

Word Accents and Tones in Sentence Perspective. A symposium to celebrate Professor Gösta Bruce's 60th birthday.
 Department of Linguistics and Phonetics, Lund University, January 10, 2007.

Postlexical accent 2 in Scandinavian

(Lexical and postlexical in Scandinavian tonogenesis)
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1. Background

- (1) Theories about Scandinavian tonogenesis converge on the fact that it is post-lexical tonal prosody that becomes lexical, rather than segmental distinctions (voicing, glottalization) becoming tonal, as in Southeast Asian or Athabaskan tonogenesis (Haudricourt 1954, Svantesson 2001, Krauss 2005, Kingston 2005).
- (2) Conditions of the postlexical phonology should therefore be crucially connected to tonogenesis, i.e. the lexicalization of a postlexical tone.
 - Postlexical pitch accent in prominent positions in the phrase, phrase finality (Öhman 1967, Elstad 1980)
 - Realization of postlexical pitch accents at the word or compound level (Riad 1998)
- (3) Conditions on the forms undergoing tonogenesis should also be relevant
 - Peak (or target) delay: number of *syllables*/word. 2 syllables (or more) > accent 2 (Öhman 1967, Elstad 1980, Lorentz 2002, Bye 2004, Kristoffersen 2004)
 - [Alignment difference with respect to monosyllables is subsequently reanalysed as a lexical tone distinction]
 - Stress clash: number of *stresses*/word. 2 stresses > accent 2 (d'Alquen & Brown 1992, Riad 1998)
 - [Subsequent reduction of secondary stress leads to reanalysis involving lexical tone]

In addition, there have been assumptions regarding the relevance of surface minimal pairs as a driving force in the lexicalization of tone.

- (4) The explanandum in tonogenesis is the lexical tone of accent 2. Accent 1 is accent 2 minus the lexical tone (in most dialects).

CSw	<i>Lexical tone</i>	<i>Other tones</i>
	H	<u>L</u> H L]
	" a c c e n t 2 "	
	"acc 1"	

Note: I use the term "lexical tone" for the extra initial tone in accent 2. However, this tone occurs both by lexical specification and as the result of postlexical tone assignment.

Note: (4) amounts to a privative analysis of Scandinavian word accent. This does not affect the general argument made in this talk, however.

- (5) The theories that assume that the number of syllables is the basis for accent 2 (Peak delay in all variants + traditional assumption, Sw 'tvåstavighetsaccent' e.g. Hellquist 1980 [1922], Nyström 1997) fail to connect with broad generalizations of modern, synchronic postlexical accent 2.

- (6) Peak delay theories make prosodic simplex forms (and their number of syllables) the basic context for tonogenesis. [prosodic simplex = one stressed syllable]
- However, there are pervasive present-day generalizations that have to do with (more than one) stress, that yield *postlexical* accent 2, both at the level of prosodic compounds and phrases.
 - These have to be posited as *post hoc* developments in peak-delay theories, which is (I'll argue) a weakness.
 - Why should accent 2 become so intertwined with stress(es) after it has become lexical, rather than being intertwined before it becomes lexical?
- (7) The stress clash theory makes prosodically complex forms (= more than one stress) the basic context for tonogenesis.
- The present-day stress-related patterns are thereby integrated (or integratable) into the process of tonogenesis.
 - By Occam's razor, this theory should therefore be preferred.

2. Two stresses as synchronic cause for accent 2 – types of situation

(8) Prosodic compounds (Central Swedish, Göta, Dala, Gotland)
 compounds: ²*sommar*₁*dag* 'summer day', *ba*²*nan*₁*skal* 'banana peel', ²*byx*₁*kjol* 'pant-skirt'
 formal compounds: ²*även*₁*tyr* 'adventure', ²*para*₁*dis* 'paradise', ²*ar*₁*bete* 'work'
 some derivations: ²*sjuk*₁*dom* 'illness', ²*kraft*₁*full* 'forceful', ²*under*₁*bar* 'wonderful'

Note: The accent of a morpheme in isolation (to the extent they occur in free forms) does not affect the accent of the prosodic compound, in the dialects indicated here.

(9) Norwegian stress retraction (Kristoffersen 2000) (prosodically and morphologically circumscribed)

(i) <i>protes</i> ¹ <i>tere</i>	>	² <i>protes</i> ₁ <i>tere</i>	'to protest'	
(i) <i>selek</i> ¹ <i>sjon</i>	>	² <i>selek</i> ₁ <i>sjon</i>	'selection'	
(i) <i>bekka</i> ¹ <i>sin</i>	>	² <i>bekka</i> ₁ <i>sin</i>	'snipe'	
(i) <i>be</i> ¹ <i>ton</i>	>	² <i>be</i> ₁ <i>ton</i>	'concrete'	
cf. <i>be</i> ¹ <i>tone</i>		* ² <i>be</i> ₁ <i>tone</i>	'to stress'	prefixes <i>be-</i> , <i>for-</i>
<i>ru</i> ² <i>tine</i>		* ² <i>ru</i> ₁ <i>tine</i>	'routine'	accent 2 at the outset
<i>sjoko</i> ² <i>lade</i>		* ² <i>sjoko</i> ₁ <i>lade</i>	'chocolate'	accent 2 at the outset

Note: It is unclear if the initial secondary stress in the first four forms is really phonological, in Swedish at least.

(10) Phrasal accent 2 (morphologically circumscribed)

a. Accent 2 in Norwegian particle verbs, Kristoffersen (2000, 288)

² <i>komme</i> + ¹ <i>fram</i>	>	₀ <i>komme</i> ¹ <i>fram</i>	or	[² <i>komme</i> ₁ <i>fram</i>]	'arrive'
² <i>finne</i> + ¹ <i>ut</i>	>	₀ <i>fin</i> ¹ <i>nut</i>	or	[² <i>fin</i> ₁ <i>nut</i>]	'find out'
² <i>komme</i> + ¹ <i>over</i>	>	₀ <i>kom</i> ¹ <i>mover</i>	or	[² <i>kom</i> ₁ <i>mover</i>]	'come across'
² <i>komme</i> + ² <i>etter</i>	>	₀ <i>kom</i> ² <i>metter</i>	or	[² <i>kom</i> ₁ <i>metter</i>]	'come later'
¹ <i>kommer</i> + ¹ <i>fram</i>	>	₀ <i>kommer</i> ¹ <i>fram</i>	or	[² <i>komme</i> ₁ <i>fram</i>]	'arrives'
¹ <i>finner</i> + ¹ <i>ut</i>	>	₀ <i>finne</i> ¹ <i>rut</i>	or	[² <i>finne</i> ₁ <i>rut</i>]	'finds out'

¹kommer + ¹over > ₀komme¹rover or [²kom₁mover] 'comes across'

¹kommer + ²etter > ₀komme²retter or [²kom₁metter] 'comes later'

Note: Unlike the examples in (9), the accent of the particle, before stress retraction, is of no consequence.

b. North Swedish particle verbs (Görel Sandström p.c.)

jag ska [²slå₁in] an åt de 'I'll wrap it for you'

[²skick₁å] den 'send it'

[²får₁ut] den 'gets it out'

(11) Not all dialects have accent 2 in prosodic compounds. It is therefore extra interesting to study what factors influence accent in dialects that do not have general postlexical accent 2.

(12) South Sw (Malmö). Two stresses in clash (no anacrusis, no linking-*s*) yield accent 2 (Bruce 1973, 1974).

Nonce compounds: ²*blod-prins* 'blood prince', ²*mjolk-hambo* 'milk hambo (dance)',
²*vax-lök* 'wax onion', ²*tax-höna* 'dachs hen'

(13) Thirty years of south Swedish compounds (Bruce 1974, Ström 1998, Wikström 2004)

	<i>nonce compounds</i>	Malmö		Kristianstad		Klippan	Halmstad		Göta, Sthlm
		1973	1998	1973	1998	2004	1973	1998	73/98
a.	^x taxi- ^x gris	1	1	1	1	1 (50%)	1	1 (53%)	
	^x taxi- ^x gris					2 (50%)		2 (47%)	2
b.	^x skog-s- ^x hals	1	1	1	1	1	1 (48%)		
	^x skog-s- ^x hals						2 (52%)	2	2
c.	ba ^x nan- ^x kust	1	1	1 (35%)		1			
	ba ^x nan- ^x kust			2 (65%)	2		2	2	2
d.	^x lax-cho ^x klad	1	1			1 (33%)			
	^x lax-cho ^x klad			2	2	2 (67%)	2	2	2
e.	^x in- ^x kläckt	1	1	1	1	1 (57%)			
	^x in- ^x kläckt					2 (43%)	2	2	2
f.	^x klot-[^x arm- ^x band]	1 (68%)	1						
	^x klot-[^x arm- ^x band]	2 (32%)		2	2	2	2	2	2
g.	^x cykel- ^x plank (<i>l,r,n</i>)	1 (43%)	1 (40%)						
	^x cykel- ^x plank (<i>l,r,n</i>)	2 (57%)	2 (60%)	2	2	2	2	2	2
h.	^x blod- ^x prins	2	2	2	2	2	2	2	2
i.	[^{x(2)} mask- ^x ros]- ^x brand	2	2	2	2	2	2	2	2
j.	^{x2} sommar- ^x träsk	2	2	2	2	2	2	2	2

(14) Legend:

a. 1st part is a disyllabic accent 1 word in isolation (*taxigris* 'taxi pig')

j. 1st part is a disyllabic accent 2 word in isolation (*sommarträsk* 'summer marsh')

- b. linking-*s* (*skogshals* 'forest neck')
- c. anacrusis (Auftakt) (*banankust* 'banana coast')
- d. 1st part is monosyllabic, no clash (*laxchoklad* 'salmon chocolate')
- e. participle (*inkläckt* 'inhatched')
- f. 1st part is monosyllabic, clash [A+[B+C]] (*klotarmband* 'ball bracelet')
- i. 1st part is monosyllabic, clash [[A+B]+C] (*maskrosbrand* 'dandelion fire')
- g. 1st part is an *l,r,n*-word (var. etymology and var. accent) (*cykelplank* 'bicycle boardwall')
- h. initial clash (no anacrusis) (*blodprins* 'blood prince')

(15) The Malmö system

The accent of the compound is the same as the accent of the first element in isolation (a,b,c,d,e,f,g,i,j)

but initial stress + clash always yields accent 2 (h), except when there is a linking-*s* in the compound (b).

- Anacrusis favours accent 1 prosodic
- Stress clash favours accent 2 prosodic
- Linking-*s* favours accent 1 lexical/morphological
- Participles favour accent 1 lexical/morphological
- *l,r,n* words alternate, probably due to both lexical factors and prosodic factors (trad. analysis is to consider underlying distinction in terms of the number of syllables, e.g. Linell 1972). This group needs further analysis.

(16) Malmö conflicts:

- a. Anacrusis >> Stress clash (cf. Kristianstad: Stress clash >> Anacrusis) by 1998
- b. Linking-*s* >> Stress clash (cf. Halmstad: Stress clash >> Linking-*s*) by 1998
- c. Participles >> Stress clash (cf. Halmstad, Klippan: Stress clash >> participles)
- d. Lexical tone >> Linking-*s*

(17) Lexical accent 2 in the first compound member (necessarily polysyllabic) prevails, in the face of Linking-*s*.

- ²minne-*s* + för₁lust > ²minne-*s*-för₁lust 'amnesia'
- ²sommar + ¹träsk > ²sommar-₁träsk

Note: Linking-*s* occurs later in history than the origin of lexical accent 2.

(18) Accent 1 in a polysyllabic first compound member also seems to prevail

- ¹bandy + ¹solo > ¹bandy,solo 'bandy solo'
- ¹taxi + ¹gris > ¹taxi,gris

Theories that assume accent 1 to be intonation pure and simple here encounter a difficulty. However, it is not necessary to posit underlying, lexical accent 1 to understand the influence of accent 1 in polysyllabic forms. Rather, there are locality conditions that determine the assignment of accent 2 (cf. appendix, below).

(19) Malmö thus exhibits a mixture of prosodic, lexical and morphological factors influencing accent in compounds.

(20) The diachronic dynamics (within dialect, diachronically southbound and synchronically geographically northbound across dialects) appears to support stepwise generalization of accent 2 in compounds beyond the core postlexical context of clash, starting with prosodic generalization over h, i and j of item (13) above.

(21) A lot of work remains to be done in this area, on other dialects that have variable accent in compounds. Beside South Swedish (Bruce 1974, Delsing & Holm 1988, Ström 1998, Wikström 2004), there are several investigations of East Norwegian with regard to variable accent in compounds (made up of monosyllables), cf. Withgott & Halvorsen (1984, 1988, Kristoffersen 1992, Wetterlin, Jönsson-Steiner & Lahiri forthc.).

(22) North Sw. Clash yields “normal” CSw accent 2 instead of final tonal mark (Bruce 1982)¹

- Final tonal mark is regular in the unstressed post-tonic syllable in the first compound element

²1SOMmar-₁träsk > ²1sommar-₁TRÄsk ‘summer marsh’

²1TAXi-₁gris > ²1taxi-₁GRI ‘taxi pig’

- Final tonal mark occurs less often in prosodically similar, but morphologically different structures

²1TAnd-ka₁nal > ²1tand-ka₁NAI ‘tooth canal’

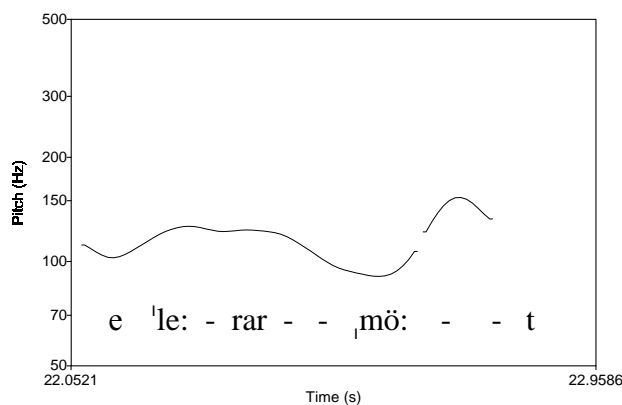
²1KLOt-[₁arm-₁band] > ²1klot-[₁arm-₁BAAnd] ‘ball bracelet’

- Clash blocks final tonal mark

²1BLOd-₁prins = ²1BLOd-₁prins ‘blood prince’

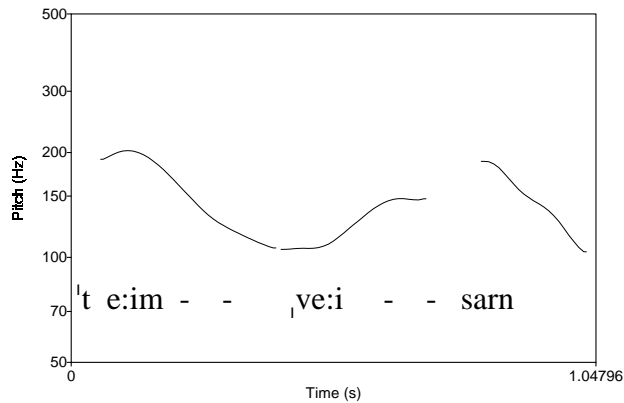
ba²1NAN-₁kust = ba²1NAN-₁kust ‘banana coast’

(23) Kalix (NSw) compounds (from Swedia <<http://swedia.ling.umu.se/>>)



a. Kalix. *ett* ²1lärar₁möte ‘a teachers’ meeting’

¹ This phenomenon is traditionally referred to as Sw. *Slutledsbetoning* ‘stress on the final compound member’.



b. Kalix. ²*tim,visaren* 'the hour hand'

Note the less pronounced fall from the first peak in panel a. This is likely to cause the auditory impression that prominence shifts to the other, more pronounced peak (Gösta p.c.).

(24) Contention

Two stresses that clash → accent 2

Two stresses → accent 2

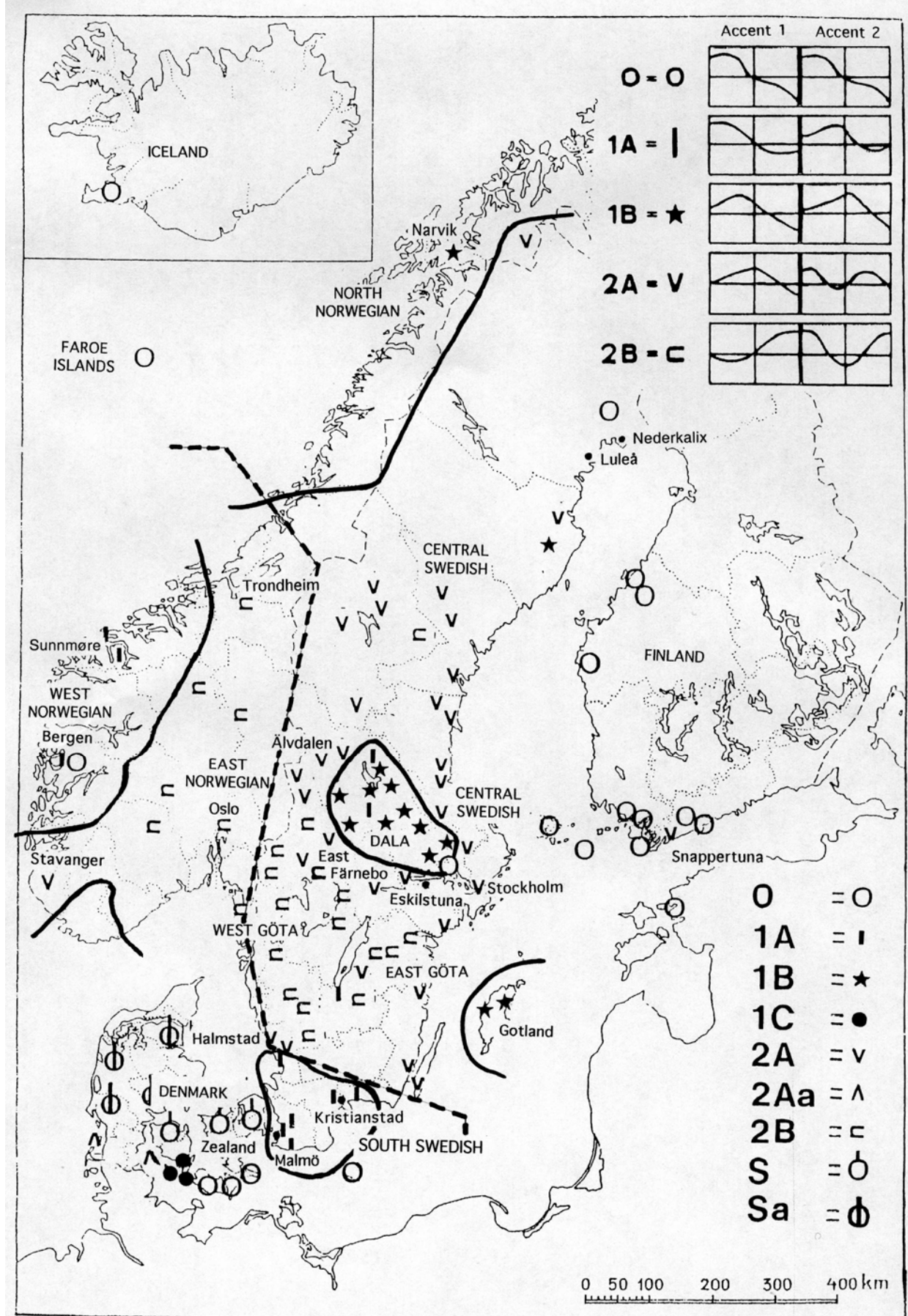
3. Tonal structure of dialects and general accent 2 in compounds

The predictions of the number-of-syllables rule are wrong for many dialects, since only certain tonal grammars can have general(ized) accent 2 in compounds.

(25) A major isogloss in Scandinavian dialect typology concerns whether or not dialects have accent 2 generally in prosodic compounds.

This is sometimes referred to as "connective" and "non-connective" dialects (the idea being that accent 2 signals what belongs to the compound).

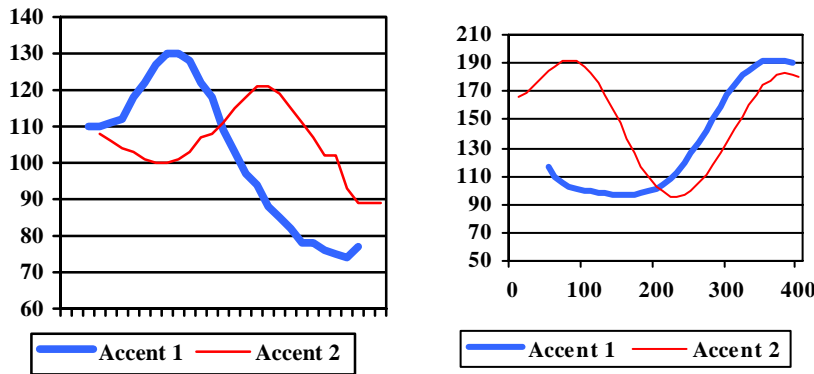
(26) Map of Scandinavian tone accent dialects



Legend: T = lexical or postlexical (accent 2) tone
T = "focus" tone (not functionally equivalent in all dialects)
T] = boundary tone
²'sommar₁ledig₁heten 'the summer vacation' = long compound which gets accent 2 in all dialects.

← = spreading
- - - - - = interpolation

(27) Single-peak accent 2 and double-peak accent 2 in focus position (simplex).
Bergen, W.Nw **Oslo, E.Nw** (graphs from Kristoffersen 2004)



(28) "Connective" dialects have accent 2 in compounds

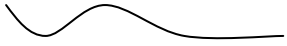


Dialect	Stylized phonetic contour	Phonological representation
Stockholm CSw	 'sommar- ₁ ledig- ₁ heten	H ← ——— LHL] 'sommar- ₁ ledig- ₁ heten
Lule, Arvidsjaur, Kalix NSw	 'sommar- ₁ ledig- ₁ heten	H - - - - - LHL] 'sommar- ₁ ledig- ₁ heten
Göta-WSw	 'sommar- ₁ ledig- ₁ heten	H ← ——— LH] 'sommar- ₁ ledig- ₁ heten
Dala, Narvik-NNw, Gotland	 'sommar- ₁ ledig- ₁ heten	L ← ——— H L] 'sommar- ₁ ledig- ₁ heten
Ö. Färnebo (northern)	 'sommar- ₁ ledig- ₁ heten	L - - - - - H L] 'sommar- ₁ ledig- ₁ heten

(29) Compound exceptions within the connective dialects are lexicalized to different degrees
 names: ¹*Gun*-(_i)*Britt*, ¹*Tor*-(_i)*Leif*, ¹*Jans*(_i)*son* (but ²*Eva*-_i*Britt*, ²*Johans*,_i*son*)

berries: ¹*blå*(_i)*bär* 'blueberry', ¹*vin*(_i)*bär* 'currant' (but ²*åker*,_i*bär* 'arctic bramble')

days of the week: ¹*tis*(_i)*dag* 'Tuesday', ¹*fre*(_i)*dag* 'Friday' (but ²*fri*,_i*dag* 'free day', opt.
²*fre*,_i*dagen* 'the Friday').

(30) "Non-connective" dialects have either accent in prosodic compounds. The distribution of accents is influenced by various lexical, morphological and prosodic factors, as we have seen.

<i>Dialect</i>	<i>Stylized phonetic contour</i>	<i>Phonological representation</i>
Stavanger (old) SWNw		$\underline{\text{HLH}} \text{----- L]$ ¹ sommar- _i ledig- _i heten
OH Stavanger 2004 (Hognestad 2006)		
Oslo-ENw		$\underline{\text{HL}} \text{----- H]$ ¹ sommar- _i ledig- _i heten
OH Oslo (Kristoffersen 2000)		
Malmö-SSw, Bergen-WNw, Kristiansand-SNw		$\text{L } \underline{\text{H}} \text{----- L]$ ¹ sommar- _i ledig- _i heten

(31) Parameters of the tonal grammar

a. The Lexical tone associates to the primary stress (all dialects)

b. The T ("focus") tone associates to the main stress if there is no lexical tone, i.e. accent 1 (all dialects)

c. The T tone is right/left aligned

Right: Stockholm-CSw, Luleå-NSw, Göta-WSw, Dala, Gotland, Narvik-NNw, Ö.Färnebo(north),

Left: Stavanger-SWNw (old, and changing, cf. Hognestad 2006), Malmö-SSw, Bergen-WNw, Kristiansand-SNw, Oslo-ENw

[d. The Focus tone is associated to the last stress (whole set of the above right-aligning dialects, potentially a subset)]

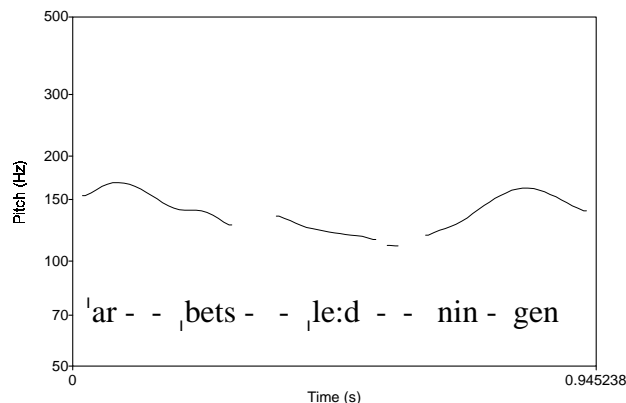
Note: (31d) is thus possibly not an independent parameter (from 31c).

(32) What is the difference between these groups of dialects?

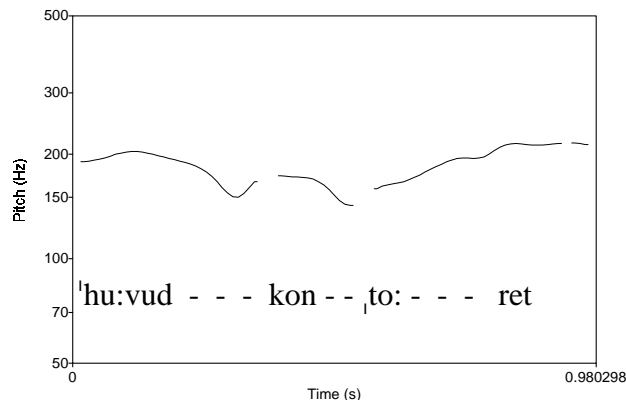
- The so-called connective dialects have right-alignment + an anchoring point for the T tone ("focus") at the last stress of the compound.
 Non-connective dialects don't.

- This is partly a hypothesis which would predict that the minimal difference between East Nw (variable accent in compounds) and Göta-WSw (accent 2 in compounds) is the status of association of the T tone in the last stress. These dialect types are often said to have the same tonal make-up.
- Accents 1 and 2 in simplex forms have remarkably similar f0-tracings in several Göta-WSw dialects, cf. Segerup (2003). This underscores the importance of looking at long compounds in order to get at the tonal grammar.

(33) Ankarsrum (WSw) compounds (from Swedia <<http://swedia.ling.umu.se/>>)
Both panels illustrate that the lowest point of the L tone occurs in the last stressed element of the compound, suggesting association there.



a. Ankarsrum. ²*ar*₁*bets*₁*ledningen* 'the labour management'



b. Ankarsrum. ²*huvud*₁*kon*₁*toret* 'the main office'

If this is right, then it is a case of stress-sensitivity on the part of postlexical accent 2. Ankarsrum (and Göta generally) should be compared with East Norwegian, e.g. the graphs in Kristoffersen (2000, 249).

- (34) In the analysis of ENw by Kristoffersen (2000), L-spreading between main stress and the penultimate syllable is said to be unconstrained by secondary stresses. This is interpreted here as 'no association'.
- (35) In sum, what we have seen regarding the tonal grammar of the dialects indicates that there is sensitivity to stress (2 stresses) in the dialects where accent 2 has general distribution in prosodic compounds.

(36) Peaks

- The peak delay theory singles out "single-peak" (in acc 2) dialects like Malmö-SSw, Bergen-WNw, Kristiansand-SNw) as relatively archaic.
- The stress clash theory singles out "double-peak" (in acc 2) dialects like Stockholm-CSw and Göta-WSw as relatively archaic.
- Both "single-peak" and "double-peak" dialects occur in both connective and non-connective types.
- Thus, the number of peaks difference does not play a role for the argument made in this talk.

(37) The crucial context for tonogenesis in the stress clash theory is stress clash (obviously), and this context favours accent 2 in both single- and double-peak connective and non-connective dialects. (Double-peak dialects are however assumed to be more archaic, in the full version of that theory.)

The case needs to be made more clearly in these terms for East Norwegian and other non-connective dialects, though.

(38) Predictions

- a. Peak delay theory: If the number of syllables is the relevant basis for tonogenesis and synchronic accent 2, it is predicted, that any dialect should be able to generalize accent 2 in compounds, since prosodic compounds (incl. many derivations) are trivially polysyllabic. This prediction is so far unmet.
- b. Stress clash theory: If two clashing stresses is the relevant basis for tonogenesis and synchronic (postlexical) accent 2, then it is predicted that stress clash should still favour accent 2, and by generalization it is expected that structures containing two stresses should favour accent 2.

(39) The dialect pattern demonstrates that it is precisely those dialects where the T tone is sensitive to a secondary stress that get connective accent 2, while either dialect type can instantiate accent 2 over two stresses (Norwegian and North Swedish retraction, respectively).

(It is an open issue whether we ever get retraction in single-peak dialects.)

(40) Conclusions

- Stress is really important for the postlexical phonology of accent 2, in many, and maybe all, dialects. This constitutes an argument for a stress based analysis of the origin of accent 2. The stress clash theory is stressed based.
- If stress isn't assumed to be involved in the origin of accent 2, then all the stress sensitivity has to be explained as later developments, a problem for the peak delay theory.
- The failure of peak delay theories to connect with stress involves a false prediction, which undermines those theories empirically and methodologically.

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Appendix

- (1) Problem: How do we deal with words like *taxi* which get accent 1 in isolation and yield accent 1 also in compounds? Assuming accent 1 is pure intonation, a lexical specification is not available.
- (2) General answer: Locality
- (3) Postlexical version of the locality constraint.
Accent 2 is *prosodically* assigned only if the secondary stress is immediately adjacent to the primary stress (²*blod-prins*, but ¹*taxi-gris*, ¹*lax-choklad*).
(anacrusis overrides in Malmö; Postlexical locality is removed in CSw)
- (4) Lexical version of the locality constraint
Accent 2 is *lexically* assigned only if the inducing suffix is immediately adjacent to the primary stress (²*båt-ar*, ²*flick-or* but ¹*kaktus-ar*, ¹*oper-or*).
(Lexical locality is in force in CSw)

A given dialect may have both at the same time, and both may be involved in the Malmö pattern.

- (5) Morphological version of the locality constraint
Accent 2 is prosodically or lexically assigned only if the inducing factor (stress or lexical tone) is in the immediately adjacent *morpheme* (Malmö ¹*skog-s-hals*, CSw ¹*part-isk-het*, cf. ²*klok-het*).
(This has formerly been called the 'two-morpheme constraint', stating that lexical accent 2 information has to occur within the first two morphemes in order to be active)
(Morphological locality occurs in CSw, but is limited, and derivable from lexical locality constraint, in CSw)
- (6) The hypothesis is that prosodic factors are reanalysed as lexical and/or morphological factors
 - The postlexical accent 2 assignment procedure caused by the presence of a secondary stress in a suffix is reanalysed as a lexical tone in that suffix.
 - Prosodic locality, in force for postlexical accent 2 assignment, is reinterpreted as lexical and/or morphological locality.