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Particles, Prefixes and Preposition Stranding*

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1. Introduction

The phenomenon of preposition stranding has attracted growing attention in recent years. This particular aspect of the syntax of PPs has been brought forward in order to illustrate various principles and subsystems of generative syntax, e.g. the syntactic structure of PPs and syntactic markedness phenomena (van Riemsdijk 1978), the distribution of empty categories and language typology (Kayne 1980, 1981), Case theory and Reanalysis (Hornstein and Weinberg 1981), just to mention some important recent contributions (see overview in Chomsky 1981:292 ss.). Since Danish is one of the few languages of the world which can, and to a very large extent does, strand prepositions, it does not seem unreasonable to continue the ongoing discussion by attracting attention to this and related aspects of the syntax of Danish.

1.1 The three structures

The kind of structures I propose to examine in this paper are illustrated in (1) through (3):

(1)   a.   Han lagde en plade *på grammofonen.*
           'He put a record on the grammophone'
     b.   Han lagde en plade *på.*
           'He put a record on'

(2)   a.   De tænker *på at flytte til Jylland.*
       b.   De *påtænker at flytte til Jylland.*
           'They consider moving to Jutland'
(3)   a.   Hun tænker aldrig *på sit udseende.*
       b.   *Sit udseende* tænker hun aldrig *på.*
           'She never gives a thought to how she looks'

In (1), we have an alternation between a PP and a postverbal particle (or adverb), which I propose to describe, in 2.1, as an alternation between a transitive and an intransitive use of prepositions. In (2) there is an alternation between a PP as a prepositional object and a verb prefixed with a P followed by a direct object: V P + NP – P + V NP. In (3) we have a case of extraction from PP (by a rule of topicalisation), whereby the preposition is left behind, gets stranded. All three structures involve a kind of dissolution of a PP as a consequence of which the P becomes isolated from its complement. All cases seem to exhibit a subtle interaction between verbs and prepositions and it might, on the face of it, seem well motivated to treat the three cases together in order to find an adequate approach to the phenomenon of preposition stranding which constitutes the main topic of the paper.

But before we turn to a more detailed analysis of the three structures in Danish, let us try to place them in a somewhat broader typological perspective within the modern Germanic languages.

1.2 Typological remarks
With regard to the three structures, the following division of the Germanic languages obtains:

> *German* has a combination of (1) and (2).
>
> *Dutch* has the same combination of (1) and (2) and a restricted version of (3) (only certain pronominal elements can be extracted from a PP).
>
> *Danish* (and the other Scandinavian languages) has (1), a restricted version of (2) (wholly or partly lexicalised), and (3).
>
> *English* has (1) and (3), but not (2).

Since all these languages have (some version of) (1), the Verb – Particle structure, we can assume that this is a common Germanic struc-
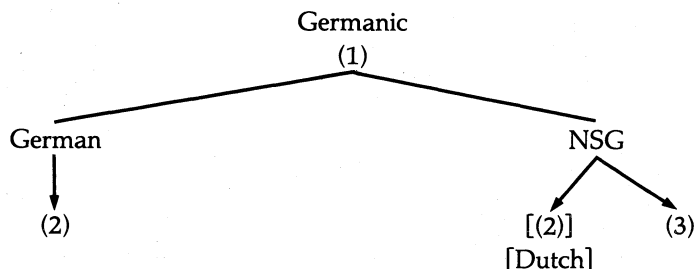
tural feature, and that this is the basic structure which is presupposed by the others. We can thus, quite tentatively, propose the following typological "law": in order for a language to have (3), stranding, it must have (1), the Verb – Particle structure. This can be assumed to be a necessary, but of course not a sufficient condition. On the other hand, the existence of (1) also seems, logically but not necessarily historically, to precede or to merge with (2), so that the structure represented by (1) really constitutes a basic structural feature of the Germanic languages:

<pre>
    German   Dutch, Danish   English
     (1)   (1)   (1)
      | / \ |
      v   v   v   v
     (2)   (2)   (3)   (3)
</pre>
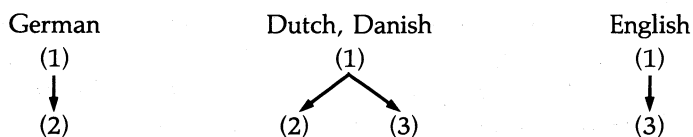
Since German which does not have (3) is a case language, and the others, which have (3) are not, it could be the case that the existence of (3), or its absence in spite of the existence of (1), has something to do with the existence of overt case marking of NPs. In any event, this feature sets German off from the other languages[1].

On the other hand, the productive existence of (2) in Danish is somewhat problematic: the alternation illustrated in (2) is hardly syntactically productive, but has been almost completely lexicalised. I return to this question in section 3.1.

Two other constructions which also exist in Danish, Dutch and English tend to modify the typological picture above: the double object construction and the preposed s-genitive. So the emerging typological classification is one where German, the case language with no preposition stranding, is opposed to the other languages, which, for brevity and for obvious geographical reasons, can be referred to as *Northsea Germanic* (NSG)[2]:

<pre>
                        Germanic
                          (1)
               /   \
          German   NSG
            | /   \
            v   v   v
           (2)   [(2)]   (3)
                                 [Dutch]
</pre>

The following sections will be devoted to an examination, in this typological perspective, of the three structures in Danish (as representative of NSG), with occasional glances at the other NSG languages and German, in an attempt to grasp the syntactic factors which govern the phenomenon of preposition stranding.

2. The Verb – Particle structure

2.1 Particles as intransitive prepositions

Since I have already referred to the particle as an 'intransitive preposition', thereby following Emonds 1972, it should be patent that I regard the particle as representing a PP whose complement is empty. The strongest argument in favour of this identification of particles and PPs is that both occupy positions which very many verbs are lexically subcategorised for: they are part of the lexically determined core constructions of the verbs in question. So many verbs of movement, intransitive and transitive alike, have a directional complement which can be filled by either a particle or by a PP:

(4)   a.   Han gik *ud.*
            'He went out'
            Han gik *i Tivoli.*
            'He went to Tivoli'
    b.   De sendte ham *ud.*
            'They sent him out'
            De sendte ham *i Tivoli.*
            'They sent him to Tivoli'

The elements which can thus function as the sole representative of PP are of two kinds: "real" particles, i.e. elements which never function as prepositions (e.g. *ud* 'out', *ind* 'inside', *ned* 'down', *op* 'up', *hen* 'all the way', *væk* 'away', etc.), and prepositions used intransitively (both are traditionally labeled 'adverbs' in this use). One off-hand argument for the identification of "real" particles and intransitively used prepositions is the identical prosodic contours in sentences (5) a. and b.; both the "real" particle of a. and the intransitive preposition of b. receive the main sentence stress:
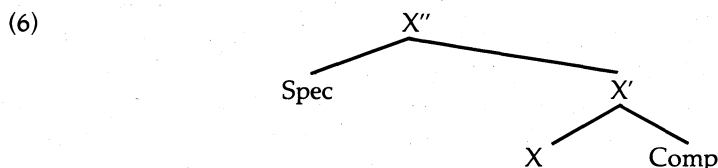
(5)   a.   Han lukkede katten *'ud.*
            'He let the cat out'

b. Han lagde en plade *'på.*
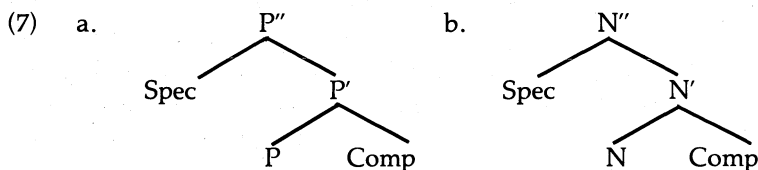'He put a record on'

In the analysis of these structures, I shall accordingly assume, as Emonds 1972 and van Riemsdijk 1978, the same status for "real" particles, (5) a., as for intransitive prepositions, (5) b.: both act as full PPs.

Having established the structural equivalence of intransitive (both kinds) and transitive prepositions, let us now turn our attention to the representation of PPs.

The essential claim of $\bar{\text{X}}$-theory is that all major syntactic categories are constructed along the same lines. So a PP will look much the same as an NP, both having the canonical form of (6):

(6)

```
                    X''
          _____/    _____
       Spec                      X'
                              __/  \__
                            X        Comp
```

where X is the "lexical head". Although it does not seem obvious that NPs, which are what is traditionally known as 'endocentric' constructions, should have the same internal structure as PPs, traditionally qualified as 'exocentric' constructions, I shall however assume that they do (Herslund 1980 presents some evidence from the syntax of Old French in support of this view). I represent accordingly PPs as in (7) a., with an NP in b. for illustrative purposes (this PP structure is basically identical to that of Jackendoff 1977 and van Riemsdijk 1978, although I do not assume their extra layer, P'''):

(7) a.

```
                P''                    b.           N''
          __/     \__                          __/     \__
       Spec          P'                     Spec          N'
                  __/  \__                             __/  \__
                P        Comp                        N        Comp
```
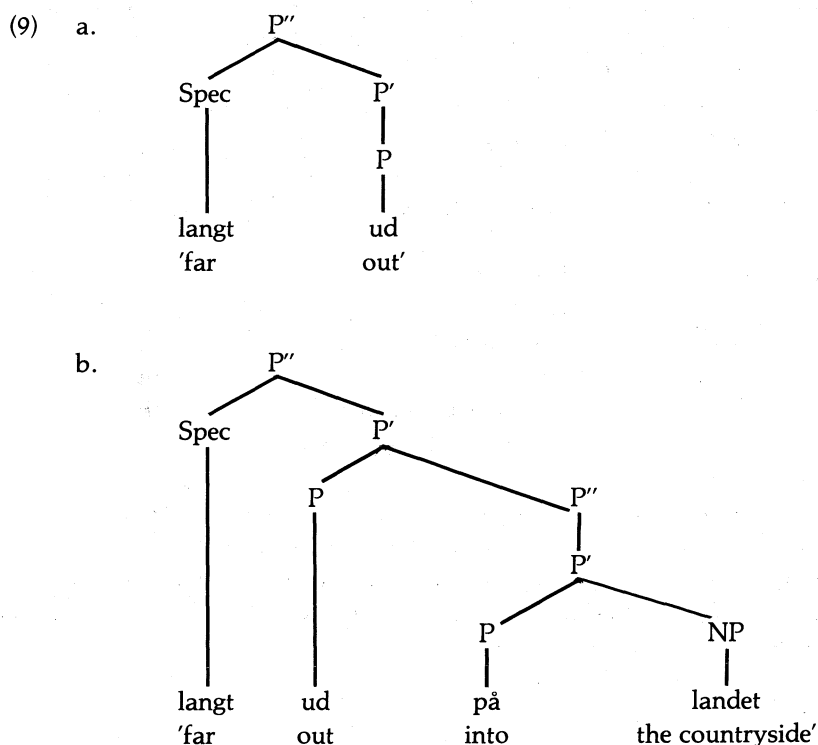
The specifier of the PP is of course often empty, but contains otherwise material such as different adverbs, but I shall not enter into the details of the specifier here (for a more detailed discussion, see van Riemsdijk 1978).

The data of (4) do not, however, tell the whole story of particles and PPs. The two co-occur quite often, as in (8):

(8) a. Han tog *ud på landet.*
         'He went out into the countryside'
     b. De sendte ham *ud på landet.*
         'They sent him out into the countryside'

When they co-occur, I assume that the particle constitutes an "outer" PP having as its complement the "inner" PP[3], the only way in which an otherwise intransitive element can be complemented, i.e. by a PP not by an NP.
   The two structures, particle and full PP, are illustrated in (9):

(9) a.

```
              P''
            /     \
        Spec       P'
          |        |
          |        P
          |        |
        langt      ud
        'far       out'
```

     b.

```
              P''
            /     \
        Spec       P'
          |       /    \
          |      P       P''
          |      |        |
          |      |        P'
          |      |      /    \
          |      |     P      NP
          |      |     |      |
        langt    ud    på    landet
        'far     out   into   the countryside'
```

As is readily seen from these diagrams, particles exhibit the features normally associated with intransitive uses: either they are followed by nothing, or they are followed by a PP (P''), just like intransitive verbs.
   It is this capacity of reducing PPs to a single element, the intransitive

use of *any* preposition, which is taken as a basic characteristic of the Germanic languages and which creates the first condition for preposition stranding to occur.

2.2. Particles, PPs and predicates

The preceding section discussed the internal structure of PPs. But what about the structural relation of these to the rest of the sentence, in particular to the VP? This question has a major importance for the discussion of the following sections.

If particles and PPs, or combinations of both, are really the same thing, as proposed in 2.1, it is to be expected that they occupy the same position in the syntactic tree, the more so since, as suggested in connection with (4), they have the same functional role with regard to verbs.

So first, what is the position of particles within the VP? It is in fact not easy to determine their position on the sole evidence of surface structures since the data of different languages seem to point in different directions. There is in particular a clearcut difference, within NSG, between English and Norwegian on the one hand, and Danish on the other, cf. (10):

(10)   *English:*   He let the cat *out.*
                       He let *out* the cat.
       Norwegian: Han lukket katten *ut.*
                       Han lukket *ut* katten.
       Danish: Han lukkede katten *ud.*
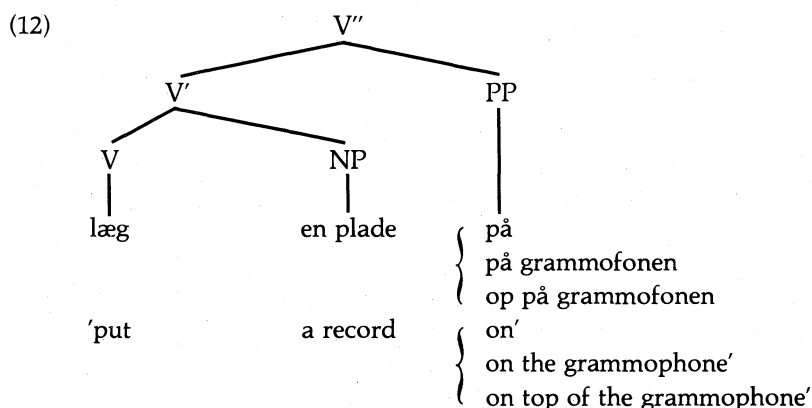   *Han lukkede *ud* katten.

Whereas in English and Norwegian the particle may precede or follow the direct object, only one sequence is permitted in Danish: no matter how long and cumbersome the direct object is, it precedes the particle[4]. On the other hand, if the direct object is a pronoun, the particle invariably follows it in both English and Norwegian:

(11)   a.   He let it *out.*
            *He let *out* it.
       b.   Han lukket den *ut.*
            *Han lukket *ut* den.

In view of these facts, I assume that the underlying order in NSG is Verb-Direct Object-Particle (cf. Emonds 1972:548). The inverted order in Eng-

lish and Norwegian, cf. (10), can be obtained either by a rule of extraposition of NP or by a rule of particle movement, as proposed in Emonds 1972. Whereas the rule of extraposition of NP on the face of it seems to have a better chance of being a general rule, the proposed rule of particle movement could interfere in an interesting way with the data described in section 3. and 5.1.

Secondly, for verbs which subcategorise for PPs, particles or both, I assume the following structure of the VP, where the verb forms one constituent with the direct object (if there is any), this constituent forming the VP (V″) with the PP:

(12)

```
                        V″
              _____/    _____
           V′                        PP
        __/  \__                     |
       V        NP                   |
       |        |                    |
      læg     en plade         ⎧  på
                               ⎨  på grammofonen
                               ⎩  op på grammofonen

      'put     a record        ⎧  on'
                               ⎨  on the grammophone'
                               ⎩  on top of the grammophone'
```

There appears to exist a constant relation between the subject of an intransitive clause and the object of a transitive clause on the one hand, and the PP on the other. With verbs of movement, the class of which constitutes the hard core of the verbs which enter into structures such as (12), the basic meaning of an intransitive clause is the placing of the subject in the "place" or "state" denoted by the PP or particle, that of a transitive clause the placing of the object in the "place" or "state" denoted by the PP or particle, cf. (4), (5) and (8). This relation never obtains in the transitive clause between the subject and the PP or particle. I have proposed elsewhere to characterise this constant relation as being of a predicative nature (see e.g. Herslund 1982, Herslund and Sørensen 1982, Herslund (forthcoming)). This is not the place to go into the details of this question, so I will only point to a few facts. "Real" predicates, in the object + predicate construction, seem to occupy the same structural position as the PP in (12); and, furthermore, the word order of the object + predicate and the NP PP structures are

identical, with the same movement possibilities in English, which are excluded in Danish, cf. (13):

(13) 1. a. Lock the bears *up.*
          Lock *up* the bears.
      b. Lock them *up.*
          *Lock *up* them.
      c. Set the bears *free.*
          Set *free* the bears.
      d. Set them *free.*
          *Set *free* them.
   2. a. Lås bjørnene *inde.*
          *Lås *inde* bjørnene.
      b. Lås dem *inde.*
          *Lås inde *dem.*
      c. Slip bjørnene *fri.*
          *Slip *fri* bjørnene.
      d. Slip dem *fri.*
          *Slip *fri* dem.

Some verbs can be followed by either a PP (or particle) or a predicative phrase, but not both, as predicted by the proposed configuration:

(14) a. Vi efterlod ham *på gaden.*
          'We left him in the street'
      b. Vi efterlod ham *helt udmattet.*
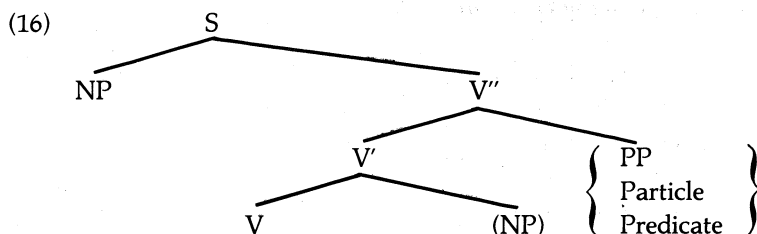   'We left him completely exhausted'

When both types of phrases occur in the same clause, the PP is clearly an "outer locative", a PP dominated by S, not by VP: it constitutes the "stage" of the entire situation described and has no special relation to the object NP.

With verbs like *vælge* 'elect', *udnævne* 'appoint', the predicate simply is a PP:

(15) a. De valgte Maggie *til statsminister.*
          'They elected Maggie prime minister'
      b. De udnævnte Olsen *til præsident.*
          'They appointed Olsen president'

These PPs behave like other PPs with regard to preposition stranding.

So I find that there are good reasons to assume the same configurational structure for PPs and predicative constructions:

(16)

```
                    S
        _____
      NP                       V''
                         _____
                       V'              ⎧ PP        ⎫
                 _____          ⎨ Particle  ⎬
               V          (NP)         ⎩ Predicate ⎭
```

Note incidentally that this exploitation of $\bar{X}$ structures allows a configurational definition of predicate phrases, viz. [NP/AP/PP, V'']: a predicate phrase is a noun phrase, adjective phrase or preposition phrase directly dominated by V'', as opposed to objects, [NP, V']. But the principal aim of this section has been to create an adequate framework for the discussion of the following section.

3. Prefixes: Incorporation of prepositions and particles

3.1 The syntax of prefixes in Danish

I have assumed that the existence of (1), the Verb-Particle structure, logically precedes the others. Languages which have (1) demonstrate the capacity of using prepositions intransitively. When the point of departure, in deep structure, is no longer an intransitive P, i.e. a PP with no complement, but a full PP, one can expect that such a language has some means of "detransitivising", or to put it differently, of breaking up PPs. There are two ways in which this "PP explosion syndrome" can manifest itself: either by removing the complement of the PP or by removing the P itself. These two procedures are illustrated in (17):

(17)   a.   NP ... V (NP) P + __

       b.   P + V (NP) __ (NP)

Case a. illustrates one version of preposition stranding by movement of NP, a process which creates an output structure similar to (1) b. Case b., the prefixation by a P, seems to work both on transitive and intransitive

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prepositions, whence the NPs within parentheses, as illustrated in (2) and in (18):

(18) a.   De tænker *på* at flytte.
           'They consider moving (out)'
           De *på*tænker at flytte.
           (same)
      b.   Han gav bolden *op*.
           'He served the ball'
           Han *op*gav sine studier.
           'He gave up his studies'

The a. case of (18) seems to be adequately handled by (17) b., P incorporation (prefixation). We only have to state the proviso that this is not, as already mentioned, a productive syntactic process, but rather a lexical rule or, at the very least, a highly lexically determined syntactic process. Apart from the example cited, one can mention a fairly long list of verbs prefixed with *fra* 'from', which exhibit this alternation, cf. (19):

(19) a.   Man tog hans tilladelse *fra* ham.
           'They took his licence away from him'
      b.   Man *fra*tog ham hans tilladelse.
           (same)

These constructions also interfere with the double object construction, cf. the different positions of the pronoun *ham* 'him' in a. and b.

   As a general feature of these lexicalised prefixation constructions, one should mention the fact that the V + PP structure retains the (often) concrete meaning associated with its constituents, whereas the prefixed verb often takes on a more derived (fused) meaning which is not always predictable from the constituent parts of the prefixed verb. Whereas the difference between the two parts of (18) a. and of (19) is minimal, there is a clear difference between (20) a. and b.:

(20) a.   Vi rejste *gennem* Tyskland.
           'We travelled through Germany' (e.g. in order to go to Switzerland)
      b.   Vi *gennem*rejste Tyskland.
           'We travelled (all) through Germany' (e.g. in order to see as much as possible of the country)

With some more or less fossilised PPs like *i værk, i gang* (both) 'at work, into function', the whole PP can be incorporated:

(21) a. De satte en undersøgelse *i værk*.
'They started an investigation'
b. De *iværk*satte en undersøgelse.
(same)

cf. further *komme i møde* 'come to meet, encounter' – *imødekomme* 'comply with'.

But one can cite cases which come closer to syntactic productivity. In the object + predicate construction, a predicative adjective can often be prefixed to the verb:

(22) a. Han gjorde vasken *ren*.
'He made the sink clean'
b. Han *ren*gjorde vasken.
(same)

This is of course hardly surprising in view of the common underlying structure I have assumed for PPs, particles and predicates, cf. (16).

In all cases, the preposition occurs as a prefix with participles used as adjectives:

(23) *en påtænkt flytning* 'a projected moving'
en frataget tilladelse 'a licence taken away'
et gennemrejst land 'a country travelled through
en iværksat undersøgelse 'a started investigation'
en rengjort vask 'a sink made clean'

But what about (18) b.? Is this also a case of P incorporation with the same concomitant meaning differences as in (20)? In view of the complexities associated with verb prefixation in Danish, I cannot go into a lengthy discussion here, but I would like to suggest that it is in fact the same rule of incorporation that is at work in (18) b., but that the two cases of that example belong to two different verb classes (for a general survey see e.g. Mikkelsen 1911:354 ss., Diderichsen 1957:236 ss.). We need probably at least three different classes of verbs:

1. The real prefixed verbs which are entered into the lexicon as such: *oversætte* 'translate', *efterlade* 'leave', *adlyde* 'obey', etc. These verbs,

which never occur in the Verb-Particle structure, are traditionally classified as "genuine compositions". They seem to present no problems.

2. A class of phrasal verbs (I borrow this handy term from Bolinger 1971) which sometimes occur in the Verb-Particle structure, sometimes have their particle prefixed. This class includes verbs like *give – op* 'give up, abandon', *dele – ud* 'distribute', *koble – sammen* 'couple (together)', *følge – efter* 'succeed', *tage – over* 'take over', etc. I propose that these verbs be entered in the lexicon as illustrated, i.e. as a verb followed by a particle[5]. The P incorporation rule will then be obligatory when the verbs of this class are used in their normal transitive construction, but facultative or excluded when they occur with no object, cf. (24)-(26):

(24)   a.   Han *over*tog forretningen efter sin far.
              'He took over the shop after his father'
         b.   *Han *over*tog e efter sin far.
              'He took over after his father'
         c.   Han tog e *over* efter sin far.[6]
              (same)
(25)   a.   Hun *ud*deler billetter.
              'She distributes tickets'
         b.   *Hun *ud*deler e.
              'She distributes'
         c.   Hun deler e ud.
              (same)
(26)   a.   Han *op*gav at kæmpe.
              'He gave up fighting'
       b.?   Han *op*gav e.
              'He gave up'
         c.   Han gav e *op*.
              (same)

In many cases however, an appropriate context will considerably improve the dubious examples, cf. (27):

(27)   Han *op*gav i 5. omgang.
          'He gave up in the 5th round'

With some of these verbs too, different meanings will be associated with the different structures, a more concrete meaning with the Verb-Particle structure, a more abstract one with the prefixed verb:

(28) a.　Han *ud*deler ordrer.
　　　　'He issues orders'
　　b.?　Han deler ordrer *ud.*
　　　　'He distributes orders'
　　c.　Han deler ordrer *ud* til højre og venstre.
　　　　'He issues orders right and left'

The verbs of this class will thus sometimes be homonymous with verbs of class 1., sometimes with verbs of the last class.

3. Phrasal verbs with no prefixed alternant. This class includes verbs like *give op* 'serve, kick off', *give ud* 'spend', *følge efter* 'follow', *gå frem* 'walk forward', etc. As the verbs of class 1., these verbs seem to present no special problems, apart from their occasional homonymy with one version of class 2. verbs, but then there is normally no meaning relation involved, cf. class 2. *give – op* ∿ *opgive* 'give up, abandon' vs. class 3. *give op* 'serve, kick off'. In fact, a three-way contrast may occur, cf. the class 1. verb *opgive* 'present (texts for an exam, information to the taxation authorities)'.

However one chooses to describe these rather complex interferences between PPs, prefixes and phrasal verbs, the facts contribute to underline the generally "labile" nature of prepositional structures in Danish and a widespread interaction between verbs and the material of the PP node of (16).

3.2 German incorporation
Let us round off this section by a quick glance at the corresponding facts in German (and Dutch which lines up with German in this respect).

As in Danish, prepositions and predicates can occasionally be prefixed with the same concomitant change in meaning as noted for Danish (cf. (20)):

(29) a.　Wir reisten *durch* Deutschland.
　　b.　Wir *durch*reisten Deutschland.
　　　　(same as (20))

But the three classes of verbs which appeared to be necessary in Danish seem to reduce to two in German (and Dutch):

1. Genuine composition: *unterhalten* 'entertain', *wiederholen* 'repeat', etc. They constitute unanalysable lexical units.

2. Apparent composition which seems to include both of the classes 2.

and 3. of Danish: *ab-fahren* 'leave, depart', *an-kommen* 'arrive', *zurück-fahren* 'go back', *auf-geben* 'give up', etc. The distribution of the two possible versions, Verb-Particle and prefixed verb, is much clearer than in Danish: infinite verb forms and finite verbs in subordinate clauses are prefixed, otherwise we have the Verb-Particle structure; cf. (30):

(30) a. Sie geben ziemlich schnell *auf*.
          'You give up rather quickly'
      b. *Auf*geben will ich noch nicht.
          'I won't give up yet'

All cases of the Verb-Particle structure in German seem to participate in this alternation, which constitutes the German (and Dutch) version of phrasal verbs and the structure (1) b. in general. The distribution of prefixes and particles should certainly be seen in connection with the predominant SOV order in German and Dutch, but I will leave the subject at that.

In comparison, English seems to have nothing like the Danish and German incorporation (verbs like *upset, overlook*, etc. are unanalysable lexical units). A possible rule of particle movement could however be interpreted as a rule performing some of the same tasks as the Danish, German and Dutch incorporation rule, i.e. the creation of closely knit units with a fused meaning (cf. e.g. the many judicious remarks in Bolinger 1971 which seem to point in that direction). But such an investigation would take us too far in the present context.

The data of this section, though not immediately relevant to the discussion of preposition stranding, might still give some valuable typological hints for the following sections. But above all, they illustrate to what extent verbal and prepositional structures are intermingled in the Germanic languages. So the sections 2. and 3. should by now have prepared the stage for preposition stranding, in so far as they have discussed structures which look very much like the result of stranding, i.e. the structures of (1), and demonstrated the general interaction/reanalysis atmosphere of V PP relations.

4. Preposition Stranding

4.1 Movement rules
Preposition stranding occurs in different structures which all seem to in-

volve some kind of movement of NPs. With respect to movement operations it appears that PPs behave very much like VPs, i.e. NPs can be moved out of these categories with equal ease, cf. (31):

(31)   a.   Hvad laver du *e*?
             'What are you doing?'
        b.   Hvad tænker du på *e*?
             'What are you thinking (of)?'

In (31) a. the object NP of the verb *lave* 'do' has been moved out of the VP by *wh*-movement. In (31) b. the same operation has moved the object of the preposition *på* 'on'; one could however also describe this last case by saying that *wh*-movement has moved the NP which is the object, not just of the preposition *på* 'on', but of the complex verb *tænke på* 'think of', so that in the two cases of (31) we have instances of movement out of VP, i.e. a PP inside a VP does not act as a bounding node in Danish. But before pursuing this line of reasoning, let us survey the structures in which stranding occurs.

As already seen in (31), preposition stranding occurs as a consequence of *wh-movement*, cf. further (32):

(32)   a.   Hvem$_i$ har du fået den af e$_i$?
             'Who have you got it from?'
        b.   Fortæl mig hvem$_i$ du har fået den af e$_i$?
             'Tell me who you have got it from?'

Another major source of stranded structures is *movement of NP* (topicalisation):

(33)   a.   Peter$_i$ har jeg fået den af e$_i$.
             '(It is) Peter I have got it from'
        b.   Olsen$_i$ ville jeg aldrig stemme på e$_i$.
             'Olsen I would never vote for'

But contrary to English, movement of NP does not produce prepositional passives in Danish[7]. Instead, you have an impersonal construction (with formal subject *der* 'there') combined with topicalisation like in (33); cf. the Danish equivalents of the English sentences in (34):

(34) a. He$_i$ was laughed at e$_i$.
          Ham$_i$ blev *der* leet ad e$_i$.
      b. He$_i$ was spoken about e$_i$.
          Ham$_i$ blev *der* talt om e$_i$.

which are fronted versions of the impersonal passives in (35):

(35) a. Der blev leet ad ham.
      b. Der blev talt om ham.

Another equivalent of the prepositional passive is a passive with the preposition incorporated into the verb; but as mentioned in 3.2, this is not a productive process; cf. however:

(36) a. Man begyndte *på* revisionen i maj.
          'They started the revision in May'
      b. Man *på*begyndte revisionen i maj.
          (same)
      c. *Revisionen blev begyndt *på* e i maj.
          'The revision was started in May'
      d. Revisionen blev *på*begyndt e i maj.
          (same)

where the d. example acts as the passive version of both a. and b.
    Also *cleft sentence formation*, which could be considered a special case of topicalisation (but see Nølke, this volume), produces stranded structures:

(37) a. Det er Peter$_i$ jeg har fået den af e$_i$.
          'It is Peter I have got it from'
      b. Det er Olsen$_i$ jeg stemmer på e$_i$.
          'It is Olsen I vote for'

The fourth source of stranding is *relativisation:*

(38) Pigen$_i$ som$_i$/e$_i$ jeg har fået den af e$_i$ er rejst.
      'The girl who/e I have got it from has left'

As is seen from (38), the relative complementiser is often empty, as in English. Relative clause formation can lead to quite complex structures with several stranded prepositions, cf. (39):

(39) Kl. 12 kom palæstinenserne ned til kajen$_i$ som$_i$ det skib$_j$ e$_j$ de skulle
      med e$_j$ lå ved e$_i$.
      'At noon the Palestinians arrived at the pier where the ship they
      were to use was moored'

The fifth and last kind of structure is two groups of *infinitival construc-
tions*. One which has a distinct relative flavour, (40) a., the other is often
referred to as a consequence of *tough*-movement:

(40) a. Han har brug for et søm$_i$ til at rense negle med e$_i$.
          'He needs a nail to clean his fingernails with'
      b. Peter$_i$ er svær at blive klog på e$_i$.
          'Peter is difficult to figure out'

Although I have referred to all of these structures as resulting from move-
ment operations, I am not convinced that they really are. In fact, some of
them may conceivably be base generated with empty elements as comple-
ments of a PP. Referring to these structures as results of movement opera-
tions is simply a shorthand way of saying that the complement of the PP
is separated from the P in the surface structure. Either way, this discussion
is hardly vital for the description, and I will not pursue it further here.
Finally, it should be observed that structures resulting from e.g. *wh*-
movement and relativisation can have the preposition separated from its
object by an infinite number of clauses:

(41) a. Hvem$_i$ tror du Lise sagde til Erik at Jesper troede ... jeg havde
          talt med e$_i$?
          'Who do you think that Lise told Erik that Jesper thought ... I
          had spoken with?'
      b. Pigen$_i$ som$_i$/e$_i$ jeg troede Jesper havde fortalt Lise at ... jeg hav-
          de talt med e$_i$ er rejst.
          'The girl who/e I thought Jesper had told Lise that ... I had
          spoken with has left'

4.2 Possible and impossible stranding

While the stranded structures of 4.1 can be conveniently approached by
reference to the type of movement involved in their production (if they are
not base generated) and by simply assuming that PPs in Danish are no
more bounding nodes than VPs, things become a bit more complex when

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the different movements are tested on different complement types. Not all PPs allow extraction of their complement. At least two factors seem to intervene and limit the operations mentioned in 4.1: the complement type, i.e. the position and/or syntactic relation of the PP, and the type of movement performed. A third possible factor, i.e. the preposition itself, seems to play no role whatever: there is no single preposition or class of prepositions which block extraction out of a PP. So let us confront the five movement rules, or the five structures produced by the single rule, move-α, with different PPs in order to encircle the stranding phenomena.

The examples of preposition stranding quoted in 4.1 all seemed to involve PPs within the VP (with the possible exception of (40) a., cf. below), i.e. PPs which the verb is lexically subcategorised for. And in general, such PPs appear to allow extraction of their NP complement without problems. This apparently problemless stranding of prepositions inside the VP is crucial to the approach of Hornstein and Weinberg 1981, which involves a rule of reanalysis in the base, before the application of transformations. By this operation the P becomes "part" of the verb and the NP, the former complement of the PP, becomes eligible for movement operations just as any other NP complement of VP:

(42) $[_{VP}[V]\ [_{PP}P\ NP]] \rightarrow [_{VP}[V + P]\ [NP]]$

This seems also to fit in nicely with the proposals of 3.1, where a rule of prefixation of a postverbal particle was suggested, i.e. a kind of reanalysis.

But things are not really as simple, because some PPs which are commonly assumed to be outside the VP, an assumption I shall not question, do allow stranding, and furthermore because PPs within NPs also in certain cases allow extraction of their NP complement. These two phenomena present serious problems for the reanalysis approach.

If we limit the VP internal PPs to those PPs which subcategorise verbs, i.e. to those PPs whose presence is dictated by the lexical specifications of the verb, it seems obvious that most *med*-phrases, *with*-phrases, whether they denote accompaniment or instrument, should be generated outside the VP and thus not available for reanalysis. Such phrases do however strand their preposition quite freely:

(43) a. Hvem$_i$ var han gået i teatret med e$_i$?
         'Who had he gone to the theatre with?'
      b. Hvem$_i$ har du kørt kampvogn i Næstved med e$_i$?
         'Who have you driven a tank with at Næstved?'

As is seen in both examples, other nominal and/or prepositional phrases can precede the *med*-phrase which seems sufficiently far away from the verb to preclude any rule of reanalysis.

With place complements outside of the VP, this situation repeats itself. In general, such complements allow stranding of their preposition:

(44) a. Hvilken ø$_i$ har han købt hus på e$_i$?
          'Which island has he bought a house on?'
      b. Det er Fanø$_i$ han har købt hus på e$_i$.
          'It is Fanø he has bought a house on'

The kind of movement performed does not seem to play any significant part in determining the acceptability of the result. As before, several nominal and/or prepositional phrases can come between the verb and the stranded preposition:

(45) Det er den hal$_i$ jeg spiller badminton med Søren i e$_i$.
      'This is the gym where I play badminton with Søren'

A temporal phrase, the kind of adverbial complement whose position outside of VP seems to be generally agreed upon, can also intervene between the verb (and its object) and the place complement whose preposition gets stranded:

(46) a. Det er den kælder$_i$ de torterede fangerne i e$_i$ *i timevis*.
          'This is the cellar where they tortured the prisoners for hours'
      b. Det er den kælder$_i$ de torterede fangerne *i timevis* i e$_i$.
          (same)

In other words, these few, scattered, facts of Danish syntax suffice to moderate the overly optimistic statement of Hornstein and Weinberg 1981: 63: "Note further that our analysis makes the claim that prepositions can strand only if the Reanalysis rule can apply to "absorb" the preposition into the verb, i.e. if the PP is immediately dominated by VP. Thus, our treatment predicts that there should be no language which has both S PPs and completely free stranding. This indeed seems to be the case, as we noted above". But fortunately, stranding is not completely free, although far from sufficiently restricted to warrant Hornstein and Weinberg's claims. When we look at other sorts of adverbial complements, such as complements of manner, time and cause, i.e. adverbials which denote

more abstract relations than the two sorts treated until now, the picture changes somewhat.

Manner-complements can for instance look exactly like the *med*-phrases mentioned above, cf. (47):

(47) a. Han behandlede bordpladen med saltsyre.
          'He treated the table top with hydrochloric acid'
          Hvad$_i$ behandlede han bordpladen med e$_i$?
          'What did he treat the table top with?'
     b. Han behandlede os med overlegenhed.
          'He treated us with arrogance'
          *Hvad$_i$ behandlede han os med e$_i$?
          '*What did he treat us with?'

But stranding of *med* 'with', which is excluded in (47) b., *wh*-movement, becomes possible in (48), relativisation:

(48) Den overlegenhed$_i$ e$_i$ han behandlede os med e$_i$ var ubehagelig.
      'The arrogance he treated us with was unpleasant'

Also in infinitival complements, the preposition of a manner phrase can strand:

(49) Det er ikke en måde$_i$ at behandle et barn på e$_i$.
      'That is no way to treat a child'

Time-complement PPs are commonly assumed to be immune to extraction of their NP (cf. e.g. van Riemsdijk 1978:201). And in fact, there can be no stranding upon *wh*-movement:

(50) a. Han kom efter middag.
          'He came after dinner'
     b. *Hvad$_i$ kom han efter e$_i$?[8]
          '*What did he come after?'

But again, stranding is not excluded under relativisation, clefting or *tough*-movement, cf. (51):

(51) a. Han kom på et mærkeligt tidspunkt.
          'He arrived at a strange moment'

b. Det tidspunkt$_i$ han kom på e$_i$ var uheldigt valgt.
    'The moment he arrived at was badly chosen'

c. Det er det uheldige tidspunkt$_i$ du kommer ind på e$_i$.
    'It is that unfortunate moment you come in at'

d. Det var et mærkeligt tidspunkt$_i$ at komme på e$_i$.
    'That was a strange moment to arrive'

PPs acting as cause adverbials are the only ones which seem systematically resistant to stranding:

(52) a. Det har han gjort af en eller anden grund.
          'That he has done for some reason'

      b. *Hvilken grund$_i$ har han gjort det af e$_i$?
          '*Which reason has he done it for?'

      c. *Den grund$_i$ han har gjort det af e$_i$ er dårlig.
          '*The reason he has done it for is bad'

      d. *Det er den grund$_i$ han har gjort det af e$_i$.
          '*It is the reason he has done it for'

      e. *Det var en dårlig grund$_i$ at komme af e$_i$.
          '*That was a bad reason to come for'

But what was impossible for the other adverbials, viz. stranding by *wh*-movement, is in fact possible for cause (or purpose) complements. Beside the "synthetic" *wh*-word *hvorfor* 'why', you have the split up version *hvad – for* 'what for':

(53) a. Hvorfor har du sagt dét?
          'Why did you say that?'

      b. Hvad$_i$ har du sagt dét for e$_i$?
          'What have you said that for?'

There appears thus to be no reason to assume that there exists a systematic correlation between complement type, type of movement and possibility of preposition stranding. There are apparently no general constraints on preposition stranding formulable in terms of either constituency, syntactic relations or semantic content, but whatever constraints exist, these should rather be formulated as conditions on movement operations.

Of the movements considered, *wh*-movement appears to be the most severely restricted (but possible with certain cause adverbials, which are otherwise totally refractory to preposition stranding). That stranding

from *wh*-phrases is in general excluded with the different VP external PPs examined could be a consequence of the existence of special "synthetic" *wh*-words corresponding to the different complement types: *hvordan* 'how' (manner), *hvornår* 'when', *hvor længe* 'how long' (time), *hvorfor* 'why' (cause). These could simply be introduced by morphological rules like: [$_{PP}$ P [*wh* manner]] → *hvordan*, etc., whereby the input to the stranding producing movement is destroyed: i.e. there is no longer any preposition to strand. Such a rule will by necessity move the entire, only, constituent. As for place complements, where you have the synthetic *hvor* 'where' representing the entire PP, question words like *hvad* 'what' accompanied by stranding of the preposition are also excluded, but *hvilken* + N 'which + N' is allowed, cf. (44) and (54):

(54) a. Han har købt hus på Fanø.
'He has bought a house on Fanø'
b. *Hvad$_i$ har han købt hus på e$_i$?
'*What has he bought a house on?'
c. Hvilken ø$_i$ har han købt hus på e$_i$?
(= (44) a.)

But again, (54) b. is not excluded for reasons pertaining to preposition stranding, since non-stranded (54) d. is equally bad:

(54) d. *På hvad har han købt hus?
'*On what has he bought a house?'

Restrictions such as these have to do with *wh*-movement and the distribution of *wh*-words such as *hvad*, not with stranding.

The data of this section must be troublesome to the reanalysis approach. Stranding seems to be perfectly possible, also with PPs other than the VP internal ones; in fact, Danish seems to come fairly close at being a language with both S PPs and free stranding, which should be impossible according to the Hornstein and Weinberg hypothesis, quoted above, which is evidently based upon insufficient empirical evidence. Could the reanalysis really be stretched to match the data without losing all of its content? This seems improbable, since the rule should in fact be made capable of extending its domain to the entire clause. Thereby the initial plausibility of reanalysis, especially in the light of the data of section 3., seems to vanish.

The last data of this section, preposition stranding by extraction out of NP, also seem to contradict the neat and smooth working of reanalysis.

As is seen from (55), extraction out of an NP with consecutive preposition stranding is sometimes possible, sometimes not:

(55)   a.   Synet af Per gør mig dårlig.
            'The sight of Per makes me sick'
       b.   *Hvem$_i$ gør synet af e$_i$ dig dårlig?
            '*Who does the sight of make you sick?'
       c.   Hvem$_i$ kan du ikke tåle synet af e$_i$?
            'Who can't you bear the sight of?'

Whereas extraction of an NP out of a complex NP is generally blocked from a complex NP in subject position, it seems to create no problems with a complex NP as object. And this carries us right back to the reanalysis approach: whereas the object is within the VP and therefore open to reanalysis, an NP in subject position is not. But consider the following data:

(56)   a.   Godkendelsen af forfatningen trækker ud.
            'The ratification of the constitution is delayed'
            *Hvad$_i$ trækker godkendelsen af e$_i$ ud?
            '*What is the ratification of delayed?'
       b.   Man har bekræftet godkendelsen af forfatningen.
            'They have confirmed the ratification of the constitution'
            Hvad$_i$ har man bekræftet godkendelsen af e$_i$?
            'What have they confirmed the ratification of?'
       c.   Man tillægger godkendelsen af forfatningen stor betydning.
            'They attach great importance to the ratification of the constitution'
            *Hvad$_i$ tillægger man godkendelsen af e$_i$ stor betydning?
            '*What do they attach great importance to the ratification of?'
       d.   Man har ventet med godkendelsen af forfatningen.
            'They have postponed the ratification of the constitution'
            Hvad$_i$ har man ventet med godkendelsen af e$_i$?
            'What have they postponed the ratification of?'

The general picture that emerges from these examples, is that extraction of an NP out of a complex NP is blocked when that NP is either a subject or an indirect object, which again underlines the subjectlike properties of the indirect object, e.g. its ability to serve as an antecedent of a reflexive possessive determiner, cf. *Filmen "Intermezzo" gav Ingrid Bergman sit folkelige gennembrud i Sverige* 'The picture "Intermezzo" gave Ingrid Bergman her (refl.) popular break-through in Sweden', see Herslund (forthcoming).

It is however allowed from a direct object or a prepositional object. Many details need of course to be filled in in order to get a complete overview of preposition stranding in complex NPs, but these bare facts suffice to make even more improbable the reanalysis hypothesis which now, in order to account for the facts of (56) has not only to take into account a complex NP as object, i.e. one version of reanalysis should have the form of (57):

(57) $[_{VP}[V] [_{NP}NP [_{PP}P [NP]]]] \rightarrow [_{VP}[V + [NP + P]] [NP]]$

but it should also be made sensitive to the functional status of the postverbal NP: it can apply if that NP is a direct object, but not if it is an indirect object. In Herslund (forthcoming) I have presented some arguments against a transformational rule of dative movement; consequently I do not believe that the situation can be saved by invoking reanalysis in the base, and subsequent dative movement. If such were the case, the complex NP of (57) could only represent an instance of a direct object, and reanalysis would indeed work correctly.

A reanalysis rule for Danish should in fact be formulated so that it does not only extend its domain to the entire clause, but it should also be made capable of "entering" a complex NP, a category which is often assumed to constitute a syntactic island. But in order to do so, it must also be sensitive to the syntactic function of that NP.

5. Interpretation of stranding

5.1 Typological considerations
We saw in the preceding section that Danish allows almost completely free stranding of prepositions. Whatever restrictions there are, they should rather be formulated as restrictions on movement operations than as constraints limiting the effect of preposition stranding. How do these facts fit into the typological sketch outlined in 1.2?

It has been assumed throughout that the existence of the Verb-Particle structure is a necessary condition for preposition stranding to occur in a given language. That the existence of such structures is not a sufficient condition is easily demonstrated: German does not allow stranding. But what the Verb-Particle structure shows is the ability of the language to use prepositions intransitively, and this is taken as a basic typological feature of all the Germanic languages, in contrast to e.g. the Romance languages (I shall return to that in 5.2). This feature, then, makes preposition strand-

ing possible, but of course not compulsory. We thus have the following typological hierarchy:

1. no stranding: German
2a. stranding restricted to PPs containing certain pronouns within VP: Dutch
2b. stranding restricted to PPs within VP: English
3. free stranding: Danish (general Scandinavian)

I suggested briefly in 1.2 that the reason why German has no stranding is that prepositions in that language assign case to their NP objects, a feature which sets German off radically from NSG. It seems to be a general fact about German prepositions that they cannot assign case "at distance" contrary to verbs, cf. the following contrasts (from van Riemsdijk 1978:167):

(58) a. Den Hans, den mag ich nicht.
         'Hans (acc.) him (acc.) I don't like'
     b. *Den Hans, an den erinnere ich mich nicht.
         'Hans (acc.) (of) him (acc.) I don't remember'
     c. Der Hans, an den erinnere ich mich nicht.
         'Hans (nom.) ... (same)'

Under left dislocation there is case attraction from the object of a verb, (58) a., but no attraction from the object of a preposition, (58) b.; instead, you have the unmarked nominative case. So, if stranding took place, prepositions would have to assign case at distance, which they seem unable to do. Accordingly, the only way a preposition can assign case to its object is to keep the PP intact, and that rules out the possibility of stranding:

(59) a. *An wen* erinnerst du dich?
         'Who do you remember?'
     b. *Wen$_i$ erinnerst du dich an e$_i$?
         (same)

The suggestion made, viz. that German prepositions cannot assign case "at distance" does not, however, imply that case languages do not allow stranding, as is immediately shown by Icelandic[9]. This language has both case marking of NPs, the Verb-Particle structure *and* preposition stranding. But it does not really contradict the proposal about German, because prepositions in Icelandic do seem to be able to assign case at distance, con-

trary to German Prepositions, cf. (60):

(60)   Manninn$_i$ sem$_j$ hún býr með e$_j$, hann$_i$ talar María illa um e$_i$.
       'The man (acc.) who she lives with, him (acc.) María speaks ill of'[10]

This example, compared to the German example of (58), shows that Icelandic prepositions can assign case to left dislocated NPs. So in this, as I suggested, crucial respect, Icelandic differs from German. I am not, however, sufficiently familiar with Icelandic syntax to pursue the matter further.

   Within NSG, we find then two different situations:

A. In Dutch and English, preposition stranding is limited to PPs within the VP (if I interpret the Dutch data of van Riemsdijk 1978 correctly, and if the claims of Hornstein and Weinberg 1981 are correct for English).

   In Dutch, extraction out of the PP is only permitted for a certain class of *r*-pronouns (to which I return in 5.2), and only under *wh*-movement and what van Riemsdijk calls *r*-movement:

(61)   a.   Waar$_i$ heb je op e$_i$ gerekend?
            'What have you counted on?'
       b.   Ik heb er$_i$ niet op e$_i$ gerekend.
            'I have not counted on that'

But there is for instance no prepositional passive. In English on the other hand, anything can be extracted from a VP PP, by *wh*-movement or NP movement, also to produce a prepositional passive, cf. (34). These facts about English fit in nicely with the reanalysis approach of Hornstein and Weinberg 1981, which however can lay no claim to universality, as we have seen in 4.2. But a rule of reanalysis has, as repeatedly suggested in 4.2, some plausibility. And in the typological framework sketched in this paper, the English rule of reanalysis, which makes extraction out of PP and the consecutive formation of e.g. a prepositional passive possible, could be seen as making good for the lack of a rule of P-incorporation (see (17)). So while German, Dutch and, to a lesser extent, Danish have the kind of reanalysis within VP which the prefixation of a P to the verb manifestly is, but no prepositional passive (German, as seen, having no stranding at all), English has no such rule, but a different device which loosens the internal cohesion of PPs. The reanalysis rule might well be the English version of (17) b., cf. (62):

(62) P-incorporation:
  a. *Continental version:*
      $[_{VP}[V] \ldots [_{PP}P\ (NP)]] \rightarrow [_{VP}[P + V] \ldots [(NP)]]$
  b. *Insular version:*
      $[_{VP}[V] \ldots [_{PP}P\ (NP)]] \rightarrow [_{VP}[V + P] \ldots [(NP)]]$

As suggested in (62), the continental version of P-incorporation moves a
P and prefixes it to the verb, productively in German and Dutch, lexically
in Danish, whereas in English, the "insular version", the corresponding
operation is performed by a simple change in constituent structure. This
operation accounts for both "reanalysis" and particle movement, cf. 2.2
and 3.2.

B. The second situation is found in Danish, and the other Scandinavian
languages. Stranding seems entirely free here, and nothing more needs to
be said except that it is the maximum exploitation of the possibilities of-
fered by the Verb-Particle structure: detransitivisation of prepositions. For
those versions of the Scandinavian languages which allow a prepositional
passive and/or have particle movement, a reanalysis rule like (62) b. can
be assumed, alongside the practically fully lexicalised (62) a. (cf. 4.1 and
footnote 7); this is the case of both Norwegian and Swedish. So the com-
plete typological picture is the following:

(62′) German: P-incorporation (62) a.
       NSG: } no prepositional
       Dutch: P-incorporation (62) a.   } passives
       Danish: (P-incorporation (62) a.)
                  No particle movement (62) b.

       Norw.:   (P-incorporation (62) a.)
                  Particle movement (62) b.
       Swedish: (P-incorporation (62) a.)   } prepositional
                  Particle movement (62) b.   } passives
       English: No P-incorporation (62) a.
                  Particle movement (62) b.

It seems fairly clear that the existence of prepositional passives presup-
poses that of particle movement, i.e. a kind of reanalysis, whereas the syn-
tactically productive existence of P-incorporation, as opposed to its lexi-
cally determined existence in Scandinavian (within parentheses in (62′)),
and the existence of prepositional passives are mutually exclusive.

5.2 Methodological considerations

There are two main approaches to preposition stranding. One asks under which conditions elements within a PP can escape from this constituent. The other asks under which conditions prepositions can be left behind. Let us refer to the first as the "extraction approach" and to the second as the "stranding approach". The common starting point for both approaches is that preposition stranding is rare, which is empirically correct, and therefore in some sense abnormal, because the normal situation is for a PP to constitute a syntactic island. PPs are assumed to be bounding nodes, like S, although it seems hard to see what else these two categories could have in common, intuitively at least.

Van Riemsdijk 1978 takes the "extraction approach", i.e. his primary concern is the internal structure of PPs. In order to account for the extractability of r-pronouns in Dutch, he proposes that certain PPs have a COMP node which can account for postpositional structures (r-movement within PP) and subsequently serve as an "escape hatch". So the examples of (61) should rather be represented as in (63), i.e. with two successive movements:

(63) a.   Waar$_i$ heb je [e$_{i(2)}$op e$_{i(1)}$] gerekend?
      b.   Ik heb er$_i$ niet [e$_{i(2)}$op e$_{i(1)}$] gerekend.

This may very well be the case in view of the special Dutch rule of r-movement. But the proposal is perhaps weakened by the fact that the other Germanic languages also have such r-pronouns in postpositional structures, cf. (64), but they are not in general extractable:

(64)   German: *auf* Pro   –   *darauf, worauf*
                   nach Pro   –   *danach, wonach*
                   mit Pro   –   *damit, womit*
       Dutch: *op* Pro   –   *er op, waar op*
                   na Pro   –   *er na, waar na*
                   met Pro   –   *er mee, waar mee*
       English: *on* Pro   –   *there(up)on, where(up)on*
                   after Pro –   *thereafter, whereafter*
                   with Pro   –   *therewith, wherewith*
       Danish: *på* Pro   –   *derpå, hvorpå*
                   efter Pro –   *derefter, hvorefter*
                   med Pro   –   *dermed, hvormed*

In Danish, where stranding is otherwise completely free, extraction out of precisely these structures is excluded, cf.:

(65)   a.   Jeg havde ikke regnet med det.
           'I had not counted on it'
       b.   *Jeg havde ikke regnet [det med].
           '...   [it on]'
           Det_i havde jeg ikke regnet med e_i.
           'That ...   on'
       c.   Jeg havde ikke regnet dermed.
           '...   [thereupon]'
           *Der_i havde jeg ikke regnet med e_i.
           'There ...   upon'

A structure like (65) a., with a neuter pronoun *det* 'it', can be changed in two directions: either by fronting the pronoun and stranding the preposition, but no postpositional structure is possible, (65) b., or by creating a postpositional structure with a *r*-pronoun, but in that case extraction and ensuing stranding are excluded, (65) c.

Whereas van Riemsdijk's approach may offer a correct description of the "mechanics" of preposition stranding[11], it has apparently nothing to say about instances where stranding is possible (which is not his primary concern anyway). If his description is extended to English, it seems obvious that it cannot account for the differences between VP PPs and S PPs with regard to stranding, since that difference then should be amenable to a difference in *internal structure* of the different PPs. How that should come about is somewhat mysterious. It is in order to cope with this problem that Hornstein and Weinberg 1981 have chosen the "stranding approach": under which circumstances can a preposition be left behind? Their proposal involves the rule of reanalysis, repeatedly referred to, rules of Case assignment, and a Case filter. The basic idea is simply this: verbs assign the Objective Case, prepositions assign Oblique Case. The NP object of a preposition which under reanalysis has been absorbed into the verb will thereby receive Objective Case from the new complex verb; the NP complement of a PP outside the VP will receive Oblique Case from its preposition. If such an NP is moved, it will violate the Case filter, *[Oblique e], and the sentence is judged ungrammatical.

This may work for English, but there are at least two arguments against such a reanalysis rule as a universal precondition to preposition stranding. First, reanalysis would make the NP object of the new complex verb, [V

+ P], eligible for passive formation, but as mentioned in 4.1, neither Dutch nor Danish have prepositional passives (the same seems to be true of Icelandic, cf. Maling and Zaenen 1982). What could then prevent passive from applying after reanalysis has taken place?

The second argument is that not only VP PPs but also S PPs allow extraction of their complement NP. As seen in 4.2, a reanalysis rule for Danish would have to extend to the entire clause, thereby losing all of its initial interest.

But the essential complaint against the line of reasoning of Hornstein and Weinberg 1981 is this. Attributing the difference between objects of Vs and Ps to different Cases, really amounts to little more than restating the problem. Since no other category than P assigns Oblique Case and no other category than V assigns Objective Case, saying that Oblique traces are banned is just another way of saying that nothing can be moved out of a PP: Ps cannot strand. Saying that Objective traces are allowed is another way of saying that things can be moved out of a VP: Vs can strand. But that is exactly what we would like to explain.

Kayne 1980 takes a different view. He accepts the reanalysis rule for English, but by comparing English to French he notes the absence of such a rule in French. This absence is then attributed to deeper differences between the two languages, more precisely to a difference in the way Vs and Ps govern their objects: in French, verbs assign structural Case (i.e. after transformations), prepositions assign inherent Case in the base. This difference in government type accounts then for the absence of reanalysis and preposition stranding in French. Instead of the Case filter, Kayne 1981 proposes an ECP ("Empty Category Principle") which states that empty categories cannot be ungoverned, i.e. occur in subject position, or as objects of prepositions because these are not legitimate governors of ECs, and that would account for the absence of preposition stranding in French which has no reanalysis, and in English S PPs where reanalysis could not have applied. This states rather sketchily Kayne's proposals; in fact, the ECP is progressively refined in Kayne 1981, but the details have no bearing on the present issue.

But Kayne seems to overlook the fact that French does indeed allow stranding of certain prepositions. In fact, French has stranding under precisely the circumstances which I have argued are essential to stranding: the existence of a Verb-Particle structure and possibility of P-incorporation. With prepositions such as *sur* 'on, over', we find the full range of phenomena discussed for Danish, cf. (66); when the preposition is used intransitively, it takes on the form *dessus:*

(66) a. Verb-Particle:
          Avancez *devant!*
          'Move forward!'
          Je monte *dessus.*
          'I mount (on to it)'
      b. P-incorporation:
          Il veille sur la sécurité du pays.
          'He watches over the security of the country'
          Il surveille la sécurité du pays.
          'He supervises the security of the country'
      c. Stranding:
          Il tire sur lui.
          'He shoots at him'
          Il lui$_i$ tire dessus e$_i$.
          (same)

So to the extent that PPs in French participate in these alternations, and exhibit the same "labile" nature as Danish PPs (and this is limited to certain prepositions), stranding becomes possible as a subcase of a larger scheme of clitic formation by extraction out of complex structures, NPs or PPs (cf. Herslund 1983). It can be added, that certain varieties of French also allow stranding of the preposition in relative clauses, cf. (67):

(67) a. L'homme qu$_i$'il est venu avec e$_i$.
          'The man he came with'
      b. Un pot qu$_i$'il y a quelque chose écrit dessus e$_i$.
          'A pot there is something written on'
      c. La pièce qu$_i$'il est entré dedans e$_i$.
          'The room he has gone into'

These examples are quoted by Guiraud 1966:41, and the explanation he offers fits perfectly well with one of the theses of the present paper: "On voit que tous ces tours ont pour résultat d'éliminer les différentes formes fléchies au profit d'une marque unique et invariable *que*" (loc.cit.). In literary (standard) French, relative pronouns inflect for case, and prepositions cannot assign case at distance, cf. 5.1. But stranding becomes possible when the relative pronoun is reduced to the invariable complementiser *que;* cf. the parallel facts of Old Icelandic relative *er* and Old English *þè* which also allow, in fact demand that the preposition be left behind, whereas the inflected *wh*-words do not[12].

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To complete this brief review of French stranding, it is to be noted that also the postpositional structures of the Germanic languages, *r*-pronouns, occur:

(68)   a.   Tu peux compter sur cela.
           'You can count on that'
       b.   Tu peux compter *là*-dessus.
           'You can count thereupon'

Whereas the French data seem incompatible with either of the two approaches discussed in this section, they follow from the fundamental thesis of this paper: the interdependence between the Verb-Particle structure, P-incorporation, the existence of an uninflected relative complementiser and preposition stranding.

6. Concluding remarks

I have tried to show in this paper, by describing some facts in Danish, that preposition stranding is crucially dependent on other syntactic properties. The existence of preposition stranding in a given language seems to presuppose that of other syntactic features such as the general ability of prepositions to occur without an object, the Verb-Particle structure, a certain interaction between prepositions and verbs, described as P-incorporation and/or particle movement, and the existence of an uninflected relative complementiser, e.g. Danish *som* 'that'. Preposition stranding seems on the other hand to be blocked in languages where prepositions assign case to their NP object and are unable to do so "at distance", even if the other features mentioned are present in that language: German prepositions assign case, although not at distance, there is no uninflected relative complementiser in German, whereas Icelandic prepositions assign case, also at distance, and there is an uninflected relative complementiser in Icelandic (*sem*). Consequently, Icelandic behaves like NSG with respect to preposition stranding; within NSG, Icelandic and Danish behave alike by not allowing prepositional passives. All in all, the table shown on the next page recapitulates the syntactic features examined in this paper.

These properties seem to suffice as a first approximation at least. Whether they can be linked to deeper and perhaps more general (or even universal) principles of grammar[13], is a question I will leave for further research. But I do believe that one of such general features which has been

	German	Danish	Norwegian	English	Icelandic
Verb-Particle	+	+	+	+	+
P-Incorporation	+	(+)	(+)	–	(+)
Particle movement	–	–	+	+	?
Uninflected relative	–	+	+	+	+
Ps assign case	(+)	–	–	–	+
P stranding	–	+	+	+	+
Preposition. passive	–	–	+	+	–

adduced in order to answer that question, namely abstract Case, is a spurious notion.

Case Theory is actually trying to introduce into syntax the kind of device which was denounced in phonology already in 1968 by P. Kiparsky, and consequently abandoned. Since there is, in e.g. English and French, no overt case marking of NPs, the underlying Case distinctions proposed constitute a case of *absolute neutralisation.* The very definition of this notion runs as follows and seems to cover exactly what Case Theory is about (one only has to change 'segment' into 'constituent' or the like): "Absolute neutralization is a consequence of setting up underlying distinctions for the sole purpose of classifying segments into those that do and those that do not meet the structural analysis of a rule" (Kiparsky 1968:10). What Case Theory is trying to do is to account for the different behaviour of verb objects and preposition objects by positing underlying distinctions which are absolutely neutralised. I think there are other, empirical, data which can be adduced in order to account for the behaviour of PPs, and that Case Theory, in its present form, can be entirely dispensed with. It is of course preferable to reduce conditions on rules in favour of general principles like filters. But the spirit of e.g. Chomsky and Lasnik 1977 is clearly that filters should relate to perceptual strategies, not just to make the grammatical description work. In what sense could the Case filter proposed in Hornstein and Weinberg 1981 be said to relate to perceptual strategies? Only in the sense that the processing of a sentence presumably will be facilitated if things that belong together actually occur together, i.e. the object of a preposition should not be moved away from it. But then the circle is perfect: prepositions cannot strand because of the Case filter, the Case filter is there to express the, indeed reasonable, perceptual strategy that objects of prepositions should not be moved away from them, except under reanalysis. So the Case filter still needs independent motivation.

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Notes:

1) Icelandic, which has both overt case marking and preposition stranding, constitutes an immediate counterexample to the typological generalisation implied in the text. I return to this question in 5.1. Whenever I refer to the Scandinavian languages it should be understood that this term does not include Icelandic.

2) This *typological* concept of Northsea Germanic should of course not be confused with the traditional *genetic* concept of Northsea Germanic covering the Frisian and Anglo-Saxon dialects as a subdivision of West Germanic. In the present context, the term NSG has no genetic implications.

3) It is well known that for instance the Danish (and general Scandinavian) preposition *på* 'on' grew out of the particle – preposition combination *op á* 'up on' (cf. English *upon*), where it does not seem unreasonable to assume that the particle originates as the P of an "outer" PP, cf. the composite nature of many Danish prepositions too: *uden for* 'outside', *inden for* 'inside', *oven på* 'on top of', *oven for* 'above', *oven over* 'over', *neden for* 'below', *over for* 'in front of'. The same is also the case with prepositions of other languages, cf. Spanish *para < por a*, French *envers < en vers*, etc.

4) Danish allows quite heavy object NPs between the verb and the particle, cf. (i) and (ii):

   (i)   Han *lukkede* kun de kunder, der ikke lugtede af spiritus, *ind*.
         'He only let in those customers who did not exhale an odour of liquor'
   (ii) *Han *lukkede* kun *ind* de kunder, der ikke lugtede af spiritus.
         (same)

   Sentences like (ii) may occur as a consequence of heavy NP shift, but normally they don't. In that case, (iii) would be preferred:

   (iii) Han lukkede kun de kunder *ind*, der ikke lugtede af spiritus.

   Swedish on the other hand only allows the sequence V Part NP, so the complete picture of the possibilities found in the Scandinavian languages is the following:

   (iv) Swedish: V Part NP
        Norwegian: V Part NP
                     V NP Part
        Danish: V NP Part

5) One might envisage to enter these verbs with their prefix in the lexicon, and then produce the Verb Particle version by a rule of prefix detachment. This rule would be natural, and structure preserving, in so far as it produces an output identical to (1) b., our "target structure". But under such a proposal, one would have two different rules: one of prefix incorporation and one of prefix detachmnt, which seems to constitute no clear advantage.

6) The Verb-Particle structure of (24) c. is actually a neologism in Danish, modeled upon the corresponding English phrasal verb *take over*. It appears however better to me than (24) b., but judgments vary here. People who reject (24) c. and accept b. simply have *overtage* 'take over' entered as a class 1. verb in their lexicon. Similar remarks apply to (26): those who accept (26) b. without hesitation will find no difference between that example and (27).

7) I assume here, and throughout, a version of Danish where prepositional passives do not occur; this seems to be the case of my own speech. I am aware, however, of the fact that some speakers use and accept sentences like the following:

   (i)   Vi kan ikke lide at blive trådt på.
         'We don't like being stepped upon'
   (ii) Vi skal ikke grines ad.
         'We don't want to be laughed at'
   (iii) Hvornår blev han kaldt på?
         'When was he called?'

   Constructions like these seem to have been fairly common until the last century, cf. Mikkelsen 1911:135, Aage Hansen 1967, III:52. Curiously, most, if not all the examples quoted in these sources have the prepositional passive in an infinitival clause following a modal verb, cf. (i) and (ii). Finite examples like (iii) are hard to come by, and, in my judgment, considerably less acceptable. I am not sure that Aage Hansen is correct in stating, loc.cit., that the prepositional passive is in expansion. In view of the materials quoted by himself and Mikkelsen, op.cit., quite the opposite seems to be true. But both Norwegian and Swedish allow prepositional passives.

8) Notice however that this sentence is perfectly grammatical with the meaning 'what did he come for?'. In that case we have the verb *komme* 'come' with the strictly subcategorised PP: *komme efter noget* 'come to get something, come for something'.

9) Or, for that matter, Old English; cf. for instance Maling 1978 and Vat 1978.

10) (60) is taken from material presented by Annie Zaenen at the *Workshop on Scandinavian Syntax and Theory of Grammar*, Trondheim, June 1982.

11) At least part of van Riemsdijk's proposal, viz. movement within the PP prior to extraction, may receive support from the following facts. By *wh*-movement in a sentence containing two PPs either of the prepositions can strand:

    (i)   Hvem$_i$ har du talt med e$_i$ om det?'
          'Who have you spoken with about that?'
    (ii) Hvad$_i$ har du talt med Peter om e$_i$?
          'What have you spoken with Peter about?'

    But the following kind of "slip of the tongue" version of (i) is not uncommon:

    (i') Hvem har du talt med det om?
          (same as (i))

    This sentence could be interpreted as having the structure (iii):

    (iii) Hvem$_i$ har du talt med e$_i$ [$_{PP}$det] om]

i.e. as regular fronting of *hvem* 'who', and "preparation" for fronting of *det* 'that' by movement within PP, the first step in extraction. This last fronting by *wh*-movement, i.e. extraction of *det* is of course blocked, since *wh*-movement has already been performed; so *det* remains, so to speak, at the "doorstep" of its PP.

12) The same is true of the modern Scandinavian languages whose invariable relative particle *som* 'that' (Icelandic *sem*, cf. (60)) in fact demands that the preposition be stranded; the *wh*-pronouns, no longer inflected for case (still with the exception of Icelandic), allow stranding, but do not demand it; see e.g. Maling 1978. Old English is discussed in Maling 1978 and Vat 1978. The existence of an uninflected relative complementiser may very well be crucial for the existence of preposition stranding too.

13) Such a principle might well be the ECP ("Empty Category Principle") as studied by Kayne 1981. It appears in fact that Danish obeys a much weaker version of the ECP than e.g. English and French in that it allows ungoverned ECs, i.e. in subject position, and at the same time has prepositions as governors of ECs (= stranding), as we have seen without any reanalysis rule, or the superscription/percolation projection proposed in Kayne 1981 as a substitute for reanalysis. The examples involving quantifiers and prepositions which Kayne cites as violations of the ECP in English and French turn out as (moderately) acceptable sentences when translated into Danish, cf.:

(i) Den eneste person, som jeg ikke ved hvornår kan komme til at besøge mig, er John.
(= Kayne (1) b. *The only person who I don't know when can get to see me is John.)

(ii) a. ?Hvormange er hun blevet tiljublet af e af tilskuerne?
(= Kayne (17) *Combien a-t-elle été applaudie par de spectateurs?)

b. Marie har smilet til lige så mange af fysikerne, som Jean har talt med e af lingvisterne.
(= Kayne (22) a. *Marie a souri à autant de physiciens que Jean a parlé à de linguistes.)

So Danish exhibits the same "liberal" interpretation of the ECP with regard to both subject position, (i), and preposition stranding, (ii). This makes the question of preposition stranding a question of the distribution of ECs. But then, the ECP, along with other proposed constraints such as the CNPC ("Complex NP Constraint"), virtually ceases to function as an explanatory principle when confronted with data from the Scandinavian languages; these languages are in fact counterexamples to both.

The data of (ii) should however also be seen in connection with the complex NPs of (55)-(56). Like in those cases, the extraction of something, in this case the quantifier, from a complex structure, works without any problem from objects and PPs, whereas the extraction out of subjects and indirect objects is problematic or impossible, cf. (iii):

(iii) a. ?Hvor mange er kommet e af pigerne?
'*How many have come of the girls?'

b. Hvor mange kender du e af pigerne?
'How many do you know of the girls?'

c. Hvor mange har du talt med e af pigerne?
'How many have you talked to of the girls?'

d. *Hvor mange har du givet e af pigerne blomster?
'*How many have you given of the girls flowers?'