRST and LAST/LAST systems.

Notes

1. We have taken the list of "European" languages in Dik Bakker et al. (1994) as a point of departure.
2. Compound and phrase accent in English are also discussed in chapter 3.
3. As pointed out in chapter 1.2.3, both compound-like affixes, which never appear to influence the primary accent location and affixes that form one domain with the stem (i. e., integrating affixes) without influencing accent are usually taken together as constituting the class of accent-neutral or class (level) II affixes.
4. We preserve the term 'accent' for the abstract culminative property that Swedish shares with the other Germanic languages, using the term 'word tone' for the word-level pitch opposition. In a different terminological tradition Bruce uses the terms 'stress' and 'tonal accent' respectively.
5. We also refer to chapter 6.6.1 for a discussion of the historical background of the tonal opposition.
6. We note the following analogies between the tonal systems of Swedish, Venlo, and Maasbrachts, and the stød system of Danish:

Swedish	Word Tone I (unmarked) : Word Tone II (marked)
Venlo	Accent I (unmarked) : Accent II (marked)
Danish	Stød (marked) : Non-Stød (unmarked)
Maasbrachts	Falling (marked) : dragging (unmarked)
	('Stoottoon') ('Sleeptoon')

   The Stød and the falling tone (Dutch: 'Stoottoon') are taken to be the marked members in the opposition. In chapter 5, Gussenhoven & Bruce discuss another Dutch tonal accent dialect, that of Venlo, drawing the conclusion that the cognate of the falling tone is the unmarked member in this case. This interpretation resembles that of Swedish if Word Tone I is taken to be the marked case here; the mark being a lexically specified H tone; cf. chapter 9.1.3.3–4 on the markedness issue in Swedish.
7. In fact, given the final accent assigned by the RAR, all nouns could be said to undergo trochaic footing. With an accent on the final syllable, the trochaic foot will necessarily be monosyllabic.
8. See the "Guidelines for the ESF Theme Groups" for information on these European languages, including grammars.

9. The information on diachronic aspects was kindly furnished by Grzegorz Dogil.
10. Peter Schrijver supplied us with useful information on Celtic.
11. The diachronic information about Basque was kindly made available to us by José Ignacio Hualde.
12. This information was kindly made available to us by Sandro Kodzasov.

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