

NEGATION AND ASPECT

A text consists of utterances. The coherence and order of the utterances makes the text a structured whole. Each utterance by itself consists of many pieces of information, but coheres with the other utterances with only some of these (those within the focus of the utterance), the others being marked as irrelevant for the relationships to other utterances. I will distinguish between two sorts of irrelevant information: presupposed information (not focusable) and parenthetical information (focusable, but not focused).¹

Look at some examples:

- (1) han sov i to timer
he slept for two hours
- (2) han vågnede på to timer
he woke up in two hours

What is focused and what is irrelevant in the sentences is easily seen if the sentences are negated:

- (3) han sov ikke i to timer
he didn't sleep for two hours
- (3) implies either (4) or (5):
- (4) han sov, men ikke i to timer
he slept, but not for two hours
- (5) han sov ikke, og det i to timer
he didn't sleep, and that for two hours
- (6) implies (7) but not (8):
- (6) han vågnede ikke på to timer
he didn't wake up in two hours
- (7) han vågnede, men ikke på to timer
he woke up, but not in two hours
- (8) *han vågnede ikke, og det på to timer
he didn't wake up, and that in two hours

The implications of the negated sentences show that in (1) either sov (slept) or i to timer (for two hours) is focused, the other part being parenthetical information. In (2) på to timer (in two hours) is focused, and vågnede (woke up) is irrelevant. In both (1) and (2) han (he) is presupposed. With another intonation and stress pattern it would be otherwise (HAN sov i to timer (HE slept for two hours). But I prefer to disregard the con-

trast stress pattern and concentrate my investigation on the structure of normal focusing. Henceforth the examples will have normal stress patterns. The reason why the language has to express the difference between those three kinds of information is that each utterance in human communication has to be relevant. This principle has been formulated by Grice (1975). But owing to the structure of the lexicon and the structure of the sentences, and because it is necessary also to offer redundant information, it is necessary to mark what information is to be understood as part of the background information of the speaker and the hearer (the presupposed information), and what information the speaker can focus on.

Of the focusable information one part is related to the following utterances in the text or to the situation and so it is focused, the other parts being parenthetical information:

- (9) han sov i to timer, så han kom for sent
he slept for two hours, so he was late
- (10) han sov i to timer, så det var ikke ham der ringede
he slept for two hours, so it wasn't him who called

In (9) it is most natural to see a relation of causation between the duration of the sleeping and his being late, and so the information i to timer (for two hours) is taken to be focused, and sov (slept) is parenthetical information.

In (10) it is most natural to see a relation between his being asleep and the impossibility of calling. So in (10) sov (slept) is taken to be focused, and i to timer (for two hours) is parenthetical information. In that way the distinction between focused and parenthetical information only shows up in the context of other utterances or in a situation. Talking about only one sentence it is necessary to describe both parts of the sentence as focusable (which is the same as possibly parenthetical).

In this paper I will discuss how the semantics of sentences in perfective and imperfective aspect, including their information structure, may be described and, to a certain degree, explained.

A description and an explanation of the semantics of an utterance requires a formalised language to keep and maintain the meaning (and possibly the ambiguity) as an object. I think logical syntax can be used, namely the function calculus or predicate calculus using functions and arguments, operators and operands. But for most purposes a simplified formalisation will work.

To explain the difference between (1) and (2), I will point to the explanation given in Bartsch 1972. Here the difference between two sorts of durational adverbials is not mentioned. But I think it is fair to say that (1) han sov i to timer (he slept for two hours) could be described as a conjunction of the stating of the event of his sleeping and the equating of two hours and the amount of the duration of the event:

(11) (Ev) $[SLEEP(HE)] * v \ \& \ f^M(f^{DUR}(v)) = TWO\ HOURS$

In words (11) says: 'there is an event such that he is sleeping, and the amount and the duration of that event is two hours' (Bartsch 1972: 203).

On the other hand på to timer (in two hours) in (2) han vågnede på to timer (he woke up in two hours) could be described as an operator which has the process of his waking up as its operand:

(12) $f^M(f^{DUR}(1\ r) (P(HE, r) WAKING-PROCESS(r))) = TWO\ HOURS$

In words: 'two hours equates the amount of the duration of the process in which he is, and which is a process of waking up' (Bartsch 1972: 175).

Explanation of the notation: v is an event variable. $[PREDICATE(ARGUMENT)] * v$ is the event-splitting notation from Reichenbach 1966: 269. It is a sort of nominalisation of an event. f^M and f^{DUR} are functions defined as 'the amount of' and 'the duration of':

$f^{DUR} = (ix) ENDURE(y_1, x)$

$(ix)F(x)$ is the notation for definite descriptions. It is read: 'the x which F '. For the iota-operator, as it

is called, it is possible to give a normal

$G((ix)F(x)) \leftrightarrow (Ex) \langle F(x) \ \& \ (y) (F(y) \rightarrow y = x) \rangle \ \& \ G(x)$ where $\langle \rangle$ means 'is presupposed'. $(y) (F(y) \rightarrow y = x)$ is the expression of the uniqueness: 'for all y it holds that if y F then y is x ' which means 'there is only one x which F , or 'the x which F ' (Bartsch 1972: 69).

The point of the description is that an event can be negated (with the result that a circumstance is expressed). A process cannot be negated. It is logically impossible to talk of a process which does not proceed.

The ambiguity of (1) is accounted for in (11) by the conjunction. But according to the normal calculus of statements it holds that:

$-(p \ \& \ q) = -p \ v \ -q = (-p \ \& \ q) \ v \ (p \ \& \ -q) \ v \ (-p \ \& \ -q)$

The meaning of (3) cannot be $(-p \ \& \ -q)$, or in words: 'he didn't sleep, and that not for two hours'. It is expected by (11). So I don't find it is an adequate description.

What is given here is - in my opinion - an adequate description of the ambiguity of (1), and two explanations of the same fact of impossibility of negation of the predicate vågnede (woke up) in (2). In the very definition of the iota-operator the phenomenon of presupposition is built in. If an expression containing the iota-operator is negated, the predicates under the scope of the iota-operator are not negated. That means that only the equation sign, '=', is negated in (12), the other parts being presupposed, because they occur under the scope of the iota-operator defining both the measure function and the duration function. So the impossibility of negation of the predicate vågnede (woke up) in (2) is accounted for twice:
it is impossible because of the iota-operator, and it is impossible because of the process nominalisation.

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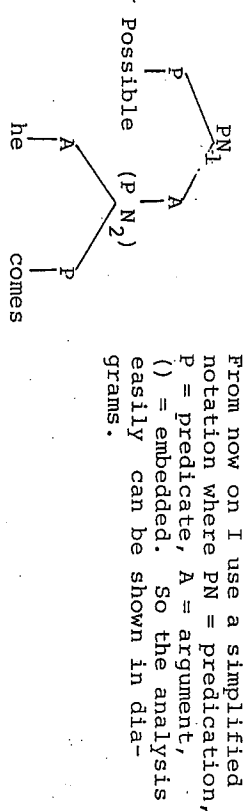
To explain the difference between (1) and (2) we need a description of the principle which is introduced in logic with the iota-operator (and the lambda operator),

namely the principle of downgrading or featurising.

Embedding is a well known way of including one predication as an argument within another:

- (13) det er muligt han kommer
it is possible that he comes

14)

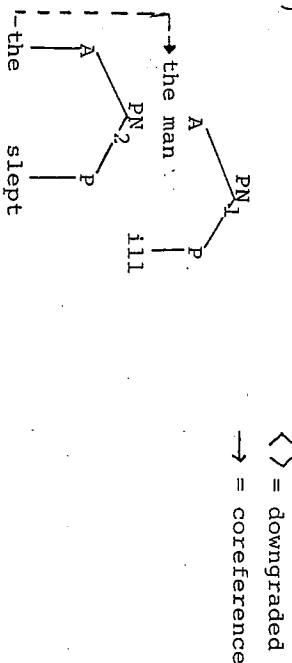


But there is a second way in which one predication may be included within another: The position of the predication is reduced in the semantic hierarchy to the status not of an argument, but of a feature.

The featurised predication can occur within an argument qualifying it as an adjective or a relative clause.

- (15) manden som sov, var syg
the man who slept was.ill

(16)

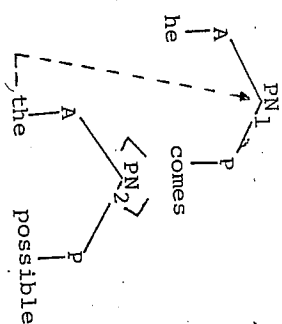


I think such qualifying downgraded predication is what is accounted for by the Iota-operator.

The downgraded predication can also occur inside a pre-dicate modifying it as an adverbial or relative clause corresponding to a whole sentence.

- (17) han kommer muligvis
(lit.) he comes possibly

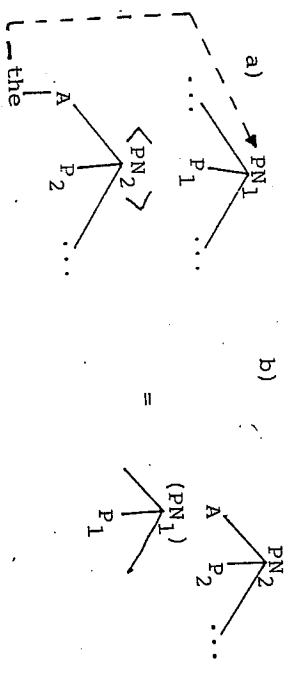
(18)



Now Geoffrey N. Leech has proposed a general principle that for every construction with embedding there is an equivalent construction with downgrading. In his own words:

If main predication PN₁ contains within itself a modifying predication PN₂, then an otherwise equivalent formula in which PN₁ is embedded as an argument in PN₂ may be substituted for it. (Leech, 1974:266)

(19)



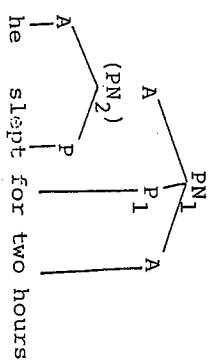
The equivalence does not hold for the whole semantic structure including the information structure. On the contrary, it is my claim that information structure is explained by difference in structure (embedding or downgrading) of compound predications. The topmost predication is the one which is focused, the others being irrelevant or presupposed. In (19a) P₁ can be the focused part of the sentence, and in (19b) it is P₂ which is focused.

The ambiguity of (1) can be explained in the following way:

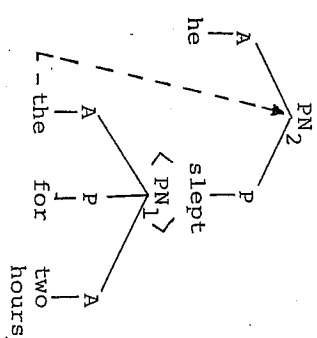
- (1) han sov i to timer
he slept for two hours

It can be analysed as either an embedding construction (20) or as a downgrading construction (21):

- (20)

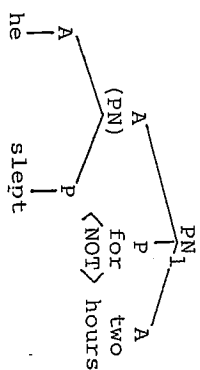


- (21)

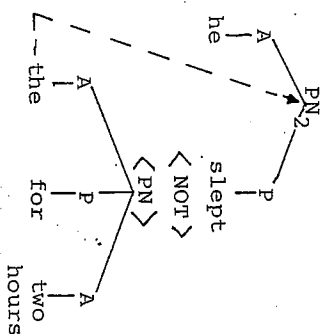


The negation applies to the topmost predicate, and so we have the two negated forms (22) and (23):

- (22)



- (23)



'he slept, but not for two hours' 'he didn't sleep, and that for two hours'

The initial problem of the difference between (1) and (2) can now be formulated in another way:

- (1) han sov i to timer
he slept for two hours
(2) han vågnede på to timer
he woke up in two hours

Why doesn't (2) have the same two possibilities of information structure as (1) has? Why is the downgrading construction not possible for predications containing

perfective verb phrases like *vågnede* for predications containing imperfective verb phrases like *sov* ('slept')? It is a general rule in Danish that all imperfective verb phrases can be combined with duration adverbials constructed with *i*, so that the sentence has two possible information structures. Perfective verbs can be combined with duration adverbial constructed with *på*, and the resulting sentence has only one possible information structure. ²

- (24) soldaterne belejrede borgen i to måneder
the soldiers besieged the castle for two months
(25) soldaterne erobrede borgen på to uger
the soldiers conquered the castle in two weeks
(26) han lavede mad i timevis
he cooked for hours
(27) han lavede maden på 40 minutter
he cooked the food in 40 minutes

In this connection it should be mentioned that perfective verbs if negated can be combined with durational adverbials constructed with *i* but then the resulting sentence has only one information structure, not the embedding construction as nonnegated perfectives but the downgrading construction.

- (28) hun vågnede ikke i to timer
she didn't wake up for two hours
(28) implies (30) but not (31):
(30) hun vågnede ikke, og det i to timer
she didn't wake up, and that for two hours
(31) *hun vågnede, men ikke i to timer
she woke up but not for two hours

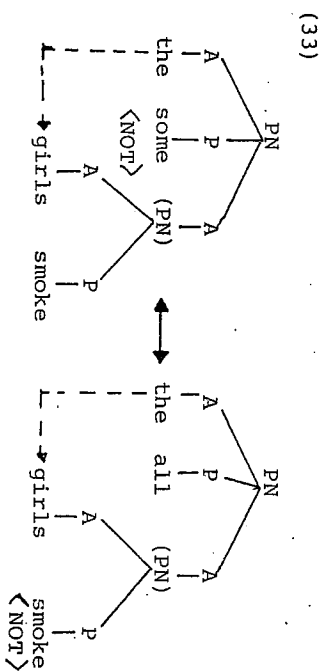
The explanation is that all perfective verb phrases if negated, form another verb which is imperfective in so far as it is combined with durational adverbials constructed with *i*. A decomposition of the perfective verb phrase will show that it can be analysed as a kind of inverse opposition.

The inverse opposition is well known from quantifiers. The universal and the existential quantifier are inverses. It is expressed by (32):

- (32) (Ex) F (x) ↔ ¬(Ax) ¬F(x)
 (Ax) F (x) ↔ ¬(Ex) ¬F(x)

In words: quantifiers are negated in another way than predicates. Negating the existential quantifier some is the same as substituting all for some and negating the embedded predicate. If it is assumed that quantifiers are a sort of predicates (because they can be negated), this can be illustrated as:

(Leech 1974: 171)



'for none of them, girls smoke'

'for all of them, girls do not smoke'

This peculiarity of inverses has the effect that for inverses the rule of subordination does not hold. (34) and (35) have different information structures, but also different truth values:



The meaning of the negation of (34) is: 'no girls smoke', but the meaning of the negation of (35) is: 'some girls do not smoke'.

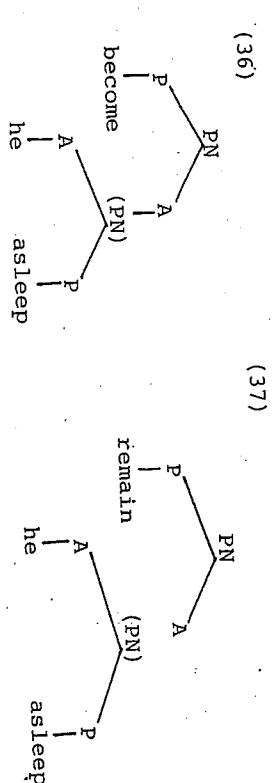
These two qualities of inverses hold for all perfective verb phrases too.

at have (have) is an imperfective verb, la (gel) a culer sponding perfective verb, and beholde (keep) its inverse. Other examples are, respectively:

vare (be), blive (become), forblive (remain)
sove (sleep), falde i søvn (fall asleep), sove videre (sleep on)

vågen (awake), vågne (wake up), ligge vågen (lie awake)
lave mad (cook), lave maden (cook the food), holde maden varm (keep the food hot).

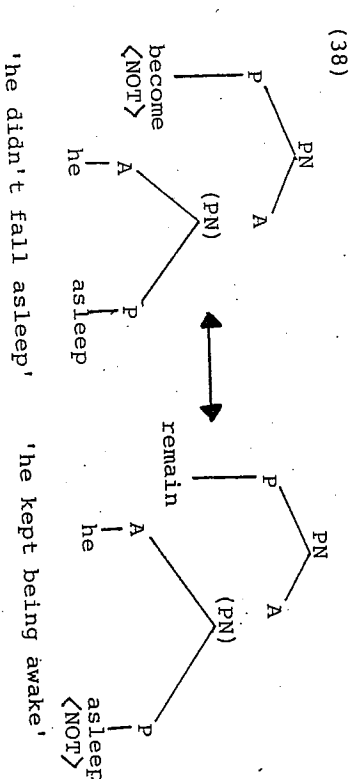
Often perfectives are analysed as inchoatives in the following way:



'he fell asleep'

'he slept on'

The inverses of the perfective verbs are analysed in the same way, only with the predicate REMAIN instead of BECOME. As for quantifiers, the rule of substitution does not hold for (36) and (37), and like the quantifiers, (36) and (37) are negated by substituting BECOME for REMAIN (or vice versa) and negating the embedded predicate:



'he didn't fall asleep'

'he kept being awake'

'han faldt ikke i søvn på
 to timer'
 he didn't fall asleep in
 two hours

(43)

The first tree diagram represents the sentence "He became asleep". The root node is PN, which branches into P and A. The P branch leads to the word "became", which is derived from the root "become" and the node "<NOT>". The A branch leads to the word "asleep", which is derived from the root "A" and the node "(PN)". The word "he" is the subject of the sentence, and "in two hours" is the adverbial phrase.

The second tree diagram represents the sentence "He remained awake". The root node is PN, which branches into P and A. The P branch leads to the word "remained", which is derived from the root "REMAIN" and the node "<PN>". The A branch leads to the word "awake", which is derived from the root "A" and the node "(PN)". The word "he" is the subject of the sentence, and "for two hours" is the adverbial phrase.

- 'han faldt ikke i søvn i to timer↔hàn lå vågen i to timer'
he didn't fall asleep for two hours↔he lay awake for two hours

with i-adverbials. If we make one more observation about the adverbials, however, we can see that the description is too simple. The observation is the following: (44) means in the embedded reading: 'he slept less than two hours', while (45) means: 'it took more than two minutes for him to wake up'.

(44) han sov ikke i to timer
he didn't sleep for two hours

(45) han vågnede ikke på to minutter
he didn't wake up in two minutes

This difference can be explained by supposing that i and på are converses - as i and på are or can be in their locative meaning: handsken er på hånden (the glove is on the hand) is synonymous with hånden er i handsken (the hand is in the glove). The meaning of a sentence with an i-adverbial is paraphrased by

(46) he slept, and the period of sleeping was greater than or equal to two hours
while the meaning of a sentence with a på-adverbial is paraphrased by

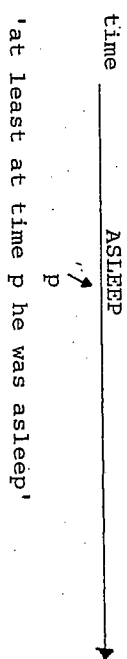
(47) the time period in which he woke up was less than or equal to two minutes

It is rather uneconomical to express this idea in the simple formalisation with embedding and downgrading trees. The trees become too big. On the other hand it is necessary to make a further decomposition of the imperfective and perfective verbs, and it is necessary to state how the points of time and time periods are quantified. Therefore I will suggest an analysis formulated in logical syntax again.

(48) han sov
he slept
Ep: SOVE(x,p)
p,q = points of time
E = existential quantifier
in words: 'he slept at the point of time p'

(49) hun vågnede
she woke up
A = universal quantifier
At: (Ap: BEFORE(p,t) → SLEEP(x,p)) →
(Aq: AFTER(q,t) → AWAKE(x,q))
in words: 'if a period of time follows all the sleeping points, all the points of time following it are waking points'.

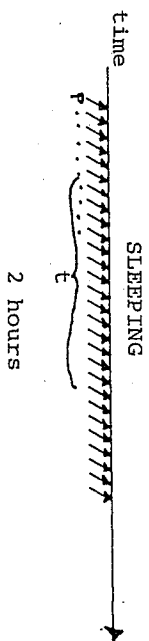
The analysis can be illustrated in the following manner.
Time is going to the right:



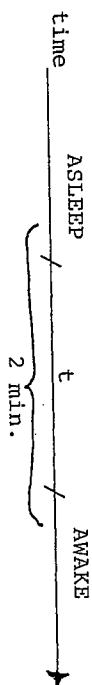
'at least at time p he was asleep'

time ASLEEP | AWAKE
p
pppppppppp t qqqqqqqqqq
'All the periods following the sleeping were previous to the waking'

(50) han sov i 2 timer
he slept for 2 hours
Et: (Ap: IN(p,t) → SLEEP(x,p)) & (t ≥ 2 h.)
in words: 'there is a period where he slept, and that period was greater than or equal to 2 hours'



(51) hun vågnede på 2 minutter
she woke up in 2 minutes
At: (Ap: BEFORE(p,t) → SLEEP(x,p)) →
(Aq: AFTER(q,t) → AWAKE(x,q))
in words: 'if a period following the sleeping points was previous to the waking points, it was less than or equal to 2 min.'



In this formalisation it is easily seen why i-adverbials can not be combined with perfective verbs. It is impossible to talk of a period (t) in which all of the included periods ($u^1, u^2, u^3, \dots, u^n$) are following the sleeping points and followed by the waking points. If we assume that the first of the included periods (u^1) is followed by the waking points, then the next period included (u^2) will not follow the sleeping points. And that would be the meaning of a sentence like *han vågnede i 2 timer.

Now all the observations about duration adverbials can be explained according to the normal rules in logical syntax. (3) will have two readings:

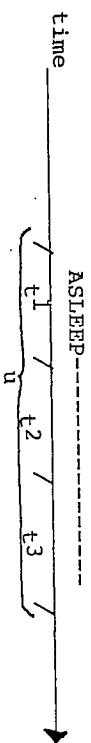
- (52) han sov ikke i to timer
he didn't sleep for two hours
(52,1) At: (Ap: IN(p,t) \rightarrow SLEEP(x,p)) \rightarrow (t \nrightarrow 2 h.)
'he slept, but less than two hours'
(52,2) At: (t \nrightarrow 2 h.) \rightarrow (Ep: IN(p,t) & -SLEEP(x,p))
'he didn't sleep, and that for two hours'

(6) has only one reading:

- (53) hun vågnede ikke på to minutter
she didn't wake up in two minutes
Et: (Ap: BEFORE(p,t) \rightarrow SLEEP(x,p)) \rightarrow \nrightarrow 2 min.
(Aq: AFTER(q,t) \rightarrow AWAKE(x,q)) \nrightarrow \nrightarrow 2 min.

If the perfective verb is negated it is described by an existential quantifier, and there will be no contradiction if it is combined with an i-adverbial.

- (54) hun vågnede ikke i to timer
she didn't wake up for two hours
Eu: At: IN(t,u) \rightarrow (Ap: BEFORE(p,t) \rightarrow SLEEP(x,p))
& (Eq: AFTER(q,t) & -AWAKE(x,q)) \nrightarrow u \nrightarrow 4 h.



Two theoretical points can be mentioned in connexion with this analysis. The first point is that the two duration adverbials cannot be described by themselves. Their distribution depends on the verb in the sentence, and the meaning of the adverbial is understood only in relation to the logical structure of this verb. The distribution of the adverbials depends on the composition of the qualifiers within the verb.

Secondly, what is often called information structure or presupposition is accounted for, not by a certain formal device which indicates the information structure in addition to and independently of the semantic structure, but as an integrated part of the composition of the verb. All perfective verbs presuppose an antecedent state and entail a following state, and that is what is accounted for by the formulas (49), (51) and (54).

What is not dealt with in this description is the derivation of the surface structure from the deep structure formulated in logical syntax. I think it can be done along the lines indicated in the books of Leech (Leech 1974) and Bartsch & Vennemann (Bartsch & Vennemann 1972). But this lies outside the topic of this paper.

Notes:

1. Parenthetical information is meant as a technical term in the description of information structure; it is not the same as parenthetical clause.

2. See Fabricius-Hansen 1975.

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I dette foredraget ønsker jeg i første rekke å reise spørsmålet om grunnlaget for å isolere grammatiske størrelser i språk. Terner som 'passiv', 'transformasjon' osv. tilmører grammatikerens tenning-logi, hans modell. For at de skal kunne brukes i en beskrivelse av likheter og ulikheter mellom språk og språkstadier, må vi forsikre oss om at de har en konsekvent denotasjon. Nærmere bestemt, vi må spesifisere betingelser for å kunne hevde (a) at et språk har en isolerbar grammatisk størrelse α , og (b) at α kan "meta-kategoriseres" som passiv. Dette er en logisk forutsetning for typologisk-komparative og diakrone studier av passiv. Følgelig kommer jeg ikke til å diskutere de gammelnorske konstruksjonenes historiske opphav, senere utvikling eller paralleller i andre språk. Dette skyldes da ikke at jeg oppfatter disse problemene og litteraturen om dem som uinteressante; det skyldes erkjennelsen av at spørsmålet om gammelnorsk har passiv, går logisk forut for spørsmålene om hvorfor og hvorfra gammelnorsk fikk passiv.

I. INNLEDNING

Hvis vi slår opp på Passiv i M. Nygaards Norrøn Syn-tax fra 1905 (s. 174 ff.), finner vi følgende formulering:

"Det passive forhold uttrykkes a) ved sammensetning af fortids part. og vera [...] b) ved sammensetning af fortids part. og verða; [...] c) i stor udstrækning ved aktive udtryk i 3die pers. ental med udeladt ubestemt subjekt [...] d) i enkelte tilfælde i folkelig stil og ofte i l. ærd. s [till]. ved den reflexive verbalform."

For Nygaard synes dermed 'passiv' å være et semantisk forhold som man a priori kan gå ut fra blir uttrykt i et språk. Grammatikerens oppgave blir å finne ut hvordan.

Spørsmålet er imidlertid om dette passivbegrepet, selv om det skulle la seg presisere, er et fruktbart utgangspunkt for en grammatisk beskrivelse. Det kan snarere sies at det nettopp er språkets grammatikk man unnlater å beskrive når utgangspunktet medfører at "aktive uttrykk i 3die pers. ental" blir klassifisert som 'passiv'. (Et eksempel er "svåsegir f. tryggva flokki" 'så sies (eg. "sier") i Trygves flokk (et slags kvad)').

1. Jeg skylder flere av konferansedeltagene takk for verdifull kritikk, i første rekke Hreinn Benediktsson, som har sådd sunn tvil om holdbarheten av konklusjonen 'nei'. Nevnes må også Ulf Telleman og Pierre Rica.