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BE CAREFUL WHERE YOU FLOAT YOUR QUANTIFIERS*

ABSTRACT. The paper examines the issue of why floating quantifiers are disallowed in the object position of passive and ergative verbs under Sportiche's (1988) stranding analysis of quantifier float. It is shown that the issue is part of a broader descriptive generalization that quantifiers cannot float in θ -positions. The generalization is shown to follow from an interaction of independently motivated assumptions concerning the structure of floating quantifier constructions and the mechanism of adjunction. The analysis of quantifier float proposed in the paper is shown to have important consequences for a number of issues and phenomena, including clausal structure, PP structure, object shift, cliticization, V-movement, Case licensing, small clauses, scope reconstruction, pied-piping, and heavy NP shift. Regarding PP structure, the paper pursues the clause/PP parallelism hypothesis: It is shown that there is a clause/PP parallelism with respect to Case-licensing, V/P movement, cliticization, and object shift.

1. INTRODUCTION

In this article I examine the floating quantifier (FQ) construction, illustrated by (1).

- (1) The students seem all to know French.

There are several approaches to FQs, the most prominent of which are Sportiche's (1988) stranding analysis (see also Déprez 1989; Giusti 1990; Shlonsky 1991; Merchant 1996; Benmamoun 1999; Cinque 1999; McCloskey 2000, among others), on which the element

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an FQ modifies is generated as a constituent with the Q, the Q subsequently being stranded under the movement of the element in question (see (2)), and the adverbial analysis (see, e.g., Kayne 1975; Williams 1982; Dowty and Brodie 1984; Miyagawa 1989; Doetjes 1992; Baltin 1995; Bobaljik 1995; Torrego 1996; Brisson 1998).

- (2) The students_i seem [all t_i] to know French.

This article focuses on the stranding analysis, concentrating on one issue that arises under this analysis, illustrated by the examples in (3).¹

- (3)a. *The students arrived all.
 b. *The students were arrested all.
 c. *Mary hates the students all.

Given that the subject of passive and unaccusative verbs starts in object position, it should be possible to float *all* in (3a, b) in this position. A similar problem is raised by (3c) if, as argued by a number of authors (see Authier 1991; Johnson 1991; Ura 1993; Koizumi 1995; Bošković 1997a, 2002b; Runner 1998; Lasnik 1999a; McCloskey 2000, among others), English has overt object shift, i.e. overt movement of accusative NPs to SpecAgrOP (SpecvP for Chomsky 1995), since object shift should be able to strand *all*.² (3c) is particularly interesting in light of the fact that an accusative NP can float a Q in ECM (see Postal 1974) and double object contexts (see Maling 1976). In fact, as noted by Postal (1974) and Maling (1976), Q-float is possible even in simple transitives with pronominal objects.

- (4)a. Mary believes the students all to know French.
 b. Mary gave the kids all some candy.
 c. Mary hates them all.

The ungrammaticality of (3) represents a serious, in fact the most serious, problem for the otherwise very successful stranding analysis

¹ It is worth noting here that FQs in English otherwise occur exactly in positions through which A-movement is expected to pass under the Takahashi (1994)/Boeckx (2001a)/Bošković (2002b) approach to locality of A-movement, on which A-movement must stop in every A-Spec.

² Since the analysis presented below depends on the possibility of overt object shift in English, I will mention here a few arguments for it.

McCloskey (2000), who discusses Q-float under wh-movement in West Ulster English (see section 3.6 for discussion of the phenomenon, which is not attested in Standard English), shows that (i) provides evidence for overt object shift. Given that the infinitival subject in (ia) moves overtly to the higher clause for Case-checking,

Footnote 2. (*Continued*)

there is space for the Q to be stranded preceding *to*. This is impossible in (ib), where the infinitival subject is Case-marked within the infinitive.

- (i)a. Who did you expect your mother all to meet at the party?
 b. *Who did you arrange for your mother all to meet at the party?

Lasnik (1999a) presents an analysis of pseudogapping that requires overt object shift. More precisely, he argues that (ii) involves overt object shift, followed by VP ellipsis.

- (ii) Mary fired three engineers, and Peter did five lab technicians; [~~fire~~ t_i]

Lasnik also gives an argument concerning (iii). Based on (iiia), he argues that covert movement does not affect binding possibilities. (He assumes that the indefinite moves to the matrix IP covertly.) The exceptionally Case-marked (ECM) subject in (iiib) then must be moving to the matrix clause overtly.

- (iii)a. *There seem to each other_i to have been some linguists_i given good job offers.
 b. The DA proved two men_i to have been at the scene during each other's_i trials.

Bošković (1997a) provides another argument based on (iv). Without overt object shift and the accompanying V-movement (the overt object shift analysis assumes short V-movement, which is not the case with the no overt object shift analysis), the construction can only be analyzed as involving infinitival coordination (iva). But then it is impossible to Case-license the subject of both infinitives. Only one of them can be Case-licensed, and its Case-licensing movement violates the Coordinate Structure Constraint. (Since the subjects are distinct, across-the-board movement is not an option. Moreover, Bošković and Franks (2000) show such movement quite generally cannot occur in LF.) Under the overt object shift analysis, the construction can be analyzed as involving matrix AgrOP coordination (ivb), so that both infinitival subjects can be Case-licensed without a violation.

- (iv)a. John [_{AgrOP} [_{VP} believes [_{IP} Jim to be crazy] and [_{IP} Mary to be smart]]]
 b. John_i believes_j [[_{AgrOP} Jim_k t_j [_{VP} t_j [_{IP} t_k to be crazy]]] and [_{AgrOP} Mary₁ t_j [_{VP} t_j [_{IP} t₁ to be smart]]]]]

The grammaticality of (v), where a matrix adverbial follows the embedded clause subject, also provides evidence that the infinitival subject moves overtly into the matrix clause (see Postal 1974).

- (v) I've believed John for a long time now to be a liar. (Kayne 1985)

Bošković (1997a) shows the possibility of Q-float in (4a) provides another argument to this effect.

Note that the above arguments as well as the analysis presented below are also consistent with Lasnik's (1999b) claim that object shift is optional in English (see, however, Bošković 2002b). Note also that the arguments apply equally to definite and indefinite NPs, indicating that English object shift differs from what Diesing (1996) considered object shift in other Germanic languages, characterized by a definiteness effect. I argue in section 3.5 that the definiteness effect, absent from English, arises as a result of movement of definite NPs to a position above SpecAgrOP in the relevant languages.

of Q-float which must be resolved before the analysis can be accepted. The goal of this article is to resolve the problem and explore theoretical and empirical consequences of the proposed solution.³ The resolution of the problem will lead me to adopt the Sportiche (1988)/ Benmamoun (1999) proposal that FQs are adjoined to the NP they modify. More precisely, I will argue that *all* in (1) is adjoined acyclically to the embedded clause subject after the subject moves from its θ -position, Q-adjunction to NPs in θ -positions being disallowed. I

³ I will not be able to address other issues that arise under the stranding analysis, or compare it comprehensively with the adverbial analysis.

Note that Sportiche (1988) claims that French differs from English in that it allows Q-float in the object position of passives and unaccusatives, based on (i) and (ii). (The judgments are Sportiche's.)

- (i)a. ?Les enfants ont été vus tous.
the children have been seen all
- b. ?Les enfants sont venus tous.
the children are come all
 The children came all.
- (ii)a. Les enfants ont été vus presque tous.
the children have been seen almost all
- b. Les enfants sont venus presque tous.
the children are come almost all

My informants find the contrast between (i), involving a bare Q, and (ii), involving a heavy Q, much stronger than Sportiche's judgments show. (One finds even (ii) very marginal; see also Brisson 1998, p. 184; Bobaljik 2003.) The heaviness effect is also noted in Jaeggli (1980), Déprez (1989), Bowers (1993), and Bobaljik (1995). Jaeggli's (iii) is relevant in this respect. (The judgments are Jaeggli's.)

- (iii)a. Les garçons ont (tous) été (tous) invités (?*tous).
the boys have all been all invited all
- b. Les soldats ont été présentés à Anne par ce garçon tous les deux.
the soldiers have been introduced to Anne by this boy all the two
 The soldiers were both introduced to Anne by this boy.

We seem to be dealing here with some kind of heavy Q-shift, available for some speakers. (The effect is also found with unergatives and transitives. Sportiche notes *Les enfants ont vu ce film presque tous* 'The children have almost all seen this movie' is better than *Les enfants ont vu ce film tous*. My informants find a strong contrast between the examples.) What is important for us is that the degraded status of the bare Q examples shows French raises the same problem for Sportiche's analysis as English.

will also argue that, despite appearances, Q-float is obligatory, which will enable me to account for the scope freezing effect of Q-float. The proposed analysis of Q-float will be shown to have a number of important consequences for clausal structure as well as the structure of PPs. Regarding the latter, I will show that certain data involving Q-float provide evidence for the existence of PP-internal object shift.⁴

2. FLOATING QUANTIFIERS AND θ -ROLE ASSIGNMENT

I will approach the problem by recasting it in terms of a broader descriptive generalization in (5).⁵

- (5) Quantifiers cannot be floated in θ -positions.

FQs in (3a–c) are located in object θ -position. As a result, all the problematic cases in (3) come under the generalization in (5). I will show below that (5) follows from independent mechanisms, which will give us an independent account of the constructions in (3) that will make them irrelevant to Sportiche's analysis of Q-float, resolving the most serious problem for the analysis. Before demonstrating this, I will strengthen the generalization in (5) by showing that Q-float is impossible not only in object θ -position, which are the cases we have dealt with so far, but also in subject θ -position.

Bobaljik (1995) observes that whereas *all* floated by a subject can either precede or follow high, sentential adverbs, it must precede low, manner adverbs. This is illustrated by the examples in (6).

- (6)a. The students all completely understood.
 b. *The students completely [_{VP} all understood].
 c. The students obviously all understood.
 d. The students all obviously understood.

Given the standard assumption that even low adverbs like *completely* are above the subject θ -position when preceding the verb, (6a, b) provide evidence that *all* cannot be floated in θ -marked SpecVPs. As Sportiche (1988, p. 432) shows, French patterns with English with respect to (6a, b). The same holds for Spanish (see (7)). Significantly,

⁴ Throughout the article, I will ignore the irrelevant completive reading of *all*, on which *all* means something like *entirely* (see Bobaljik 1995), as well as the manner adverbial reading that is available in some cases (see Benmamoun 1999), since these do not arise as a result of Q-float. I will also confine the discussion to floating *all*.

⁵ For some relevant discussion, see also Bošković (1997a) and Déprez (1989).

as (8) shows, Spanish postverbal subjects, which are often assumed to be located in SpecVP (see, e.g., Arnaiz 1992; Marquis 1992; Uribe-Echevarria 1992; Suñer 1994; Bošković 1997c; Alexiadou and Anagnostopoulou 1998; Zubizarreta 1998), can follow adverbs like *completely*. The contrast between (7b) and (8) confirms that FQs cannot occur in subject θ -position.

- (7)a. ?Los estudiantes entenderán todos completamente (ese problema).
the students will.understand all completely that problem
 b. *Los estudiantes entenderán completamente todos (ese problema).

- (8) ?Entenderán completamente los estudiantes (ese problema).

Another argument to this effect concerns Holmberg's (1999) claim that a FQ modifying a subject cannot occur between an auxiliary and the participle in Swedish embedded clauses. Given that, as is well-known, auxiliaries in Swedish embedded clauses do not move overtly, constructions like (9) also provide evidence that Q-float is not possible in subject θ -position, i.e. SpecVP.

- (9) Jag undrar varför studenterna inte (alla) har (*alla) läst boken.
I wonder why the.students not all have all read the.book

English (10b), which contrasts with (10a), provides more evidence for the impossibility of Q-float in subject θ -position, since *all* must be located in this position in (10b) given the standard assumption that *being* does not undergo overt movement. (I ignore the irrelevant completive reading of *all*.)

- (10)a. They are all being noisy.
 b. *They are being all noisy.

More evidence that quantifiers cannot be floated in subject θ -position is provided by Japanese (11). (11c) shows that Japanese allows Q-float. We are interested here in (11a), which contrasts with (11b).

- (11)a. *Gakusee-ga hanbaagaa-o 3-nin tabeta.
students-nom hamburger-acc 3-cl ate
 Three students ate a hamburger.
 b. Gakusee-ga 3-nin hanbaagaa-o tabeta.
students-nom 3-cl hamburger-acc ate
 c. Hanbaagaa-o gakusee-ga 1-tu tabeta.
hamburger-acc students-nom 1-cl ate
 Students ate one hamburger.

It is well known that Japanese objects can move overtly via scrambling and/or object shift. Given that the object in (11a) can be outside of VP, a question arises why a subject FQ cannot follow it. Since it is plausible that the FQ in (11a) is located in SpecVP, I take (11a) to provide further evidence for (5).⁶

A similar argument is provided by English (12).

- (12)a. *The students_i believed_k [_{AgroP} John_j t_k [_{VP} [all t_i] t_k [_{IP} t_j to be t_j smart]]]
 b. *The students_i hate_k [_{AgroP} John_j t_k [_{VP} [all t_i] t_k t_j]]

Given that *John* in (12) undergoes overt object shift (see note 2), the θ -position of the subject is lower than *John*.⁷ Still, a Q floated by the subject cannot follow *John*. The ungrammaticality of (12) thus provides further evidence that Q-float in subject θ -position is impossible.

Consider now French (13).

- (13) Les enfants mangent ?tous tout/*tout tous.
 the children eat all everything
 The children all eat everything.

It is well known that (unstressed) *tout* must move overtly outside of VP (see Kayne 1975; Sportiche 1988; Belletti 1990; Cinque 1999), leaving room for a subject FQ to follow it. However, this is impossible, as Sportiche (1988) notes. (13) thus confirms that Q-float in subject θ -position is impossible.

Sportiche's (1988) example in (14) provides additional evidence to this effect.

- (14) *Les enfants ont vu tous ce film.
 the children have seen all this movie

⁶ For more detailed discussions of Q-float in Japanese and Korean from the perspective of the analysis proposed in this paper see Niinuma (2003), who discusses Q-float in Japanese unaccusative constructions, and Oh (in press), who discusses placement of FQs with respect to adverbials in Korean.

⁷ I adopt the standard position that the object shift position is higher than the base subject position rather than Koizumi's (1995) split VP-analysis (see also Bobaljik 1995; Lasnik 1999a), where the former is below the latter. For arguments for the standard position, see McCloskey (2000) and Bošković (1997c), among others. (I show that in languages where subjects can remain in the base position, object wh-phrases can use object shift to move to SpecCP in the presence of a subject wh-phrase in SpecVP without violating Superiority, as expected if the object shift position is above the base subject position.)

- (15) Pierre a vu à peine Isabelle.
Pierre has seen hardly Isabelle
 Pierre has hardly seen Isabelle.

Given that French participles can move overtly outside of their VP, as shown by Pollock (1989) and Cinque (1999) and illustrated by Pollock's (15), where the participle moves across *à peine*, the fact that a subject FQ cannot follow the participle in (14) shows Q-float is not possible in a θ -marked SpecVP.

Interestingly, Belletti (1990) observes that Italian allows constructions like (14), based on (16).

- (16) Gli invitati hanno salutato tutti Maria.
the guests have greeted all Maria
 The guests have all greeted Maria.

This is not unexpected given that Italian participles move higher than French ones, as shown in Belletti (1990) and Cinque (1999) (see (17)–(20), where the Italian participle moves across *non ... ancora* and *tutto*, while the French participle cannot move across *ne ... encore* and *tout*). There should be at least one XP between Italian and French participles to capture the difference in their height. This suffices for our purposes since *tutti* in (16) can be located in the Spec of that XP instead of subject θ -position.

- (17) I ragazzi non hanno incontrato ancora i loro amici.
the children neg have met yet the their friends
 The children did not yet meet their friends.
- (18) Gianni ha capito tutto.
Gianni has understood everything (Italian)
- (19)a. ?*Les enfants n'ont pas rencontré encore leurs amis.
the children neg have neg met yet their friends
 b. cf. Les enfants n'ont pas encore rencontré leurs amis.
- (20)a. *Il a compris tout.
he has understood everything
 b. Il a tout compris. (French)

The XP in question should be above AgrOP, given Cinque's (1999) example (21). The most straightforward way of analyzing (21) is to have the object FQ in Spec AgrOP, the clitic moving from this position (see section 3.3), with the subject FQ in SpecXP. The subject FQ

cannot be placed below the object FQ since in that case it would be located in the θ -position.⁸ (21) thus provides further evidence for (5).

- (21) I bambini le avranno [Y_P sistemate [X_P (tutti)
the children(masc) them(fem) will.have arranged all(masc)
 [AgrOP tutte [V_P (*tutti) subito]].
all(fem) immediately.

It is worth noting that, in contrast to FQs, sentential adverbs cannot follow participles in Italian.

- (22)a. *Lui ha sbagliato probabilmente.
he has mistaken probably
 He probably made a mistake.
- b. *Maria ha rivelato evidentemente il segreto.
Maria has revealed evidently the secret
 Maria evidently revealed the secret. (Belletti 1990)

The contrast between FQs and sentential adverbs regarding the ability to follow a participle argues against Bobaljik's (1995) sentential adverb (more precisely, modal adverb) analysis of FQs, which predicts a parallelism in the distribution of FQs and sentential adverbs. Additional arguments against this analysis are provided in section 3.5 by Q-float within PPs, which can host FQs but not sentential adverbs, and in section 3.6 by Q-float under *wh*-movement in West Ulster English.⁹

Turning now to Korean, Baek (1998) argues convincingly that the short-form negation *an* is located in SpecNegP, Neg taking as complement the VP where the subject is base-generated.¹⁰ (23), where a

⁸ Italian participles then must be able to move higher than English participles, which, like English finite main verbs, are located in the first X^o above AgrOP under the object shift analysis. As a result, they cannot be followed by a subject FQ, since a subject FQ would then be located in the θ -position. (Note that the data discussed by Cinque (1999) indicate that Italian participles do not have to move to YP.)

⁹ It is worth noting that Maling (1976) observes there is a correlation between the ability of an element to undergo passivization and float a Q, which seems to indicate that the ability to undergo A-movement is a prerequisite for floating a Q. This is expected under the stranding, but not under the adverbial analysis (for arguments against the adverbial analysis, see also Sportiche 1988 and Déprez 1989).

¹⁰ See Baek (1998) for evidence against the split VP analysis on which the subject would start above NegP.

subject FQ follows *an*, then confirms that Q-float is impossible in subject θ -position.¹¹

- (23)a. *Haksayng-tul-i an sey-myeng(-i) ttena-ss-ta.
student-pl.-nom not three-cl.(-nom) leave-past-dec
 Three students did not leave.
 b. Haksayng-tul-i sey-myeng(-i) an ttena-ss-ta.

Below I will provide more evidence for the validity of (5). However, I take the data presented so far to amply justify positing it. The next question to ask, then, is whether (5) can be deduced from independent mechanisms or needs to be elevated to the level of a principle of Universal Grammar. I will now show that (5) is deducible from independent mechanisms. In other words, it is a theorem.

The following assumptions, all made and justified independently of our current concerns, will play the crucial role in the analysis:

1. Sportiche (1988)/Benmamoun's (1999) claim that FQs are adjoined to the NP (DP under the DP Hypothesis, which I disregard when not crucially relevant) they modify. Benmamoun, who treats FQs as appositives, is particularly convincing in his arguments to this effect. I assume that in English FQs are left-adjoined, which means (3c) can only be derived by stranding *all* under object movement.

2. Chomsky's (1986) ban on adjunction to arguments, the idea behind it (p. 16) being that adjunction to arguments interferes with θ -role assignment. (For evidence for the ban on adjunction to arguments, see McCloskey 1992; Motapanyane 1994; Bošković 1997a, 2003, among others.¹²)

¹¹ As observed by An (2002), object FQs also cannot occur following *an*.

- (i)a. *Mary-ka chayk-ul an sey-kwon-ul ilk-ess-ta.
Mary-nom book-acc neg Q-three-acc read-past
 Mary didn't read three books.
 b. cf. Mary-ka chayk-ul sey-kwon-ul an ilk-ess-ta.

Baek (1998) argues convincingly that the direct object undergoes object shift to SpecAgrOP, AgrOP being right above NegP. The FQ then seems to be located in object θ -position in (ia), in contrast to (ib).

¹² McCloskey shows adjuncts cannot be base-generated in argument-adjoined positions based on (i).

We already have all we need to rule out (3). Given assumption 1, *all* is adjoined to *the students* in its θ -position. It then interferes with θ -role assignment, given assumption 2. (3a–c) are thus ruled out for θ -theoretic reasons. However, we now seem to have ruled out Q-float altogether. For instance, it seems that even (1) is now ruled out because θ -role assignment in the most embedded SpecVP to *all the students* is blocked by assumptions 1–2. To resolve the problem, I adopt the following assumption, the final mechanism needed to deduce (5).

Footnote 12. (*Continued*)

- (i)a. [_{CP} When you get home, [_{CP} what do you want to do]]?
- b. *He promised [_{CP} when he got home, [_{CP} that he would cook dinner for the children]].
- c. He promised that [_{IP} when he got home, [_{IP} he would cook dinner for the children]].

(ia) shows the adjunct in question can adjoin to CP. However, the option is ruled out when the CP is an argument (ib). No problem with respect to the ban on adjunction to arguments arises in (ic), where the adjunct is adjoined to IP, a non-argument. (I ignore subject clauses, which are often assumed to be adjuncts. (Both McCloskey and Chomsky (1986) argue adjunction to adjuncts should also be banned.))

Bošković (1997a) shows that the ban on topicalization in embedded *that*-less clauses also follows from the ban on adjunction to arguments given that topicalization involves IP adjunction (see Iwakura 1978; Baltin 1982; Saito 1985; Rochemont 1989; Lasnik and Saito 1992; Bošković 1997a), and that, as argued extensively in Bošković (1997a), Doherty (2000), and Grimshaw (1997), *that*-less embedded clauses are IPs. In contrast to (iia), (iib) then involves adjunction to an argument.

- (ii)a. Peter doesn't believe that [_{IP} Mary, [_{IP} John likes]].
- b. *Peter doesn't believe [_{IP} Mary, [_{IP} John likes]].

The account readily extends to (iii) if instead of restricting topicalization to IP adjunction, we assume that topicalization involves clausal adjunction, i.e. adjunction to either CP or IP, a rather natural move.

- (iii)a. ??[_{CP} To John, [_{CP} which book should Peter give]]?
- b. *I wonder [_{CP} to John, [_{CP} which book Peter should give]].
- c. ??I wonder [_{CP} to whom [_{IP} this book, [_{IP} Peter should give]]].
- d. *John believes [_{CP} this book, [_{CP} that Peter should give to Mary]].

Like (ib) and (iib), (iiib) and (iiid) involve adjunction to an argument, a problem that does not arise in (iiia, c). ((iiia, c) are marginal due to a subjacency violation; see Lasnik and Saito 1992.) In Bošković (1997a) I extend the ban-on-adjunction-to-arguments account of the data in (ii) and (iii) to certain data concerning topicalization and subject placement in American Sign Language and Romanian.

3. Lebeaux (1988): Adjuncts can enter the structure acyclically (see Chomsky 1993; Bošković 1997b; Nissenbaum 1998; Fox and Nissenbaum 1999; Ochi 1999; Fox 2000; Stepanov 2001a, b).

Given assumptions 1 and 3, (24) can be derived as shown in (25). Being an adjunct, *all* can be added acyclically after *the students* moves away from the position in which it is θ -marked (see the next section for discussion of this movement). The adjunction of *all* then does not interfere with θ -role assignment to *the students*, as it does in (3).

(24) The students were all arrested.

- (25)a. [_v, arrested the students]
 b. the students [_v, arrested t]
 c. all the students [_v, arrested t]
 d. The students were all t [_v, arrested t]

I conclude therefore that the generalization in (5) can be deduced from an interaction of the independently motivated assumptions 1–3. In turn, by accounting for the ungrammaticality of (3), (5) resolves the most serious problem for the otherwise very successful stranding analysis of Q-float.^{13,14}

¹³ Note that Lebeaux's (1988) cases of acyclic adjunct insertion such as relative clause insertion in *which claim that Joe_i made was he_i willing to discuss* are not necessarily expected to show θ -sensitivity since they may involve adjunction within an argument, not to an argument. Thus, the relative may be adjoined to the NP within the argument DP (see Law 1991). This may also explain why Lebeaux's adjuncts cannot be stranded since there isn't even a segment of the argument that excludes the adjunct in these cases, so it is impossible to move the argument without the adjunct. However, probably more needs to be said about the still murky issue of when stranding of the kind displayed by Q-float is possible. (It is worth noting stranding analyses have recently been proposed for a number of phenomena; see Aoun et al. (2001), Boeckx (2001a), and Rouveret (1994) for resumptives, Aoun and Benmamoun (1998) and Cecchetto (2000) for clitic left dislocation, Belletti (1999), Torrego (1992), and Uriagereka (1995) for clitic doubling, Hornstein (2001) for anaphors, Kayne (1994) for extraposition, and Kayne (2001) for pronouns. Boeckx (2001a, p. 50) also suggests stranding analyses for several A'-dependencies, namely *the hell* stranding in Hebrew, *else* stranding in Child English, and *among*-phrase stranding in French).

¹⁴ Constructions like (i) seem to be problematic in light of the ungrammaticality of (3a) (for discussion of such constructions, see Maling 1976; Bowers 1993; Bobaljik 1995; Doetjes 1997).

I now turn to exploring theoretical and empirical consequences of the proposed analysis. I will start by using the hypothesis in (5) to explore the fine structure of the clause.

3. CONSEQUENCES OF THE PROPOSED ANALYSIS

3.1. *On the Split I Hypothesis, Clausal Structure, and Auxiliary Movement*

The current analysis of Q-float has consequences for the status of I, or, more precisely, the Split I Hypothesis. Under the current analysis, (26) must be derived as shown in (27).

(26) The students all left.

(27) The students_i [all t_i] [_{VP} t_i left].

Since Q-float is not possible in θ -positions, *all* in (26) cannot be stranded in SpecVP, as standardly assumed. Rather, *all* has to wait for *the students* to move from its θ -position to enter the structure (see (27)). It follows, then, that we need a more articulated clausal structure than the one proposed in Chomsky (1995), which has only TP above the VP where the subject is θ -marked. In section 1 we have seen a number of arguments that the FQ in constructions like (26) is indeed not located in the subject θ -position (see, e.g., (6a, b)), contrary to what has to be assumed under Chomsky's clausal structure. The conclusion that we need a richer clausal structure than the one proposed in Chomsky (1995) is empirically supported independently of our current concerns. To mention just one case (see McCloskey 1997 and references therein for additional evidence), it is difficult to see how Pollock's (1989) short V-movement data can be accounted

Footnote 14. (*Continued*)

(i) Mary, Sue, and Peter arrived, all at the same time.

Doetjes, however, convincingly argues we are not dealing here with Q-float. Rather, this is an instance of *all* functioning as an NP, as in *All arrived*. The claim is confirmed by the fact that full NPs and non-floating Qs can occur in the context in question (genuine FQs generally do not alternate with full NPs).

(ii) Mary, Sue, and Peter arrived, Mary and Sue at the same time and Peter a little bit later.

(iii) Tens of competitors arrived last night, several at the same time.

for under Chomsky's clausal structure (see also Belletti 1990; Stjepanović 1998; Cinque 1999; Bošković 2001a). The data provide evidence that we need more structure between the phrase where the subject is θ -marked and the phrase where it is located at SS, which Chomsky (1995) does not provide.¹⁵ In other words, a return to some version of the Split I Hypothesis is in order.

Another consequence of the current analysis of Q-float is that certain English constructions involving non-finite auxiliaries also require more articulated clausal structure than standardly assumed. Consider (28), which, as discussed above, provides evidence for the ban on FQs in subject θ -position, since *all* is located in this position.

- (28) *They are being all noisy.

Interestingly, (29) contrasts with (28) in the relevant respect.

- (29) The students could be all failing the exam.

Given the above discussion, (29) must have a richer structure than standardly assumed: Either *be*'s complement, call it FP, is bigger than VP (*all* can be placed in SpecFP) or its complement is a VP, but the clausal structure above it is richer than standardly assumed, with *be* undergoing short movement. *All* can then be located in the Spec of the VP headed by *be* before the movement. I adopt the movement analysis here, which means that, in contrast to *being* in (28), *be* in (29) undergoes short movement.

- (30) The students_i could be_j [_{VP} [all t_i] t_j[_{VP} t_i failing the exam]].

Interestingly, Akmajian and Wasow (1975) reach exactly the same conclusion on independent grounds. They argue that *be* in (29) but not *be* in (28) undergoes the rule of *Be Shift*, which moves it outside the VP where it is generated. They provide considerable evidence for the conclusion. Among other things, they show their claim regarding

¹⁵ The authors in question show that some Romance nonfinite verbs and Slavic finite verbs move lower than finite verbs in French but higher than such verbs in English. Chomsky's clausal structure does not leave room for the necessary intermediate V-movements given that for Chomsky, English finite verbs are in the VP where the subject is θ -marked and French finite verbs are right above them in TP.

when non-finite *be* moves accounts for the contrast between (31) and (32).¹⁶

- (31)a. *They are being noisy, and you are being too.
 b. Being noisy they are.
 c. *Noisy they are being.
 d. *They are being noisy, aren't they being?
- (32)a. They could be failing the exam, and you could be too.
 b. *Be failing the exam, they could.
 c. Failing the exam, they could be.
 d. John could be failing the exam, couldn't he be?

Under the current analysis of Q-float, the acceptability of (33) leads to the conclusion that non-finite *have* can also undergo short V-movement.

- (33) They may have all talked to Peter.

Significantly, the construction patterns with (29), where the non-finite auxiliary undergoes movement, rather than (28), where the non-finite auxiliary does not undergo movement, with respect to the Akmajian and Wasow tests from (31) and (32), which confirms the movement analysis for non-finite *have*.

- (34) a. They may have talked to Peter, and you may have too.
 b. *Have talked to Peter, they may.
 c. Talked to Peter, they may have.
 d. John could have talked to Peter, couldn't he have?

(33) should then be bad in a language where *have* does not move overtly. Such constructions are indeed unacceptable in Swedish,

¹⁶ See Akmajian and Wasow (1975) for details of the analysis.

Interestingly, passive (i), where *all* must be in the Spec of the lowest VP, contrasts with (29).

- (i) *The students_i were being [_{VP} all t_i failed t_i].

Bošković (1994, 1997a, 2003), Saito and Murasugi (1999), Grohmann (2000), Abels (2003), and Ticio (2003) show that movement from complement to Spec of the same XP (more generally, multiple movement within the same XP) is disallowed. This rules out (i), where the NP must move from complement to Spec of the lowest VP to float *all*, given that *being* does not move, in contrast to *be* in (29).

which I interpret as indicating that Swedish and English differ with respect to the possibility of short-moving the second auxiliary overtly in the construction in question.

- (35) ??De kan ha alla talat med Peter.
they may have all talked to Peter

To sum up, the current analysis of Q-float leads us to a more articulated clausal structure than standardly assumed and to the conclusion that certain non-finite auxiliaries in English undergo V-movement.

3.2. *The Ban on Quantifier Pied-piping*

I now turn to the issue of the relationship between FQ constructions and their non-FQ counterparts.

The paradigm in (36) indicates that Q-float is optional.

- (36)a. All the students were failed by Mary.
 b. The students were all failed by Mary.

The optionality of Q-float raises a potential problem for Minimalism. In this section I show that despite appearances, Q-float is obligatory and thus consistent with basic minimalist tenets. A consequence of the analysis given below is that floating and non-floating QNPs have different structures.

My argument that despite appearances, Q-float is not optional concerns the scope freezing effect of Q-float, i.e. the lack of scope reconstruction with FQs, whose relevance for the current analysis was pointed out to me by Bob Frank (p.c.). Consider scope interaction between negation and the FQ in (37).¹⁷

- (37)a. The students don't all know French. not > all
 b. The students all don't know French. all > not

The indicated scope relations are the only possibilities in (37). We are interested in (37b), where *all* must take wide scope. Suppose Q-float is not obligatory. We can then derive (37b) as follows: *All* adjoins to *the students* below *not*, as in (37a).¹⁸ *All the students* then moves above

¹⁷ I ignore the metalinguistic use of negation in this context discussed in Dowty and Brodie (1984). For examples similar to (37a), see Sportiche (1988), Williams (1982), and Déprez (1994).

¹⁸ In both constructions the adjunction would occur after *the students* moves from its θ -position, as discussed in section 3.1.

negation, where Q-float occurs. *The students* moves to its SS position, stranding *all*. ((38) shows all relevant copies.)¹⁹

- (38) [The students] [all [the students]] don't [all [the students]] [_{VP}
[the students] know French].

Since there is a copy of *all* below negation, negation should be able to scope over *all*, as it does in (37a).²⁰ However, the expectation is not borne out. The problem does not arise if Q-float is obligatory, which means that pied-piping of a Q to be floated is disallowed. Under the obligatory Q-float analysis, Q-float must occur as soon as *all* enters the structure; the NP cannot carry *all* with it. Since pied-piping of a Q to be floated is not an option, the surface position of a FQ indicates the position where it has entered the structure, which gives us exactly what we need with respect to (37b). Most importantly, since the derivation employed in (37a) on which *all* enters the structure below negation is now ruled out, we have an explanation for the otherwise puzzling lack of the 'reconstructed' scope reading in (37b). The only way to derive (37b) under the obligatory Q-float analysis is as follows: *The students* is inserted into its θ -position and then moves successive cyclically above negation. *All* acyclically enters the structure, after which *the students* moves, obligatorily stranding *all*.

- (39) [The students] [all [the students]] don't [the students]
[_{VP} [the students] know French].

¹⁹ See the discussion of the Split I Hypothesis in section 3.1. If *do* of *do*-insertion is located in T (see Pesetsky 1989), *all* in (37b) can be located in SpecTP and *the students* in SpecAgrSP.

²⁰ The argument is based on the somewhat controversial assumption that there is scope reconstruction with A-movement (see Hoji 1985; Chomsky 1995; Kitahara 1996; Hornstein 1999; Lasnik 1999b; Fox 2000; Ausín 2001; Boeckx 2001b; Sauerland 2001 for relevant discussion). Note that Lasnik's main argument against such reconstruction involves reconstruction into infinitives. It does not concern monoclausal domains, where we do need reconstruction (see, e.g., (48), which contrasts with (37b)). Note also that, as noted by an anonymous referee, the impossibility of the *neg > all* reading in (37b) argues against Boeckx's (2001b) analysis of wide scope of negation, where this reading is achieved via LF movement of negation. It seems that under Boeckx's analysis we would expect negation always to be able to scope over its clause-mate subject positions, which is not borne out by (37b). (One could deal with (37b) under Boeckx's analysis by assuming that the FQ has a blocking effect on LF *neg* movement. For the blocking effect of FQs on movement, see also Déprez 1994 and (80) below.)

Since there is no copy of *all* below negation, negation cannot scope over it. I conclude therefore that the scope freezing effect illustrated in (37) provides evidence for the obligatoriness of Q-float.

The data in (37) can be reproduced with bi-clausal domains and other quantificational elements, the indicated readings being the only possibilities in (40) and (41). These data further illustrate the scope freezing effect of Q-float, which provides evidence for the obligatoriness of Q-float.

- (40)a. The students did not seem all to know French. not > all
 b. The students seemed not to all know French. not > all
 c. The students all seemed not to know French. all > not
- (41)a. The students rarely all go to the Zoo. rarely > all
 b. The students all rarely go to the Zoo. all > rarely

Given that Q-float is obligatory, how can we deal with (36)? The obligatoriness of Q-float in (37)–(41) can be accounted for given Chomsky's (1995, p. 262) condition in (42), where F is a feature undergoing checking, or Stateva's (2002) version of it given in (43). Moreover, we will see below that given a plausible assumption concerning the structure of non-floating constructions, (42) and (43) account for both (37)–(41), which indicate that Q-float is obligatory, and (36), which indicates that Q-float is optional.

- (42) F carries along just enough material for convergence.
- (43) Pied-Pipe Less Weight: At a given stage of a derivation, a syntactic object A cannot be moved to K if there is a syntactic object B contained in A [i.e. if there is a subset-superset relation between B and A] that can be moved to K.

(42) and (43) ban superfluous pied-piping.²¹ For ease of exposition, below I will refer to (44), which captures the spirit of (42) and (43), both of which may follow from general principles of economy of derivation. (Superfluous pied-piping of X in (44) can be defined either in terms of convergence (pied-piping not needed for convergence) or ability of a subpart of X to undergo movement in question.)

- (44) Superfluous pied-piping is not allowed.

²¹ The alternation between pied-piping and P-stranding in English raises an obvious problem for the ban on superfluous pied-piping. The issue is taken up in the appendix, where it is shown that preposition pied-piping in English is in fact consistent with the ban in question.

(44) forces Q-float, thus accounting for its obligatoriness in (37)–(41). Since in the floating derivation movement carries less material than in the non-floating derivation (*the students* vs. *all the students*) and they both converge (i.e. both *the students* and *all the students* can move to SpecIP; moreover, the former is a subpart of the latter), (44) forces Q-float, a desirable result in light of the above discussion.

What about the apparent optionality of Q-float in (36)? We can preserve the above account of the obligatoriness of Q-float in (37)–(41) and still allow (36a, b) if we give different structures to floating and non-floating examples, a plausible stand to take in light of the discussion below. More precisely, the desired result can be accomplished if the structure of non-floating constructions is such that Q-float is simply not possible. As discussed below, the question of comparison of floating and non-floating constructions then does not arise, resolving the optionality problem noted with respect to (36).

I propose to account for the lack of Q-float in (36a) in the same way as for pied-piping under wh-movement in (45).

(45) Whose book did Mary buy?

Checking the +wh-feature of C by moving *whose* should be preferred to checking it by moving *whose book*. Recall, however, that the ban on pied-piping blocks only superfluous pied-piping, not necessary pied-piping. Note that movement of *whose* alone is simply not an option, English disallowing left-branch extraction. (In more technical terms, the movement would lead to a non-convergent derivation; see Chomsky 1995, p. 263.) The question of comparison then does not arise. (Under (42)–(44), the question arises only when both extraction and subextraction are in principle possible – note that no constraint ranking is needed to ensure this.) We are using the only available option, which is to move *whose book*.²² In other words, pied-piping *whose book* is necessary. The suggestion is then that (36a) should be accounted for in the same way as (45), which means the structure of a non-floating QNP is such that Q-float, i.e. moving the NP without the Q, is impossible, just like moving *whose* alone is impossible in (45). Since Q-float is obviously possible in floating constructions, it follows that floating and non-floating constructions have different structures. Giving the two different structures is desirable in light of the fact that they often differ morphologically (see Benmamoun 1999 for Arabic; Sportiche 1996 for French; Shlonsky 1991 for Hebrew; Doetjes 1997

²² What about languages that allow possessor/left-branch extraction? In some languages of this type, such extraction is not only possible but in fact forced, as the

for Dutch; Merchant 1996 for German), syntactically (see Benmamoun 1999 for Arabic; Brisson 1998; Bobaljik 1995, (79) and (80) below for English; Déprez 1994 and Sportiche 1996 for French), and semantically (see Bobaljik 1995; Brisson 1998; Williams 1982 for English; Merchant 1996 for German; Benmamoun 1999 for Arabic). In fact, in light of the host of differences between floating and non-floating constructions, an analysis that assumes a structural difference between the two becomes the null hypothesis. In other words, the burden of proof is on those who would treat floating and non-floating constructions in the same way.²³

Given the above discussion, *all the students* in (46) is generated in the θ -position within VP and then undergoes movement to SpecIP, as shown in (47) (ignoring intermediate landing sites).

Footnote 22. (*Continued*)

pied-piping derivation, which is the only possibility in English, is disallowed. One such language is Chamorro. Gavrusseva (2000) notes that possessor extraction is obligatory in Chamorro questions that allow it, the pied-piping strategy being disallowed (for possessor extraction in Chamorro, see also Chung 1991). This state of affairs is readily accounted for by the ban on superfluous pied-piping. However, in a number of languages that allow left-branch extraction, e.g. Serbo-Croatian (SC), such extraction appears to alternate with pied-piping.

- (i)a. Koju knjigu je on kupio?
which book is he bought
 Which book did he buy?
- b. Koju je on knjigu kupio?

I suggest this is not a case of true optionality. One possibility is that the pied-piping and left-branch movements check different features, in which case the question of comparison would not necessarily arise. (In Bošković (2002a), wh-fronting can involve scrambling, but not focus movement in (ia) and focus movement, but not scrambling in (ib).) Another possibility is that *koju knjigu* has different structures in (ia) and (ib), on a par with floating and non-floating QNPs. Recent accounts of cross-linguistic variation regarding left-branch extraction attribute it to variation regarding the presence vs. absence of DP in traditional NPs. Thus, Corver (1992) and Bošković (2003) blame the impossibility of left-branch extraction in English on DP and argue that DP is not present in languages that allow such extraction. Suppose, however, that traditional NPs can be either DPs or NPs in SC (see Stateva 2002). Left-branch extraction would be possible, in fact obligatory, on the NP derivation, while pied-piping would be the only option on the DP derivation (see also appendix for preposition pied-piping).

²³ Determining the exact structure of non-floating constructions is beyond the scope of this article. For our purposes it suffices that non-floating constructions do not involve Q-adjunction.

(46) All the students know French.

(47) [All the students] [_{VP} [all the students] know French].

The current analysis makes a surprising prediction. Since in contrast to (37b) (see the structure in (39)), in (48) there is a copy of the Q below negation (see the structure in (49)), we predict that, in contrast to the floating example (37b), in the non-floating example (48) negation will be able to take wide scope. The prediction is borne out. (Sportiche 1988 notes the French counterpart of (48) is also ambiguous.)

(48) All the students don't know French. all > not, not > all

(49) [All the students] don't [_{VP} [all the students] know French].

Notice also that *rarely* can scope over *all* in (50), in contrast to (41b). This contrast illustrates the same point as the contrast between (48) and (37b) and can be accounted for in the same way.

(50) All the students rarely go to the Zoo. all > rarely, rarely > all

I conclude therefore that the current analysis accounts for the otherwise mysterious contrast between floating and non-floating constructions with respect to the possibility of reconstructing the quantifier.

Returning to (46), there is actually another derivation of the construction that I have ignored so far. Nothing in the above discussion prevents us from generating *the students* alone in the θ -position. *The students* would then move to SpecIP, where the Q left-adjoins to it.

(51) [All [the students]] [_{VP} [the students] know French].

Both floating and non-floating structures (i.e. adjunction and non-adjunction structures) are thus available for the QNP in (46), provided that the Q is adjoined to the NP in its final position.

Under the current analysis, then, in non-floating constructions both the adjunction and non-adjunction structures are available (provided the NP moves from its θ -position), while in floating constructions only the adjunction structure is available. A strong confirmation of this analysis is provided by a persistent morphological pattern found in several languages concerning agreement between a Q and the NP it is interpreted with. Consider German (52), taken slightly modified from Merchant (1996), where *alle* is an agreeing nominative/accusative form and *all* is a caseless form.

- (52)a. Diese Studenten haben alle/*all protestiert.
these.nom students have all.nom/all protested
 These students have all protested.
- b. Gestern haben alle/all diese Studenten protestiert.
yesterday have all.nom/all these.nom students protested
- c. Diese Bücher habe ich alle/*all gelesen.
these.acc books have I all.acc/all read
 I read all these books.
- d. Gestern habe ich alle/all diese Bücher gelesen.

While the Q must agree when floated (52a, c), when it is not floated the agreement is optional (52b, d). The data receive a principled account under the current analysis, assuming German accusative NPs such as the one in (52d) can move within the middle field from their base position, as standardly assumed (see, e.g., Zwart 1993a; Bobaljik 1995; Diesing 1996), and that, as argued in Benmamoun (1999), being adjoined nominal modifiers, like other such modifiers (i.e. adjectives), FQs agree in case.²⁴ For Benmamoun, case agreement is a reflex of the adjunction structure. I assume then that the non-agreement pattern arises with the non-adjunction structure. Recall now that both the adjunction and the non-adjunction structure are available for non-floating QNPs, while only the adjunction structure is available for floating QNPs. The prediction is then that the agreement pattern will be forced in floating examples, but optional in non-floating examples, which is exactly what we find in (52).

Interestingly, case agreement is also optional with complements of prepositions.

- (53) neben allen/all diesen Studenten
beside all.dat/all these.dat students

The non-agreement option is straightforward, since on this derivation the QNP can remain in its θ -position. On the agreement option, this is impossible. I conclude, then, that on the agreement option the QNP must move from its θ -position. This claim is consistent with, and in fact can be interpreted as additional evidence for, the Abels (2001)/Bošković (2001a)/Koopman (1997, 1999)/Watanabe (1993) position

²⁴ The term adjoined nominal modifier stands for either a DP adjunct (like an FQ) or an NP adjunct (like an adjective). Note that in many languages floating Qs like *all* are morphologically adjectives.

that Case-checking ‘within’ PP parallels Case-checking ‘within’ VP, which means that the complement of a preposition moves from its θ -position to get Case. Fleshing out the VP/PP parallelism analysis with respect to (53), similarly to verbal objects that undergo overt object shift, *allen diesen Studenten* in (53) moves to the Spec of an AgrP projection (AgrpP), with the preposition moving to a functional head right above the AgrP (just like the verb), the underlying assumption being that like NP complements of verbs, NP complements of prepositions in German at least have the option of undergoing their Case-movement overtly (see also section 3.5). Benmamoun’s proposal that the case agreement pattern corresponds to the adjunction structure thus leads us to the Abels/Bošković/Koopman/Watanabe view that PPs have a richer structure than traditionally assumed.

Note that the following example from West Ulster English, which allows Q-float under wh-movement (see section 3.6 for discussion of the phenomenon), can now also be accounted for, since under the Abels/Bošković/Koopman/Watanabe view of Case-licensing within PP the FQ in (54) does not have to be located in a θ -position.

- (54) ?Who was he laughing at all? (McCloskey 2000)

It is worth noting that Arabic and Hebrew behave similarly to German with respect to case agreement within QNPs (see Shlonsky 1991; Benmamoun 1999). The above analysis is readily extendable to these languages. The Arabic data discussed by Benmamoun (1999) are particularly interesting for our purposes since they quite clearly show that floating and non-floating constructions have different structures. As (55) shows, in the latter, the Q, which itself receives case from outside of the QNP complex, assigns genitive case to the NP, while in the former (see (56)), the Q agrees in case with the NP, which receives its case from outside of the QNP complex, and carries an agreement clitic.

- (55) kull-u ʔ-ʔullaab-i ʒaaʔ-uu.
all-nom the-students-gen come.past-3MP
 All the students came.
- (56) ʔ-ʔullaab-u kaan-uu kull-u-hum ya-drus-uun.
the-students-nom be.past-3MP all-nom-them 3-study-MP
 The students were all studying. (Benmamoun 1999)

Benmamoun argues that in the non-floating construction the Q takes NP as its complement, while in the floating construction the Q is adjoined (i.e. right-adjoined) to the NP prior to the stranding. Being a modifier, the FQ undergoes case agreement. It also carries an

agreement clitic. I will refer to the former (Q as the head) structure as the non-adjunction pattern and the latter as the adjunction pattern. Benmamoun's approach is fully consistent with the current analysis. Recall that under this analysis the adjunction pattern is the only possibility for floating examples, while both the adjunction and the non-adjunction pattern are available for non-floating examples. This is exactly what we find in Arabic. (57) shows that, in contrast to the adjunction pattern, the non-adjunction pattern is not available with Q-float.

- (57) **t-tullaab-i* *kaan-uu* *kull-u* *ya-drus-uun*.
the-students-gen *be.past-3MP* *all-nom* *3-study-MP*
 The students were all studying.

In non-floating constructions both the adjunction (58a, c) and the non-adjunction pattern (58b, d) are available. (Recall that the QNP moves from its θ -position on the former pattern. In this respect, see the above discussion of Case within PPs. Note that (58c, d), where the clitic differentiates the two patterns, are genitive-licensing contexts. Recall also that in Arabic the Q is right-adjoined to the NP).

- (58)a. *raʔay-tu* *t-tullaab-a* *kull-a-hum*.
see.past-1s *the-students-acc* *all-acc-them*
 I saw all the students.
 b. *raʔay-tu* *kull-a* *t-tullaab-i*.
see.past-1s *all-acc* *the-students-gen*
 c. *maʔa* *t-tullaab-i* *kull-i-him*.
with *the-students-gen* *all-gen-them*
 with all the students.
 d. *maʔa* *kull-i* *t-tullaab-i*.
with *all-gen* *the-students-gen* (Benmamoun 1999)

The Arabic data thus provide a confirmation of the current approach to QNPs.²⁵

To summarize section 3.2, we have seen that the proposal concerning distinct structures for floating and non-floating QNPs accounts for the different behavior of floating and non-floating examples with respect to scope freezing, only floating examples disallowing scope reconstruction, and the different behavior of floating and non-floating examples in German and Arabic with respect to case agreement, floating constructions requiring it and non-floating

²⁵Since we are dealing here with language-specific agreement properties we do not necessarily expect other morphologically rich languages to behave like Arabic and

constructions optionally allowing it. The crucial ingredient of the above analysis is that, despite appearances, Q-float is obligatory (more precisely, it is obligatory whenever it is at all possible). Q-float thus conforms to the basic tenets of the Minimalist Program, which leaves little if any room for truly optional operations.

3.3. *Object Shift and Cliticization*

I now return to the contrast between (3c) and (4) regarding Q-float off an accusative NP and show that the current analysis can help us choose among alternative analyses of the constructions in question.

Consider first the contrast between (4a) and (3c), whose structures under the current analysis and assuming overt object shift are given in (59) and (60) respectively.

(59) *Marybelievesthestudents*_i [_{IP} [all *t*_i] to [_{VP} *t*_i know French]]

(60) **Mary hates the students*_i [_{VP} [all *t*_i]]

As discussed above, (60) is ruled out because *all* is adjoined to the NP in its θ -position. This does not happen in (59), where *all* enters the structure after the NP it modifies moves from its θ -position.

Consider now the contrast between (4c), repeated here as (61), and (60).

Footnote 25. (*Continued*)

German. What is more important than the morphological details of Arabic and German is the existence of two patterns, both of which are found in non-floating and only one of which is found in floating constructions. However, it would not be surprising to find languages with two morphological patterns whose distribution would be determined by PF adjacency to the NP a Q modifies rather than structurally, which I have argued is the case in German and Arabic. French and Dutch are candidates for such languages (see Doetjes 1997). It is also possible that there are languages that allow NP extraction out of a non-adjunction structure (see note 60; in such languages, FQs would not have to be subject to the θ -restriction). In this respect, consider Serbo-Croatian (i), which involves Q-float under *wh*-movement. (*Su* is a second position clitic that must be preceded by exactly one clause-mate constituent.)

- (i) Šta (*sve) su (sve) kupili (*sve).
what all are bought
 What all did they buy?

Assume Serbo-Croatian *šta-sve* unambiguously has a non-adjunction structure which, however, allows *wh*-subextraction. *Sve* cannot be stranded in a postverbal position for an independent reason involving focalization I discuss in work in preparation. As soon as *šta-sve* moves to a preverbal position where stranding of *sve* is possible, *šta* must move alone stranding *sve*, in accordance with (44).

(61) Mary hates them all.

The contrast can be readily accounted for if English object pronouns move higher overtly than object NPs (see also Koopman 1999), in which case *all* in (61) would not have to be floated in a θ -position, in contrast to (60).²⁶ In fact, Lasnik (1999b) shows that object pronouns behave differently from object NPs with respect to height tests, exhibiting higher behavior than object NPs. This fits well with the above conclusion. I therefore suggest that both object pronouns and object NPs undergo object shift, with pronouns undergoing further movement from the object shift position, where *all* is located in (61). The following contrast from Postal (1974) is relevant here.

(62)a. Malcolm proved them all, don't forget/he claimed,
to be vicious criminals.

²⁶ Postal (1974) and Maling (1976) argue (61) does not involve Q-float. Rather, the pronoun and *all* form a single exhaustive constituent. (Given the discussion below, it is important to note the constituent cannot be a clitic since the combination (i.e. the Q part) is stressed.) Under this analysis, a question arises why DP internal Q-reordering is not available with NPs, especially given that Hebrew allows it with both pronouns and NPs (see Shlonsky 1991). Moreover, under the pronominal constituent analysis pronoun-Q sequences are expected to have the same distribution regarding movement possibilities as ordinary pronouns, a prediction that is not borne out (see Brisson 1998; Koopman 1999). In fact, it seems the sequence cannot move. Note that Hebrew DPs involving DP internal Q-ordering can move).

- (i) *Them all, Mary liked.
- (ii) All of them/Them, Mary liked.

As another argument against the single constituent analysis, Brisson (1998) and Koopman (1999) cite the inability of pronoun + Q sequences to serve as answers to questions. (An anonymous reviewer finds some such examples acceptable. My informants agree with Brisson and Koopman.)

- (iii) Which cookies did Rhonda eat? *Them all/All of them. (Brisson 1998)

The ungrammaticality of coordinations like (iv) raises another problem for the single constituent analysis given the acceptability of *Mary likes you and/but not them*.

- (iv) *Mary likes [you and/but not them all].

Finally, under the constituent analysis it is difficult to account for the fact that not all speakers accept examples like *I talked about that with them all* (Postal 1974 finds them unacceptable), given that *I talked about that with them* is acceptable for all speakers (see below for a Q-float analysis of this).

- b. *Malcolm proved the soldiers all, don't forget/he claimed,
to be vicious criminals.

Given the above suggestion, the ECMed elements in (62a) and (62b) are located in different positions: *the soldiers* is in the object shift position and *them* is in a higher position. As a result, *all* in (62a) can be located in the object shift position, while *all* in (62b) must be lower, presumably in the infinitival SpecIP. Given this, we can easily account for the contrast in (62) if we assume that the parenthetical cannot be attached between the infinitival SpecIP and *to*. Notice also that (63) is better than (62b).

- (63) ?Malcolm proved the soldiers, don't forget/he claimed,
to be vicious criminals.

Given overt object shift, (63) has the same options for parenthetical placement as (62a) on the derivation on which *all* in (62a) is floated in the object shift position. While the element immediately preceding the parenthetical in (62b) is located in the infinitival SpecIP, the element preceding it in (63) and (62a) can be located in the object shift position in the matrix clause. As a result, the parenthetical is not forced to attach between the infinitival SpecIP and *to* in (63) and (62a), as it is in (62b).²⁷

²⁷ Notice also Postal's (1974) contrast in (i), which disappears in (ii). The data can be interpreted as indicating that, like object pronouns, subject pronouns move higher than the corresponding lexical NPs. (Postal observes a similar contrast regarding parenthetical placement, on a par with (62).)

- (i)a. They all are happy.
b. ?*The soldiers all are happy.
- (ii)a. They are all happy.
b. The soldiers are all happy.

I hesitate to draw a strong conclusion here since my informants accept (ib). Note that we can make room for *all* in (ib) if we assume *are* may be in T (see note 35 as well as Watanabe (1993) and Bošković (1997a), who argue English finite auxiliaries can be either in AgrS or T). *All* can then be in SpecTP in (ib). It is also possible that speakers differ regarding the option of leaving the auxiliary in T, with those who find (ib) unacceptable obligatorily moving it to AgrS. The fact that (ia) is acceptable even for them could then provide evidence that nominative pronouns also move higher than their NP counterparts. Due to the unclarity of the relevant data, I leave the issue open at this point (see, however, section 3.5).

What is the nature of the movement of accusative pronouns from the object shift position? I suggest that we are dealing here with cliticization (for pronominal cliticization in English, see also Postal 1974, pp. 102–109). Evidence for this suggestion is provided by the fact that contrastively focused and coordinated object pronouns cannot float a Q. (Capital letters indicate contrastive focus.)

- (64)a. *Mary hates THEM all.
 b. *Mary hates you, him, and her all.

If cliticization is responsible for the additional movement of the pronoun that licenses Q-float in (61), the fact that Q-float is impossible in (64), where the pronoun is not a clitic (clitics cannot be contrastively focused and coordinated), is expected. Apparently, once the cliticization option is removed through contrastive focus and coordination, object pronouns do not differ in the relevant respect from object NPs. The cliticization analysis thus accounts for the contrast between (60)/(64) and (61).

A confirmation of the current analysis is provided by the contrast in (65).

- (65)a. John threw them all out.
 b. *John threw them out all.

Lasnik (1999b) argues that the object shift position is above the particle in V+ particle constructions.²⁸ Under his analysis *all* in (65b) can only be located in the θ -position, just as in (60). What about (65a)? (65a) can be accounted for in the same way as (61). Given that the object shift position precedes the particle, *all* can be stranded in this position in (65a), with the pronoun undergoing further movement (i.e. cliticization) from this position, just as in (61). The full NP counterpart of (65a), given in (66), is degraded because full NPs cannot undergo the additional movement from the object shift position.

- (66) ??The DA threw the defendants all out.

However, although worse than (65a), (66) is not fully unacceptable. I suggest that the particle brings in additional structure, providing an

²⁸ He thus argues for optional object shift for English NPs: NPs that precede the particle undergo it, and NPs that follow it don't (see Bošković 2002b for an obligatory object shift analysis of these data).

intermediate landing site for NPs undergoing object shift. In Bošković (2002b), I place the particle in (66) in the head position of OutP, which is the complement of AgrO. I suggest that SpecOutP can marginally serve as an intermediate landing site for the object NP, *all* being added in that position. Crucially, since (65a) is better than (66), a derivation that is not available for (66) still needs to be available for (65a). I take this to be the cliticization derivation.

Notice finally that (67) is ruled out for the same reason as (65b): *All* is located in a θ -position.

(67) *The DA threw the defendants out all.

The data in (65) are important because they show that Q-float fails even with pronouns if we ensure that the Q is located in a θ -position, which provides a strong confirmation of the current analysis.

Consider now (68).

(68)a. (*I talked (about that) with them all.

b. * I talked (about that) with the students all.

While Q-float off NP complements of prepositions is clearly unacceptable, judgments are divided regarding such Q-float with pronouns. Postal (1974) finds it unacceptable, and Maling (1976) and Kayne (2001) acceptable. (68b) is easy. Recall that on a par with Case-licensing by a verb, Case-licensing by a preposition occurs in SpecAgrpP, with the preposition moving above it. Depending on whether NP complements of P move to their Case-checking position overtly, (68b) is ruled out either because *all* is located in a θ -position (if the NP undergoes Case-movement) or because no movement that could float it has occurred (if the NP does not undergo Case-movement). What about (68a)? Recall (61) is acceptable because the pronoun undergoes cliticization after object shift, i.e. Case-movement. Cliticization plausibly involves either head movement to a special (accusative) clitic-licensing projection (I will refer to it as CIP) or right-adjunction to V. Returning to (68a), I suggest that for those who accept it, CIP can be present in PPs or the pronoun can cliticize, i.e. adjoin, to a preposition (see also Merchant 2001, p. 65 for pronominal adjunction to a preposition in English), depending on which view of cliticization we take, an issue too complex to resolve here. As for those who don't accept (68a), the obvious conclusion is that for them, cliticization is not possible within PP, which means that for

these speakers CIP cannot be present in a PP, or the clitic cannot adjoin to P. (I ignore this dialect below.)²⁹

Turning to French, I assume the FQ in (69) is located in the same position as in English (61), i.e. the object shift position, with the clitic pronoun moving from that position (see also Kayne 1989).³⁰ The fact that subject FQs precede direct object FQs (see Cinque 1999) indicates the only subject position below the object shift position is the θ -position. Placing *toutes* in that position, as in (70a), violates (5).

- (69) Je les répare tous.
I them repair all
 I repair them all.

- (70)a. *Les filles_i les_j lisent tous_j toutes_i.
the girls(fem) them read all all(fem)
 b. ?Les filles_i les_j lisent toutes_i tous_j.

I take the fact that an indirect object FQ must precede a direct object FQ (see Kayne 1975; Cinque 1999) to indicate that Agr_{IO}P is higher in the structure than Agr_{DO}P, as standardly assumed.

- (71) ?Je les_i leur_j montre tous_{j/i} toutes_{i/j}.
I them to-them show all all

Consider now the order of subject and indirect object FQs. According to Beghelli (1995) and Cinque (1999), a subject FQ must precede an indirect object FQ. However, Cinque also reports that in the 1992 version of Sportiche (1996), Sportiche claims an indirect object FQ can precede a subject FQ. At issue is the grammaticality status of constructions like (72). (My informants disagree on it.)

²⁹ The ungrammaticality of (i), noted by Koji Sugisaki (p.c), is also relevant here.

- (i) *The students were spoken to all.

I assume the Case-position within PP, SpecAgr_{PP}, is eliminated under pseudopassivization, otherwise pseudopassivization would involve movement from a Case to a Case position, which is disallowed. Given this, *all* in (i) can only be located in the θ -position, violating (5). (In other words, *all* cannot be in the same position in (i) and (68a), SpecAgr_{PP} being unavailable in (i)). It is also worth noting here that I assume that SpecAgr_{OP} is not present with Caseless verbs like *arrive* and passive *arrest* in (3).

³⁰ Note that, as shown in Pollock (1989), French finite verbs move to I.

- (72) (*)Elles_i leur_j montrent tous_j toutes_i les livres.
they(fem) to-them show all all(fem) the books
 All of them are showing them all the books.

For those who reject it, (72) can be accounted for on a par with (70a), which means that a subject FQ following an indirect object FQ is located in a θ -position. What about the speakers who accept (72)? We can account for their judgment if double object constructions may have a richer structure, with at least one more projection through which a subject can pass in between the AgrOPs (see Collins and Thráinsson 1996 for a similar proposal). The subject FQ in (72) can then be located in SpecXP.

- (73) [_{AgrIO}P [_{XP} [_{AgrDO}P [_{VP} ···

3.4. On Ditransitives and the Structure of Small Clauses

Consider now the contrast between (4b), repeated here as (74), and (60).

- (74) Mary gave the kids all some candy.

(74) can be readily accounted for under the small clause analysis, on which the objects are generated as part of a small clause excluding *give* (see Kayne 1984; Johnson 1991; Tremblay 1991; Kitagawa 1994; Den Dikken 1995; Collins and Thráinsson 1996). Under the small clause analysis, (74) is treated in the same way as ECM constructions. It is derived as follows: *The kids* is generated within the small clause in its θ -position. It moves to the small clause SpecIP (see Chomsky 1995; Den Dikken and Næss 1993; Hornstein and Lightfoot 1987; Kitagawa 1986 for arguments that small clauses are IPs), where *all* is added. It then undergoes object shift, floating *all*. (There may be a null V in (75)).

- (75) Mary gave the kids_i [_{IP} [*all* t_i] [_{NP/VP} t_i some candy]].

The current analysis leads us to very specific conclusions concerning the structure of double object constructions (more generally, ditransitives; see (78) below) and small clauses, eliminating a number of analyses proposed for them. In particular, we are led to the conclusion that ditransitive constructions are small clauses and that small clauses are IPs, i.e. they involve additional functional structure.³¹

³¹ The conclusion holds for ditransitive small clauses. It does not necessarily hold for all small clauses.

The above analysis can be extended to small clauses like (76), given (77), due to an anonymous reviewer. This means that the small clause subject in (77) moves overtly to its Case-position, passing through the small clause SpecIP, where *all* is inserted. (It is possible that *with* Case-marks the NP in a Spec-head configuration, after which *with* moves to a higher head position. For an analysis along these lines for the prepositional C *for*, see Bošković (1997a) and Watanabe (1993), and for Case-assigning prepositions in general, on which the small clause in question does not have to be an IP, see section 3.2).

(76) With the students sick, we cancelled the class.

(77) With the students_i [_{IP} [all t_i] [_{AP} sick t_i]], we cancelled the class.

Howard Lasnik (p.c.) notes that (78) and (79) also receive a principled account under the current analysis.

(78) You put the pictures all on the table.

- (79)a. ??Who_i did you put all the pictures of t_i on the table?
 b. *Who_i did you put the pictures of t_i all on the table?
 c. You put the pictures of John on the table.

Suppose that, as argued in Lasnik (1999b), object shift takes place only optionally in English.³² In (79a, c) nothing forces it to take place. On the other hand, in (78) and (79b), object shift must occur. This is the only way to derive them without having *all* in the θ -position of the accusative NP (I assume a small clause analysis for (78), as discussed with respect to (74)). Note now that (79a) contrasts with (79b). While both constructions are degraded due to a specificity effect, (79b) is worse than (79a), which I interpret as indicating that (79b) involves an additional violation. The contrast can be accounted for under the current analysis given Takahashi's (1994) claim that A'-extraction out of heads of non-trivial chains leads to degradation.

³² Lasnik actually argues that the projection that is targeted by object shift, AgrOP, does not have to be inserted into the structure. When AgrOP is inserted, object shift must take place. In other words, it is lexical insertion of AgrOP rather than object shift that is optional.

Since (79b) but not (79a) has to involve object shift, only (79b) has to involve such extraction.³³ The contrast in question is thus accounted for.

The following contrast, which Sportiche (1988) noted with respect to French, also receives an account.

- (80)a. They_i put the books_j next to each other_{i/j}.
 b. They_i put the books_j all next to each other_{*i/j}.

Let us make the plausible assumption that only clauses with the filled subject position (SpecIP) close the anaphor binding domain. Recall that the small clause subject can remain in its base position in (80a), with the SpecIP of the small clause remaining empty (see note 33). However, this is not possible in (80b), where it must undergo object shift, floating *all* in the small clause SpecIP. Since the small clause SpecIP must be filled in (80b), but not in (80a), the small clause closes the binding domain for the anaphor only in (80b). The anaphor is thus allowed to take an antecedent outside of it only in (80a).

Alternatively, under the LF anaphor movement analysis, on which the anaphor has to move in LF into the matrix clause for the matrix subject to be able to bind it (its landing site could be either V or I), we can assume that the FQ has a blocking effect on LF anaphor movement (see note 20 and Déprez 1994 for the blocking effect of FQs on movement). Under this analysis, (80a, b) can be accounted for even if *the books* undergoes overt object shift in both (80b) and (80a). Notice also that, as expected under both of the analyses

³³ Assuming we can extract only out of elements in θ -marked positions (see Lasnik 1999a) would also give the desired result. Recall I assume overt movement to the small clause SpecIP does not have to occur so that the direct object in (79a, c) can remain in its θ -position. We can assume either that the EPP holds only optionally in small clauses (the relevant feature being either strong or weak in Chomsky's 1993 terms) or, following Bošković (2002b), that the EPP does not hold at all for clauses whose Spec is not a Case-position, but that NPs move through such positions when A-moving to a higher Case position as a result of successive cyclicity, which would be the case in (75) and (78). The relevant distinction between (79a) and (79b) can actually be made even if the small clause subject in (79a) is located in the small clause SpecIP. Chomsky (1986) proposes that if a phrase is L-marked, its Spec is L-marked too. (L-marked elements, i.e. elements transparent to extraction, correspond to complement arguments.) The small clause subject is then L-marked in (79a) even if located in the small clause SpecIP. This is not the case with the small clause subject in (79b), which must undergo object shift. (Here I am interpreting the often-made suggestion that the small clause IP is defective as indicating that it is not split, i.e. that it contains only one phrase, e.g. AgrSP but not TP; see Bošković 1997a).

suggested above (see Déprez 1994, who shows that only floating Qs block movement), *they_i put all the books_j next to each other_{i/j}* is ambiguous.³⁴

3.5. On Object Shift in Icelandic

Another consequence of the current analysis of Q-float is that the final landing site of Icelandic object shift cannot be the accusative Case-checking position, i.e. SpecAgrOP/SpecvP (see also Bošković 1997a; Holmberg 1999; Holmberg and Platzack 1995; Vikner 1995). Consider (81), where the fact that the direct object precedes *ekki* is standardly taken to indicate that it has undergone object shift.

- (81) Halldór las bækurnar_i ekki allar t_i.
Halldór read the.books not all
 Halldór didn't read all the books.

If *bækurnar* were to be located in SpecAgrOP, *allar* would have to be located in the object θ -position, violating (5). I conclude therefore that *bækurnar* is higher than the accusative Case-checking position. (81) can be analyzed as follows: *Bækurnar* undergoes object shift, *allar* is added in that position, after which *bækurnar* moves to a higher position. (I will refer to the last movement as 'object shift').

- (82) Halldór las bækurnar_i ekki [_{AgrOP}[allar t_i] [_{VP} t_i]].

The current analysis also leads us to the conclusion that Icelandic negation can be higher than the VP-adjoined position, which is standardly assumed to be its position. Bošković (2001a, b) shows that this indeed must be the case independently of our current concerns.

³⁴ Peter Culicover (p.c.) observes that (i) is better than (80b) on the relevant reading (see also Sportiche 1988 for the corresponding French construction).

- (i) They_i put them_j all next to each other_i.

This is not surprising under the current analysis, since (i) and (80b) have significantly different structures. In particular, while the FQ must be located in the small clause SpecIP in (80b), in (i) it can be located in the matrix SpecAgrOP, with the pronoun undergoing cliticization from that position. Under the LF anaphor movement analysis, we can then account for (i) by assuming that LF anaphor movement targets matrix V⁰ (i.e. its landing site is within the matrix VP, hence lower than the FQ in (i) but still higher than the FQ in (80b)). As for the binding domain analysis, accounting for the contrast between (80b) and (i) is also rather straightforward. Since the small clause subject position has to be filled only in (80b), the small clause closes the binding domain only in (80b).

There is also considerable independent evidence that the final landing site of Icelandic ‘object shift’ is not the accusative Case-checking position, but a higher position. One piece of evidence for this claim is provided by the fact that shifted objects are located, in fact must be located (see Vikner 1995), above sentential adverbs, which are cross-linguistically assumed to be very high in the structure.³⁵

- (83) Í gær las Pétur bókina_i eflaust/*eflaust bókina_i ekki t_i.
yesterday read Peter the.book doubtlessly not
 Yesterday, Peter doubtlessly didn’t read the book. (Bures 1993)

Holmberg and Platzack (1995) observe that the shifted object in (84) can bind a pronoun but not an anaphor, which means that it is not even located in an A-position. They also note that, in contrast to the shifted object in (84), the passivized subject in (85) can bind an anaphor, but not a pronoun, which indicates that the adverbial in question is not an opaque domain for binding.

- (84) Han taldi Ólaf og Marteini_i þeim_i/*hvorum öðrum_i til undrunar [t_i vera jafn góða].
he considered Olaf and Marteinn them each other to wonder be equally good
 He considered Olafur and Marteinn, to their surprise, to be equally good.
- (85) Ólaf og Marteini_i voru, *þeim_i/?hvorum öðrum_i til undrunar, taldir [t_i vera jafn góða].
Olaf and Marteinn were them each other to wonder considered be equally good
 Olafur and Marteinn were, to their surprise, considered to be equally good.

(84) conclusively shows the final landing site of Icelandic ‘object shift’ is not the accusative Case-checking position. Rather, it’s an A’-position above this position.³⁶ Recall I was led to the conclusion that the landing site of Icelandic ‘object shift’ is higher than the accusative Case-checking position by (81). If *bækurnar* were in SpecArgOP in (81) *allar* would have to be located in object θ -position, which is disallowed. The conclusion I have reached based on (81) thus has strong independent support.³⁷

³⁵ Watanabe (1993) and Bošković (1997a), who adopt the Split I Hypothesis, claim that in English, sentential adverbs, which can even occur above auxiliaries, are licensed by T. Thus, they argue that *probably* is TP-adjoined in (i), the modal being located in T (see also Merchant 1996 for German).

(i) [_{AgrSP} John [_{TP} probably [_{TP} can play the guitar]]].

³⁶ Note that a shifted object should still be able to A-bind into adverbials that are lower than AgrOP.

³⁷ Note that periphrastic constructions, which do not involve ‘object shift’, can be treated like their English counterparts, with which they pattern in all relevant respects (e.g., they don’t allow Q-float off object NPs).

Given that ‘shifted objects’ in Icelandic are higher than shifted objects in English, it is not surprising that a subject FQ can follow a ‘shifted object’ in Icelandic (see Holmberg 1986; Bobaljik 1995), in contrast to English. Compare Icelandic (86), where, as discussed in Diesing (1996), the object must undergo ‘object shift’, with English (87), where, as discussed above, the object undergoes object shift. (See also the discussion of the Split IP Hypothesis in section 3.1. I ignore intermediate V-traces.)

- (86) ?Stúdentarnir_i hata_k Jón_j [allir t_i] [_{Agrop} t_j [_{VP} t_i t_k t_j]].
the.students hate John all
 All the students hate John.

- (87) *The students_i hate_k [_{Agrop} John_j [_{VP} [all t_i] t_kt_j]].

Interestingly, Icelandic also differs from English regarding the ability of NPs to float a Q within PP.³⁸

- (88) ?Ég talaði við stúdentana alla.
I talked with the.students all

- (89) *I talked with the students all.

(88) can be easily accounted for if Icelandic NPs can undergo ‘object shift’ within PP. In other words, the landing site of ‘object shift’ is present in both the clausal and the PP domain. This means *stúdentana* in (88) moves to SpecAgrpP, where it is Case-licensed in accordance with the Abels (2001)/Bošković (2001a)/Koopman (1997, 1999)/Watanabe (1993) approach to Case-licensing by Ps (see section 3.2). *Alla* is added in this position, after which *stúdentana* undergoes ‘object shift’.³⁹ (88) and (81) thus receive a uniform analysis, in accordance with the clause/PP parallelism hypothesis argued for above. (In fact, we will see below that ‘object shift’ is uniformly available/unavailable on both the clausal and the PP level in a given language.) More

³⁸ Recall that the existence of PP-internal Q-float argues against the adverbial analysis of FQs.

³⁹ Non-floating *Ég talaði við alla stúdentana* is also acceptable. Two ‘object shift’ derivations are available for the example: It can involve ‘object shift’ + acyclic adjunction of *alla* in the ‘object shift’ position, or ‘object shift’ with the non-adjunction (i.e. non-floating) structure, on which *alla* enters the structure cyclically in the θ -position. In this respect, note that in German *Ich rede mit allen/all den Studenten* ‘I speak with all the students’ both the agreeing and non-agreeing Q are possible, indicating that both the adjunction and the non-adjunction derivation are available. (German is discussed below.)

importantly, the contrast between Icelandic (88) and English (89) and the contrast between Icelandic (86) and English (87) receive uniform accounts: the different behavior of Icelandic and English regarding the availability of ‘object shift’ is responsible for both contrasts.

Certain data concerning the semantic type of Q-floating NPs provide strong evidence for the ‘object shift’ analysis. Diesing (1996) shows that ‘object shift’ in the clausal domain is accompanied by a specificity/definiteness effect. Clausal direct objects that undergo it receive a specific/definite interpretation, non-specific indefinite NPs not being able to undergo it at all. The latter is shown by (90a), which contrasts with (91) regarding the ability of the direct object to undergo ‘object shift’.

- (90)a. *Halldór las bækur ekki.
Halldór read books not
 b. cf. Halldór las ekki bækur.

- (91) Halldór las bækurnar ekki.
Halldór read the.books not

Notice that, in contrast to the direct object in (91), the direct object in (90) is also incapable of floating a Q, which confirms that undergoing ‘object shift’ is a prerequisite for Q-float off a direct object NP.

- (92) Halldór las bækurnar allar.
Halldór read the.books all

- (93)a. *Halldór las bækur allar.
Halldór read books all
 b. cf. Halldór las allar bækur.

Significantly, non-specific indefinite NPs, which are incapable of undergoing ‘object shift’, are also incapable of floating a Q in the PP domain, which shows that, as in the clausal domain, in the PP domain the ability to undergo ‘object shift’ is a prerequisite for Q-float.

- (94)a. *Ég talaði við stúdentanna alla.
I talked with students all
 b. cf. Ég talaði við alla stúdentanna.

The parallelism between the contrasts in (92)/(93a) and (88)/(94a) provides evidence for the PP internal ‘object shift’ analysis.

Notice also that Swedish, which does not have clausal ‘object shift’ of NPs (see Holmberg 1986), also lacks ‘object shift’ within PP (see

(95a)). On the other hand, German, which has clausal ‘object shift’ (see Bobaljik 1995), also has PP internal ‘object shift’ (see (96)).

(95)a. *Jag pratade med studenterna alla.

I talked with the.students all

b. cf. Jag pratade med alla studenterna.

(96) Ich habe mit den Studenten_i allen/*all gesprochen.

I have with the students all.dat/all spoken

I spoke with all the students.

As expected, (97), with an indefinite NP that cannot ‘object shift’, contrasts with (96) as well as (98).⁴⁰

(97) *Ich habe mit Studenten allen/all gesprochen.

(98) Ich habe mit (allen) Studenten gesprochen.

It is well known that, in contrast to full NPs, Swedish pronouns do undergo clausal ‘object shift’. Significantly, (99) contrasts with (95) with respect to Q-float within PP, which shows that, as in the clausal domain, Swedish pronouns can undergo ‘object shift’ within PP, in contrast to full NPs.

(99) Jag pratade med dem alla.

I talked with them all

Interestingly, Q-float is obligatory in the pronominal construction. (This holds for weak pronouns. (100) is acceptable with a strong pronoun, e.g., a contrastively focused pronoun or a pronoun modified by a relative clause, an important point in light of the discussion of cliticization below.)⁴¹

⁴⁰ An interfering factor here is that, as noted by Jonathan Bobaljik (p.c.), Q-float with indefinite NPs is generally degraded in the languages in question. However, all my informants still find (i) to be better than (ii) and (97). (*Hans hat die Bücher alle gelesen* ‘Hans read all the books’, with a definite NP, is acceptable. Note that German allows ‘object shift’ in periphrastic constructions; see Bobaljik 1995.)

(i) ??Bücher sind alle (von verschiedenen Leuten) gelesen worden.

books are all by different people read become
Books were all read by different people.

(ii) *Hans hat Bücher alle gelesen.

Hans has books all read

⁴¹ Note also that there is no *of*-insertion with the Q in question in Swedish. The same holds for its counterparts in Icelandic and German (with the non-agreeing Q), which are discussed below.

- (100) *Jag pratade med alla dem.

The Icelandic and German counterparts of (99) and (100) pattern with the Swedish examples. (Note that the obligatoriness of case agreement in the German example indicates that it is derived via Q-float.)

- (101)a. Ég talaði við þá alla.
I talked with them all
b. *Ég talaði við alla þá. (Icelandic)
- (102)a. Ich rede mit ihnen allen/*all.
I speak with them all.dat/all
b. *Ich rede mit allen/all ihnen. (German)

This can be accounted for if weak pronouns must move from the ‘object shift’ position. Similarly to what I argued above regarding English, I assume that the movement involves cliticization. Following standard assumptions, cliticization involves head movement, which means that the pronoun cannot carry a modifier. In other words, the movement has to strand the Q. There is then a parallelism in the behavior of weak pronouns and their NP counterparts in English, Icelandic, and German. In English, NPs undergo object shift, with weak pronouns undergoing cliticization from the object shift position. In Icelandic and German, specific/definite NPs undergo ‘object shift’ in the contexts examined here, with their weak pronoun counterparts obligatorily undergoing cliticization from the ‘object shift’ position. In Swedish, weak pronouns also must undergo cliticization. As noted above, Swedish NPs do not undergo ‘object shift’. I leave open whether they undergo object shift, like English NPs.

Significantly, weak pronouns in the clausal domain pattern with weak pronouns in the PP domain with respect to the obligatoriness of Q-float in Icelandic, German, and Swedish.

- (103)a. Ég hata þá alla.
I hate them all
b. *Ég hata alla þá. (Icelandic)
c. Ich hasse sie alle/*all.
I hate them all.acc/all
d. *Ich hasse alle/all sie. (German)

- e. Jag hatar dem alla.
I hate them all
 f. *Jag hatar alla dem. (Swedish)

The cliticization analysis of the obligatoriness of Q-float with weak pronouns within PPs can be readily extended to (103), which confirms the parallelism between the clausal and the PP domain.⁴²

As for English, Q-float is also obligatory with pronouns in both the clausal and the PP domain.

- (104)a. I hate them all.
 b. *I hate all them.
 c. I spoke to them all.
 d. *I spoke to all them.

However, *of*-insertion may be an interfering factor here. We can account for (104) by assuming either that English pronouns obligatorily undergo cliticizing head-movement or that *of*-insertion must apply to Q-pronoun sequences. Evidence for the former analysis is provided by the fact, noted by Bum-Sik Park (p.c.), that (104b, d) improve when the pronoun is contrastively focused, which means that it is not a clitic, hence does not undergo the cliticizing movement that forces Q-float. I therefore conclude that in both the clausal and the PP domain, weak object pronouns in all the languages in question must undergo cliticizing head-movement from the final phrasal position of their NP counterparts.

What about nominative pronouns? Do they also undergo cliticization (see note 27 for some discussion of English)? (105)–(107) indicate that Q-float is obligatory even with nominative pronouns, in contrast to nominative NPs. (A non-floating QNP can occur in all the contexts in (105)–(107). Notice also that Icelandic, but not German and Swedish, has V-to-I movement in embedded clauses.)⁴³

⁴² Non-floating is possible with NP objects. Such QNPs in the clausal domain can be analyzed in the same way as in the PP domain (see note 39 for the latter). Note that assuming weak pronouns must undergo ‘object shift’ without further cliticization would not suffice to account for (103) since the Q could acyclically left-adjoin to the pronoun in the ‘object shift’ position, which is a phrasal position.

⁴³ Some of the unacceptable examples improve on the contrastively stressed pronoun/demonstrative reading, which I ignore (on this reading, the pronoun is not a clitic, hence the head movement under consideration does not occur). I also ignore the left-dislocation derivation for (107b, f), noted by Christer Platzack (p.c.), on which *alla* is left-dislocated, hence does not form a constituent with *de*.

- (105)a. þeir fóru allir.
they left all
 They all left.
- b. *Allir þeir fóru.
- c. Í gær fóru þeir allir.
yesterday left they all
 Yesterday they all left.
- d. *Í gær fóru allir þeir.
- e. að þeir fóru allir.
that they left all
- f. *að allir þeir fóru. (Icelandic)
- (106)a. Sie gehen alle/*all weg.
they go all.nom/all away
 They are all leaving.
- b. *Alle/all sie gehen weg.
- c. Gestern sind sie alle/*all gegangen.
yesterday are they all.nom/all gone
 Yesterday they all left.
- d. *Gestern sind alle/all sie gegangen.
- e. dass sie alle/*all gegangen sind.
that they all.nom/all gone are
- f. *dass alle/all sie gegangen sind. (German)
- (107)a. De reste alla.
they left all
 They all left.
- b. *Alla de reste.
- c. Igår reste de alla.
yesterday left they all
- d. *Igår reste alla de.
- e. att de alla reste.
that they all left
- f. *att alla de reste. (Swedish)

These data can be straightforwardly accounted for if, like accusative pronouns, nominative pronouns must undergo head movement from their final phrasal position, stranding the Q. Therefore, the [nominative pronoun Q] order is the only possibility.⁴⁴

There are several ways of analyzing the head movement in question. It could involve one of the following: (a) right-adjunction to C (assuming that in subject V-2 clauses, such as (105a), (106a), and (107a), the verb remains in I, as in Travis (1991) and Zwart (1991, 1993b); (b) left-adjunction to I (assuming that subject, but not non-subject V-2 clauses, are IPs, as in Travis (1991) and Zwart (1991, 1993b), and that V-2 movement to C, which then takes place in (105c), (106c), and (107c), but not in (105a), (106a), and (107a), involves V-excorporation, as in Roberts (1991) and Bošković (1997a)); (c) adjunction to a null head located somewhere above IP, which would head a special (nominative) clitic-licensing projection (CIP for ease of exposition), or (d) some combination of the above options. Note also that under the adjunction-to-C/Cl analyses, but not under the adjunction-to-I analysis, nominative pronouns move higher than the final A-position of their nominative NP counterparts.⁴⁵

⁴⁴ This also holds for English, as shown by the contrast between *They all left* and **All they left*. However, the latter seems not to improve when *they* is contrastively stressed, in contrast to (104b, d).

⁴⁵ Note that (i) and (ii) disfavor the adjunction-to-C analysis, unless they can be analyzed in terms of CP recursion, with *they* adjoining to a null C. (Note that the Icelandic counterpart of (i) and (ii), *að i gær þeir fóru allir*, is unacceptable. See also Holmberg 1986, 1991; Platzack 1986; Hellan and Platzack 1999; Vikner 1995 for examples where adjacency to overt C is required in Swedish and German as well.)

(i) dass gestern sie alle gegangen sind.
that yesterday they all gone are (German)

(ii) att igår de alla reste.
that yesterday they all left (Swedish)

Footnote 45. (*Continued*)

Note also that German and Icelandic/Swedish differ regarding the nominative pronoun-Q-V order.

- (iii)a. *þeir allir fóru.
they all left (Icelandic)
- b. *De alla reste.
they all left (Swedish)
- c. Sie alle/*all gehen weg.
they all.nom/all go away (German)

Given that, as standardly assumed, V in subject V-2 clauses is at least as high as I, pronominal head-movement in (iiic) cannot involve adjunction to I, adjunction to C/C1 still being possible. We could then account for (iii) by assuming that in Icelandic and Swedish, but not in German, nominative pronouns must adjoin to I (but see Hellan and Platzack 1999). It may also be possible to account for it in PF terms without assuming a difference in the syntax of pronoun placement between these languages, which means (iiia, b) would not necessarily rule out the adjunction to C/C1 options for Icelandic and Swedish. More precisely, the source of the difference between German and Icelandic/Swedish could be the nature of V-2, the underlying assumption being this is a PF requirement (see Chomsky 1995; Boeckx 1998; Rice and Svenonius 1998; Bošković 2001a). Rice and Svenonius show Northern Norwegian can ignore phonologically light wh-phrases with respect to the V-2 requirement, placing the verb in the third position when a wh-phrase preceding it is phonologically light (see also Bošković 2001a).

- (iv)a. Kor du kom fra?
where you came from
Where did you come from?
- b. *Korsen ho kom hit?
how she came here
How did she get here?
- c. cf. Korsen kom ho hit?

Suppose this kind of delayed V-2 is also sometimes possible in German (though not in the above context from Northern Norwegian). The suggestion is then that Icelandic and Swedish (iiia, b), but not German (iiic), violate the V-2 requirement. In other words, due to the lightness of the elements preceding the verb, German (iiic) does not violate the V-2 requirement (similarly to Northern Norwegian (iva)), this kind of delayed V-2 being disallowed in Icelandic and Swedish. Assuming V-2 is a PF requirement which filters out offending sequences, as in Bošković (2001a), there is then no need to make a distinction between German and Icelandic/Swedish in the syntax of (iiia–c). The relevant syntactic derivation can be available in all the languages in question, (iiia, b) being filtered out in PF.

3.6. *Floating Quantifiers in West Ulster English*

I now turn to Q-float in West Ulster English (WUE). McCloskey (2000) examines Q-float under wh-movement in WUE and shows that Qs floated under such movement occur exactly in positions through which wh-movement is expected to pass.⁴⁶

- (108) What (all) do you think (all) that he'll say (all) that we should buy (all)?

(108), which McCloskey shows cannot be accounted for under the adverbial analysis of Q-float, provides strong evidence for the stranding analysis.⁴⁷

Consider now (109a, b), taken from McCloskey (2000).

- (109)a. ?Who did you send to the shops all?
b. ?What did you put in the drawer all?

McCloskey proposes that the direct object is generated below the PP object in (109). It then moves from its base position, floating *all* there. If what we have said so far is correct, this analysis, on which *all* is floated in a θ -position, cannot be maintained. Instead, I propose the following derivation for (109): As standardly assumed, the direct object is generated preceding the PP object. It then undergoes heavy NP shift. (For the moment, let us think of it traditionally in terms of rightward movement.) *All* is added to the wh-phrase after heavy NP shift. Finally, the wh-phrase moves to SpecCP, floating *all* in the heavy NP shift position. I suggest the reason why (109) is somewhat degraded is that the phrase in the heavy NP shift position, *who all*, is not very heavy.⁴⁸ The above derivation complies with (5).

There is independent evidence that (109) involves heavy NP shift. It is well known that the first object in double object constructions and

⁴⁶ Standard English does not allow Q-float under wh-movement, in contrast to WUE. McCloskey's proposal, which is the only account of the contrast I am aware of, that a prosodic difference between WUE and Standard English is responsible for the contrast in question is fully compatible with the current analysis. A more general question which still awaits a satisfactory answer is why Q-float under wh-movement is rare crosslinguistically (see, however, note 25 for another example of such Q-float).

⁴⁷ Note that the last *all* in (108) can be stranded in the object shift position. (Recall that the object shift analysis assumes short V-movement to a position right above the object shift position.)

⁴⁸ According to McCloskey, some speakers actually reject (109).

McCloskey observes that the FQ cannot follow an adjunct in this type of construction.

complements of preposition cannot heavy NP shift. If examples in which a FQ modifying the first object follows the second object, the pattern instantiated in (109), indeed involves heavy NP shift, we predict that the pattern will not yield a good result in double object constructions and constructions where both objects are PPs. The prediction is borne out.

- (110)a. *Who did you talk to about John all?
 b. *Who did John give that money all?

Under the current analysis, (110) can only be derived by heavy NP-shifting the wh-phrase before it undergoes wh-movement. (110a, b) are then straightforwardly ruled out because the first object in a double object construction and the complement of a preposition cannot undergo heavy NP shift.

The analysis has important consequences for the treatment of heavy NP shift. Given the above discussion, analyses of heavy NP shift that leave the heavy NP shifted element in situ overtly, such as Larson (1988) and Kayne (1994), cannot be correct. Under these analyses, *all* would be inserted in the θ -position of the heavy shifted NP in (109), which is disallowed. Treating heavy NP shift as PF movement would not work either since the Q that enters the structure in the heavy NP shift position obviously needs to enter the structure in the syntax. On the other hand, the traditional rightward syntactic movement analysis of heavy NP shift easily captures the data under consideration.⁴⁹

Footnote 48. (*Continued*)

- (i) *What did you do after school the day all?

It is possible that NPs undergoing heavy shift in WUE have to be heavier when crossing adjuncts than when crossing arguments. (This is the case in English. Thus, *she put in the drawer that book* is better than *she bought in the market that book*.) An alternative account is provided by McCloskey's (2000) prosodic requirement on floated *all*. McCloskey notes that floated *all* 'examples that are most consistently acceptable are those in which the material that intervenes between the verb and the element *all* is sufficiently insubstantial (in prosodic terms) that it can be incorporated into the verb along with *all*.' It is well-known that adjuncts are often parsed as separate intonational phrases. As a result, intervening adjuncts prevent prosodic incorporation of *all* into the verb. (Departing from McCloskey, I thus suggest that (i) but not (109) violates the prosodic condition in question, or at least involves a more severe violation of it. (i) also involves a mild heaviness violation, as discussed in the text.)

⁴⁹ We do not necessarily have here evidence against Kayne (1994), where rightward movement is not allowed. We simply have evidence that heavy NP shift must involve overt syntactic movement; whether it is rightward or leftward is irrelevant for our purposes. It is probably possible to analyze heavy NP shift as involving leftward movement of the shifted NP followed by leftward remnant VP fronting (see Rochemont and Culicover 1997).

I turn now to a surprising A-/wh-movement contrast concerning Q-float in WUE.

(111) Who was arrested all in Duke Street?

(112) *They were arrested all last night. (McCloskey 2000)

Although WUE allows (111) it behaves like Standard English with respect to (112). How can the contrast be accounted for? McCloskey leaves open (112). He does provide an account of (111). The account is based on his claim that *who* in (111) moves to SpecCP without moving to SpecIP, the reasoning behind the claim being that if *who* were to move to SpecIP in (111), it would be impossible to account for the contrast between (111) and (112). In other words, the assumption is that whatever rules out movement to SpecIP from the position adjacent to *all* in (112) would also rule it out in (111). The proposal raises an interesting question regarding how the requirement that forces overt movement to SpecIP in English is satisfied in (111), which under McCloskey's analysis does not involve such movement. Before discussing McCloskey's answer let us see how he prevents *who* from moving to SpecIP in (111). He suggests Q-float involves a step in which the NP the Q modifies moves to SpecDP, the Q being located in D. The movement yields the order NP Q within the DP. When the NP in SpecDP is a wh-phrase, D acquires the +wh-feature so that SpecDP counts as an A'-position. The wh-phrase (*who* in (111)) then cannot move to SpecIP, since this would involve improper movement. Rather, it moves directly to SpecCP. Since the 'subject' in (111) never moves to SpecIP, the hope is that whatever rules out (112) will be irrelevant in (111). How is the requirement that forces overt movement to SpecIP satisfied in (111)? McCloskey suggests overt movement is preferable to Agree, the mechanism which allows feature-checking at a distance without actual movement. However, when a requirement cannot be satisfied without a violation through movement, satisfying it through Agree, i.e. without movement, becomes possible. In the case in question, features of I cannot be satisfied through movement since this would result in improper movement. Therefore, features of I can be satisfied without movement via Agree. (It is implied either that the EPP is a featural requirement or that there is no EPP. The analysis is inconsistent with Chomsky's 1999 filled Spec requirement view of the EPP.)

It seems that under this analysis we should always be able to get around a violation caused by overt movement by doing Agree. E.g., we should be able to get around the Left Branch Condition and the

that-trace effect by doing feature checking through Agree, i.e. without movement, which is impossible.

- (113)a. *Whose_i did you see t_i books?
 b. *Who_i do you think that t_i left?

- (114)a. *You saw whose books?
 b. *You think that who left?

I will therefore suggest an alternative account, which will, however, preserve McCloskey's insight that *who* in (111) does not move to SpecIP. The account will be couched in terms of recent attempts to eliminate the EPP and derive its effects from the Inverse Case Filter, i.e. the requirement that traditional Case-assigners 'discharge' their Case-feature overtly in a Spec-head relation (see Castillo et al. 1999; Epstein and Seely 1999; Martin 1999; Boeckx 2000; Bošković 2002b). Under this analysis, movement to SpecIP in (115) takes place for Case-licensing, not the EPP.

- (115) Mary_i has [_{VP} t_i slept]

Furthermore, in the spirit of Lasnik (1999a), who proposes the verbal property of I can be satisfied via either affixation or feature-checking (this means Chomsky's 1993 V-feature of I can be an affix or a feature), I suggest the nominal requirement of I can also be satisfied via either feature checking or affixation. In other words, nominative Case in WUE can be either a feature or an affix.⁵⁰ (111) can then be derived as follows: *Who* undergoes string vacuous heavy NP shift, after which *all* is added in accordance with (5). (The PP may also undergo heavy

⁵⁰ There may be crosslinguistic variation in this respect, just as there is regarding whether the verbal property of I is an affix or a feature (see Lasnik 1999a). I assume affixation takes place via PF Merger under PF adjacency (see Halle and Marantz 1993; Bobaljik 1995; Lasnik 1999a; Bošković 2001a). The current and Lasnik's proposal can be reconciled by assuming that in Lasnik's cases, phonologically null I merges with the verb (the modification is necessary in Lexical Phonology, where English verbs are lexically fully inflected) or by appealing to split I to separate nominal and verbal properties of I into two projections. The latter is also needed to account for *Who never arrived all* if adverbs count for PF adjacency, as in Bošković (2001a, b) and contra Bobaljik (1995), since then we can place *never* between the nominal and the verbal affix. Note that Case-as-affix derivations in which subjects stay in SpecVP adjacent to I as in [_{VP} John laughed] are blocked since the subject blocks tense affix hopping onto V. Note finally that the Case-as-affix hypothesis may require appealing to Vukić's (2003) late expletive insertion (to rule out examples like *Who_i seems it was told t_i Mary left*) and the multiple spell-out hypothesis (to rule out examples like *It was told Mary* [_{CP} [_{IP} seems John is sleeping]]).

XP shift.) *Who* then moves to SpecCP stranding *all*. The derivation crashes under the feature option for nominative Case.⁵¹ However, if we choose the affix option, affixation can take place between *who* and I under PF adjacency. The analysis readily accounts for the contrast between (111) and (112). To derive (112), *they* must heavy NP shift prior to moving to SpecIP. Its movement to SpecIP then results in improper movement.⁵² What happens if a subject remains in the heavy NP shift position? Nominative Case then cannot be ‘satisfied’ via either feature-checking (recall that it can be checked only through Spec-head agreement) or affixation (due to the lack of adjacency to I.) Note that the contrast in (116) can also be accounted for.

- (116)a. Who was throwin’ stones all around Butchers’ Gate?
 b. *They were throwing stones all around Butchers’ Gate.
 (McCloskey 2000)

Like (111) and (112), (116a, b) have to involve heavy NP shift of *who/they*, which leads to a violation in the case of (116b) (improper movement), but not (116a).⁵³

4. CONCLUSION

I established the descriptive generalization that Qs cannot float in θ -positions and showed that it can be deduced from an interaction of independent assumptions, namely Sportiche/Benmamoun’s proposal regarding the structure of FQ-constructions, Chomsky’s ban on adjunction to arguments, and Lebeaux’s acyclic insertion of adjuncts.

⁵¹ This is so unless we assume I can check Case against a wh-phrase in SpecCP after I-to-C. This is presumably not an option in embedded questions, otherwise this analysis would be a viable alternative.

⁵² Note that topicalization of *they* is not an option due to an informational meaning conflict between topicalization and heavy NP shift.

⁵³ Interestingly, McCloskey’s and the current analysis make a different prediction regarding (i).

- (i) Who do you think that arrived all?

Under McCloskey’s analysis, (i) can be derived in the same way as (111), which should void the *that*-trace effect, predicting (i) to be good. Under the current analysis, (i) is still expected to be unacceptable since *that* blocks merger of *who* in embedded SpecCP and I. (Note that under Multiple Spell-Out, the embedded CP can be sent to PF.) I have been unable to verify whether (i) is acceptable in WUE.

The proposed analysis puts severe restrictions on a number of mechanisms and constructions, ruling out a number of proposals made regarding the mechanisms and constructions in question in the literature, thus severely restricting the possibilities available in the system. I repeat here some of the conclusions that follow from the current analysis: Floating and non-floating QNPs have different structures; the small clause analysis is the correct analysis of ditransitive constructions; small clauses are headed by a functional element; additional functional structure may be present between Agr_{IO}P and Agr_{DO}P; certain non-finite auxiliary verbal forms in English undergo short V-movement; object pronouns in English move further than object NPs, more precisely, they undergo cliticization; the simple TP-over-vP clausal structure is inadequate; the final landing site of Icelandic ‘object shift’ is not the accusative Case-checking position (SpecAgrOP/SpecvP); there is a clause/PP parallelism with respect to Case-licensing, V/P movement, cliticization, and ‘object shift’; and heavy NP shift involves syntactic movement of the affected element. All these restrictions ultimately follow from (5), which is deducible from independently motivated assumptions. The restrictions therefore come for free. The current analysis also provides additional evidence for object shift in English, explains the freezing effect of Q-float on scope, accounts for the different behavior of floating and non-floating QNPs with respect to extraction and binding possibilities, only the latter allowing extraction out of them and binding across them, and explains the distribution of case agreement in German and Arabic QNPs.

APPENDIX: PREPOSITION STRANDING

In section 3.2 I discussed the ban on superfluous pied-piping, which gave us an account of both the obligatoriness of Q-float in FQ examples and the apparent free variation between FQ examples and their non-floating counterparts. I concluded that Q-float is obligatory if it is at all possible, a state of affairs that was easily captured by the ban on superfluous pied-piping. In note 22 I examined how the ban fares with respect to possessor extraction. We have seen that the ban explains the obligatoriness of such extraction in Chamorro (see note 25 for another construction where pied-piping is blocked). I have also suggested promising ways of dealing with a language where such extraction alternates with pied-piping. There are other instances of apparently optional pied-piping. However, I believe that the results

achieved by the ban on superfluous pied-piping reported in section 3.2 warrant exploring ways of accounting for such cases in line with the ban. In this appendix, I discuss one case of apparently optional pied-piping, namely, preposition pied-piping in English. (Note that in some contexts preposition pied-piping is blocked; see Ross 1967. See also Abels 2003 for a recent account of P-stranding.) Pushing the line of research that led to fruitful results in section 3.2 on which pied-piping and non-pied-piping examples have different structures, I will argue that despite appearances, P-stranding is in fact obligatory; i.e., it is obligatory whenever it is possible. My hope is that the results reported here will lead to a re-examination of other cases of apparently optional pied-piping, either through application of the two-different-structures strategy or through alternative means. (Note that preposition pied-piping was Ross's 1967 central argument for optionality of pied-piping.)

Consider (117).

- (117)a. In which garage did you find that car?
 b. Which garage did you find that car in?

(117) is problematic for the ban on superfluous pied-piping since it appears the ban should favor (117b) over (117a). However, (117) can be profitably treated on a par with the superficial optionality of pied-piping a Q. The suggestion is that the PPs in (117) have different structures. More precisely, extending the above analysis of *The workers were all fired* vs. *All the workers were fired* to (117), I suggest P-stranding is not even possible with the structure of (117a). With the structure of (117b) it is not only possible, but in fact forced. We can instantiate the analysis by appealing to Van Riemsdijk's (1978) claim that movement out of PP must proceed via SpecPP. In the current framework this can be interpreted as indicating PP is a phase in Chomsky's (1999, 2000) terms, on a par with the CP in (118). (For ease of exposition I ignore functional projections present in traditional PPs, discussed above.)

- (118) What do you think [_{CP} that John bought]?

Given Chomsky's (1999, 2000) Phase-Impenetrability Condition (PIC), only the head and the Spec of a phase can move outside of the phase. Hence, *what* in (118) cannot move directly to the matrix clause from inside the embedded IP. Rather, it must move through the embedded SpecCP. To instantiate this movement, Chomsky suggests

that can be optionally given the EPP property, which requires a filled Spec. If *that* is not given the EPP property, the derivation fails. *What* cannot move to the embedded SpecCP (no lexical property of *that* requires the movement, hence it violates Last Resort), and the PIC bans it from moving directly to the matrix clause. If *that* is given the EPP property, *what* moves to the embedded SpecCP, after which it can move to the matrix clause without violating the PIC.⁵⁴

(117) can be handled in the same way. Assume that PP is a phase and that Ps can be given an EPP property, just like C.⁵⁵ If P is given an EPP property the wh-phrase moves to SpecPP and then proceeds with movement outside the PP. I suggest this is what happens in (117b). If P is not given the EPP property the wh-phrase cannot move to SpecPP, as a result of which wh-movement from inside the PP is banned by the PIC. I suggest that this is what happens in (117a). Given the above discussion, wh-movement of *which garage* is simply not an option on the derivation in question. The ban on superfluous pied-piping is then irrelevant: The only available option, moving the whole PP, is used.⁵⁶

Under this analysis, which is an update of Van Riemsdijk (1978), the apparent optionality of pied-piping in (117) is a result of different lexical choices, (117b) having an EPP P (a P that lexically requires a filled Spec) and (117a) a non-EPP P.⁵⁷ There is nothing optional about (117) in the computation itself. On the no EPP derivation, the only option is moving the whole PP, which yields (117a). On the EPP

⁵⁴ For explanations why the wh-phrase cannot stay in the embedded SpecCP at SS, see Chomsky (1999, 2000) and Saito (2000). The explanations extend to intermediate movement within PP, discussed below, thus preventing wh-phrases from staying in SpecPP at SS. For another explanation for the PP case, see Van Riemsdijk (1978). (As discussed below, NPs can stay in SpecPP in Dutch. I leave accounting for the different behavior of English and Dutch in this respect for future research.)

⁵⁵ This would be the case in P-stranding languages like English. Under this analysis, we could assume that in languages that do not allow P-stranding, P cannot have the EPP property. (Note that I assume that all sublexical features, including the EPP feature, must be assembled *before* lexical insertion, i.e. they cannot be added after Merge applies to the relevant element.)

⁵⁶ The obvious question is why the whole CP cannot undergo wh-movement in (118). This is actually possible in some languages, e.g. Basque. It is unclear what is responsible for the cross-linguistic variation regarding the ability of a CP containing a wh-phrase to count as a wh-element. Intuitively, the depth of embedding of the wh-phrase is what matters. How to formalize this is still an open question.

⁵⁷ Regarding Chomsky's (1995) claim that only derivations with the same numeration, i.e. lexical items, are compared note that (117a, b) do not have the same numeration – they have different Ps.

derivation, both pied-piping and P-stranding are in principle available. Since the ban on superfluous pied-piping favors the P-stranding option the EPP derivation can only yield (117b).

Under this analysis, like Q-float, P-stranding is obligatory if it can place. This enables us to explain the otherwise mysterious impossibility of P-stranding during successive cyclic movement (see Postal 1972).⁵⁸

(119) *Which garage do you think [_{CP} in (that) John found that car]?

Given that wh-movement proceeds via intermediate SpecCPs, if P-stranding were optional, a question arises why the option cannot be taken after *in which garage* moves to the embedded SpecCP in (119). The above analysis readily accounts for (119). Recall that under the analysis, P-stranding is obligatory if it can take place, which is when the P has the EPP property. When it does not have the EPP property, P-stranding is impossible. Given this, consider the pre-wh-movement structure of (119).

(120) You think (that) John found that car in which garage.

Under the EPP P derivation, immediate P-stranding is possible, hence obligatory. This derivation can then only give us (121), with immediate P-stranding. Under the no EPP derivation, P-stranding is impossible, the only option being moving the whole PP. This derivation can only yield (122).

(121) Which garage do you think (that) John found that car in?

(122) In which garage do you think (that) John found that car?

Crucially, (119) is underivable. On the EPP derivation, which allows, in fact forces P-stranding, (119) is ruled out by the ban on superfluous

⁵⁸ Chomsky (1986) and Torrego (1985) note movement from within SpecCP is in principle possible, yielding at worst a very weak violation. In this respect, note the strong contrast between *?Who do you wonder which picture of she bought* and (119), both of which involve extraction of complement of P from SpecCP. Clearly, whatever is responsible for the somewhat degraded status of the former (see section 3.4) cannot be the sole factor involved in (119) (regarding (119), see also Bošković 2002b).

pied-piping, which forces *which garage* to move to the embedded SpecCP. Under the no EPP derivation, (119) is ruled out because the *wh*-phrase cannot move outside of the PP at all since the movement cannot proceed via SpecPP, as required.⁵⁹

I conclude therefore that the ban on superfluous pied-piping forces both Q-float and P-stranding, which enables us to account for the scope freezing effect of Q-float as well as the impossibility of intermediate P-stranding. In fact, the two phenomena receive a uniform analysis.⁶⁰

The rather complex distribution of pied-piping and P-stranding in Dutch directional PPs can also be accounted for. As discussed in Koopman (1997) (for discussion of Dutch PPs, see also Van Riemsdijk 1978; Koster 1987; Zwart 1993a, among others), Dutch has both prepositional and postpositional directional PPs. As indicated in (123), with prepositional PPs, pied-piping is obligatory, P-stranding being ruled out. With postpositional PPs, P-stranding is the only option, pied-piping being ruled out.⁶¹

(123)		Preposition	Postposition
	Pied-piping	√	*
	P-stranding	*	√

⁵⁹ Klaus Abels (p.c) observes (i), where *wh*-movement of *which pictures of which friends* to the lower SpecCP seems to violate the ban on superfluous pied-piping (note that *of* must be an EPP P or it cannot be stranded). I suggest relating (i) to (ii), which is acceptable but only if lower *who* takes matrix scope.

(i) ?Which friends did you wonder [_{CP} which pictures of [_{IP} John bought]]?

(ii) Who wonders [_{CP} what [_{IP} who bought]]?

(ii) shows Superiority can be violated if the relevant *wh*-phrases (*what* and lower *who*) are interpreted in different SpecCPs. I suggest the ban on superfluous pied-piping patterns with Superiority in this respect, a natural assumption given that both are economy of derivation conditions. Since the relevant *wh*-phrases in (i) are interpreted in different SpecCPs, like those in (ii), the ban is then irrelevant.

⁶⁰ The details of the analyses are different, PPs not involving adjunction, but the spirit is the same. The no-EPP derivation can actually be extended to non-floating QNPs if the Q takes NP as complement in this case, as Benmamoun (1999) argues (see section 3.2). It would have to be the only option for such QNPs though – if the EPP option were available FQs would be allowed in θ -positions (but see note 25).

⁶¹ I ignore R-pronouns as P-complements and circumpositional PPs since they raise issues that are not directly relevant to our concerns. However, the analysis given below can be extended to accommodate these two. (In circumpositional PPs, a PP would be moving to SpecPP.) Note that non-directional PPs behave like prepositional PPs in all relevant respects. Below, I will refer to directional PPs simply as PPs.

(123) can be readily accounted for under the current analysis. Assume that the prepositional head of PP is the realization of the non-EPP P and the postpositional head of the EPP P. The fact that the NP complement precedes the P in the latter can then be considered a result of its movement to SpecPP, driven by the EPP property of the P. (In other words, both prepositional and postpositional PPs are initially prepositional, with the EPP movement turning the latter into postpositional PPs.) Since the prepositional P does not have the EPP property, P-stranding with prepositional PPs is ruled out by the PIC, as discussed above. Since P-stranding is not an option, pied-piping is allowed. On the other hand, since postpositional PPs have the EPP property, P-stranding is an option for such PPs. In fact, given the ban on superfluous pied-piping, it is the only option. The distribution of P-stranding and pied-piping in Dutch thus receives a principled account under the current analysis. What is particularly important for our purposes is that the Dutch data provide evidence that pied-piping is possible only when preposition stranding is not an option, which confirms the ban on superfluous pied-piping.

Let me finally note that in Afrikaans, EPP and non-EPP P may receive different phonological realizations, which provides strong evidence for the current, two-Ps analysis. This is illustrated in (124), *vir* corresponding to the non-EPP P, which allows pied-piping but not preposition stranding, and *voor* to the EPP P, which allows preposition stranding, but not pied-piping.⁶²

- (124)a. Vir wat werk ons nou?
 for what work we now
 For what do we work now?
 b. *Wat werk ons nou vir?
 c. Wat werk ons nou voor?
 what work we now for
 d. *Wat voor/voor wat ons nou?

⁶² There are some complexities in the Afrikaans data (e.g., there is an additional compounded adposition option for *voor*, see du Plessis 1977) which I am investigating in work in preparation. Note that the *met-mee* 'with' and *tot-toe* 'to' alternations in Dutch (*mee* and *toe*, but not *met* and *tot*, occurring in the P-stranding (more precisely, R-movement) context) may also be amenable to the two-Ps analysis.

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