The syntax of floating quantifiers: stranding revisited
Cirillo, R.J.

Citation for published version (APA):

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Chapter 2: Stranding Positions for Quantifiers

0. Introduction

The purpose of this chapter is to provide evidence in support of the Stranding Analysis of floating quantifiers originally developed in Sportiche (1988) by presenting data involving several different kinds of sentential constructions in several languages. This chapter deals only with non-negated floating quantifiers. Chapters 3 and 4 will be presented in the same theoretical framework as this chapter but will cover floating negated quantifiers (Chapter 3) and floating universal numeric quantifiers (Chapter 4), as exemplified in the following two sentences:

(1) a. Not all the students have read the book.
   b. The students have not all read the book.

(2) a. All three students have read the book.
   b. The students have all three read the book.

The theoretical foundations for my analysis were presented in Chapter 1, so we can immediately begin to look at data. The reader is reminded that I assume the following structure in the verbal domain:

(3) CP (Complementizer Phrase)
    \h
    AgrSP (Agreement Subject Phrase)
    \h
    TP (Tense Phrase)
    \quad \h
    ModalP (Modal Phrase)
    \quad \h
    PerfP (Perfect Phrase)
    \quad \h
    ProgP (Progressive Phrase)
    \quad \h
    PassP (Passive Phrase)
    \quad \h
    vP (Light Verb Phrase)
    \quad \h
    AgrOP (Agreement Object Phrase)
    \quad \h
    VP (Verb Phrase)

This chapter is divided into eight sections. In Sections 1 through 5 I present data from five languages, English, Italian, Spanish, Romanian and German, in order to test the Stranding Analysis. In order to determine which configurations and positions
allow stranding, all possible combinations of verbal elements are considered. Section 6 deals with the stranding of object quantifiers. Section 7 is about quantifier stranding in constructions involving raising verbs, control verbs, A-bar Movement, Small Clauses and the topicalisation of verbal clusters (remnant movement) in the continental West Germanic languages. Section 8 contains a summary.

1. Quantifier Stranding in English

We begin with the following sentence:

(4) All the children may have been watching the movie.

I assume that in this sentence the subject all the children is in [SPEC, AgrSP], the modal may has moved from the head position of ModalP to AgrS, the auxiliary have is in the head position of PerfP, the participle been is in the head position of ProgP, the main verb watching is in the head position of vP, and the direct object the movie is in [SPEC, AgrOP], having moved there from [SPEC, VP]. If the Stranding Analysis is correct, a subject that originated in [SPEC, vP] and has passed through all the SPEC positions between its base-position and its final landing site in [SPEC, AgrSP] should have been able to strand the quantifier all in any of those intermediate SPEC positions. The following examples suggest that this is indeed the case:

(5) a. All the children may have been watching the movie.
   b. The children all may have been watching the movie.
   c. The children may all have been watching the movie.
   d. The children may have all been watching the movie.
   e. The children may have been all watching the movie.
   f. *The children may have been watching all the movie.

In (5a) the subject QP all the children has moved in its entirety to [SPEC, AgrSP]. No stranding has taken place. Example (5b) raises an interesting question. One would normally assume that the modal verb had moved to AgrS and that the subject was in [SPEC, AgrSP]. This would mean that the quantifier all and its complement-DP the children had simply been inverted in SPEC of AgrSP, which should not be possible. Another possible explanation is that modals in English do not always move to AgrS. This is not implausible when one considers the fact that English modals show no signs of agreement. If in (5b) the subject DP the children is in [SPEC, AgrSP] and the modal has remained in the head position of ModalP or perhaps even in T, one could argue that the quantifier has been stranded in [SPEC,

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1 That is, in English, since modals and the auxiliaries be and have undergo Subject-Auxiliary inversion in questions and do not require do-support, it is assumed that they move to AgrS. Since main verbs require do-support it is assumed that they remain in v and do not move to AgrS.
ModalP] or [SPEC, TP] and that no inversion of the subject DP and the quantifier has taken place. I will assume this.2

In (5c), it appears that the quantifier is in [SPEC, PerfP], since it is adjacent to the Perfect auxiliary, but it could theoretically also be in the SPEC position of ModalP if the modal verb has moved up to T, as the following diagram illustrates:

\[ (6) \]

\[
\begin{array}{c}
\text{TP} \\
\text{SPEC} \\
\text{T'} \\
\text{T} \\
\text{may} \\
\text{SPEC} \\
\text{ModalP} \\
\text{modal'} \\
\text{SPEC} \\
\text{all} \\
\text{Modal} \\
\text{PerfP} \\
\text{Spec} \\
\text{Perf'} \\
\text{ProgP} \\
\text{have} \\
\text{been watching} \\
\text{the movie} \\
\end{array}
\]

In (5d) the quantifier is adjacent to the progressive auxiliary, in [SPEC, ProgP]. In (5e) it is in [SPEC, vP], its base-position. This sentence seems a bit downgraded in relation to the previous sentences, but certainly not ungrammatical. Example (5f) is ungrammatical because the quantifier is below its base position, [SPEC, vP].

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2 A comparison of English and French shows that modals do not always move to AgrS in English. The following French sentences show that certain adverbs cannot be left-joined to AgrS but must remain below it:

*Nous toujours devons être honnête.*  Nous devons toujours être honnêtes.  
we always must be honest  we must always be honest

The English glosses of both these sentences are grammatical. This suggests that the modal in the first English gloss has not moved to AgrS and that modal movement to AgrS is optional in English.
Now let’s look at how stranding works in a passive sentence in English:

(7) a. All the patients may have been being examined.
b. The patients all may have been being examined.
c. The patients may all have been being examined.
d. The patients may have all been being examined.
e. The patients may have been all being examined.
f. */?The patients may have been all examined.
g. *The patients may have been being examined all.

There are no surprises in sentences (7a) through (7d). In (7a) no stranding has taken place. Examples (7b), (7c) and (7d) show the same pattern as (5b), (5c) and (5d), respectively, with stranding in ModalP, PerfP and ProgP. Example (7e) shows stranding in PassP. Example (7g), like (5f), is ungrammatical because the quantifier is below its base-position, which in (7g) is [SPEC, VP].

Example (7f) poses a challenge. In this sentence, I assume that the passivised verb examined is in the head position of VP and has not moved to v, meaning that the quantifier is stranded in [SPEC, VP], its base-position. To most speakers, (7f) sounds unnatural and probably ungrammatical. This sentence is comparable to (5e), in which a quantifier has been stranded in its base-position, which would also be its 0-position. The question is whether the ungrammaticality of (7f) has anything to do with the claim made in Bobaljik (2003) and Bošković (2004) that quantifiers cannot be floated in their 0-position. I do not believe that there is a connection. For one thing, if Bobaljik and Bošković want to argue that quantifier floating in a 0-position is impossible, they cannot explain why the active sentence in (5e) sounds considerably better than the passive sentence in (7f), and they also cannot explain why in other languages stranding in a 0-position is unproblematic even in the equivalent of (7f), as I will show in the next sections.

Given the implausibility of the claim by Bobaljik and Bošković, there may be another reason for why (5e) is acceptable while (7f) is not. Passive participles in English are adjectival, as can be seen in phrases such as a ruined life, wasted time, a lost opportunity, the attached file, required documents, approved funding, a frightened animal, the written word, a confused student, and so on. It is not uncommon for an adjective, or a participle used as an adjective, to be preceded by the quantifier all with the meaning completely. Examples are as follows:

(8) a. He is all ready. b. She is all wet.
c. The project is all done. d. The powder is all used up.
e. I am all tired out. f. He is all confused.
g. I’m all shook up. h. The window got all blurry.
i. Her face was all red. j. The child came home all messy.

It might very well be that when English speakers hear the word all before the past participle of a passive verb, which is interpreted as an adjective, their first reaction is to interpret the quantifier as an adverbial meaning completely, which blocks the...
stranded quantifier interpretation. Even though this is only an intuitive explanation for the questionable grammaticality of (7f), there is a way to test it. Unaccusative verbs are like passive verbs in that their grammatical subjects are base-generated as objects. However, the past participles of unaccusative verbs, unlike the past participles of passive verbs, are not adjectival:

(9) a. *Arrived boys…  
    b. *A come teacher…  
    c. *The gone dogs…

Since unaccusative past participles are not adjectival, when the quantifier all precedes an unaccusative past participle it should not be able to have the adverbial interpretation of completely and its stranded quantifier interpretation should therefore not be blocked the way it is in the case of passive past participles. The prediction is that a sentence like (7f) would become grammatical if the passive verb were replaced with an unaccusative verb. This prediction is borne out. Example (10) sounds much better than (7f).

(10) ?The patients may have been all coming to the hospital.

There is still further evidence that the ungrammaticality of (7f) is caused not by the stranding of a quantifier in [SPEC, VP] but by the adjacency of the quantifier and the past participle. If a manner adverb is inserted between the quantifier and the past participle in (7f), the sentence improves significantly:

(11) ?The patients may have been being all thoroughly examined.

In this example, the manner adverb thoroughly modifies only the verb examine and is therefore in an inner SPEC position of VP. The quantifier is stranded in an outer SPEC position of VP. The insertion of the adverb between the quantifier and the participle rescues the sentence. To summarize, the problem with (7f) seems to have nothing to do with stranded quantifiers in [SPEC, VP] but by the adjacency of the quantifier and the past participle in (7f), the sentence improves significantly:

To summarize this sub-section, in English a quantifier can be stranded in its base-position and in every other SPEC position between its base-position and its final landing site. The only exception is [SPEC, VP] in passive sentences, but an explanation was offered for this. English can be said to offer good evidence in

3 It is logical to assume that a manner adverb such as thoroughly, unlike a sentential adverb such as probably, must be close to the verb it modifies and must therefore occupy a lower SPEC position than the SPEC positions in an A-chain. The following examples illustrate this:

   The doctors may have all carefully examined the patients.
   *The doctors may have carefully all examined the patients.
support of the Stranding Analysis. I would now like to compare English to another VO language that is from another language family, Italian.

2. Quantifier Stranding in Italian

Italian, like English, has modals, auxiliaries, progressives and passives, but is less liberal than English in its use of the progressive with auxiliaries, modals and passives:

(12) a. *Deve stare leggendo il libro. (Modal + Prog)
    (she/he) must be reading the book

b. *È stato leggendo il libro. (Perf + Prog)
    (she/he) is been reading the book

c. */?Sta essendo letto. (Pass + Prog)
    (it) is being read

This means that the following verbal combinations are possible in Italian:

4. Prog+V

We will examine each of these patterns as it relates to stranding. It will be seen that Italian strands quantifiers the way English does, with two differences. One difference is that in Italian, inflected verbal elements always move to AgrS, so the equivalents of (5b) and (7b) are not possible and will be omitted from the data. One might suggest that the word order in (5b) and (7b) could be produced in Italian by simply base-generating the quantifier after the noun it modifies. After all, Italian is a language in which adjectives normally follow nouns, and quantifiers behave like adjectives in their agreement patterns. As it will be shown in Section 4 of this chapter, there are languages, such as Romanian, in which the universal quantifier has adjectival properties and can appear post-nominally like an adjective. In Italian, however, there is no evidence that the universal quantifier has this adjectival characteristic, so sentences with the word order in (5b) and (7b) cannot be generated in Italian.

4 If the modal deve (must) has an epistemic rather than deontic meaning, this sentence is possible.

5 Passives in Italian can be formed not only with the copula essere (be) but also with the verbs venire (come) and andare (go). In the examples in this chapter I will limit myself to passives with essere. In this sentence the use of venire greatly improves acceptability.
Another difference between Italian and English that is relevant to the present discussion is the fact that subject quantifiers can appear after the main verb in Italian but not in English:

(14)  a. The students are all reading.
     b. *The students are reading all.
        the students are all reading
     d. Gli studenti stanno leggendo tutti.
        the students are reading all

This difference between English and Italian has to do with the fact that verbal elements such as past participles, gerunds and infinitives can optionally move higher in Italian than they can in languages such as English and French. This phenomenon has been noted in Belletti (1990), Cinque (1999) and elsewhere. In (14a) the main verb is in v and the quantifier is stranded in [SPEC, vP]. In (14b), the main verb is still in v and the quantifier is in a position lower than its base-position, causing ungrammaticality. The (c) example can be described in the same way as its English counterpart in (b). In (14d), the quantifier has been stranded in [SPEC, vP] but the gerund has undergone optional movement to a higher position.

To further illustrate this phenomenon of the optional upward movement of verbal elements in Italian, let’s compare Italian with English and French. The three languages show structural similarity in their handling of the Perfect tense, as in (15), modals, as in (16), and progressives, as in (17):

(15)  a. The students have all read the book.
     b. Les étudiants ont tous lu le livre. (French)
        the students have all read the book
     c. Gli studenti hanno tutti letto il libro. (Italian)
        the students have all read the book

(16)  a. The students must all read the book.
     b. Les étudiants doivent tous lire le livre. (French)
        the students must all read the book
     c. Gli studenti devono tutti leggere il libro. (Italian)
        the students must all read the book
(17)  a. The students are all reading the book.

       b. (French has no progressive.)

       c. Gli studenti stanno tutti leggendo il libro.
           the students are all reading the book

However, the following three sentences, which are patterned after (15c), (16c) and (17c), show that verbal elements in Italian can optionally move to a higher position:

(18)  a. Gli studenti hanno letto tutti il libro.
       the students have read all the book

       b. Gli studenti stanno leggendo tutti il libro.
           the students are reading all the book

       c. Gli studenti devono leggere tutti il libro.
           the students must read all the book

These sentences are not possible in French or English. Belletti argues that past participles move up to receive their Perfect morphology. One could perhaps say the same about gerunds, which might be moving up, as in (18b), to merge with progressive morphology. One could even say the same about infinitives like the one in (18c), which could be moving up to pick up its infinitival ending. This argumentation does not explain why the movement is optional in Italian and it also does not explain why no such movement is possible in English and French. I take it to be a language-specific option. As we will see later, Italian is not the only Romance language that allows this optional movement. Spanish and Romanian do also.

There is further evidence in Italian of the optional movement of verbal elements:

(19)  a. Non ha più mangiato.
       not (she/he) has any more eaten
       (She/he has not eaten anymore.)

       b. Non ha mangiato più.
           not (she/he) has eaten any more
           (She/he has not eaten anymore.)

(20)  a. Sono spesso venuti.
       (they) are often come
       b. Sono venuti spesso.
           (they) are come often

The movement seen in (19) and (20) is not possible in French:
(21)  a. Il n’a plus mangé.  b. *Il n’a mangé plus.
    he not has more eaten               he not has eaten more
(22)  a. Ils sont souvent venus.  b. *Ils sont venus souvent.
    they are often come      they are come often

With that background, we can now begin to examine some Italian data following the schema in (13). In each set of sentences, the (a) sentence is an example in which no stranding has taken place.

Verb:

(23)  a. Tutti gli studenti leggono il libro.
    all the students read the book

    b. Gli studenti leggono tutti il libro.
    the students read all the book

    c. */?Gli studenti leggono il libro tutti.
    the students read the book all

In the (b) sentence the quantifier has been stranded its base-position, [SPEC, vP], and the verb has moved to AgrS. In (c), a subject quantifier is below the direct object, which is in [SPEC, AgrOP]. It is theoretically impossible for a subject quantifier whose base-position is [SPEC, vP] to be below the direct object. However, it must be pointed out that not all speakers reject a sentence-final stranded quantifier such as the one in the (c) sentence. For those who consider it acceptable, one would have to argue that when the verbal element moves it somehow “pied-pipes” the direct object. In the remaining data, transitive sentences with a sentence-final quantifier will be excluded so as to avoid repeating this type of example and explanation.

Modal + V:

(24)  a. Tutti gli studenti devono leggere il libro.
    all the students must read the book

    b. Gli studenti devono tutti leggere il libro.
    the students must all read the book

    c. Gli studenti devono leggere tutti il libro.
    the students must read all the book

In the (b) sentence, the quantifier could be in SPEC of vP, but it could also be in SPEC of ModalP, since the modal has moved to AgrS. In (c) the quantifier is in [SPEC, vP] but the infinitive has moved to a higher position.
Perf + V:

(25)  a. Tutti gli studenti hanno letto il libro.
     all the students have read the book

     b. Gli studenti hanno tutti letto il libro.
        the students have all read the book

     c. Gli studenti hanno letto tutti il libro.
        the students have read all the book

In the (b) sentence, the quantifier could be in SPEC of vP or in SPEC of PerfP, since
the Perfect auxiliary has moved to AgrS. In (c) the quantifier is in [SPEC, vP] but
the past participle has moved to a higher position.

Prog + V:

(26)  a. Tutti gli studenti stanno leggendo il libro.
      all the students are reading the book

     b. Gli studenti stanno tutti leggendo il libro.
        the students are all reading the book

     c. Gli studenti stanno leggendo tutti il libro.
        the students are reading all the book

In the (b) sentence, the quantifier could be in SPEC of vP or in SPEC of ProgP,
since the Progressive auxiliary has moved to AgrS. In (c) the quantifier is in [SPEC, vP] but
the gerund has moved to a higher position.

Pass + V:

(27)  a. Tutti i libri sono letti.
      all the books are read

     b. I libri sono tutti letti.
        the books are all read

     c. I libri sono letti tutti.
        the books are read all

In the (b) sentence, the quantifier could be in SPEC of VP, or it could be in SPEC of
PassP, since the Passive auxiliary has moved to AgrS. In (c) the quantifier has
remained in its base-position, [SPEC, VP], and the past participle has moved around
it.
Perf + Pass + V:

(28) a. Tutti i libri sono stati letti.
    all the books are been read

    b. I libri sono tutti stati letti.
    the books are all been read

    c. I libri sono stati tutti letti.
    the books are been all read

    d. I libri sono stati letti tutti.
    the books are been read all

In (b) the quantifier precedes the passive auxiliary. It could be in [SPEC, PassP] but also in [SPEC, PerfP], since the Perfect auxiliary has moved to AgrS. In the (c) sentence the quantifier is in [SPEC, VP]. In (d) the quantifier is also in [SPEC, VP] but the past participle has moved to a higher position, around the quantifier.

Modal + Pass + V:

(29) a. Tutti i libri devono essere letti.
    all the books must be read

    b. I libri devono tutti essere letti.
    the books must all be read

    c. I libri devono essere tutti letti.
    the books must be all read

    d. I libri devono essere letti tutti.
    the books must be read all

In (b) the quantifier precedes the passive auxiliary. It could be in [SPEC, PassP] or in [SPEC, ModalP], since the modal has moved to AgrS. In the (c) and (d) sentences it is in [SPEC, VP]. In (d) the past participle has moved to a higher position.
Perf + Modal + V:

(30) a. Tutti gli studenti hanno dovuto leggere il libro.
all the students have must read the book

b. Gli studenti hanno tutti dovuto leggere il libro.
the students have all must read the book

c. Gli studenti hanno dovuto tutti leggere il libro.
the students have must all read the book

d. Gli studenti hanno dovuto leggere tutti il libro.
the students have must read all the book

In the (b) sentence the quantifier precedes the past participle of the modal. It could be in [SPEC, ModalP] or [SPEC, PerfP], since the Perfect auxiliary has moved to AgrS. In (c) and (d) it is in [SPEC, vP]. In (d) the infinitive has moved to a higher position.

Modal + Perf + Pass + V:

(31) a. Tutti i libri devono essere stati letti.
all the books must be (have) been read

b. I libri devono tutti essere stati letti.
the books must all be (have) been read

c. ?I libri devono essere stati stati letti.
the books must be (have) all been read

d. I libri devono essere stati tutti letti.
the books must be (have) been all read

e. I libri devono essere stati letti tutti.
the books must be (have) been read all

In the (b) sentence the stranded quantifier precedes the Perfect auxiliary. It could be in [SPEC, PerfP] or in [SPEC, ModalP]. In the (c) sentence it is in front of the passive auxiliary, in [SPEC, PassP]. In (d) and (e) the quantifier is stranded in [SPEC, VP]. In (e) the past participle has moved to a higher position.
Modal+Perf+V:

(32) a. Tutti gli studenti devono aver letto il libro.
   all the students must have read the book

   b. Gli studenti devono tutti aver letto il libro.
   the students must all have read the book

   c. Gli studenti devono aver tutti letto il libro.
   the students must have all read the book

   d. Gli studenti devono aver letto tutti il libro.
   the students must have all read the book

In the (b) sentence the stranded quantifier precedes the Perfect auxiliary. It could be in [SPEC, PerfP] but also in [SPEC, ModalP]. In the (c) sentence it is in front of the main verb, in [SPEC, vP]. In (d) it is also in [SPEC, vP] and the past participle has moved to a higher position.

To summarize our findings and conclusions in this section, Italian, like English, shows good evidence that a quantifier can be stranded in its base-position and in any other SPEC position between its base-position and the final landing site of its complement DP. We will now look at Spanish, which also allows stranding, but not quite as freely as English and Italian.

3. Quantifier Stranding in Spanish

Spanish is structurally very similar to Italian. Like Italian, it has a progressive aspect, but unlike Italian it allows the progressive to combine with other verbal elements such as modals, Perfect auxiliaries and passives. This means that the following combinations of verbal elements will have to be examined:

(33)

1. Verb
2. Modal+V
3. Perf+V
4. Prog+V
5. Pass+V
6. Modal+Perf+V
7. Modal+Prog+V
8. Modal+Pass+V
9. Modal+Perf+Prog+V
10. Modal+Perf+Pass+V
11. Modal+Prog+Pass+V
12. Modal+Perf+Prog+Pass+V
13. Perf+Prog+V
14. Perf+Pass+V
15. Perf+Prog+Pass+V
16. Perf+Pass+V
17. Perf+M+V
18. Perf+M+Prog+V
19. Perf+M+Pass+V
20. Perf+M+Prog+Pass+V

Before we look at the data, some introductory remarks are necessary. The reader is reminded that Spanish is spoken by more than 340,000,000 people in a vast geographic area comprising two-dozen countries on three continents. This makes for
a lot of variation in speech and grammaticality judgements. My informants were from Northern Spain, Andalucía, Mexico and Perù. I have done my best to glean out a sort of “average” or “tendential” judgement for each sentence. The universal quantifier in Spanish is like its counterpart in Italian in that it cannot function adjectivally and therefore does not appear post-nominally. Also, non-finite verbal elements, like their counterparts in Italian, can optionally move up and around a quantifier.

The stranding of subject quantifiers to the right of a direct object is generally unacceptable in Spanish, as it is in Italian, because when a verbal element optionally moves up, it does not take a direct object with it. Therefore, sentences with post-nominal quantifiers and with subject quantifiers stranded to the right of a direct object will be omitted from the data. The reader will see that Spanish is almost as flexible in quantifier stranding as English and Italian. Whereas the latter two languages allow stranding in virtually any SPEC position, Spanish makes one exception. It does not allow stranding between a Perfect auxiliary and its past participle. With that background, we can begin to analyse the data following the schema in (33).

Verb:

(34)  a. Todos los estudiantes leen el libro.
     all the students read the book

     b. Los estudiantes leen todos el libro.
     the students read all the book

In the (b) sentence the quantifier is stranded in [SPEC, vP], its base-position. The verb has moved to AgrS.

Modal + V:

(35)  a. Todos los estudiantes deben leer el libro.
     all the students must read the book

     b. Los estudiantes deben todos leer el libro.
     the students must all read the book

     c. Los estudiantes deben leer todos el libro.
     the students must read all the book

In the (b) sentence the quantifier appears to be stranded in [SPEC, vP] but it could also be in [SPEC, ModalP], since the modal has moved out of ModalP and up to AgrS. In the (c) sentence the quantifier is stranded in [SPEC, vP] and the infinitive has moved around the quantifier as we have seen it do in Italian.
Perf + V:

(36)  a. Todos los estudiantes han leído el libro.
    all the students have read the book

b. *Los estudiantes han todos leído el libro.
    the students have all read the book

c. Los estudiantes han leído todos el libro.
    the students have read all the book

In the (b) sentence the quantifier has been stranded in [SPEC, vP]. Normally, this would not be a problem, but in this case the quantifier is located between a Perfect auxiliary and a past participle, which, as I mentioned at the beginning of this section, is not acceptable in Spanish. In (c) the quantifier is still in [SPEC, vP] but the past participle has moved around the quantifier as we have seen it do in Italian. The quantifier is no longer between a Perfect auxiliary and a past participle, so the sentence is saved. The (c) sentence sort of suggests that this movement of the participle is obligatory in this instance.

Prog + V:

(37)  a. Todos los estudiantes están leyendo el libro.
    all the students are reading the book

b. Los estudiantes están todos leyendo el libro.
    the students are all reading the book

c. Los estudiantes están leyendo todos el libro.
    the students are reading all the book

In the (b) sentence the quantifier seems to be in [SPEC, vP] but it could also be in [SPEC, ProgP]. In the (c) sentence the quantifier is in [SPEC, vP] and the gerund has moved around it. The (b) and (c) sentences illustrate very well that stranding in [SPEC, vP] is not a problem in and of itself and that when a verbal element is not the complement of the Perfect auxiliary its upward movement is optional. This will be confirmed many times in the remaining data.
Pass + V:

(38) a. Todos los libros son leídos.
   all the books are read

b. Los libros son todos leídos.
   the books are all read

c. ¿Los libros son leídos todos.
   the books are read all

In (b) the quantifier could be either in [SPEC, VP] or [SPEC, PassP]. The (c)
sentence is grammatical for some, ungrammatical for others and questionable for
others. In the remaining data we will see that the movement of a passive participle
around a quantifier is problematic. Why would a passive participle be less able to
move around a quantifier than other verbal elements like infinitives, gerunds and
past participles? There is one thing that separates passive participles from all the
other non-finite verbal elements in Spanish, and that is the fact that they show Φ-
feature agreement. It is not unreasonable to assume that this has something to do
with the restrictions on their movement. Their Φ-feature agreement makes them
highly adjectival, and the movement of adjectives above other elements in the
nominal domain, such as quantifiers, may simply be a problem in Spanish. While
this observation on Φ-feature agreement may be interesting, it does not explain why
the upward movement of a passive participle is not a problem in Italian, since
passive participles in Italian also show Φ-feature agreement. The upward movement
of passive participles is also not a problem in Romanian, as we will see in the next
section.

Modal+Perf+V:

(39) a. Todos los estudiantes deben haber leído el libro.
   all the students must have read the book

b. Los estudiantes deben todos haber leído el libro.
   the students must all have read the book

c. */?Los estudiantes deben haber todos leído el libro.
   the students must have all read the book

d. ?Los estudiantes deben haber leído todos el libro.
   the students must have read all the book

The (b) sentence shows stranding in [SPEC, ModalP] or [SPEC, PerfP]. In (c) we
see strong resistance to stranding between a Perfect auxiliary and a past participle,
even though the perfect auxiliary is an infinitive. The (d) sentence is like (c) except
that the past participle has moved around the quantifier. This is the same
phenomenon that we saw in (36). Movement of the past participle rescues the sentence.

Modal+Prog+V:

(40)  a. Todos los estudiantes deben estar leyendo el libro.
     all the students must be reading the book
     b. Los estudiantes deben todos estar leyendo el libro.
     the students must all be reading the book
     c. Los estudiantes deben estar todos leyendo el libro.
     the students must be all reading the book
     d. Los estudiantes deben estar leyendo todos el libro.
     the students must be reading all the book

These sentences follow the patterns of previous examples. There is nothing that blocks stranding, given that no Perfect auxiliary is involved.

Modal + Pass + V:

(41)  a. Todos los libros deben ser leídos.
     all the books must be read
     b. ?Los libros deben todos ser leídos.
     the books must all be read
     c. Los libros deben ser todos leídos.
     the books must be all read
     d. *Los libros deben ser leídos todos.
     the books must be read all

In (b) the quantifier is stranded either in [SPEC, ModalP] or [SPEC, PassP]. In (c) it is in [SPEC, VP], its base-position. In (d) the passive participle has moved around the quantifier. In (38c) we also saw that the passive participle seemed to resist being moved around a quantifier, unlike other verbal elements.
Modal+Perf+Prog+V:

(42)  a. Todos los estudiantes deben haber estado leyendo el libro.
     all the students must have been reading the book

   b. ?Los estudiantes deben todos haber estado leyendo el libro.
     the students must all have been reading the book

   c. *Los estudiantes deben haber todos estado leyendo el libro.
     the students must have all been reading the book

   d. Los estudiantes deben haber estado todos leyendo el libro.
     the students must have been all reading the book

   e. ?Los estudiantes deben haber estado leyendo todos el libro.
     the students must have been reading all the book

In (b) the quantifier is stranded in [SPEC, ModalP] or [SPEC, PerfP]. In (c) the quantifier is stranded between a Perfect auxiliary and its past participle and, as expected, most speakers find the sentence unacceptable. In (d), quantifier stranding in [SPEC, VP] is fine. In (e) the gerund has moved around the quantifier.

Modal + Perf + Pass + V:

(43)  a. Todos los libros deben haber sido leídos.
     all the books must have been read

   b. ?Los libros deben todos haber sido leídos.
     the books must all have been read

   c. *Los libros deben haber todos sido leídos.
     the books must have all been read

   d. Los libros deben haber sido todos leídos.
     the books must have been all read

   e. *Los libros deben haber sido leídos todos.
     the books must have been read all

In the (b) sentence the quantifier could be in [SPEC, ModalP] or [SPEC, PerfP]. In the (c) sentence, the quantifier has been stranded between a Perfect auxiliary and a past participle, again showing that this position is not available for stranding. The (d) sentence was accepted by all informants, which is consistent with expectations, given that the quantifier is in [SPEC, VP] and not between a Perfect auxiliary and a past participle. In the (e) sentence we again see that the movement of a passive participle around the quantifier is problematic.
Modal+Prog+Pass+V:

(44) a. Todos los libros deben estar siendo leídos.
    all the books must be being read
b. *Los libros deben todos estar siendo leídos.
    the books must all be being read
c. Los libros deben estar todos siendo leídos.
    the books must be all being read
d. Los libros deben estar siendo todos leídos.
    the books must be being all read
e. *Los libros deben estar siendo leídos todos.
    the books must be being read all

The general unacceptability of the (b) sentence is difficult to explain. If one looks at
the (b) sentences from (39) through (43) one sees that speakers are sometimes but
not always doubtful when a quantifier is floated after a finite modal verb, especially
in sentences that contain more than two verbal elements. It seems that speakers are
not consistent even with themselves in judging sentences like this. In the (c)
sentence the quantifier is stranded in [SPEC, PassP] while in (d) it is in [SPEC, VP].
In (e), we see the familiar problem of moving a passive participle around a
quantifier.

Modal+Perf+Prog+Pass+V:

(45) a. Todos los libros deben haber estado siendo leídos.
    all the books must have been being read
b. *Los libros deben todos haber estado siendo leídos.
    the books must all have been being read
c. *Los libros deben haber todos estado siendo leídos.
    the books must have all been being read
d. Los libros deben haber estado todos siendo leídos.
    the books must have been all being read
e. Los libros deben haber estado siendo todos leídos.
    the books must have been being all read
f. *Los libros deben haber estado siendo leídos todos.
    the books must have been being read all
My comments on the (b) sentence would be the same as my comments on the immediately preceding (b) sentence. It is not easy to explain. Regarding the (c) sentence, we again see a problem with stranding a quantifier between a Perfect auxiliary and a past participle. Examples (d) and (e) show unproblematic stranding in [SPEC, PassP] and [SPEC, VP], respectively, and the (f) sentence again shows that passive participles, unlike other verbal elements, resist movement around a quantifier.

Perf+Prog+V:

\[(46)\]

a. Todos los estudiantes han estado leyendo el libro.
   all the students have been reading the book

b. *Los estudiantes han todos estado leyendo el libro.
   the students have all been reading the book

c. Los estudiantes han estado todos leyendo el libro.
   the students have been all reading the book

d. Los estudiantes han estado leyendo todos el libro.
   the students have been reading all the book

These sentences fall nicely into the expected pattern. In the (b) sentence stranding has taken place between a Perfect auxiliary and a past participle. In (c) and (d) stranding has occurred in [SPEC, vP]. In (d) a gerund has moved around a quantifier.

Perf+Pass+V:

\[(47)\]

a. Todos los libros han sido leídos.
   all the books have been read

b. *Los libros han todos sido leídos.
   the books have all been read

c. Los libros han sido todos leídos.
   the books have been all read

d. *Los libros han sido leídos todos.
   the books have been read all

These sentences also fit the usual pattern. In (b) stranding has taken place between a Perfect auxiliary and a past participle. In (c) the quantifier has been stranded in [SPEC, VP] and in (d) a passive participle has moved around a quantifier.
Perf+Prog+Pass+V:

(48)  a. Todos los libros han estado siendo leídos.
     all the books have been being read

   b. *Los libros han todos estado siendo leídos.
      the books have all been being read

c. **Los libros han estado todos siendo leídos.
      the books have been all being read

d. Los libros han estado siendo todos leídos.
      the books have been being all read

e. *Los libros han estado siendo leídos todos.
      the books have been being read all

The (b) sentence is “perfectly” predictable, since stranding between a Perfect auxiliary and a past participle has again created ungrammaticality. I cannot explain the generally negative reaction to (c). Example (d) shows unproblematic stranding in [SPEC, VP]. In (e) we again see that movement of a passive participle around a quantifier is not tolerated.

Prog+Pass+V:

(49)  a. Todos los libros están siendo leídos.
      all the books are being read

   b. Los libros están todos siendo leídos.
      the books are all being read

c. Los libros están siendo todos leídos.
      the books are being all read

d. *Los libros están siendo leídos todos.
      the books are being read all

These sentences also fit the expected pattern. In (b) stranding has taken place in [SPEC, ProgP] or [SPEC, PassP] and in (c) the quantifier is in its base-position, [SPEC, VP]. In (d) a passive participle has been moved around a quantifier.
(50) a. Todos los estudiantes han debido leer el libro.
    all the students have had to read the book

b. *Los estudiantes han todos debido leer el libro.
    the students have all had to read the book

c. Los estudiantes han debido todos leer el libro.
    the students have had all to read the book

d. Los estudiantes han debido leer todos el libro.
    the students have had to read all the book

In (b) we see the usual problem with a Perfect auxiliary and a past participle. In (c)
and (d) the quantifier is unproblematically stranded in [SPEC, vP]. In (d) the
infinitive has moved around the quantifier.

(51) a. Todos los estudiantes han debido estar leyendo el libro.
    all the students have had to be reading the book

b. *Los estudiantes han todos debido estar leyendo el libro.
    the students have all had to be reading the book

c. Los estudiantes han debido todos estar leyendo el libro.
    the students have had all to be reading the book

d. Los estudiantes han debido estar todos leyendo el libro.
    the students have had to be all reading the book

e. Los estudiantes han debido estar leyendo todos el libro.
    the students have had to be reading all the book

There are no surprises in these sentences. In (b) the Perfect cluster has been
violated. In (c) and (d) stranding has occurred in [SPEC, ProgP] and [SPEC, vP],
respectively. Sentence (e) is the same as (d) except that the gerund has moved
around the quantifier.
Perf+Modal+Pass+V:

(52)  a. Todos los libros han debido ser leídos.
    all the books have had to be read

b. *Los libros han todos debido ser leídos.
    the books have all had to be read

c. */?Los libros han debido todos ser leídos.
    the books have had all to be read

d. Los libros han debido ser todos leídos.
    the books have had to be all read

e. *Los libros han debido ser leídos todos.
    the books have had to be read all

Example (b) is easy to explain because it involves a Perfect auxiliary and a past participle. I cannot explain the general unacceptability of (c). See for example (51c), which was not judged to be ungrammatical. Example (d) shows unproblematic stranding in [SPEC, VP] and (e) is an instance of movement of a passive participle around a quantifier.

Perf+Modal+Prog+Pass+V:

(53)  a. Todos los libros han debido estar siendo leídos.
    all the books have had to be being read

b. *Los libros han todos debido estar siendo leídos.
    the books have all had to be being read

c. */?Los libros han debido todos estar siendo leídos.
    the books have had all to be being read

d. Los libros han debido estar todos siendo leídos.
    the books have had to be all being read

e. Los libros han debido estar siendo todos leídos.
    the books have had to be being all read

f. *Los libros han debido estar siendo leídos todos.
    the books have had to be being read all

Example (b) involves a Perfect auxiliary cluster. Example (c) is like the (c) example in the last set of sentences. It is difficult to explain why it is found ungrammatical or at least very downgraded. Examples (d) and (e) show unproblematic stranding in
[SPEC, PassP] and [SPEC, VP], respectively, and (f) involves the movement of a passive participle around a quantifier.

To summarize our findings in Spanish, it generally allows stranding in any specifier position unless that position is between a Perfect auxiliary and its past participle. Like Italian, and like Romanian, as we will see in the next section, Spanish allows the movement of verbal elements to a higher position, around a quantifier, but unlike Italian and Romanian, it makes an exception for passive participles, which cannot move up. I suggested that this may have to do with the fact that passive participles, unlike other verbal elements, show Φ-feature agreement, but this argument would not explain Italian and Romanian, which do allow the movement of passive participles. There were some sentences in the data whose ungrammaticality was difficult to explain. These were (44b), (45b), (48c), (52c) and (53c). These sentences all contain a large number of verbal elements and are semantically a bit complicated. Some of my informants told me that the sentences were marginal even without stranding.

4. Quantifier Stranding in Romanian

Before presenting the Romanian data it is necessary to point out some important aspects of the language. First of all, definite articles are post-nominal affixes. Secondly, the Romanian universal quantifier toți (feminine toate) shows signs of being more adjectival than its equivalents in other Romance languages such as Italian, French and Spanish because it can appear in post-nominal adjectival position:

(54) a. ? STUDENȚII TOȚI au văzut filmul.
students the all have seen film the

b. ? STUDENȚII TOȚI pot vedea filmul.
students the all can see film the

This order causes downgrading for some speakers but it is completely impossible in Italian, French and Spanish. Another characteristic of Romanian that I must point out is that Romanian verbal elements, like their counterparts in Italian and Spanish, can optionally move up around a quantifier:

(55) a. ? STUDENȚII POT TOȚI vedea filmul.
students the can all see film the

b. STUDENȚII POT vedea TOȚI filmul.
students the can see all film the

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6 The universal quantifier todos (feminine todas) in Brazilian and European Portuguese is also adjectival and can appear post-nominally like a normal modifier.
In this example, the infinitive *vedea* in the (a) sentence moves around the quantifier to form the (b) sentence. All non-finite verbal elements can undergo this optional movement in Romanian, including passive participles. (Recall that Spanish does not allow the optional movement of passive participles, while Italian does.)

I must also mention that the Romanian universal quantifier can also appear in sentence-final position, although this causes downgrading for some speakers:

(56)  
   a. ?Studenții au văzut filmul țotii.  
       students the have seen film the all  
   b. ?Studenții pot vedea filmul țotii.  
       students the can see film the all

This is very comparable to the Italian sentence (23c) in Section 2, repeated here:

(57)  
   */?Gli studenti leggono il libro tutti.  
       the students read book all

In Section 2, as an explanation for (23c), I suggested that for those speakers who accept this type of sentence, when the verbal element moves around the quantifier, it “pied-pipes” the direct object. I would suggest the same explanation for Romanian sentences such as those in (57). Sentences such as those in (54) and (56) will be excluded from the data that follow in order to avoid repetition.

The last thing that I will point out about Romanian is that it has no progressive aspect like the one found in Italian, Spanish and English.

With that brief introduction, we can look at several different sentential patterns and see how quantifier stranding works or doesn’t work in Romanian. The reader will notice an interesting similarity between Romanian and Spanish. In both languages, quantifier stranding is generally possible in any SPEC position unless that position is between a Perfect auxiliary and a past participle. All the (a) sentences are examples in which no stranding has taken place.

Verb:

(58)  
   a. Toți studenții citesc carte.  
       all students the read book the
   b. Studenții citesc toți carte.  
       students the read all book the

In the (b) sentence the verb has moved to AgrS and the quantifier has been stranded in [SPEC, vP].
Modal + V:

(59) a. Toți studenții pot vedea filmul.
    all students the can see film the

b. ?Studenții pot toți vedea filmul.
    students the can all see film the

c. Studenții pot vedea toți filmul.
    students the can see all film the

In the (b) sentence, the quantifier might have been stranded in [SPEC, ModalP], given that the modal verb pot has moved up to AgrS, or in [SPEC, vP]. In the (c) sentence the quantifier is in [SPEC, vP] and we see that the infinitive has moved around the quantifier. The fact that this movement creates an improvement over the (b) sentence suggests that there is a tendency in Romanian for verbal elements to form a cluster that blocks stranding between them.

Perf + V:

(60) a. Toți studenții au văzut filmul.
    all students the have seen film the

b. Studenții au văzut toți filmul.
    students the have all seen film the

c. *Studenții au toți văzut filmul.
    students the have all seen film the

In the (b) sentence the quantifier is in [SPEC, vP] and the past participle has moved around the quantifier. In the (b) sentence we see that the gap between a Perfect auxiliary and its past participle is inaccessible for stranding, just as in Spanish.

Pass + V:

(61) a. Toate filmele sunt văzute.
    all films the are seen

b. Filmele sunt toate văzute.
    films the are all seen

c. ?Fimele sunt văzute toate.
    films the are seen all

In the (c) sentence the quantifier is in [SPEC, VP] and we see the same movement of a verbal element around the quantifier that we have seen in Italian. In the (b)
sentence the quantifier could be stranded in [SPEC, VP], since this is a passive sentence, or in [SPEC, PassP], since the passive auxiliary *sunt* has moved to AgrS.

**Perf + Pass + V:**

(62) a. Toate filmele au fost văzute.
   all films the have been seen

b. Filmele au fost toate văzute.
   films the have been all seen

c. *Filmele au toate fost văzute.
   films the have all been seen

In the (b) sentence the quantifier has been stranded in [SPEC, VP] between the past participle and the passive auxiliary. The (c) sentence is ungrammatical because the quantifier has been stranded between the Perfect auxiliary and the past participle of the passive auxiliary.

**Modal + Pass + V:**

(63) a. Toate filmele pot fi văzute.
   all films the can be seen

b. Filmele pot fi toate văzute.
   films the can be all seen

c. ?Filmele pot toate fi văzute.
   films the can all be seen

In the (b) sentence the quantifier is stranded in [SPEC, VP], between the passive participle and the infinitive of the passive auxiliary. In the (c) sentence it is in a position between the finite modal verb and the infinitive of the passive auxiliary, which could be [SPEC, ModalP] or [SPEC, PassP].

**Perf + Modal + V:**

(64) a. Toţi studentii au putut vedea filmul.
   all students the have been able to see film the

b. Studentii au putut toţi vedea filmul.
   students the have been able all to see film the

c. *Studentii au toţi putut vedea filmul.
   students the have all been able to see film the
In the (b) sentence the quantifier is stranded in [SPEC, vP]. In the (c) sentence we see yet another example of how the position between the Perfect auxiliary and its past participle is closed to stranding.

Perf + Modal + Pass + V:

(65) a. Toate filmele au putut fi văzute.
    all films the have been able to be seen

b. *Filmele au toate putut fi văzute.
    films the have all been able to be seen

c. ?Filmele au putut toate fi văzute.
    films the have been able all to be seen

d. Filmele au putut fi toate văzute.
    films the have been able to be all seen

We again see the same patterns as before. Stranding is acceptable as long as it is not between the Perfect auxiliary and its past participle, as in the (b) sentence.

To summarize our findings in Romanian, quantifier stranding seems to be possible in any SPEC position except the one between a Perfect auxiliary and a past participle. We found the same in Spanish. In the next section we will look at how an OV language behaves when it comes to stranding.

5. Quantifier Stranding in Germanic OV Languages

Before I begin a discussion of the OV Germanic languages it is important that I make the reader familiar with the principal theoretical assumptions that I will base my arguments on. The tree diagram in (68), which I will make use of shortly in order to help explain my data, will help the reader visualise the effects of my assumptions.

My first assumption is that German and Dutch are underlyingly OV languages, that is, they are head-final and left-branching in the verbal domain. What this means is that specifiers and complements are both to the left of the head of a verbal phrase:

7 This approach originated in Emmon Bach (1962) and Jan Koster (1975) and still has a lot of followers. See Zwart (1997) for a discussion and an alternative underlying VO analysis.
Under this approach, verbal heads move rightward “up the tree” and their specifiers move leftward. The result is that in the base-structure of a sentence the verbal elements form a sort of cluster at the end of a clause.

Another assumption that I make, which is based on den Besten (1983), is that the V2 effect in the Germanic languages is brought about by movement of the finite verb to C and movement of another element, usually the subject, to [SPEC, CP].

As I mentioned in Chapter 1, following arguments in Zeijlstra (2004) and Cirillo (2007a) I assume that in the Germanic languages the sentential negation marker is base-generated in the SPEC position of the highest verbal element and the negation marker in a negated quantifier such as *not all* is base-generated in [SPEC, QP].

I assume that when definite direct objects are scrambled in German and Dutch, they are moved to a position just below TP. I have not included this position in (68) because its exact location is controversial. My belief is that scrambled elements are simply adjoined to the highest verbal phrase in a clause. It would be beyond the scope of the present work to begin a discussion of this position here. For now suffice it to say that the scrambling position is just below TP.8

In subordinate clauses in the Germanic OV languages, I assume that the finite verb remains in its base-position and does not move to any higher position such as T or AgrSP. The only verbal movement in a subordinate clause is the movement of a main verb from V to v in order to assign a /g37-role to an agentive subject. There is one exception to this assumption regarding subordinate clauses, and that relates to the

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8 In both main and subordinate clauses in German and Dutch the scrambling position of definite direct objects is above sentential negation:

(i) Er hat *das Buch* wahrscheinlich nicht gelesen.
   he has the book probably not read

(ii) ...dass *er das Buch* wahrscheinlich nicht gelesen hat.
    that he the book probably not read has

Following Zeijlstra (2004), negation in the Germanic languages is in the SPEC position of the highest verbal phrase. Since the scrambling position is above negation, it must be above all verbal phrases, including ModaIP, PerfIP, PassIP, vP and VP. The scrambling position must therefore be just below TP.

Because scrambling involves a kind of focus, it would be logical to assume that the scrambling position is the SPEC position of a functional phrase reserved for focus. The problem with this approach is that it causes Locality issues. That is, a subject moving from vP to [SPEC, AgrSP] would presumably be blocked by an element occupying the intermediate position of [SPEC, FocusP]. This suggests that scrambled items are simply adjoined to the highest verbal phrase below TP.
so-called IPP (infinitivus pro participio) construction, in which the finite verb does undergo some kind of movement. I will discuss this later in this section.

Although a finite verb does not move to AgrS in subordinate clauses, I assume that a subject moves to [SPEC, AgrSP]. Since the finite verb does not move to AgrS, it is obviously not for the sake of agreement that the subject moves to [SPEC, AgrSP]. I assume that the subject moves for Case or for EPP purposes. Evidence in support of this assumption will be presented in the discussion of example (76) below.

I have now laid out my assumptions on the structure of main and subordinate clauses in the Germanic OV languages. As already mentioned, the tree diagram in (68) will help the reader visualise the effects of these assumptions as we go through our data. My assumptions are rather well-founded in the literature. The question is whether or not the Stranding Analysis of floating quantifiers is compatible with them. In order to test the Stranding Analysis, I will present data from German, beginning with main clauses and then proceeding to the more complicated issue of subordinate clauses. We begin with the following German sentences, which mean The students should all have read the book. The reader is referred to the diagram in (68).

(67) a. Alle die Studenten mögen das Buch gelesen haben.
    all the students may the book read have

b. *Die Studenten alle mögen das Buch gelesen haben.
    the students all may the book read have

c. Die Studenten mögen alle das Buch gelesen haben.
    the students may all the book read have

d. Die Studenten mögen das Buch alle gelesen haben.
    the students may the book all read have

e. *Die Studenten mögen ein Buch alle gelesen haben.
    the students may a book all read have

f. *Die Studenten mögen das Buch gelesen alle haben.
    the students may the book read all have

In the (a) sentence no stranding has taken place. The subject QP alle die Studenten (all the students) has moved intact to [SPEC, CP]. In the (b) example, the quantifier alle and the subject DP die Studenten both seem to be in [SPEC, CP], above the verb, but in inverted order. There is no way for the model to generate this sentence, which seems to be a V2 violation. In (c), assuming that the direct object das Buch (the book) is in [SPEC, AgrOP], the quantifier alle could be stranded in any SPEC position in (68) where t3 appears, producing the same word order in all cases. In (d), the definite direct object das Buch has been scrambled to a higher position that I have not included in (68). This would mean that in (d) the quantifier alle could again be stranded in any position occupied by t3 in (68). I include the example in (e)
only to show that indefinite direct objects, unlike definite direct objects, are normally not scrambled. It is therefore not the stranding position of *alle* that is problematic in (e) but the scrambling of an indefinite direct object. The ungrammaticality of (f) is due to the fact that the quantifier is located to the right of the main verb. As the reader can see from (68), nominal elements move leftward up the tree while verbal elements move rightward. It is therefore impossible for the quantifier to have gotten to the right of the verb.
Regarding main clauses, we can conclude that the Stranding Analysis is compatible with our theoretical assumptions and can account for the data. The situation becomes more complicated when we consider subordinate clauses. In order to show how subordinate clauses in German impact the Stranding Analysis, I will need to devote considerable space to describing the relevant grammatical rules and to demonstrating some of the issues that subordinate clauses raise for linguistic theory in general. First of all, as mentioned in the assumptions at the beginning of this section, finite verbs in subordinate clauses generally remain in their base-position:

(69)  a. Der Student wird den Film gesehen haben.
     the student will the film seen have

     b. *…dass der Student den Film wird gesehen haben.
        that the student the film will seen have

     c. …dass der Student den Film gesehen haben wird.
        that the student the film seen have will

In these sentences, we see that the past participle *gesehen* (*seen*) is the complement of the Perfect auxiliary. In the (a) sentence, a main clause, the finite modal verb has moved to C. In the (b) sentence, a subordinate clause, the finite verb has attempted to move up the way it did in (a), but this produces ungrammaticality. In the (c) sentence we see that the finite modal verb has correctly remained in its base-position.

There is an exception to the rule illustrated in (69c), and that is the IPP (*infinitivus pro participio*) construction. In an IPP construction, two exceptional phenomena occur. First of all, as the term *infinitivus pro participio* indicates, an infinitive is used where one would expect a past participle. Secondly, if an IPP construction occurs in a subordinate clause, the finite verb appears to undergo some kind of movement, which it does not do in a non-IPP subordinate clause. This poorly understood phenomenon is called *Oberfeldumstellung* in German and *Auxiliary Flip* in English. The following sentences illustrate how it works. They are similar to the sentences in (69) except that the infinitive *sehen* (*to see*) is used instead of the past participle *gesehen* (*seen*):

(70)  a. Der Student hat den Film sehen können.
     the student has the film to see to be able
     (The student has been able to see the film.)

     b. *…dass der Student den Film sehen können hat.
        that the student the film to see to be able has

     c. …dass der Student den Film hat sehen können.
        that the student the film has to see to be able
In the (a) sentence, a main clause, the auxiliary has moved to C as one would expect. In (b), the finite verb has not moved, producing ungrammaticality. Contrast this with (69c), which is not an IPP construction. In (70c), the finite auxiliary has moved and the sentence is grammatical, in contrast with (69b). The question that immediately comes to mind is this: Where is the finite verb moving to in (70c)? It is not moving to C, since C is occupied by the complementiser dass. Negation provides us with an important clue. The reader is reminded that sentential negation in the Germanic languages is located in the SPEC position of the highest verbal element. The following sentences are the negated versions of (69c) and (70c):

(71) a. …dass der Student den Film nicht gesehen haben wird.
   that the student the film not seen have will

   b. …dass der Student den Film nicht hat sehen können.
   that the student the film not has to see to be able

In (71a), which has no IPP construction, the negation marker is located in the SPEC position of the phrase headed by the finite modal verb wird (will), which has not moved from its base-position. This can be seen in the following diagram:

(72) ModalP
    
    nicht
    (not) ModalP
    
    SPEC Modal’
    
    PerfP Modal wird
    
    SPEC Perf’ (will)
    
    vP Perf haben
    
    SPEC v’ (have)
    
    v
gesehen
    (seen)

But what about (71b), an IPP construction, in which the finite auxiliary seems to have undergone some kind of movement? The following tree diagram represents (71b):
(73)

As it stands, (73) shows incorrect word order (nicht sehen können hat). To achieve the desired word order (nicht hat sehen können), the auxiliary must move, but where does it move to? As can be seen in (71b), when the modal moves, it must remain below negation. A look at (73) tells us that if the modal moves but remains below negation, then it does not really move at all, at least not upward. It must therefore remain in its position as head of PerfP, just below the negation marker. In other words, it simply exchanges positions with its complement, which in (73) is ModalP. PerfP becomes head-initial and right-branching. A very detailed description of IPP constructions is provided in den Besten and Edmondson (1983) and they refer to the phenomenon as *inversion*. This term is well chosen, since in an IPP construction a head verb and its complement do seem to simply exchange positions.

If we claim that this kind of inversion takes place in an IPP construction, we are in effect making a prediction. We are predicting that in an IPP construction non-verbal material located in specifier positions will be able to appear between the inverted auxiliary and the other verbal elements. The diagrams in (68), (72) and (73) can help the reader visualise this. When the phrase headed by the finite verbal element becomes head-initial and right-branching, the finite verb will be to the left of all the SPEC positions in the clause, which contain nominal elements and adjuncts. The following examples show that our prediction is borne out:9

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(74) a. …dass der Außenseiter oft hat Derbys gewinnen können.  
    (…that the outsider often has derbies to win to be able
    (…that the outsider has often been able to win derbies.)

b. …dass da hätten Glocken läuten müssen.  
    (…that bells should have been ringing there.)

In (74a) we see a direct object that has remained in [SPEC, VP] or [SPEC, AgrOP] 
and in (74b) we see a subject that has remained in [SPEC, vP]. Inversion has caused 
the auxiliary to be in front of them. Note that the direct object in (74a) and the 
subject in (74b) are indefinite. For the sake of completeness, I would like to show 
what happens when the examples in (74) contain definite arguments. The inversion 
approach to IPP that we are discussing predicts that definite items will be able to 
appear where the indefinite items appear in (74). This prediction is not borne out. 
The sentences in (75) are the same as those in (74) except that the indefinite items 
have been made definite. 10

(75) a. *…dass der Außenseiter hat die Derbys gewinnen können.  
    (…that the outsider has the derbies to win to be able
    (…that the outsider has been able to win the derbies.)

b. *…dass da hätten die Glocken läuten müssen.  
    (…that the bells should have been ringing there.)

There will be more on this definite/indefinite distinction later in this section.

Ignoring the problem with the definite items in (75) and concentrating on (74), it 
would seem that the hypothesis that IPP constructions involve a kind of inversion of 
head and complement, thereby allowing non-verbal material to appear inside the 
verbal cluster, makes the right predictions, even though no one really knows what 
this inversion is. 11

One might ask whether Auxiliary Flip in IPP constructions could be better 
accounted for if one followed the Antisymmetry Theory developed by Kayne (1994) 
and picked up by Zwart (1997) and others, whereby all languages (including 
German and Dutch) are underlyingly SVO and syntactic phrases, including those in 
the verbal domain, are always head-initial and right-branching. This approach does

10 The sentences in (75) are not from Lattewitz. I have simply modified the direct objects in Lattewitz’s 
sentences in (74), and presented them to informants, in order to show the definiteness effect.

11 I have not included a discussion of the IPP phenomenon in Dutch, which is more complicated than its 
German counterpart because it involves movement in addition to the inversion of the finite verbal 
verb. For the data that will be presented in the remainder of this chapter it is sufficient for the reader to 
understand how IPP works in German.
not seem to be any better at explaining IPP constructions than the SOV approach pursued in this thesis. Lattewitz (1997), for example, follows Kayne’s approach and offers a rather detailed discussion of IPP constructions in German. She ends her discussion by concluding that the Minimalist approach does not provide a satisfying account of the “extraordinary word order” in German IPP constructions. I will therefore stick with my approach, which consists of the assumptions mentioned at the beginning of this section plus the Stranding Analysis of floating quantifiers and the hypothesis that Auxiliary Flip or Oberfeldumstellung in an IPP construction involves the inversion of the head verb and its complement.

I have now provided the reader with a rather lengthy and detailed background on the rules governing subordinate clauses in German, including IPP constructions. We can now consider the consequences of these rules for the theory of the Stranding Analysis. We will see that the Stranding Analysis is compatible with floating quantifier data in German subordinate clauses, even in the poorly understood IPP construction.

Before we look at subordinate clauses, the reader is quickly reminded that in main clauses, because the finite verb (the highest verbal element) moves to C, a quantifier stranded in the SPEC position of that verbal element will appear to the right of it. Example (67c), repeated here, is a good illustration of this:

\[(67)\text{c. } \text{Die Studenten mögen alle das Buch gelesen haben.}\]

\[\text{the students may all the book read have}\]

However, in subordinate clauses, if all the verbal elements remain in their base-positions (with the exception of IPP constructions), a quantifier should never be able to appear to the right of any verbal element, since nominal elements move leftward up the tree. Let’s look at some concrete examples of subordinate clauses without an IPP construction, patterned after the sentences in (67):

\[\text{12 Lattewitz (1997) p. 174.}\]

\[\text{13 Schmid (2005) offers a promising Optimality Theory approach to IPP constructions, but it would be beyond the scope of this work to consider such an approach. An Optimality Theory approach concentrates on explaining why an IPP construction, which seems to violate certain rules or constraints, is preferred over alternative constructions that violate more highly ranked constraints.}\]
Sentences (a) through (c) show that in a non-IPP construction any movement of the finite verb to a higher position causes ungrammaticality. It is not the positioning of the quantifiers in these sentences that makes the sentences unacceptable but the movement of the finite verb. The (d) sentence was ungrammatical as a main clause, as can be seen in (67b). In (76d), however, the subject DP is in [SPEC, AgrSP] and the Perfect auxiliary is in its base-position, the head position of PerfP. The quantifier alle has been stranded in [SPEC, PerfP], or perhaps [SPEC, TP], so that not inversion but true stranding has taken place. This provides strong support for the assumption that I made at the beginning of this section that subjects in subordinate clauses move to [SPEC, AgrSP] even though inflected verbs do not move to AgrS. Sentence (76e) is the same as (76d) except that the definite direct object has been scrambled around the subject quantifier to a position below [SPEC, TP] as described above. Examples (76f) and (76g) show that it is impossible for a stranded quantifier to appear anywhere inside the verbal cluster if no movement has taken place in the verbal domain, which is exactly what the model predicts.

The examples in (76) are straightforward and show that the Stranding Analysis is compatible with the approach whereby German is underlyingly OV and right-branching in the verbal domain and there is no movement of verbal elements in subordinate clauses. I would now like to show what happens with IPP constructions in subordinate clauses when quantifiers are stranded. Observe the following sentences, which are comparable to the examples in (76) except that they involve an IPP or double-infinitive instead of a past participle:
Based on (76d), in which a finite modal verb in a subordinate clause has remained in its base position with felicitous results, one would expect (77a) to be grammatical. However, because this is an IPP construction, the finite verb must undergo inversion. This can be seen in (77b). Example (77c) is the crucial sentence here. That some speakers accept it is understandable, since we have already seen that IPP constructions are predicted to allow non-verbal elements to appear between the finite verb and the other verbal elements. The question is why (77c) is rejected by many speakers. As pointed out in Lattewitz (1997), generally, non-verbal material is accepted inside the verbal cluster in an IPP construction only if is construed as being a part of the predicate. Examples would be a manner adverb, a predicate adjective, a locative PP or an indefinite (but not a definite) DP:

Example (77c) is rejected by most speakers because the stranded quantifier is not construed as being associated with the predicate. When Auxiliary Inversion occurs in an IPP construction, any non-verbal material that is not construed as being part of the predicate must be “evacuated” from the verbal domain below the point of inversion.14

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14 Other interesting discussions of the IPP phenomenon and the effects that it has on the positioning of other constituents can be found in Richter (2000), Haider (2003) and Seuren (2003).
Let’s now take a look at what happens when object quantifiers are involved instead of subject quantifiers. The examples in (79) are patterned after the ones in (77) but contain object quantifiers:

(79)  a. ...daß der Student die Bücher alle hätte lesen sollen.
    that the student the books all had read should

b. *?...daß der Student die Bücher hätte alle lesen sollen.
    that the student the books had all read should

The (a) sentence, which seems to be universally acceptable, is difficult to explain if one follows the Auxiliary Inversion approach. The subject der Student (the student) appears to be in [SPEC, AgrSP]. The direct object die Bücher (the books) has apparently been scrambled to a position just below TP. The auxiliary hätte would be in the head position of PerfP, which has undergone inversion with its complement. So far, everything makes sense. The problem is that it is impossible to determine which position the stranded quantifier alle (all) is in. There is theoretically no position available for it. The word order die Bücher alle (the books all) would be easy to explain in a non-IPP construction, in which no Auxiliary Inversion had taken place. Under this scenario, in which all verbal phrases would remain head-final and left-branching, positions would be available for the direct object and the stranded quantifier. For example, the object DP die Bücher (the books) could very well be in [SPEC, AgrOP] and the quantifier alle in its base-position in [SPEC, VP]. Or, the object DP could have been scrambled to the scrambling position below TP and the quantifier could be stranded in [SPEC, AgrOP]. To summarise, as shown in (79a), the positioning of the auxiliary indicates that it has undergone some kind of head-complement inversion, but the positioning of the DP object and the stranded quantifier suggests the opposite, namely, that no inversion has taken place and that all verbal phrases are still head-final. This is the paradox of IPP constructions.

Let’s look now at (79b), which is comparable to (77c) and is also rejected by many speakers. If one assumes Auxiliary Inversion in this sentence, one must explain why the non-verbal material inside the verbal cluster, which in this case is a stranded quantifier, is not allowed. Again following the arguments in Lattewitz (1997), one can explain (79b) by saying that the stranded object quantifier is not construed as being part of the predicate and therefore should have been removed from the verbal domain below the point of auxiliary inversion. Intuitively, one might expect an object quantifier to be more easily construed as being part of the predicate than a subject quantifier. Example (79b) is therefore expected to be more acceptable than (77c), which is confirmed by my informants.

To summarise this section, if we assume that German is underlyingly OV, that is, head-final and left-branching in the verbal domain, we find that the Stranding Analysis of floating quantifiers can explain very well the positioning of quantifiers in both matrix and non-IPP subordinate clauses. It turns out that the number of positions available for stranding is limited by the fact that verbal elements move
rightward, forming a cluster, while nominal elements move leftward. The IPP phenomenon poses a dilemma, but since it is not well understood and poses dilemmas in other research areas as well, I do not feel that it would be correct to say that the Stranding Analysis fails to explain floating quantifiers in German just because of problems with IPP constructions. On the contrary, given that some speakers do accept (77c) and (79b), the Stranding Analysis also makes the correct predictions for IPP constructions.

6. The Stranding of Object Quantifiers

With the exception of the examples in (79) in the section on German, the data presented in this chapter have dealt only with the stranding of subject quantifiers. The question of whether object quantifiers can be stranded must also be addressed. For the sake of convenience, (79a) is repeated here:

\[(80) \text{ ...daß der Student die Bücher alle hätte lesen sollen.} \]

that the student the books all had read should

In this sentence, an object DP seems to have stranded a quantifier. There is a difference between this kind of stranding and all the other types of stranding that we have seen involving subject quantifiers. In the examples of subject quantifier stranding, a quantifier can appear in basically any SPEC position in the A-chain of the subject DP. In (80) what we really have is a case of scrambling. The definite DP \textit{die Bücher} has been scrambled out of QP. The following German sentences also contain a direct object that has been moved. These are cases of topicalisation. In the second sentence the quantifier has been stranded:

\[(81) \]

\[a. \text{ Alle die Bücher hat er gelesen.} \]
\[\text{ all the books has he read} \]

\[b. \text{ Die Bücher hat er alle gelesen.} \]
\[\text{ the books has he all read} \]

My claim is that unless a language is a so-called scrambling language like German, one will not find stranded object quantifiers. There may be an explanation for this. In both scrambling and non-scrambling languages, subjects have the possibility of moving through quite a number of positions before reaching their final landing site, depending upon how many verbal phrases a sentence contains. That is why subject-quantifier stranding occurs in a large number of positions in both scrambling and non-scrambling languages. For objects, the situation is different. A non-scrambling language by definition does not have a position available for scrambling. This means that objects in non-scrambling languages have a much narrower range of possible movement and consequently have limited stranding potential.

Besides instances in which objects are scrambled, there is one other situation in which object quantifier stranding is not only possible but obligatory, and that is the case of object clitic pronouns in the Romance languages. In the literature, there
have been different ways of approaching clitics. One approach has been to say that
cRICS are base-generated as complements of verbs and move leftward, leaving
behind a trace, as in Kayne (1975). Another approach, exemplified in Jaeggli (1982)
and elsewhere, is to say that clitics are base-generated as affixes to a verb and that
the direct object position is occupied by pro. The approach that I will take follows
from the assumptions and arguments that I have presented so far. Universal
quantifiers select definite DPs. Pronouns are definite DPs and can therefore be
selected by a universal quantifier. In the West Germanic languages, if a pronoun is
selected by a universal quantifier it must move to the left of that quantifier. In
Romance languages like Italian and Spanish this movement is optional. The
following sentences from German and Italian illustrate:

(82) a. Sie alle sind gekommen.  b. *Alle sie sind gekommen.
    they all are come       all they are come

c. Tutti loro sono venuti.  d. Loro tutti sono venuti.
    all they are come       they all are come

Furthermore, a pronoun, just like a full DP, can strand a quantifier. The following
sentences correspond to the sentences in (82) with stranding:

(83) a. Sie sind alle gekommen.  b. Loro sono tutti venuti
    they are all come       they are all come

I follow Kayne (1975) and assume that object clitics originate in an argument
position, but I assume that that argument position is [SPEC, VP] rather than a
complement position of V. It is in [SPEC, VP] that they receive their $^\circ$-role.

Clitics, unlike other direct objects, cannot be assumed to remain in their base-
position, which is a SPEC position. They must eventually become attached to a
verbal element, meaning that they must eventually co-occupy a head position. Clitic
pronouns can be left- or right-adjoined to a verb, as the following examples from
Spanish demonstrate:

(84) a. La quisiera ver.  b. Quisiera verla.
    her I would like to see       I would like to see her

The (a) sentence contains a case of so-called clitic climbing, in which a pronoun
moves up and is left-adjoined to a finite verb instead of remaining in a lower
position and being right-adjoined to an infinitive. This poses an interesting question
regarding the Stranding Analysis: If a clitic has been selected by a quantifier, and if
it climbs before being left-adjoined to a finite verb, can it strand a quantifier in an
intermediate position? Observe the following Italian sentences, which contain a
main verb, a modal verb and a Perfect auxiliary:
In the first four of these sentences the clitic has been attached to the highest verbal element, which is the Perfect auxiliary. In (a) the quantifier has been stranded in vP. In (b) it has been stranded in ModalP. In (c) it could be in VP, but it could also be in vP, since the verb has the option of moving around the quantifier, as explained in Section 2. In (d), it may look like the clitic has pied-piped its selecting quantifier all the way to its final landing site, but I do not believe that this would be the proper analysis. In this sentence it is a kind of topicalisation of the quantifier that we see, and the quantifier must receive strong stress. The (e) sentence shows that the clitic pronoun must attach to the verb, meaning that if it climbs it must strand the quantifier somewhere or the sentence will crash. These sentences are very interesting because the Stranding Analysis predicts that a clitic will be able to strand an associated quantifier on its way from its base-position to its final landing site, and this is precisely what the data in (85) demonstrate.

I have hypothesised that a climbing clitic can strand a quantifier on its way to attaching itself to a verbal element. The data in (85) support this claim. However, more careful consideration of this hypothesis reveals that there are some technical details that need to be worked out. The most crucial detail is the question of the stranding positions in (85). What are these positions exactly? A clitic that climbs to the highest verbal element cannot be passing through SPEC positions. There are no SPEC positions available for objects. With the exception of [SPEC, AgrOP], the SPEC positions between VP and AgrSP are reserved for subjects. If the clitic is not moving cyclically through SPEC positions in (85), how is it moving? Is it moving into the head position occupied by the main verb, V, and then moving up through the head positions v, Modal and Perf, attaching itself to this last element? This would mean that it was stranding a quantifier in verbal head positions. It would be far beyond the scope of this thesis to develop a whole new theory of clitic movement. The point is that climbing clitics seem to be going through a series of local movements, as is evidenced by their ability to strand a quantifier in intermediate positions as shown in (85).
As further evidence that clitics strand quantifiers, I offer the following sentence, which is (85b) without clitic climbing:

(86) *Ho tutti voluto leggerli.
I have all wanted to read them

What this sentence shows is that if the clitic does not move up, the quantifier cannot move up unless it is topicalised, as in (85d). In other words, the quantifier moves up with the clitic and is stranded. This is what my hypothesis predicts.

To summarise this section, quantifier stranding is something that happens to subject quantifiers unless a language is a scrambling language or it has climbing object clitics.

7. Stranding under Raising, Control, A-bar Movement, SCs and Topicalisation

7.0 Introduction

The data presented in the above sections cover A-movement in mono-clausal sentences. An analysis of quantifier stranding would not be complete without a discussion of other types of movement and structures. I will begin this section by taking a look at raising constructions.

7.1 Raising Verbs

In a raising construction, it is thought that the subject originates in a lower clause and moves to a higher one. Assuming that this is true, it should theoretically be possible in a raising construction for a subject DP that moves to a higher clause to strand a quantifier in the lower clause. The following data from English, Italian and German suggest that this is indeed the case:

(87) a. ?The students seem [all to have enjoyed the film].
   b. The students seem [to all have enjoyed the film].
   c. The students seem [to have all enjoyed the film].

(88) a. Gli studenti sembrano [aver tutti apprezzato la pellicola].
   the students seem to have all enjoyed the film.
   b. Gli studenti sembrano [aver apprezzato tutti la pellicola].
   the students seem to have enjoyed all the film.

(89) a. …daß die Studenten [alle den Film genossen zu haben] scheinen.
   that the students all the film enjoyed to have seem
   b. …daß die Studenten [den Film alle genossen zu haben] scheinen.
   that the students the film all enjoyed to have seem
Regarding the English examples, in the (a) sentence we see a quantifier stranded in [SPEC, IP] of the lower clause. In (b) and (c) the quantifier is again stranded in the lower clause in [SPEC, PerfP] and [SPEC, vP], respectively. In example (a) in the Italian sentences a quantifier is stranded in [SPEC, vP] of the lower clause. The (b) sentence is the same as the (a) sentence, except that the past participle of the main verb in the lower clause has undergone optional movement to a higher position. In both German sentences a quantifier has been stranded in [SPEC, vP] of the lower clause. These sentences, which are from a Germanic VO language, a Romance language and a Germanic OV language, show good evidence that stranding is possible in raising constructions, which is exactly what one would expect if the subjects of raising verbs originate in the lower clause.

7.2 Control Verbs

7.2.0 Introduction

The theoretical implications of structures involving control verbs are different from those of raising verbs because in the case of control verbs the subject is generally not believed to originate in the lower clause but in the upper one, and the subject of the lower clause is believed to be the empty category PRO. If a subject does not originate in a lower clause, it cannot strand a quantifier there. One would therefore not expect to see floating quantifiers in control structures. The following examples, again from English, Italian and German, show that this expectation is unfounded:

(90) a. The students tried [all to pass the examination].
   b. The students tried [to all pass the examination].

(91) Gli studenti hanno provato [a superare tutti l’esame].
    the students have tried to pass all the examination

(92) a. …daß die Studenten versucht haben [alle die Prüfung zu bestehen].
    that the students tried have all the examination to pass
   b. …daß die Studenten versucht haben [die Prüfung alle zu bestehen].
    that the students tried have the examination all to pass

There are perhaps three approaches that one might take in attempting to explain the grammaticality of these sentences. We will look at each approach separately.

7.2.1 Control Structures Involve Movement

The first approach would be to accept the arguments in Boeckx and Hornstein (2003) and Boeckx, Hornstein and Nunes (2007) whereby control involves movement of the subject from the lower clause to the higher one, just like raising. Under this approach the floating quantifiers in sentences (90) to (92) would be the result of stranding. This analysis is of course in opposition to that of Culicover and Jackendoff (2001) and many others who claim that control involves PRO and no
movement of the subject from the lower clause to the upper one. It would be beyond the scope of the present work to enter this debate. For the time being I will take a conservative approach and assume that the traditional, non-movement analysis is the correct one. Raising verbs like *seem and *appear do not assign 0-roles. Consequently, a subject that is raised from the lower clause to the upper one receives only one 0-role. In control structures, the verbs in both the upper and lower clauses theoretically assign 0-roles. This would mean that if there really is movement of the subject in a control structure, it is assigned two 0-roles. In any case, if it turns out that Boeckx, Hornstein and Nunes are right and control involves movement, there is not much to explain in (90) to (92) because they can be accounted for under the Stranding Analysis.

7.2.2 Quantifier can Select PRO

The second approach that one might take in order to explain the acceptability of examples (90) to (92) would be to postulate that a universal quantifier can select PRO as its complement, and that the subjects in the lower clauses in (90) to (92) are QPs with the following structure:

(93) \([\text{QP} \ Q [\text{DP} \ PRO]]\)

This is basically the structure that is proposed in Sportiche (1988) for floating quantifiers in control clauses. Using the following French sentences, Sportiche argues that a floating quantifier in an infinitival (control) clause is in a position below IP:

(94) a. Ils ont décidé de ne pas tous partir en même temps.
   they have decided to not all leave at same time

b. *Ils ont décidé de tous ne pas partir en même temps.
   they have decided to all not leave at same time

Sportiche’s reasoning is as follows: In a finite clause, the verb moves to a position between the negation markers *ne and *pas, so that *pas must be located below I:

(95) Ils ne partent pas.
   they not leave not
   (They do not leave.)

Therefore, Sportiche concludes that since *pas is below I in (94a) the quantifier *tous is also below I and must therefore be in VP. I do not find Sportiche’s arguments and the structure in (93) to be unreasonable. The problem is that the assumptions regarding negation that he made in his 1988 paper are understandably outdated in

\(^{15}\) Sportiche (1988) p. 437. Note that I have glossed *de as *to. This is not an ideal glossing, since the English infinitival marker *to is considered to be the head of IP while the French *de is considered to be a complementiser. See for example Müller and Riemer (1998) p. 69.
light of more recent theories of negation such as Zeijlstra (2004). In these more recent analyses, the negation marker *ne* is in the head position of NegP and *pas* is in [SPEC, NegP]. NegP dominates IP. In other words, in (94a) the quantifier *tous* could be in [SPEC, IP] or [SPEC, VP]. My English examples in (90) in fact show evidence that both positions are available to a quantifier. The fact that (90a) is somewhat downgraded with respect to (90b) can also be explained. It is generally believed that PRO is not assigned Case (or is assigned Null Case) and therefore has no reason to move to a higher position.16 In (90b), assuming the structure in (93), the quantifier and PRO have remained in their base-position in [SPEC, VP]. In (90a), however, the quantifier and PRO are in [SPEC, IP] and this unnecessary movement causes downgrading.

There are two possible weaknesses in the structure in (93). First of all, there is the issue of how the quantifier that heads the QP can be assigned Case. Secondly, PRO is generally considered to be both pronominal and anaphoric. Universal quantifiers do not select anaphora:

(96)  
   a. *The students helped all each other/each other all.  
   b. *The students helped all themselves/themselves all.

I do not see these as major weaknesses. As we will see later in this section, Case assignment is sometimes difficult to explain even when PRO and a floating quantifier are not involved. Also, the fact that universal quantifiers generally do not select anaphora such as those in (96) is not a compelling reason for concluding that PRO cannot be selected by a universal quantifier. PRO may well be anaphoric, but it is also pronominal, and universal quantifiers can select pronouns.

7.2.3 Floating Quantifier as Substitute for PRO

The third way of approaching the acceptability of the sentences in (90) to (92) is a bit unorthodox but it may have fewer weaknesses than the other approaches. I would like to suggest, contrary to the standard approach, that PRO is not obligatory in the lower clause of a control structure if there is another element there that can replace it. In (90) to (92) PRO is not necessary because the universal quantifier is present and this quantifier not only serves as the subject of the verb of the lower clause, but it can be semantically bound by the controlling matrix clause subject by pragmatic, discourse-related mechanisms à la Montague (1974) or à la Kamp (1981). We know that universal quantifiers can stand alone as an argument. Due to their definiteness, it stands to reason that they can also be semantically linked to an argument already introduced in the discourse. In (97), the quantifier in the second sentence is semantically or pragmatically bound by the subject of the first sentence:

---

The leaders began to discuss the war. All agreed that the situation had become worse.

I would suggest that the same thing might be happening in (90) to (92) and that there is no raising, no selection of PRO by a universal quantifier and no adverbial use of a quantifier. This approach raises one problem, and that is the question of how the quantifier in the lower clause in a control structure is assigned Case. I will not be deterred by this problem, because there are numerous examples in which Case assignment is a mystery. Consider the following two examples from Italian, in which nominative case has been assigned by an infinitive and a gerund:

(98) a. L’aver io vissuto tanti anni all’estero...
    to have I lived so many years abroad...

    b. Avendo io detto questo avresti avuto tutte le ragioni di offenderti.
    having I said this (you) had had all the reasons to be offended
    (If I had said this you would have had every reason to be offended.)

In Spanish, infinitives can also assign nominative case:

(99) Préstame tu peina pequeña para yo peinarme.
    lend me your comb little for I comb myself

Thus, open questions about case assignment are no reason for rejecting my proposal that the quantifier in the lower clause in a control structure can fulfil the same function as PRO.

To summarise, in this sub-section I have shown that floating quantifiers occur in the lower clause of a control structure. If control involves movement, as suggested by Boeckx et alii (2003) and (2007), these occurrences of floating quantifiers can be explained by the Stranding Analysis. If Boeckx et alii are wrong, the Stranding Analysis is inapplicable to control structures and one must assume either that universal quantifiers can select PRO, as suggested in Sportiche (1988), or that universal quantifiers can replace PRO, as I have proposed. In the next sub-section I will discuss quantifier stranding under two types of A-bar movement.

7.3 A-bar Movement

In this sub-section I will discuss quantifier stranding in wh-questions and relative clauses. The Romance languages do not allow a wh-word or phrase to co-occur with a universal quantifier in a wh-question, regardless of whether the quantifier is stranded or not. I will assume that this is due to the selectional (lexical) properties of universal quantifiers in the Romance languages and will be concerned in this sub-section only with wh-questions in the Germanic languages.

When a universal quantifier and a wh-word or phrase co-occur in the Germanic languages, I assume that there is a QP headed by a quantifier that selects a DP
containing a wh-word. The wh-word, because it must be fronted to [SPEC, CP], first moves to [SPEC, QP]. There will be more on this later in this sub-section. We begin with the following English sentences:

(100) a. The students have all contributed to the tsunami fund.
    b. *Who has/have all contributed to the tsunami fund?
    c. Who all has/have contributed to the tsunami fund?

The contrast between the (a) and (b) examples shows that English does not allow a wh-word to strand a quantifier even though, as shown in the (c) example, English is not opposed in principle to combining a universal quantifier with a wh-word. A quantifier can also be combined with an object wh-word, however stranding is not possible in this instance either:

(101) a. What/whom/who all did you see?
    b. *What/whom/who did you see all?

Note that in wh-questions in English a universal quantifier may only select a bare wh-word. If a wh-word has selected an NP-complement, the resultant DP cannot be selected by a universal quantifier, regardless of whether that quantifier is stranded or not and regardless of whether it is a subject quantifier or an object quantifier:

(102) a. *Which all students have come?
    b. *Which students all have come?
    c. *Which students have all come?
    d. *Which all students did you see?
    e. *Which students all did you see?
    f. *Which students did you see all?

The Stranding Analysis predicts that quantifiers will appear in any position in an A-chain. Example (100b) shows that one cannot necessarily extend this prediction to A-bar movement, at least not in English. We will now look at German. The following sentences are the German equivalents of the English sentences in (100):

(103) a. Die Studenten haben alle für die Tsunami-Opfer gespendet.
    b. *Wer hat alle für die Tsunami-Opfer gespendet?
    c. *Wer alle hat für die Tsunami-Opfer gespendet?

At first glance it may seem that German does not allow stranding in a question and does not even allow the combination of an interrogative word with a universal quantifier. However, there is something else going on here. The German word wer (who) is always singular. This is not the case in English (or Dutch, for that matter).
What causes the ungrammaticality of (103b) and (103c) is the combination of a singular wh-word with a plural quantifier. If the quantifier alle in these examples is replaced with its adverbial form alles, both sentences become grammatical:

(104)  

a. Wer hat alles für die Tsunami-Opfer gespendet?  
   who has all for the tsunami victims donated  

b. Wer alles hat für die Tsunami-Opfer gespendet?  
   who all has for the tsunami victims donated  

Since alles is an adverbial, these data do not tell us much about quantifier stranding per se. The only way to test for stranding in German wh-questions is to use plural wh-words. The following examples are based on the English sentences in (102):

(105)  

a. *Welche alle Studenten sind gekommen?  
   which all students are come  

b. ?Welche Studenten alle sind gekommen?  
   which students all are come?  

c. Welche Studenten sind alle gekommen?  
   which students are all come  

d. *Welche alle Studenten hast du gesehen?  
   which all students have you seen  

e. ?Welche Studenten alle hast du gesehen?  
   which students all have you seen  

f. Welche Studenten hast du alle gesehen?  
   which students have you all seen  

These sentences show that German, unlike English, allows a full DP headed by an interrogative word to be selected by a universal quantifier. Furthermore, examples (c) and (f) show that German, again unlike English, allows stranding in a wh-question. For the sake of completeness, I will quickly explain the grammatical status of examples (a), (b), (d) and (e). I assume the following base-structure for the interrogative phrases in (105):
As is well known, wh-phrases in the Germanic languages move leftward and end up in [SPEC, CP]. In (106), the interrogative DP *welche Studenten* must first move to [SPEC, QP]. After this, one of two things can happen. Either the DP will move out of QP to [SPEC, CP], producing (105c) and (105f), or the entire QP will move to [SPEC, CP], producing (105b) and (105e). Examples (105a) and (105d) are ungrammatical because in these sentences the interrogative determiner *welche* has moved from its head position in D to [SPEC, QP] without its complement. This type of movement is never possible, as the following examples show:

\[
\begin{align*}
(106) & \quad \text{QP} \\
& \quad \text{SPEC} \quad \text{Q'} \\
& \quad \text{Q} \quad \text{DP} \\
& \quad \text{alle} \quad \text{SPEC} \quad \text{D'} \\
& \quad \text{welche} \quad \text{NP} \quad \text{Studenten} \\
& \quad \text{(all)} \quad \text{(which)} \quad \text{(students)}
\end{align*}
\]

(107) a. Which books have you read?
b. *Which have you read books?

How might one explain why German allows stranding in a wh-question while English does not? The Stranding Analysis deals fundamentally with A-movement. The data in this sub-section suggest that the extension of stranding to A-bar movement might be parameterised. There is much discussion of this in the literature. It has been claimed, for example, that German allows stranding in questions because the wh-words undergo A-movement before undergoing A-bar movement. A discussion of this can be found in Bobaljik (2003). I find this explanation unsatisfying. Take, for example, the ungrammatical English sentence in (100b). One would normally assume that in this sentence the subject has moved from [SPEC, vP] to [SPEC, TP] and then to [SPEC, AgrSP] before moving to [SPEC, CP]. In other words, the subject in (100b) has undergone A-movement before undergoing A-bar movement, yet stranding is not possible. Relative clauses, which also represent A-bar movement, may shed some light on this question. Note the following English, German and Italian sentences, in which a quantifier has been stranded in a restrictive relative clause:

---

(108) *I spoke to the students who had all seen the film

(109) *Ich sprach mit den Studenten die den Film alle gesehen hatten.  
I spoke with the students who the film all seen had

(110) *Parlai con gli studenti che ebbero veduto tutti il film.  
I spoke with the students who had seen all the film

These examples seem to show that there is a general problem with stranding in relative clauses. However, more careful consideration reveals that it is semantics that prevents stranding here. Because these sentences contain restrictive relative clauses, the relative words in the embedded clauses are partitives that refer only to a subset of the subject (the students) mentioned in the main clause. It is semantically anomalous for a relative word with a partitive, restrictive meaning to be modified by a universal quantifier. This can be clearly demonstrated by converting the sentences in this group to non-restrictive relative clauses, which are perfectly grammatical:

(111) I spoke to the students, who had all seen the film

(112) Ich sprach mit den Studenten, die den Film alle gesehen hatten.  
I spoke with the students who the film all seen had

(113) Parlai con gli studenti, che ebbero veduto tutti il film.  
I spoke with the students who had seen all the film

These sentences show that the distinction between A-movement and A-bar movement does not suffice to explain why English does not allow stranding in wh-questions. One would have to claim that wh-questions involve a different kind of A-bar movement from the A-bar movement in relative clauses. Pending further research, we are forced into two unsatisfactory conclusions—that the extension of quantifier stranding from A-movement to A-bar movement is parameterised, and that in English, at least, wh-questions and relative clauses may have to be treated as two different types of A-bar movement. It is admittedly rather conspicuous that the selectional properties of the English universal quantifier differ depending upon whether the quantifier appears in a wh-question, where it can only select a bare wh-word, or in a relative clause, where it can select a full DP headed by a wh-word. Nonetheless, it is difficult to imagine how this would cause the movement that takes place in a wh-question to differ from the movement in a relative clause. The idea

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18 According to German punctuation rules, a comma separates a relative clause from a main clause regardless of whether the relative clause is restrictive or non-restrictive. I have purposely omitted the comma in this example just to show that it is a restrictive relative clause.

19 There is one situation that can render these (b) sentences grammatical, and that is a situation in which the speaker is talking about groups of students rather than individual students. Imagine two groups of students. All the members of one group have seen the film but not all the members of the other group have seen it. If I have spoken to the students in the first group, then I can say, “I spoke to the (group of) students who had all seen the film.” My thanks to Hans den Besten for calling my attention to this.
that stranding in wh-questions is parameterised is supported by the fact that in at least one form of non-standard English it is possible for a wh-word to strand a quantifier in at least some situations. In the analysis of West Ulster English in McCloskey (2000), for example, a sentence with the structure of (102f) is judged to be grammatical and a sentence like (102c) is accepted by some speakers.

7.4 Small Clauses

I would now like to discuss floating quantifiers in small clauses or SCs, that is, clauses of the form [DP XP] where XP is PP, AP, VP or NP:

\[(114)\]
\[
a. \text{We want [him off the team].} \\
b. \text{We found [the film entertaining].} \\
c. \text{Mary left [him crying].} \\
d. \text{I consider [him a fool].}
\]

SCs are not IPs, since they contain no agreement or tense. They are also not CPs, given that they never occur with complementisers and the subject of the SC can be assigned Exceptional Case by a main clause verb, as in (114), or by a preposition:

\[(115)\] How can I get any work done with [her in the room]?

There is some disagreement in the literature as to what constitutes a SC because some authors, including Hoeksema (1991) and Neeleman (1994), have analysed traditional SCs as complex predicates. Examples are the following Dutch sentences from Hoeksema (1991):

\[(116)\]
\[
a. \text{Aart vindt iedereen ziek} \\
   \text{Art finds everyone sick} \\
b. \text{Henk wierp z’n [sokken onder het bed].} \\
   \text{Henk threw his socks under the bed}
\]

Hoeksema claims that these sentences contain complex predicates rather than SCs. His arguments are not syntactic at all but are based on semantic concepts such as inference and entailment. If Hoeksema is right, the quantifier iedereen in (116a) is the direct object of the complex predicate ziek vinden, meaning to believe sick. If the more traditional analysis is correct, iedereen is the subject of the SC predicate ziek, but it receives Case from the matrix clause verb. Thus, in both the SC analysis and the complex predicate analysis the quantifier iedereen is effectively the direct object of the matrix verb. Floating quantifiers actually provide evidence against Hoeksema’s analysis, as I will now show. Let’s take a look at some data that could be construed as stranding in a SC, again from English, Italian and German:

\[(117)\]
\[
a. \text{I consider [all the students intelligent].} \\
b. \text{I consider [the students all intelligent].}
\]
Following arguments in Radford (1997) and elsewhere, the subject of an SC must move to [SPEC, AgrOP] in the matrix clause for the assignment of Exceptional Case.20 It would follow from this that the DP within the subject QP could also move by itself and strand the quantifier in the SC, and that is exactly what (117) to (119) show. Note that if we take Hoeksema’s approach, we must explain why in the (b) sentences in (117) to (119) the quantifier and its complement DP have reversed order. We could explain the German example in (119b) by saying that some kind of scrambling has taken place, but for the (b) sentences in (117) and (119), which are from non-scrambling languages, such an explanation would not work.

7.5 Stranding and Topicalisation (Remnant Movement)

I will end this section with a discussion of the interaction of quantifier stranding and the topicalisation (scrambling) of verbal clusters in the continental West Germanic languages. These verbal clusters can include, for example, two infinitives, as in (120a), a past participle and an infinitive, as in (120b), or a passive participle and a Perfect past participle, as in (120c):21

(120)  a. Wiedererkennen können müßte er sie schon.
        to identify  must he  them certainly
        (He should certainly be able to identify them.)

        b. Übersehen haben wird man sie sicher nicht.
        overlooked  will one  them surely not
        (One will surely not have overlooked them.)

        c. Übersehen worden ist sie noch nie.
        been  is she  yet never
        (She has never been overlooked.)

This type of movement is referred to in the literature as remnant movement. In the examples in (120), assuming that each verbal element is the head of a separate verbal phrase such as ModalP, PerfP, PassP or vP, the two fronted verbal elements do not form a constituent. However, even though they do not form a constituent together, they are contained in the same maximal projection. Let’s look at the structure of (120a) for the sake of illustration:

(121)

In order to derive (120a) from this base-structure, a few things have to happen. First of all, let’s assume that the subject er (he) moves to [SPEC, AgrSP] for nominative case. Let’s also assume that the modal müßte (must) moves to C for V2 purposes and that the definite direct object sie (them) is scrambled to a position just below TP. After these steps have been made, only one more thing has to happen in order for us to derive (120a): In order to satisfy V2 requirements and perhaps the EPP, something will have to move to [SPEC, CP]. In this case it will be the cluster wiedererkennen können. But as the reader can see by looking at (121), these two verbs do not form a constituent. If we want to move a constituent that contains both wiedererkennen and können, the entire lower ModalP headed by können must move up, including the trace of the subject pronoun er (he) and the trace of the scrambled object pronoun sie (them). This will produce (120a). The only issue here is that a government and binding problem might be created because the traces of the subject er and the object sie are no longer c-commanded by their antecedents. I must assume that this problem is resolved by reconstruction as proposed in den Besten and Webelhuth (1990). I will also point out that even if the definite direct object sie is

22 See for example Webelhuth and den Besten (1987) or Müller (1990).
not scrambled but remains in [SPEC, AgrOP], topicalisation of the ModalP headed by *können* still results in the following grammatical sentence:23

(122) Sie wiedererkennen **können** müßte er schon.
them to identify to be able must he certainly
(He should certainly be able to identify them.)

In the discussion that follows I will show how the topicalisation of verb clusters as illustrated in (120) to (122) bears on the Stranding Analysis of floating quantifiers. In order to do this I will use the structure in (123), which is similar to (121) except that it contains a QP headed by a strandable quantifier:

(123) $\text{ModalP}$

---

Starting from this structure, we will consider the following sentences, which have the meaning *He will certainly be able to read all the books*:

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23 This sentence is not from Haider (2003). I have modified Haider’s sentence in (120a) to make my own point.
(124) a. Er wird schon alle die Bücher lesen können.
    he will certainly all the books to read to be able

b. Alle die Bücher wird er schon lesen können.
    all the books will he certainly to read to be able

c. Die Bücher wird er schon alle lesen können.
    the books will he certainly all to read to be able

d. Alle die Bücher lesen können wird er schon.
    all the books to read to be able will he certainly

e. Alle die Bücher lesen wird er schon können.
    all the books to read will he certainly to be able

f. Lesen können wird er alle die Bücher schon.
    to read to be able will he all the books certainly

g. *Die Bücher lesen können wird er schon alle.
    the books to read to be able will he certainly all

Let’s briefly analyse these sentences. In the (a) sentence no scrambling or
topicalisation has taken place. The subject pronoun er (he) has moved to [SPEC,
CP] and the modal verb wird (will) is in C. In (b) the object QP alle die Bücher (all
the books) has been topicalised and is presumably in [SPEC, CP]. In (c) the object
DP die Bücher (the books) has been topicalised and the quantifier alle (all) stranded
in QP. In (d) the entire ModalP headed by können (to be able) has been topicalised
and moved to [SPEC, CP]. The diagram in (123) will help the reader visualise this.
In the (e) sentence the entire vP headed by the verb lesen (to read) is topicalised.
Keep in mind that the subject pronoun er (he) has moved to [SPEC, AgrSP] and is
no longer in the vP. In (f), we have the same structure that we had in (120a). The
definite direct object QP alle die Bücher has been scrambled to a position just below
TP and the entire ModalP headed by können has been topicalised. The
ungrammatical (g) sentence is the most important sentence for us. The question is
whether it is evidence against the Stranding Analysis of floating quantifiers. I
would argue that it is not. In (g), the topicalised segment is die Bücher lesen
können. By looking at (123) the reader can see that this string of words does not
form a constituent. There is no way for this string to be topicalised as a unit. In
order for the quantifier alle to be stranded, the DP die Bücher has to move out of QP
in the manner seen in (124c). This is not what is happening in (124g). Therefore,
one cannot conclude that the topicalisation of verbal clusters in German provides
evidence against the Stranding Analysis of floating quantifiers. On the contrary, the
Stranding Analysis makes the right predictions about how remnant movement
affects floating quantifiers.
8. Summary and Conclusions

In this chapter we have seen evidence from several languages that quantifiers can be stranded in virtually any A-chain position, as predicted by the Stranding Analysis. Languages such as English and Italian are quite liberal in that they place virtually no restrictions on which A-chain positions are available for stranding. The only exception is \([\text{SPEC, VP}]\) in English passive constructions, but an explanation was offered for this. Spanish and Romanian are also rather permissive as far as stranding is concerned, but for some reason in these languages the Perfect auxiliary and its associated past participle seem to form a cluster that prevents stranding between them. German also confirms the Stranding Analysis if one assumes that it is underlingly OV and left-branching in the verbal domain. German IPP constructions pose a challenge to the Stranding Analysis, but these constructions are not well understood and pose problems in all areas of linguistic research. Even in the case of IPP constructions, the Stranding Analysis makes the right predictions. Stranding is an operation that is undergone by subjects, with two exceptions. Scrambling languages like German allow the stranding of object quantifiers, and in languages like Italian a climbing object clitic can also strand a quantifier.

In this chapter we have also looked at floating quantifiers in a number of special constructions. The data involving raising verbs, relative clauses, small clauses and remnant movement are quite compatible with the Stranding Analysis. Structures involving control verbs are a challenge because under the traditional analysis of these structures there is no raising, which means that a floating quantifier in the lower clause in a control structure cannot be the result of stranding. Wh-questions also raise some difficult questions. It is not clear, for example, why English does not allow the stranding of quantifiers in wh-questions while German does. The extension of stranding from A-movement to A-bar movement seems to be parameterised.

The following chapter, Chapter 3, will be a continuation of this chapter except that it will deal with negated stranded quantifiers and will describe and explain some interesting differences between negated quantifiers in the Germanic and Romance languages.