

Take Danish - for instance

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Why are the Danes so hard to understand?

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1. Introduction

Since my active empirical research in the past couple of years has been conducted in close collaboration with Hans Basbøll, and since – for obvious reasons – he could not co-author *this* paper, I am going to give an overview of some well-established phonological processes which – at least in a Scandinavian perspective – are specific and peculiar to Danish and which purportedly makes Danish difficult to understand for non-Danes. Most of them have been exhaustively described by Hans himself, as evidenced by his bibliography, but perhaps they have not been assembled in this fashion previously, with the foreign learner's perspective. – I also take a brief look at some more recent developments which do nothing to remedy the situation. – Finally, I expose the relative paucity in prosodic parameters and their manifestation. These daunting facts should not discourage anyone who wishes to learn Danish, but they may console those who are going to find, or who have already found, it to be quite a challenge.

Comparison with Swedish as I go along will highlight the peculiar Danish state of affairs.

2. Segments

An overview of the complete sound inventory with key words and translations can be found in Grønnum (1998).

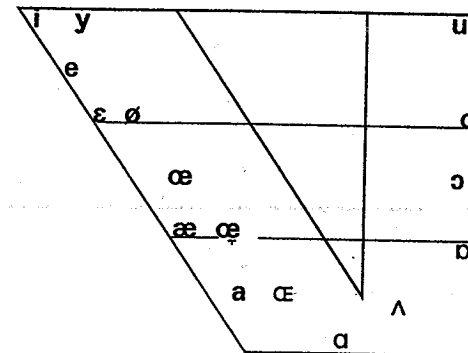


Figure 1
Danish vowels in the cardinal
vowel chart with broad symbols
conveniently ascribed to them.

2.1. Vowels

In stressed syllables, Danish has sixteen distinct monophthongal vowel sounds, thirteen of which can occur both short and long. Long vowels may occur with or without *stød* (cf. 3.1). Add to this [ə] which occurs in unstressed syllables only. The monophthongs are plotted in the cardinal vowel chart in figure 1, with the broad IPA symbols conveniently ascribed to them.

An immediately obvious trouble maker is the total number of qualitative distinctions, in part due to the presence of rounded front vowels, as well as the pervasive short:long vowel difference. The vowel sounds are not equidistantly spaced either. Note specifically the clustering of [i:/i e:/e e:/e] and [o:/o ɔ:/ɔ] as in

[ˈmi:lə ˈme:lə ˈmæ:lə mið með með] *mile, mele, mæle; mit, midt, mæt* 'miles, meal, utter; mine, mid, full';

[ˈmo:sə ˈmɔ:sə ˈmɔ:sə] *mose, måse, morse* 'mash, behinds, morse'.

Taking morphologically conditioned phonological alternation into account, these more than 40 vowel sounds (including long vowels with *stød*) can be analysed as manifestations of 10 vowel phonemes: /i e ε a y ø œ u o ɔ/, cf. Basbøll (1968), Grønnum (1996, 1998, 2001), Rischel (1968). This may be some consolation to the phonetician but hardly to the language learner.

Limitations of space prohibit more than merely stating that we also have a good score falling diphthongs, ending in semivowels [j], [ɥ], and [ɘ], as in [mɑj haɥ ɸiɡg] *mig, hav, birk* 'me, ocean, beech'. They can all be analysed phonologically as a vowel plus a consonant, /j g/, /v b g/ and /r/, respectively, cf. Basbøll (1973, 1975) and Grønnum (2001). The identification of the diphthongs is complicated by lenition or deletion of the non-syllabic element, cf. 2.2 and 2.3.

A semivowel becomes syllabic when a neighbouring schwa is assimilated into it. In the examples throughout the text I render these syllabic semivowels as [i u ɐ], although this is a misrepresentation of the (lack of) precision in the articulatory target; they would be more adequately transcribed as [i ɥ ɘ] with a syllabicity stroke beneath.

There are no principled restrictions in sequences of [j] plus vowel, and phonetically they form a multitude of rising diphthongs as in, e.g., [jy:ðə ˈjʌŋə] *fyde, jokke* 'Jutlandish, trample'.

2.2. Lenition of coda consonants

The stops and /v/ and /r/ undergo 'consonant gradation' (in Rischel's 1970 terminology), i.e. they have different manifestations in syllable onset and coda.

/p t k/ lose their aspiration, and since they are inherently lenes they become identical to the initial manifestation of /b d g/, i.e. [ɸ ɸ ɸ], cf. [ɡaˈlɑɸ ɡaˈlɑɸ] *galop, galoppere; vat, vatter; lak, lakere* 'gallop (n/v); cotton, quilt; lacquer (n/v)'.
 /v/ likewise turns to [ɥ], cf. [moˈtʰiɥ ˈmoˈtʰiɥ] *motiv, motivere* 'motive, motivate'.
 /r/ turns into a more or less pharyngeal vocoid, [ɣ], cf. [kɑˈnˈtʰoɣ ˈkɑˈnˈtʰoɣ] *kontor, kontorist* 'office, office worker'. This vocoid merges completely with preceding /a a: ɔ ɔ/, leaving no trace of a consonantal sound, cf. [va fa: vɔ ɡɔr] *var, far; vor, går* 'was, father; our, goes'.

/b d g/ give up their closure: /b/ changes to [ɸ] (but in part of the vocabulary only, and only optionally), cf. [kʰø:u kʰø:ɸ] *købe, købt* 'buy, bought'. /d/ changes to a very weak approximant, [ð], which, being velarised, is actually more like a high back-to-mid unrounded vocoid (in narrow transcription [ɸ̠]), cf. [moˈðə moˈðis] *mode, modist* 'fashion, milliner'. It is almost invariably perceived and reproduced as a lateral by foreign learners. /g/ turned to [ɣ] which nowadays weakens further and splits into [j] (after front vowels and /l/) and [ɥ] (elsewhere), cf. [ˈɸæ:i ˈɸɑ:uɐɣ ɸɑ:ɣ] *bage, bagværk, bagt* 'bake, pastry, baked'.

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Note, then, that there are three different sources for a [ɥ], namely /v b g/, as in [kʰɸi:u ˈlo:ɸ ˈkʰo:ɸ] *kniv, knob; lov!, kog!* 'knife, pinch; promise, boil', cf. (distinct) [kʰɸi:u ˈkʰɸi:u ˈlo:u ˈkʰo:ɸ] *knive, knibe; love; kogt* 'knives, pinch; promise, boiled'.

2.3. Deletion of semivowels

[j] and [ɥ] regularly disappear after high vowels, and also optionally after non-high vowels, yielding homonyms like

[siː ˈsyː ˈsneː ˈsøː leː ˈduː tʰoː] *sig, si; syg, sy; sneg, sne; søg, sø; læg, læ; dug, duv!, du; tog, to* 'say, sieve; sick, sew; sneaked, snow; seek, lake; lay, lee; tablecloth, heave and set!, be good; took, two'.

The lenitions and deletions are in stark contrast to our neighbours. Compare Swedish and Danish and note that I render the Danish examples in the common, ordinary schwa-assimilated pronunciation:

Swedish		Danish		
<i>löpa</i>	[ˈlø:pa]	<i>løbe</i>	[ˈlø:u]	'run'
<i>söta</i>	[ˈsø:ta]	<i>søde</i>	[ˈsø:ɸ]	'sweet'
<i>baka</i>	[ˈba:ka]	<i>bage</i>	[ˈɸæ:æ]	'bake'
<i>dag</i>	[ˈda:g]	<i>dag</i>	[ˈdæ:ʔ]	'day'
<i>riva</i>	[ˈri:va]	<i>rive</i>	[ˈxi:u]	'tear (vb)'
<i>går</i>	[ˈgo:r]	<i>går</i>	[ˈfa: ɡɔr]	'father, goes'

These nearly unrecognizable syllable codas probably go some way towards explaining why Swedes purportedly have greater difficulty understanding Danish than vice-versa.

2.4. Assimilation of schwa

Assimilation of [ə] is pervasive in Danish, not only in informal, spontaneous speech but also in distinct speech styles. Schwa is assimilated to a neighbouring vowel or to a sonorant consonant (including semivowels, cf. 2.2) which then becomes syllabic. This applies also when schwa becomes neighbour to a vowel only after deletion of an intermediate semivowel, as seen in the first set of examples below:

[ˈdiː ˈd̥uːu ˈæːæ] *die, dige; due, duge, duve; ae, age* 'suckle, dike; pigeon, tablecloths, heave and set; caress, ride in a carriage';
 [ˈbæːð ˈhuːl ˈmɔːn ˈd̥æːm] *bade, hule, måne, dame* 'bathe, cave, moon, lady';
 [ˈsp̥iðð ˈkʰul ˈkʰamm̩ ˈvɛnn̩ ˈlɛŋŋ] *spidde, kulde, komme, vende, længe* 'impale, cold, come, turn, long';
 [ˈhylð ˈg̥am] *hyldet, gammel* 'praised, old'.

Complete elision, with loss of a syllable, also occurs, although not as frequently, thus [ˈsg̥æːb̥ə] *skabe* 'create' becomes [sg̥æːb̥] and [ˈpʰasə] *passe* 'fit' becomes [pʰas].

Again, this is in stark contrast to Swedish, compare:

Swedish		Danish		
<i>annan</i>	[ˈanːan]	<i>anden</i>	[ˈan̩]	'second'
<i>komma</i>	[ˈkʰomːa]	<i>komme</i>	[ˈkʰamm̩]	'come'
<i>många</i>	[ˈmɔŋːa]	<i>mange</i>	[ˈmɔŋŋ]	'many'
<i>alla</i>	[ˈalːa]	<i>alle</i>	[ˈal̩]	'all'

and see also the comparisons in 2.2 above.

When a vowel segment is lost, the uninitiated listener – who is not aware that a modest rise in pitch after the stressed vowel is the carrier of a second syllable in words like those above – will believe that he heard a monosyllable, and will search in the wrong part of his mental lexicon for the identity of the word, cf. 3.2 below.

2.5. Complicated morphophonology

Inflection and derivation produce alternations in the stem, cf.

[ˈfɛð ˈfɛð ˈbl̥øð ˈbl̥øð] *fed, fedt; blød, blødt* 'fat (comm/neutr), soft (comm/neutr)';
 [ˈs̥diː ˈs̥diː] *stiv, stift* 'stiff (comm/neutr)';
 [ˈkʰøːu ˈkʰøː] *købe, købt* 'buy, bought';
 [ˈkʰɔːu ˈkʰɔː] *koge, kogt* 'boil, boiled';
 [ˈs̥d̥ai ˈs̥d̥ai] *steg, stegt* 'steak, fried';
 [ˈb̥æːi ˈb̥æː] *bage, bagt, bagværk* 'bake, baked, pastry'.

Note that the orthography is close to a 'morpheme constancy' ideal, but the

morphological link with pronunciation is rather weak, which presumably poses a problem in both perception and production for beginners.

2.6. Further recent developments

Extensive 'r-colouring', i.e. lowering and retraction of vowels neighbouring /r/, deletion of semivowels after non-high vowels, and loss of vowel length distinctions in certain contexts yield numerous homonyms, for example

[ˈb̥æːr] = /b̥eːrə b̥eːrər b̥eːjər b̥aːgər/ *bære, bærer, bæger, bager* 'carry, carries, cup, baker';
 [ˈkʰæːrəs] = /k̥eːrəs k̥eːrəs k̥aːjərəs k̥aːs/ *kæres, kærres, kagers, kaos* 'dear ones', cart's, cakes', chaos';
 [ˈlæːð] = /l̥aːvəd l̥aːdəd/ *lavet, ladet* 'made, loaded';
 [ˈkʰuːr ˈg̥eðv̩] = /k̥uːrə k̥uːrə g̥eːdər g̥eːdər/ *kure, kurre; geder, gedder* 'slide, coo; goats, pikes';
 [ˈøːð] = /øːd̥ə øːd̥əd øːjəd øːvəd/ *øde, ødet, øget, øvet* 'desolate, wasted, increased, practised'.

High vowels used not to be affected by a neighbouring /r/, but /u/ now lowers one degree after /r/, creating mergers between /u/ and /o/ and producing hitherto unusual [o]-sounds in closed syllables (where short /o/ otherwise regularly is manifested as [ɔ]), cf. [ˈkʰoːð ˈkʰoːð] *rude, rode; krudt* 'window-pane, rummage; gun-powder'.

3. Prosody

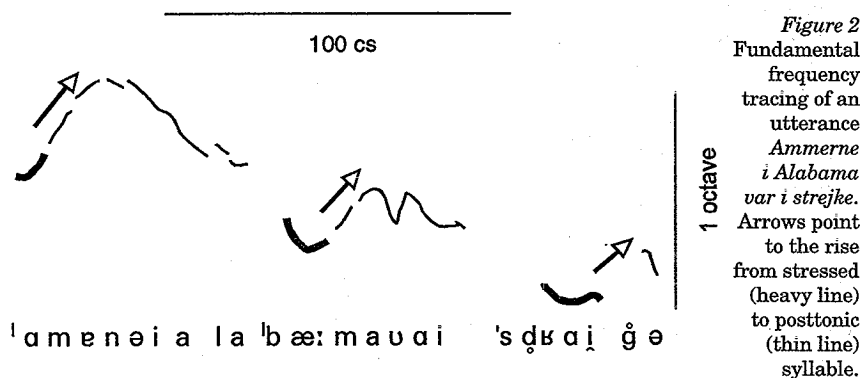
3.1. Stød

Stød is a kind of creaky voice. It occurs in long vowels and in phonetically voiced (sonorant) consonants. Its grammatical and morphological properties are documented in Hansen (1943). Its phonetic properties have been studied extensively by Fischer-Jørgensen (1987, 1989a, 1989b) and by Riber Petersen (1973). Its phonology has occupied Hans Basbøll through decades, cf. Basbøll (1985, 1988, 1988, 2003). Recently, he and I have undertaken a series of experiments to empirically test certain aspects of his theory, cf. Grønnum and Basbøll (2001a, 2001b, 2002a, 2002b, 2003).

Presence vs absence of stød creates an abundance of minimal contrasts, for instance:

[ˈviːsə ˈviːsə] *viser* 'shows (vb), hand (on instrument)';
 [ˈvæːl̩ ˈvæːl̩] *hvalen, valen* 'the whale, half-hearted';
 [ˈhuːs̥ð ˈhuːs̥ð] *huset* 'huset (n/v)';
 [ˈhɛnːv̩ ˈhɛnːv̩] *hænder* 'hænder (n/v)';
 [ˈmølːv̩ ˈmølːv̩] *Møller, møller* 'Møller, miller'.

Though presence vs. absence of *stød* is distinctive on the surface, it is in fact to a very large extent structurally governed. The principles have been greatly simplified in Hans Basbøll's new and extremely insightful account of this and other matters phonological, cf. Basbøll (2001a, 2001b, 2003). Even so, *stød* is a hard phenomenon to master. Not just to hear it and produce it – which takes no little amount of practice – but also to put it where it belongs and nowhere else. It is a very common learner's mistake to make to many *støds*, which is jarring to a Danish ear.



3.2. The manifestation of stress

In sections 3.2-3.5, I do no more than give examples. Documentation and arguments for the postulated analyses can be found in Grønnum (1991, 1992). Note that the statements made pertain to Danish spoken in the greater Copenhagen area by the younger generations, in neutral reading style.

Stressed syllables are characterised by a variety of rather weak segmental cues, such as a modest lengthening and slightly more distinct pronunciation of segments, perhaps a slightly different – more compressed – voice quality, but above all they are associated with a change in pitch, as can be seen in figure 2. Thus, the peak of a fundamental frequency pattern is constituted by the first post-tonic syllable, not by the stressed syllable, which is perhaps more common in the languages of the world, and foreigners have been known to mistake the post-tonic for the stressed syllable.

3.3. Absence of specific juncture cues

Danish does not have pre-boundary lengthening. For illustration, compare the information in figure 3 with the Swedish corresponding example in figure 4 (and disregard the immaterial difference in prominence across the two figures).

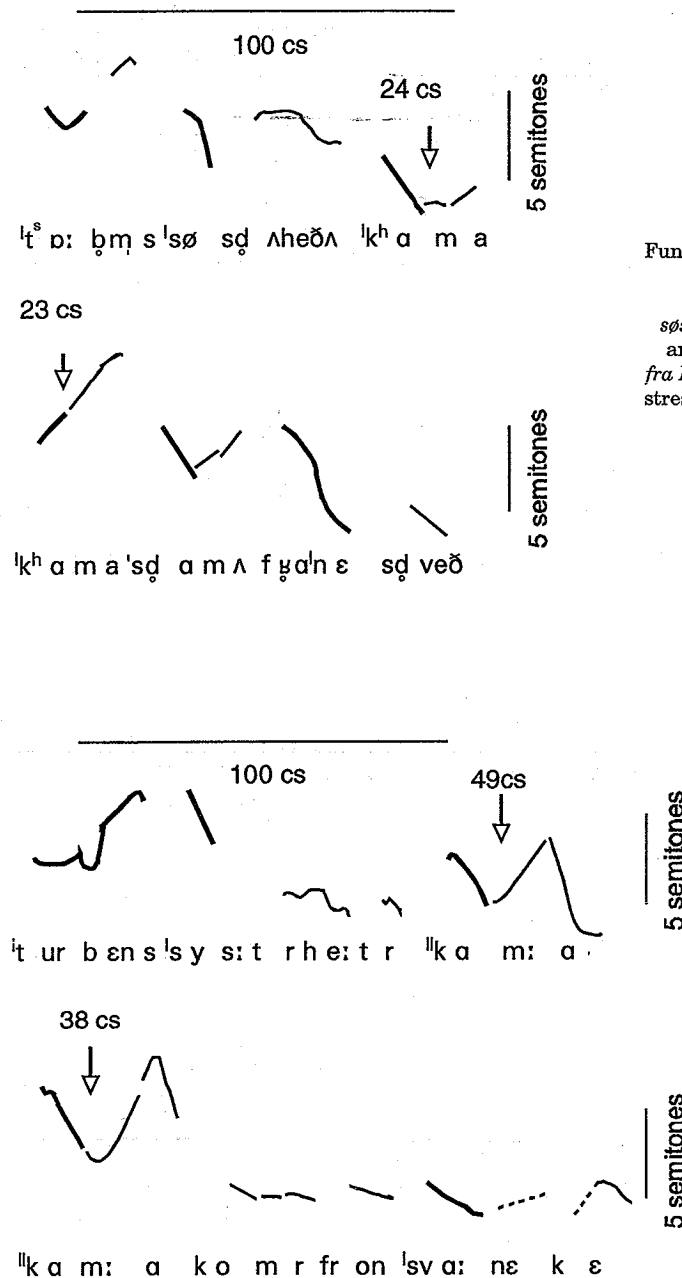


Figure 3
Fundamental frequency tracings of two utterances *Torbens søster hedder Kamma.* and *Kamma stammer fra Næstved.* with equal stress on both *Kammas*.

Figure 4
Fundamental frequency tracings of two Swedish utterances *Torbens syster heter Kamma.* and *Kamma kommer från Svaneke.* with focal accents on both *Kammas*.

Final lengthening is insignificant in Danish, comprehensive in Swedish, and Swedes are reported to have trouble determining when a Danish utterance is finished. I hold lack of final lengthening responsible, together with the absence of default sentence accents, cf. 3.4.

3.4. Absence of compulsory sentence accents

In a number of languages, among them Swedish, one word in a phrase or utterance will be more prominent than the others, and if the context does not specify otherwise, this accent will fall on the last word. Not so in Danish. Compare first the two *Kammas* in figure 5. Swedish *Kamma* has an elaborate fundamental frequency pattern, the most elaborate in the utterance, whereas there is nothing to similarly distinguish Danish *Kamma*.

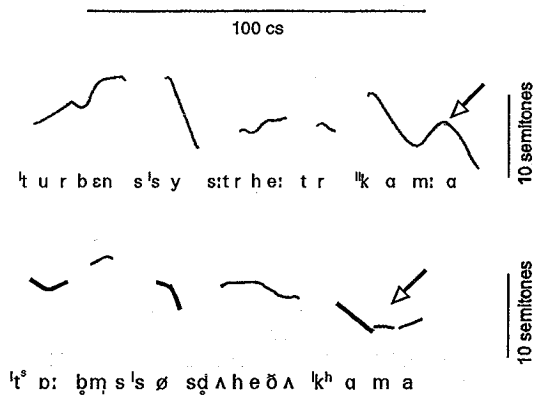


Figure 5
Fundamental frequency tracings of a Danish utterance *Torbens søster hedder Kamma*, and the corresponding Swedish one *Torbens søster heter Kamma*, both uttered in isolation.

Figure 6 demonstrates the difference in Swedish between a final focal accent and the absence of any accent. The upper utterance is the reply to a question "What is Torben's sister's name?" and the lower one answers the question "Who has a sister called *Kamma*?" This puts the corresponding Danish utterances in figure 7 in relief: the putatively accented *Kamma* above and unaccented *Kamma* below do not have much to distinguish them. For one thing, there is no consistent difference between the utterance in isolation (figure 3, upper part) and this one which has a final pragmatic focus. Secondly, the pragmatic focus on an early word (*Torbens* in figure 7, lower tracing) is signalled mainly through the absence of a rise in fundamental frequency from the succeeding stressed syllable *søs-* to its post-tonic *-ter*. I.e. focal accents are not boosted in Danish but get their relative prominence through a reduction of the surrounding, predominantly the succeeding, stress.

I believe these very real differences between Danish and Swedish are primarily responsible for the impression some Swedes have that Danes are curiously uninterested in their own discourse; and I am certain that when Swedes carry over their own prosodic patterns, their final lengthening, and their default and focal accents to Danish, they may sound dogmatic or overly enthusiastic, bordering on the theatrical.

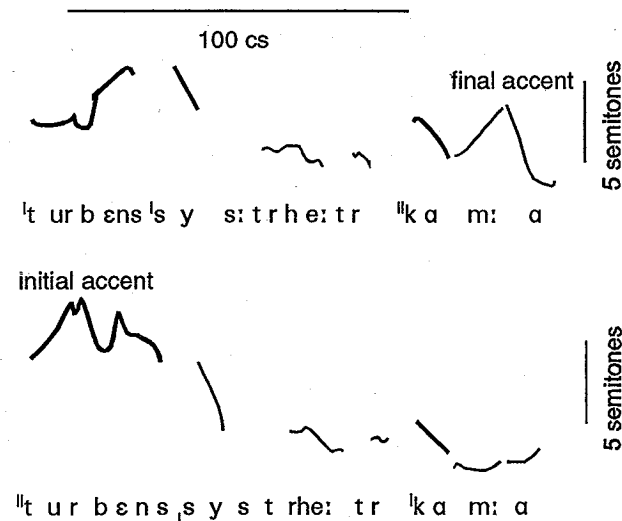


Figure 6
Fundamental frequency tracings of two Swedish utterances *Torbens søster heter Kamma*. See the text.

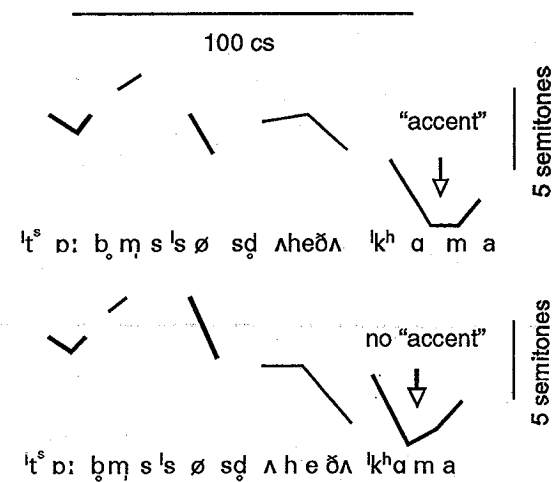


Figure 7
Stylized fundamental frequency tracings of an utterance *Torbens søster hedder Kamma*. See the text.

3.5. Absence of compulsory local signals to utterance function

Please note that time and frequency scales are almost but not exactly identical across the figures to follow.

Terminal declarative utterances are characterised by an overall fall and a progressive shrinking of the fundamental frequency patterns associated with the stressed syllables. The global fall comes about when the stressed syllables are successively lowered, in equal steps (on a log-scale), whose magnitude is inversely proportional to the number of stresses in the utterance, cf. figure 2 and figure 8 (lower tracing). There is no local final fall to terminate the utterance. Nor do questions have to end on a particularly high note, cf. figure 8, upper tracing. (This is actually too long to be a likely 'intonation question' but for illustrative purposes it will serve.)

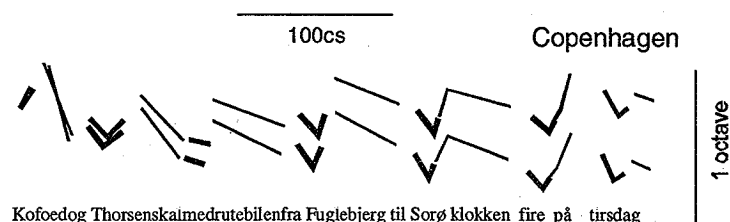


Figure 8
Stylized fundamental frequency tracing of a long terminal declarative utterance and its rendition as a question with neither word order inversion nor interrogative particles.

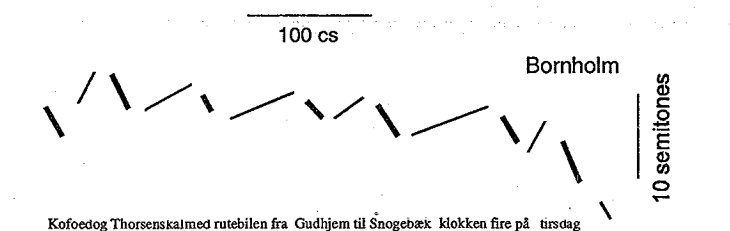


Figure 9
Stylized fundamental frequency tracing of nearly the same long utterance as in figure 8, from Bornholm.

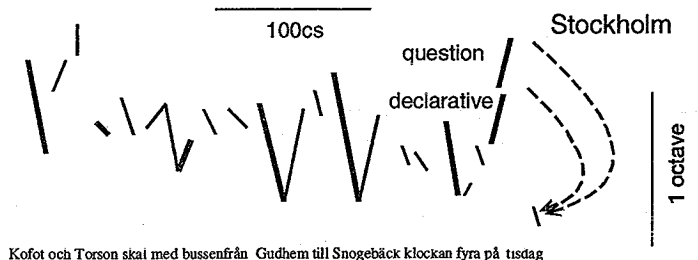


Figure 10
Stylized fundamental frequency tracings of nearly the same utterance as in figures 8 and 9.

There are Danish regional varieties with final falls in declaratives, cf. the Bornholm example in figure 9. Bornholm is more similar to Swedish in this respect, cf. figure 10 which superposes a declarative and an interrogative utterance. Both terminate at the same low, but the question starts from higher up.

Again, foreigners may have difficulty determining when an utterance has come to its end and they may not easily recognise questions from their faint prosodic make-up, either.

4. Conclusion

An abundance of vowels, weak syllable codas, unstressed syllables without any vowel sound, and fairly inexpressive prosody makes Danish a harder nut to crack perceptually than most languages which it otherwise is reasonable to compare it to.

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