22

STRESS AND RHYTHM

22.1 SUPRA-SEGMENTAL FEATURES

Up till now we have been dealing mainly with the segments of English and Dutch, i.e. the vowels and consonants. We shall now consider the features which operate over a unit greater in extent than a single phoneme. These are termed **supra-segmental**, and include stress, rhythm and intonation.

Stress was introduced in Chapter 3 (p. 19) and has been used in transcription throughout the book, but it is now necessary to look more closely at stress, to discover (1) what is implied in phonetic terms; (2) what function stress has to play in the sound systems of English and Dutch.

EXERCISE 1

Say the following pairs:

A	B
(de) appel	*(het) appel*
uitstekend ('protruding')	*uitstekend ('excellent')*
overkomen ('came over')	*overkomen* ('happen')
vóórkomen ('happen')	*voorkomen ('prevent')*
achterruit	*achteruit*
verkoop (n.)	*(ik) verkoop (vb)*
misbruik (n.)	*(ik) misbruik (vb)*
overval (n.)	*(ik) overval (vb)*
onderricht (n.)	*(ik) onderricht* (vb)

The difference between these pairs is that in the words in column A the first syllable is more strongly stressed; but in column B the stress falls on a later syllable. Note that stress is the most important phonological feature distinguishing meaning in these words.

Word stress *and sentence stress*

We shall employ the distinction made in Section 3.2 between word stress (stress in the isolated word, as in its citation form) and sentence stress (stress in connected speech).

22.2 PHONETIC FEATURES OF STRESS

It is possible to distinguish the following significant phonetic parameters:

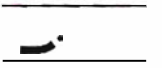
1. *Intensity*

This is the greater breath effort and muscular energy associated with stressed syllables. It is closely related to **loudness** as perceived by the listener.

2. Pitch variation

Marked changes in pitch are probably the most significant of all the means of signalling a stressed syllable. The change may be either to a higher or lower pitch, or may involve a sustained pitch on a low or high tone, noticeably different from the unstressed syllables in the neighbourhood, e.g.

'excellent 'excellent 'excellent



See Chapter 23 on intonation.

3. Vowel quality

In many languages (e.g. English, Dutch, German and Russian, to quote only a few examples), there is a strong tendency for unstressed syllables to contain shorter and more centralised vowels (whereas stressed syllables normally contain vowels on the periphery of the vowel space); see Fig. 22.1. This general tendency is termed **vowel reduction.** In Dutch (particularly Netherlands Dutch), vowels in unstressed syllables undergo vowel reduction and typically have noticeably centralised realisations, cf. *konijn* [kö'nɛin] – *koning* ['komɪŋ] (note that we employ [¨] to indicate a more centralised quality of the vowel; see p. 72).

Diphthongal vowels often partially lose their glide quality in unstressed syllables, e.g. English *'final – 'insight; a 'round – 'foreground.*

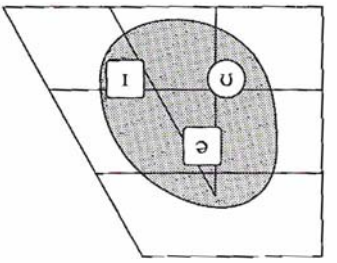


Figure 22.1 Vowel diagram illustrating peripheral and central vowel space.

A more extreme type of vowel reduction of this type is termed **vowel gradation.** In English, this involves the complete replacement of a peripheral vowel by one of three vowels which are generally associated with unstressed sylla-

bles, namely E /ə, ɪ, ʊ/. Of these, /ə/ is found only in unstressed syllables, and the vowels /ɪ, ʊ/ also tend to occur in this context, e.g.: ***library*** /'laɪbrərɪ/, ***regular*** /'regjʊlə/, ***exaggerate*** /ɪg'zædʒəreɪt/. In addition, syllabic consonants (notably /n̩, l̩/) are also frequently found in unstressed syllables, e.g. ***convention*** /kn̩'venʃn̩/, ***convertible*** /kn̩'vɜːtəbl̩/.

EXERCISE 2

Provide phonemic transcriptions of the following pain, noting the occurrence of non-central vowels in stressed syllables against central vowels/syllabic consonants in unstressed syllables:

concert **(noun)**	***concert*** **(verb)**
conduct **(noun)**	***conduct*** **(verb)**
proceeds **(noun)**	***proceeds*** **(verb)**
compress ***(noun)***	***compress*** **(verb)**
record **(noun)**	***record*** **(verb)**
export **(noun)**	***export*** **(verb)**
content **(noun)**	***content*** (adj.)
absent (adj.)	***absent*** **(verb)**

In Dutch, although vowel gradation is not as pervasive as in English, nevertheless a similar tendency can be observed. D /ə/ overwhelmingly occurs in unstressed syllables, and /ɪ/ is also found frequently in unstressed contexts, e.g. ***betekenis*** /bə'teːkənɪs/, ***vergadering*** /fər'xaːdərɪŋ/. Syllabic consonants, especially /r/, are not uncommon in Dutch, e.g. ***beter*** /'beːtr̩/; syllabic *N* and /n/ occur less frequently than in English, occurring mainly in weak forms (see pp. 239-40).

4. Duration of vowels

Duration of vowels is an important factor in indicating stress. In English and Dutch, vowels are longer in stressed than in unstressed syllables, e.g. English ***sarcasm*** ['sɑːkæzm̩], sarcastic [sɑ'kæːstɪk]. Cf. Dutch ***monotoon*** [mono'tom], banaan [ba'naːn], T.V. [te'f̬eː].

5. *Full/partial articulation*

The articulation of consonants in stressed syllables is usually full and complete, as against unstressed syllables where consonants tend to have only partially complete articulation. As a result, in stressed syllables, stops have complete closure and fricatives have obvious friction. In unstressed syllables, on the other hand, often only a gesture is made towards the closure of stops so that effectively they become fricatives. Similarly, there is a tendency for fricatives to lose their friction and turn into approximants. Furthermore, the fortis/lenis contrast, which is clearly maintained in stressed syllables, may often be blurred in unstressed syllables. For example, in English, strong aspiration of syllable-initial fortis stops is associated with stressed context (see pp. 51, 150-52).

Table 22.1 summarises the phonetic characteristics of stressed and unstressed syllables in English.

Table 22.1 Characteristics of stressed and unstressed syllables in English

	STRESSED	UNSTRESSED
1. Intensity	Articulation with greater **breath/muscular** effort. Perceived as ***greater loudness***	Less **breath/muscular** effort. Perceived as having ***less loudness***
2. Vowel quality	May contain any vowel (except /ə/). Vowels have clear (peripheral) quality. Glides have clearly defined second **element.**	Generally have central vowels /ə, ɪ, ʊ/ or syllabic consonants. Vowels may have centralised quality. Glides tend to lose second element.
3. Vowel duration	Vowels have full length	Vowels are considerably shorter
***A* Pitch**	Marked change in pitch or pitch is sustained	Syllables tend to follow the pitch trend set by previous stressed syllable
5. Articulation	Stops have complete closure. Fricatives have full friction. Features of **fortis/lenis** contrast (e.g. aspiration) are clearly defined.	Stops have incomplete closure. Fricatives tend to lose friction and become approximants. **Fortis/lenis** contrast is blurred.

22.3 WORD STRESS

It is possible to distinguish varying degrees of stress — as many as five. The example below, shows this, using superscript figures 1-5: 1 for strong stress, 5 for least stress:

$$\overset{2}{e}\ \overset{4}{k}\ s\ a\ n\ t\ r\ \overset{1}{ɪ}\ \overset{5}{s}\ \overset{3}{ə}\ t\ ɪ$$

eccentricity /ek sæntrɪsətɪ/

Systems of 4-term (or even 5-term) degrees of stress are employed in books dealing with stress from the point of view of theoretical phonological analysis. However, for practical purposes, such as learning a foreign language, it is necessary to consider at most three degrees. The strongest is termed primary stress; and the next level of stress, secondary stress; anything else is regarded as unstressed. A common form of stress-marking is to show primary stress by a short vertical ***above*** the line, thus ˈ(as we have been doing throughout

this book). Where it is necessary to show a secondary stress, it is marked as a vertical below the line, thus , . Unstressed syllables are left unmarked, e.g. *ˌeccenˈtricity*, *ˌrationaliˈsation*, *ˌdetoˈnation*, *ˈunderˌwriter*, *ˈprotoˌplasm*, *əˌcclimatiˈsation*.

From now on, we shall return to the practice of showing primary stress only, unless there is some particular reason to indicate a secondary stress. This has the advantage of simplification; providing primary stress is correct, interference caused by learners' errors with secondary stresses is minimal.

Predictability of stress

In certain languages, it is possible to state that the stress falls regularly on a particular syllable in the word. For instance, in Czech and Slovak the stress is regularly on the first syllable. In many languages, it is on the penultimate (last but one) syllable, e.g. Italian, Welsh and Polish. Some languages have stress on the final syllable, e.g. Farsi. In certain languages, e.g. French and many Indian languages, e.g. Hindi, Gujarati, native speakers do not appear to consider stress of significance. For instance, in French, although the tendency is for the word in isolation to have stress on the final syllable, this is often shifted to other syllables in connected speech.

In English and Dutch, stress behaves in none of these ways. Stress is not easily and regularly predictable. On the other hand, it is of importance to the word shape, and is not (as a rule) shifted from one syllable to another in connected speech. Consequently, we may say that for English and Dutch, and many other languages (e.g. Frisian, German, Russian, Danish, Spanish), stress is usually fixed for each word, but may occur on any syllable. Furthermore, in these languages, stress is of paramount importance to the native speaker in determining the meaning of the word.

In most languages, and English is no exception, it is often hard for a learner to predict the primary stress from the orthography, and rules for stress are difficult to formulate and may have numerous exceptions.[1] However, the native speaker is generally able to guess the stress of an unfamiliar word, which would indicate that there is an underlying rule-system in operation.

Since the 1960s, linguists have moved from a position where it was said that there were few rules for predicting English stress to one where some would say that stress is completely predictable. From the point of view of a foreign learner, however, any prescriptive rule-system which aimed at being complete would be hopelessly complex. Consequently, it is probably best for learners to consider English stress as being in part rule-governed, and only to concern themselves with learning the most useful and frequent patterns.

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[1] Spanish is unusual in showing non-predictable stress by means of an accent, e.g. *corazón*.

Together with the guidelines which follow, the traditional advice of noting and memorising the stress pattern of each word when you first meet it must still apply.

Table 22.2 Some examples of word stress in English and Dutch

	ENGLISH	DUTCH
1st syllable	*'dextrous* *'overcoat*	*'uitzondering* *'wedstrijd*
2nd syllable	*ri'diculous* *hi'storical*	*ver'dediging* *kwar'tier*
3rd syllable	*millio'naire* *medi'eval*	*tele'foon* *maga'zijn*
4th syllable	*authori'sation* *electidneering*	*veronder'stelling* *communi'catie*

22.4 SOME STRESS GUIDELINES

It must be emphasised that the indications given below for the placing of English stress are to be considered *guidelines* rather than rules, as in nearly all cases there are a number of exceptions (indicated by (EXC)).

Short words (2 or 3 syllables)

General guide: primary stress on first syllable, e.g. *'trousers, 'cabinet, 'dangerous, 'optional, 'minimum, 'punishment, 'sensible, 'gravitate, 'error.*

Prefix words

General guide: in shorter words beginning with a prefix, the primary stress typically falls on the syllable following the prefix: *impossible, be'hind, explain, re'call, de'mand, dis'charge, in'flation, con'ceal, over'see, per'tain, to'morrow, un'do.* (EXC): a large number of nouns and adjectives, e.g. *'indolent, 'exercise, 'concept, 'reflex.*

Note that numerous verbs with prefixes are distinguished from similarly spelt **nouns/adjectives** by means of stress. We can term this a **switch stress** pattern. In these cases, the **noun/adj.** has stress on the prefix.

VERB	*NOUN/ADJ.*	*VERB*	*NOUN/ADJ.*
com'pound	*'compound*	*in'crease*	*'increase*
con'vict	*'convict*	*re'ject*	*'reject*

VERB	NOUN/ADJ.	VERB	NOUN/ADJ.
con'cert	*'concert*	*pro'gress*	*'progress*
su'spect	*'suspect*	*per'vert*	*'pervert*
tran'sport	*'transport*		

Longer words (four or more syllables)

A very strong tendency is for stress to fall on the **antepenultimate** syllable, i.e. the last but two, e.g. *e'mergency, ca'lamity, hi'storical, cosmo'politan, geo'graphical, sig'nificant, e'stablishment, em'barrassment, i'ronical.*

Suffix words

A number of suffixes provide stress indications.

I. Stress on suffix (e.g. *main'tain*, etc.)

-ade (nouns)	*lemonade, cavalcade, marinade.* (EXC) *'marmalade*
-ain (verbs)	*maintain, ascertain*
-ee (nouns)	*referee, employee, chimpanzee, dungarees.* (EXC) *'coffee, 'toffee, 'Pharisee, 'Yankee, 'pedigree, com'mittee*
-eer	*domineer, pioneer, engineer, career, pioneer*
-esce (verbs)	*coalesce, acquiesce*
-esque (adjs/nouns)	*picturesque, grotesque, burlesque*
-ess (verbs)	*obsess, depress, possess, address*
-ette (nouns)	*usherette, cigarette, marionette.* (EXC) *'etiquette*
-ique (nouns/adjs)	*technique, unique, antique*
-oon	*typhoon, saloon, festoon, cartoon*
-self, -selves	*yourself, himself, themselves*

Stress on syllable preceding suffix (e.g. *eco'nomic*, etc.)

-ative, -itive	*representative, prohibitive, relative*
-cient, -ciency	*efficient, efficiency, proficiency, sufficient*
-eous	*beauteous, aqueous*
-ety	*propriety, sobriety*
-ian	*politician, proletarian*
-ial	*alluvial, special, beneficial*
-ic	*economic, atomic, diplomatic, semitic, chaotic, horrific, esoteric, phonetic.* (EXC) *'Arabic, a'rithmetic* (n.), *'rhetoric, 'lunatic, 'catholic, 'heretic, 'politics*
-ical	*psychological, grammatical, phonological*
-ident	*confident, diffident*

-inal	*attitudinal, terminal, original, medicinal*
-ion	*communication, persuasion, commotion, position*
-ital	*sagittal, hospital, capital*
-itous	*fortuitous, felicitous*
-itude	*attitude, gratitude*
-ity	*severity, familiarity, capability, majority, inflexibility, insecurity*
-ive	*effective, productive, distinctive, active, vindictive*
-ual	*eventual, residual*
-ular	*molecular, particular*
-uous	*impetuous, tempestuous, incestuous*
-wards /wədz/	*upwards, inwards.* (EXC) *towards* /tə'wɔ:dz/

22.5 Stress in Dutch

In most Dutch words of two or more syllables, stress falls on the first syllable, e.g. *'woning, 'voorbeeld, 'sommige, 'koninklijk, 'eigenschap, 'medeklinker, 'wetenschap, 'ongeluk.*

Compound words also tend to be stressed on the first syllable, e.g. *'theelepel, 'lampekap, 'boekenkast, 'kippenhok, 'woordenboek, 'staatsgreep.* Note the following exceptions:

1. Words beginning with many prefixes **ge-, be-, her-, ver-, on-, ont-,** e.g. *be'drag, ver'drag, her'kennen, ge'drag, on'mogelijk, ont'zag, be'zet, ver'zet, ge'zet, ont'zet.*

2. A large number of words borrowed from other languages, in particular French, Latin, and Greek.

a) Suffixes such as the following function as stress attractors:

-aal	*radicaal, doctoraal*
-aat	*internaat, apparaat*
-age	*bagage, reportage*
-ant	*informant, contant*
-ast	*gymnasiast, enthousiast*
-ein, ijn	*terrein, venijn, konijn*
-ent	*moment, docent*
-es	*lerares, barones*
-(i)eel	*controversieel, moreel*
-iek	*antiek, journalistiek*

-ier	*leverancier, populier*
-isme	*socialisme, realisme*
-ist	*socialist, realist*
-ij	*slagerij, schilderij*
-on	*perron, ballon*
-tair	*elementair, elitair*
-teit	*kwaliteit, universiteit*
-teur	*monteur, taxateur*
-tief	*kwalitatief, representatief, actief*
-ure	*allure, procedure*
-uur	*literatuur, lectuur*

b) Other words are stressed on the syllable immediately preceding the suffix:

-baar	*meetbaar, uitvoerbaar, blijkbaar*
-die	*subsidie, remedie, komedie*
-isch	*logisch, statisch, fantastisch*
-tie	*instantie, garantie, politie*

22.6 Stress in English compounds

Word stress in compounds is not as important for intelligibility as in simple words. Nevertheless, incorrect placement of stress in English compounds is a very persistent error in the English of Dutch-speaking learners, and is therefore particularly significant for the advanced student.

Stress in English compounds falls into two main patterns:[2]

1. **1st Element Stress.** These have main stress on the first element of the compound, e.g. *'cherry stone, 'running shoes.*

2. **2nd Element stress.** These have main stress on the second element of the compound, e.g. *cherry 'pie, running 'water.*

In English, both types of compound stress pattern are common — but in Dutch the overwhelming majority of compounds are of the 1st Element Stress type.

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[2] Many restrict the term 'compound' to combinations with 1st Element Stress, regarding a compound with 2nd Element Stress as a 'phrase'. Note that many writers regard this as 'double stress' or 'equal stress'. We use the term 2nd Element Stress because although it may shift in certain circumstances, the stress is noticeably more prominent on the second element. The Dutch-speaking learner's typical error is to overstress the first element.

Stress guidelines for compounds

Stress in compounds — and especially the use of 2nd Element Stress — is a difficult area for the student of English. To provide a complete guide would be effectively impossible since there are many exceptions and irregularities. In the end, the learner has to use some guesswork, but knowing these few simple guidelines can make learning compound stress much easier and allow you to guess right, say, nine times out of ten.

Q Word shape

Compounds written as *one word* nearly always have 1st Element Stress, but those written as *two words,* or with a *hyphen,* can be of either stress type.

(2) The Manufactures Rule (2nd Element Stress).

If the first element of a compound is a material used to manufacture the whole object (e.g. an *apple tart* is a tart made of apples), then the compound typically has 2nd Element Stress. This is termed the **Manufactures Rule,** e.g. *apple 'tart, chicken 'soup, cherry 'brandy, paper 'bag, stone 'wall, cotton 'socks, diamond 'ring. Cf.* non-manufactured items, which instead take 1st Element Stress, e.g. *'apple-tree, 'chicken feathers, 'cherry stone, 'cotton-reel, 'diamond cutter.*

(3) **Location Rule** (2nd Element Stress).

There is a strong tendency for a compound to take 2nd Element Stress if it in some way involves location. This is termed the **Location Rule** and there are a number of categories.

(a) If the first element is the name of a country, region or town, the compound takes 2nd Element Stress, e.g. *German 'measles, Russian rou'lette, Siamese 'cat, Dutch 'courage, Danish pastry, Shetland 'pony, Bristol 'Cream, York 'ham, Bermuda 'shorts, London 'pride, Welsh 'rabbit.*

(b) The vast majority of place-names have 2nd Element Stress. This includes all street names, except those actually ending in the word *street,* e.g. *Cathedral 'Road, St John's 'Square, Park 'Place, Churchill 'Way, Museum 'Avenue. Cf. Ca'thedral Street, St 'John's Street,* etc.

Names of cities, towns, suburbs, districts, etc. with two components have 2nd Element Stress, e.g. *Milton 'Keynes, Castle 'Bromwich, New 'York, Notting 'Hill.*

(c) The Location Rule also holds true for the names of parks, bridges, stations, gardens, public buildings, geographical features, and even football teams and other sports clubs. These almost invariably have 2nd Element Stress, e.g. *Green 'Park, (the) Forth 'Bridge, Euston 'Station, (the) Wigmore 'Hall, Clarence 'House, Kew 'Gardens, Land's 'End, Beachy 'Head, Long 'Island, Manchester U 'nited, Glasgow 'Rangers, Brooklyn 'Dodgers.*

(d) Parts of a house (or any other building) and its surroundings tend to have 2nd Element Stress, e.g. front 'door, kitchen 'window, back 'stairs, *attic* 'ceil*ing*, garden 'seat, *office* 'desk, church 'clock, works can'teen. (EXC) Note that compounds with -room are stressed on the first element, e.g. 'bedroom, '*living* room, '*sitting* room, 'drawing room (but front 'room).

(e) Other examples of the Location Rule are to be seen where **positioning** is involved, e.g. *left* 'wing, middle 'class, *Low* 'German, upper 'crust, bottom 'line.

(f) Time location also tends to have 2nd Element Stress, **e.g.** Middle *'Ages*, morning 'coffee, *afternoon* 'tea, *January* 'sales, winter 'sports, April 'showers, weekend *re'turn*, Easter *Pa'rade*, Christmas 'Day.

Further useful guides

(l) The vast majority of food items are covered by either the **Manufactures** Rule or the Location Rule. Consequently, with the exceptions noted below, virtually all food items take 2nd Element Stress, providing they have **undergone** some form of preparation, e.g. Yorkshire 'pudding, mint '*sauce*, *Bakewell* 'tart, port 'wine, cabinet pudding, baked po'tatoes, roast '*beef*, macaroni 'cheese.

(EXC): some items take 1st Element Stress, because although they may be served as food, they can also be considered as part of the living plant or animal, e.g. 'chicken leg, 'goose liver, 'lemon juice, 'vine leaves. Other **significant** exceptions are: -bread, -cake, -paste, e.g. '*shortbread*, 'Christmas *cake*, 'shrimp paste.

(2) Names of magazines, newspapers, etc. have 2nd Element Stress (many involve place or time and are covered by the Location Rule), e.g. Daily '*Mirror*, Evening 'Standard, Baltimore 'Sun, Radio 'Times, Woman's 'Own, *Yorkshire* 'Post.

(3) Names of academic subjects, skills, etc. have 1st Element Stress, e.g. 'maths teacher, 'medical school, 'swimming instructor, 'technical college, '*history* book, 'English student (i.e. a student of English), 'French mistress (i.e. a woman who teaches French), 'Russian class, 'driving test.

Morphological *stress patterns*

(1) Nouns formed from verb + particle take 1st Element Stress, e.g. '*pick-up*, 'make-up, 'come-back, '*flashback*, 'look-out. (Note that this is the **reverse** of what takes place in loanwords in Dutch, **e.g.** Dutch pick-'up, make-'up, etc.) Exceptions are few, but note: (EXC) lie-'down, look-'round, set-'to.

(2) Nouns ending in -er or -ing + particle take 2nd Element Stress, e.g.

hanger-'on, looker-'on, passer-'by, runner-'up, washing-'up, summing-'up.

(3) Compounds formed from **-ing + noun** are of two types:

(a) Where *an aim is achieved or an activity is aided by the object* (i.e. *'running shoes* help you to run, a *'washing machine* helps you to wash clothes), These take 1st Element Stress, e.g. *'sewing machine, 'running shoes, 'scrubbing brush, 'washing machine.*

(b) Where *a compound suggests a characteristic of the object, with no idea of aiding some activity,* and nothing more (a *whistling 'kettle* cannot help you to whistle). These take 2nd Element Stress, e.g. *running 'water, casting 'vote, working 'man, leading 'article, sliding 'scale.*

(4) **Nouns ending** in **-er preceded by adjective**[4] tend to have 2nd Element Stress, e.g. ***free'thinker,*** *loudspeaker,* ***left'hander,*** *outsider,* ***two'seater.***

(5) Adjective + past participle. These are overwhelmingly 2nd Element Stress, e.g. *heavy-'handed, thick-'skinned, quick-'tempered, cold-'blooded, evil-'minded.* (EXC) are few: 'downcast, 'thoroughbred, 'crossbred.

(6)**Noun + noun ending in -er** tend to have 1st Element Stress, e.g. *'proof-reader, 'newsreader, 'stockholder, 'shock absorber, 'caretaker, 'ratepayer, 'hairdrier.* Note that there is a tendency for the first element of the compound to be the object of an action, e.g. a proofreader reads proofs, etc. (EXC): *stage 'manager,* ***town'crier.***

(7) Verb + noun. These are overwhelmingly 1st Element Stress, e.g. *'play-boy, 'search party, 'watchdog, 'singsong,* ***'driftwood,*** *'pickpocket.*

More detailed accounts of stress in English are to be found in **Kingdon (1958b)** and Fudge (1984).

Comparison with Dutch

The vast majority of Dutch compounds have **1st** Element Stress. The main problems for learners therefore lie in the greater variability of English compound stress and especially in applying 2nd Element Stress correctly. In very many cases, where 2nd Element Stress occurs in English, 1st Element Stress is heard in Dutch. Compare the examples over page:

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4 Adjective is taken here in a wide sense, including adverbs, numerals, etc.