ABSTRACT
It is demonstrated how a particular model of intonation-syntax interaction will account for the ways in which Norwegian sentence intonation affects one's understanding of the relative semantic scopes of negator and quantifier/adverb in negative sentences with straight and inverted word order. The central prosodic unit referred to in this study is the Intonational Phrase, which is an immediate constituent of the largest intonational unit.

STATING THE PROBLEM
The data with which I am concerned are spoken utterances of Norwegian sentences containing two semantic operators, one of which is the negation marker ikke (or enclitic 'ke) and the other one a quantifier or a time or frequency adverb. Cf. English.

(1) It didn't happen often. (= It happened seldom)
(2) We didn't find many. (= We found few)

If often and many are preposed, the scope relations are reversed. The operator to the left takes priority over the one to the right. While often and many are NEG-INTERNAL (i.e. inside the scope of 't) in (1) and (2), they are NEG-EXTERNAL in (1') and (2').

(1') Often it didn't happen.
(2') Many we didn't find.

Substituting a time adverb like yesterday for the frequency adverb of (1)-(1'), it is possible to get a NEG-external interpretation of the adverb even in (3) where the negator precedes it. (This is hardly possible with often in (1) or many in (2).)

(3) He didn't come yesterday.
(3') Yesterday he didn't come.

A falling nuclear tone on come followed by a low rise on yesterday favours an interpretation of (3) that makes it synonymous with (3'). All other intonation patterns communicate that the adverb is supposed to be in the scope of not.

The intonation structures that we impose on these syntactic structures all share certain important features. They all contain one very prominent rising pitch accent movement at a fairly early point in the utterance.

THE INTONATION MODEL
Cruttenden, in his textbook on intonation [1], distinguishes between intonation languages, pitch accent languages, and tone languages. He classifies Norwegian and Swedish as 'predominantly intonational languages' in which 'a limited number of words are distinguished by tone alone'.

His remarks on Norwegian and Swedish prosody
are unfortunately marred by his expressed belief that one of the two word accents, the word accent, is somehow ‘the common accentual pattern’, and that Accent 2 has a much more limited function that the word accent. Accents 1 and 2 are distinct word accents that are always present in spoken signals, and they are phonologically distinct quite independently of their differentiating morphological function. The actual number of minimal pairs whose word members are distinguished solely by word accent—say a limited number like five hundred, or a larger number like five or ten thousand—is quite irrelevant if the facts are such as to show that accented syllables are associated with high pitch, and therefore the two opposing word accents. The pitch contours determined by the word accents are always present in the global intonation patterns of utterances. In East Norwegian, on which the present study is based, there is no neutralisation of the word accent distinction in any environment. The two paradigmatically opposed pitch profiles can actually be said to shape the various sentence intonation patterns of East Norwegian (word) accent and intonation. This has no bearing on the structural relations between words, groups of words, and phrases as defined by the intonational category corresponding to Norwegian sentence intonation. A raised foot-final peak is an important juncture marker, too. The turning-point where the pitch starts to drop from a focal peak marks the boundary between two INTONATIONAL PHRASES (IPs). In East Norwegian intonation there is a large pitch difference between PRE-focal and POST-focal in the category of nonfocal, nonformal, word accent melodies. The exact length of a Norwegian foot can be ascertained quite easily due to the two contrasting word accent melodies appearing early in the foot. Because the word accents are so easy to perceive for the (native) listener, the word accent melodies in foot contacts, which are associated primarily with the accented syllable, constitute the foot, have an important function apart from the local one, namely to mark the juncture markers for prosodic feet, and the tonal structure of the foot is of paramount importance for Norwegian sentence intonation. A raised foot-final peak is an important juncture marker. The systematic phonetic difference between PRE-focal and POST-focal in the category of nonfocal, nonformal, word accent melodies is independent of the local highs and lows of the prosodic foot. The systematic phonetic difference between those two types of nonfocal Foot structure is identified by the listener’s identification of the locus of a focal peak representing the FOCUS DOMAIN. The FOCUS DOMAIN in the surface-syntactic representation of the sentence.

INTONATIONAL PHRASES AS INFORMATION UNITS

Differences in intonational phrasing bear directly on the surface-syntactic structure of utterances. For any IF ending in a foot specified as [raised peak] there is a corresponding FOCUS DOMAIN in the surface-syntactic representation of the sentence. The intonational distinction between them is unmarked by the fact that you go down in pitch when you produce the East Norwegian word accent in the initial part of a foot. In West and Northern Norwegian, the word accents are associated with high pitch, [raised peak], and therefore the intonational distinction in the initial part of the foot. Hence, the first part of the intonational structure exists independently of the later part of the foot. The exact length of a Norwegian foot can be ascertained quite easily due to the two contrasting word accent melodies appearing early in the foot. Because the word accents are so easy to perceive for the (native) listener, the word accent melodies in foot contacts, which are associated primarily with the accented syllable, constitute the foot, have an important function apart from the local one, namely to mark the juncture markers for prosodic feet, and the tonal structure of the foot is of paramount importance for Norwegian sentence intonation. A raised foot-final peak is an important juncture marker.

In declaratives, the XP position is filled by a subject (coming from IF under S) or a noun phrase (coming from somewhere within IF under S). COMPO is filled by the finite verb or a valid subject

On the other hand, if IF is one focus domain and the other one is a foot or part of S', then the former is a theme and the latter a rhyme.

The syntactic focus domains (henceforth FPDs) associated with IFs or IFs are considered to be the smallest information units that exemplify the whole S exemplify BROAD FOCUS as described by Ladd. In East Norwegian, FPDs include a number of syntactic and prosodic features. The term ‘raised peak’ being one of them (cf. Section 2.3).

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you have thematised the subject, intonation-
ally as well as syntactically, and a later 
focal accent will coincide with the thematic 
syntactic element sometimes referred to as 
the information focus of the sentence. 
The following three distinct IUs 
contain the same number of IPs and display 
the same basic type of theme-rheme structure. 
(I am using a self-explanatory labelled 
bracketing notation where focally accented 
words are written in capitals.)

(7) ( ( (HÅN-kom) ) ( (IKKE-i) ) ( (går) ))) 
IUP F IP F IP F

(8) ( ( (HÅN) ) ( (KÖM-ikke-i-går) ) ) 
IUP F IP F

(9) ( ( (HÅN) ) ( (köm-ikke-i- (VAR) ) ) 
IUP F IP F

Though all three versions are negations of 
the proposition "he came yesterday", they 
do not answer the same questions. The under-
lined words constitute syntactic phrases 
which are separate focus domains according 
to the definition of focus domain offered 
above. (7) is an example of 'phrasal nega-
tion', which means that there is a positive 
CONVERSATIONAL IMPLICATURE, namely: 
There were others who did yesterday, 
attached to the negative statement, an implicature 
that is lacking in (8)/(9). In (7) the scope of 
the negator ikke includes the thematic FD 
in the XP position. Similar things can be 
achieved in English by means of one tonal 
nucleus placed on he and another on not; 
HE did NOT come yesterday. Ikke is focally 
accented in (7) in order to underscore the 
negative polarity of the statement. The 
 denial of the proposition "he came yesterday" 
is the only directly conveyed new information 
in (7). In (8) the finite verb, kom, carries 
focal accent for a similar reason. Here the 
rhemantic FD dominated by $i$ is the COMP node. 
That FD includes the negator, because any 
occcurrence of unaccented ikke is verb-eliciti-
ic, even if it retains its segmentally full 
form. The verb gets focal accent in (8) for 
the same reason that the negator got it in 
(7). It is made accentually prominent for 
modal reasons, and there may be no 'contrast-
ive stress' involved here. There is, however, 
one interesting functional difference between 
assigning POLARITY FOCUS (8) to ikke and 
assigning it to the verb. Focal accent placed 
on ikke links the negator with some other 
FD in the sentence in such a way that we 
readily interpret the syntactic material of 
that FD as a phrase which is inside the 
scope of ikke - a NEG-INTERNAL phrase, and 
in our example (7), a NEG-internal theme. 
the subject han. When it is the verb that 
carries focal accent in order to highlight 
the (negative) polarity of the sentence, we 
tend to interpret the semantic scope relations 
differently. Now the scope of ikke is 
generally taken to cover no syntactic items 
to the left of the negative operator, and 
the subject han of (8) is therefore a NEG-
EXTERNAL theme.

Suppose we retain the polarity focus on the 
verb/negator in sentence (4) but assign foc-
al accent to the AdvP i går ('yesterday') 
instead of the subject. The usual denial 
will again be the new information conveyed 
in the speech act, and focal accent on ikke 
may still be felt to connect the negator 
more closely to the preceding thematic FD 
i går than in the alternative version where 
kom gets the focal accent. And indeed, it 
is possible to interpret the sentence in either a NEG-internal 
theme if ikke is the focussed polarity item, 
but only the NEG-internal interpretation is 
possible if the focal accent is on kom.

Preposing the AdvP, as in (4)', we find a 
potential meaning difference between letting 
polarity focus be carried by the verb or by 
the negator, but this time (10) is the am-
biguous structure and (11) the unambiguous 
form which only admits a NEG-external in-
terpretation of the phrase i går.

(10) ( ( (GÅR-kom-han) ) ( (IKKE) ) ) 
IUP F IP F

(11) ( ( (GÅR) ) ( (KÖM-han-ikke) ) ) 
IUP F IP F

The pair (5)-(5') contains a frequency Adv 
- ofte - where (4)-(4') had a time Adv. The 
only difference between (5) and (4) is that 
with a frequency Adv it is impossible to 
get a NEG-external interpretation of a 
sentence-final theme even if there is focal 
accent on the verb. (5') differs markedly 
from the English sentence Often it doesnot 
happen, where often is NEG-external regard-
less of the intonation employed. The theme 
ofte in (12) is ambiguously NEG-external or 
NEG-internal, depending on the context.

(12) ( ( (OFTE-skjer-det) ) ( (IKKE) ) ) 
IUP F IP F

If the accent is shifted from ikke to skjer, 
ofte is outside the scope of negation, as 
In the English translation.

Our decision to distinguish NEG-external 
from NEG-internal themes is strongly sup-
ported by data like (6)-(6') where a quanti-
fier - mange ('many') - interacts with the 
negator. When mange is in the XP position 
and receives focal accent there is a clear-
cut semantic difference between the negator-
in-focus version, which means either Mary we didn't 
find or We found few (not many), and the verb-in-
focus version, in which VANGE only has the form 
reading with a NEG-external theme.