DE GRUYTER MOUTON
DOI 10.1515/tlr-2013-0022 — The Linguistic Review 2014; 31(1): 73–150

Liliane Haegeman, Ángel L. Jiménez-Fernández* and Andrew Radford

Deconstructing the Subject Condition in terms of cumulative constraint violation

Abstract: Chomsky (1973) attributes the island status of nominal subjects to the *Subject Condition*, a constraint specific to subjects. English and Spanish are interesting languages for the comparative study of extraction from subjects, because subjects in English are predominantly preverbal, whereas in Spanish they can be either preverbal or postverbal. In this paper we argue that the islandhood of subject DPs in both English and Spanish is not categorical. The degradation associated with extraction from subjects must be attributed to the interplay of a range of more general constraints which are not specific to subjects. We argue that the interaction of these constraints has a cumulative effect whereby the more constraints that are violated, the higher the degree of degradation that results. We also argue that some speakers have a greater tolerance for constraint violations than others, which would account for widespread inter-speaker judgment variability.

Keywords: subject islands, subject positions, cumulative constraint violation, gradience, English/Spanish

***Corresponding author: Ángel L. Jiménez-Fernández:** University of Seville.
E-mail: ajimfer@us.es
Liliane Haegeman: University of Ghent. E-mail: liliane.haegeman@ugent.be
Andrew Radford: University of Essex. E-mail: radford@essex.ac.uk

1 On the Subject Condition

The ungrammaticality of extraction from subject nominals like those bracketed in (1) has been taken as evidence that in English subjects are islands, i.e. constituents which categorically disallow extraction.[1]

1 We do not deal with extraction out of clausal subjects, as in:

(i) *The teacher *who* [that the principal would fire] was expected by the reporters is a crusty old fizzlebotch.
(Ross 1986: 148, 4.251b)

(1) a. *<u>Who</u> *did [stories about] terrify John?*
(Chomsky 1977: 106)
b. *<u>Who</u> *did [pictures of] lay on the table?*
(Postal 1974: 189)
c. *<u>Who</u> *was [a picture of] lying there?*
(Kayne 1981: 114)
d. *<u>What</u> *do you think [the joke about] offended Jack?*
(Pearl and Sprouse 2013: 28)
e. *<u>What</u> *did [the owner of] sneeze?*
(Chaves 2013: 15)

To capture the island status of subjects Chomsky (1973) postulated the *Subject Condition* which categorically bars extraction out of a subject phrase:

(2) **Subject Condition**
No rule can involve X, Y in the structure . . . X . . . [$_{\alpha}$ . . . Y . . .] . . . where α is a subject phrase properly containing the minimal major category containing Y, and Y is subjacent to X.

Chomsky's (1973) Subject Condition was stated as a primitive constraint. With the development of the theoretical framework, the condition was subsequently reinterpreted in terms of more general constraints on extraction which were not subject-specific but which blocked extraction out of subjects. For example, Cattell (1976) and Cinque (1977) argued that extraction is permitted only out of complements, i.e. selected constituents, and this restriction had the effect of barring extraction out of subjects, which are not selected. Likewise, Huang's (1982a: 505) Condition on Extraction Domains/CED, permitted extraction only from a properly governed domain. Since only complements (not specifiers or adjuncts) are properly governed and subjects are specifiers within TP, CED had the effect of imposing a categorical ban on extraction out of subjects (and adjuncts).[2]

This is because it has been argued (e.g. by Emonds 1976, Koster 1978, Williams 1980, Stowell 1981, Safir 1986, Bresnan 1994, Postal 1998 and Alrenga 2005) that clausal subjects like that bracketed in (i) do not occupy the canonical subject position in spec-TP, but rather occupy a *topic* position on the edge of the clause periphery. In addition, it is unclear whether clausal subjects are CPs, or (as proposed by Takahashi 2009) DPs.

2 For a range of empirical, theoretical and experimental perspectives on CED, see Nunes and Uriagereka (2000); Sabel (2002); Rackowski and Richards (2005); Stepanov (2007); Chomsky (2008); Müller (2010); Jurka (2010); Jurka et al. (2011); Sheehan (2010, 2012); Sprouse et al. (2013). CED is potentially problematic because there are languages which allow extraction out of subjects (Stepanov 2001, 2007), or out of certain types of adjunct (Starke 2001: 40, fn.10; Truswell

In much the same way, the theory of *Barriers* developed in Chomsky (1986) barred extraction out of a subject in spec-TP, because extraction would involve illicitly crossing two blocking categories (corresponding to the subject DP node and the TP node), while, thanks to the possibility of VP adjunction, no such violation arose for object extraction. In more recent proposals (Uriagereka 1999), the island status of the subject in spec-TP has been related to conditions on spellout and linearization: the subject in spec-TP is a non-selected domain, whose interior is inaccessible from the outside (see Aguero-Bautista 2012: 226, Sheehan 2012 for recent summary and discussion). Other examples could be added but the net effect is that the status of the subject in spec-TP as an island for extraction is made to follow from some more general principle. The accounts cited all continue to predict that extraction from spec-TP is categorically barred.[3]

Since the early work, the status of the concept "Subject" itself has also changed: while the subject was originally defined in terms of one specific position in the representation of the sentence, spec-IP/spec-TP, it has since been "deconstructed" in terms of multiple subject positions (see McCloskey 1997 for a survey and motivation). Thus it became possible to account for the island status of the subject in spec-TP, a non-selected position, by invoking some general constraint on extraction while at the same time allowing extraction from subjects that occupied other (selected) positions.

The approach adopted in work of this ilk has been to deliberately abstract away from other variables which make extraction from subjects easier or harder (e.g. syntactic and semantic properties of the extractee or of the matrix constituent out of which it is extracted) in the hope of gaining a deeper understanding of the question of why subjects are stronger islands than objects. However, we shall argue here that such a categorical approach obscures the true (composite) nature of extraction constraints. We shall show that, whether phrased as a subject-specific condition or in more general terms, categorical constraints formulated to ban extraction from subjects run into problems when confronted with the empirical data: even when the subject occupies spec-TP, extraction leads to different judgments, with some cases, such as (1), being strongly degraded and others only mildly deviant. Similar variation also arises with

2007, 2009, 2011; Chaves 2012; Fábregas and Jiménez-Fernández 2012). Furthermore, sentences like (39) in the main text suggest that extraction is possible from a constituent in spec-VP, contrary to what CED predicts.

3 This is also true under the pragmatic account of subject islandhood in Erteschik-Shir (1973, 2006, 2007), if subjects are topics, and extraction never targets topics – though see Frascarelli and Jiménez-Fernández (2012, 2013) for the possibility of extracting focused constituents from what they identify as familiar topics in Spanish and Italian.

subjects occupying other positions, a point that will become clearer in section 2 when we turn to Spanish data. In addition there is also speaker variation, with one speaker finding examples acceptable which for another speaker are degraded. Based on evidence from English (section 1) and Spanish (section 2), we will address these issues. With respect to extraction from subjects it will turn out that DPs in the canonical subject position in fact pattern with *weak* islands, i.e. structures out of which some but not all types of constituent can be extracted. Thus we must reject any principle that implies a categorical ban on extraction from subjects, however formulated. We take subject islands to be non-categorical in the sense of Bianchi and Chesi (2012), and thus to be weak islands (See Bianchi and Chesi 2012 for a distinction between clear-cut rules and borderline rules; see also Bianchi and Chesi 2006 for the difference between strong and weak islands). With respect to the gradience and variability of judgments, properties of both subject and extractee will be shown to play a role in determining whether extraction is possible. In the subsections below, we explore some of the relevant factors.

Our paper also illustrates how the development of the theoretical framework leads to a more refined approach to the empirical data, allowing for coarse judgments to be replaced by much more fine-grained grading of sentences.

Our work is organised as follows: section 1 is a critical review of the different factors influencing the islandhood of DP subjects in English, taking into account both the external and the internal syntax of subjects; section 2 compares the English data with data from Spanish, a language which is more flexible in the possible positions occupied by subjects. We argue that in both languages, constraints on extraction have a cumulative effect, in the sense that the more constraints that are violated, the greater the degree of degradation that results. In section 3 we argue that the different island-inducing factors identified in the data should be viewed as conditions (e.g. Inactivity Condition, Argument Condition, Intervention Condition, Specificity Condition, etc.), based on the position and properties of both the extraction site and the extractee. We note that violation of weak constraints can be alleviated by D-linking of the extracted material. In addition, we illustrate in detail the different scenarios that emerge from the cumulative effect of constraint violations: gradience in acceptability judgments can be accounted for by proposing that the more constraints a sentence violates, the less acceptable it is. In section 4 we discuss a number of theoretical issues arising from our analysis, including the nature of the constraints we invoke, and the potential role of pragmatic and processing factors. Finally, in section 5 we summarize our main findings.

1.1 The position of the subject

In the literature, the island status of subjects has often been related to what we could call their "external" syntax, i.e. the position of the subject within the clause. As already mentioned, it was originally assumed that the subject nominal (the "external" argument, Williams 1994), was directly inserted (or "merged", to use Minimalist terminology) in the canonical subject position, the specifier of IP or TP. This position is radically different from that of the complements associated with a verb, which are merged VP internally.

1.1.1 Freezing, Edge and Inactivity effects

According to the VP-Internal Subject Hypothesis, developed in the mid-1980s (by Kitagawa 1986, Speas 1986, Contreras 1987, Zagona 1987, Kuroda 1988, Sportiche 1988, Koopman and Sportiche 1991, and others), subjects are first merged VP internally, as the highest argument of the verb. If subjects originate within the verb phrase and move to the canonical subject position, spec-TP, the ban on extraction out of a subject in spec-TP need no longer be stated as a primitive: extraction out of a subject in spec-TP is barred by the *Freezing Principle* of Wexler and Culicover (1980: 119), which for present purposes can be formulated as in (3).[4]

(3) **Freezing Principle**
A moved constituent is frozen for extraction.

If subjects originate within *v*P and move to spec-TP, it follows from (3) that no extraction will be possible out of a subject in spec-TP. Thus, the "freezing" account derives the Subject Condition.

An interesting corollary of the "freezing" account is that extraction is expected to be permitted out of in situ subjects which remain in their original position within VP, but not out of ex situ subjects which move to spec-TP. Lasnik and Park (2003) argue that this claim is borne out by contrasts such as the following:

4 The Freezing Principle has been argued to be reducible to a more general locality condition (Müller 2010), or to principles of linearization and spellout (Uriagereka 1999; Nunes and Uriagereka 2000; Sheehan 2010, 2012), or labeling (Rizzi 2012), or to processing constraints (Hofmeister 2012).

(4) a. *Which candidate were there [posters of] all over the town?*
b. **Which candidate were [posters of] all over the town?*
(Lasnik and Park 2003: 651)

In (4a), the bracketed subject remains in its base position within VP, and extraction is possible because there is no freezing violation. By contrast, in (4b) the subject raises to spec-TP and extraction induces a freezing violation which leads to ungrammaticality.[5]

However, the freezing account faces a potential problem in relation to an observation due to Ross (1967), according to which passive subjects permit extraction in sentences such as (5), where the PP *of which cars* is seemingly extracted from the bracketed nominal in subject position:

(5) *Of which cars were [the hoods] damaged by the explosion?*
(Ross 1967: 242, 4.253)

In a similar vein, Chomsky (2008) claims that wh-extraction is permitted out of passive/unaccusative subjects like that bracketed in (6a), but barred out of transitive subjects like that bracketed in (6b):

(6) a. *Of which car was [the driver] awarded a prize?*
b. **Of which car did [the driver] cause a scandal?*

5 See Harwood (2012) for an alternative account of sentences like (4). A complication which we set aside here is that extraction out of a subject is barred in Predicate/Locative Inversion structures like (i/ii) and in some cases of unaccusative *there* clauses like (i):

(i) **Which wall do you think the cause of the riot was [a picture of]?*
(Moro 1997: 124)

(ii) **Who do you think on this wall hung [a picture of]?*
(Hartmann 2005: 96)

(iii) **Who did there arrive [a friend of] at the party?*
(Hartmann 2005: 97)

See Hartmann (2005) for discussion and references. With respect to (iii), though, the data are far from clear; Radford (2009:434) gives:

(iv) *Of which drugs did there remain traces in the blood?*

See also (38a) in the main text. We leave this for future study.

If the underlined wh-PP were extracted out of the subject in its superficial position in spec-TP, both sentences would be expected to induce a violation of the Freezing Principle (3) and hence to be ungrammatical.[6]

On the basis of contrasts like that in (6), Chomsky (2008) proposes that wh-extraction can take place successfully from the *base* position of the subject in sentences like (6a) – an idea dating back to work by Huang (1982b), Chomsky (1986), and Merchant (1999, 2001). If transitive subjects originate within *v*P and passive/unaccusative subjects originate within VP, (6a,b) will have underlying representations along the lines of (7a,b):

(7) a. $[_{CP}\ [_{C}$ ø$]\ [_{TP}\ [_{T}$ was$]\ [_{vP}\ [_{v}$ ø$]\ [_{VP}$ the driver *of which car* $[_{V}$ awarded$]$ a prize$]]]]$
b. $[_{CP}\ [_{C}$ ø$]\ [_{TP}\ [_{T}$ did$]\ [_{vP}$ the driver *of which car* $[_{v}$ ø$]\ [_{VP}\ [_{V}$ cause$]$ a scandal$]]]]$

For Chomsky, extraction is regulated by a locality condition which can be given the following informal characterisation (where phases include CP and transitive *v*P):

(8) **Edge Condition**
The edge of a phase is opaque for extraction.

(8) gains empirical support from the degradation in sentences like (9), where *who* is extracted out of a bracketed DP on the edge of a CP phase:[7]

(9) a. ??*Who do you wonder [which picture of] Mary bought?*
(Lasnik and Saito 1992: 102, 144a)
b. ??*Who do you wonder [which picture of] is on sale?*
(Lasnik and Saito 1992: 102, 144b)

The conceptual basis of the Edge Condition is that it bars "search that goes too deeply into a phase already passed" (Chomsky 2008: 148).[8] In a personal communication reported in Gallego (2007: 286), Chomsky amplifies this remark by saying "Extraction from within SPEC of a phase already passed poses a locality problem, by definition. It's necessary not only to search into the exterior of the phase

6 Our discussion here abstracts away from several complicating factors, including specificity (discussed in section 1.2.2) and pied-piping (discussed in section 1.3.1).

7 See however the discussion of (61) in section 2.2.2.

8 For discussion of apparent counterexamples to the Edge Condition and how they can be dealt with, see Gallego (2007, 2009) and Boeckx (2012: 131–132).

already passed (which is clearly OK), but also one level of depth further, into the interior of that exterior." The Edge Condition receives independent support from experimental research by Jurka (2010) on German. Using a 7-point Likert scale on which 7 represents the highest and 1 the lowest level of acceptability, Jurka reported that extraction out of an in situ transitive subject in spec-*v*P yields a substantially lower score of 3.55 than the score of 6.14 for extraction out of an in situ object in the complement position of the verb (abbreviated for convenience as 'comp-VP').

If *v*Ps without an external argument like that in (7a) are not phases, nothing will prevent the PP *of which car* from being extracted out of the underlined subject and moving to spec-CP. But if *v*Ps with an external argument are phases, extracting *of which car* out of the underlined subject and moving it to spec-CP in (7b) will be ruled out by Edge Condition (8) because the underlined subject is the specifier of a *v*P phase. Extraction out of the subject in its superficial position in spec-TP will seemingly be ruled out by the Freezing Principle (3).

However, the freezing account runs into potential problems in relation to examples such as the following (from Chomsky 2008, ex. 19, and treated as fully grammatical by him):

(10) a. *Of which car is [the driver] likely to cause a scandal?*
b. *Of which car did they believe [the driver] to have caused a scandal?*

On Chomsky's assumptions, the DP *the driver of which car* originates as the specifier/subject of the embedded (phasal) *v*P, and then moves through an intermediate position on the edge of the TP headed by infinitival *to* before reaching its superficial position in the matrix clause in spec-TP as the subject of *is/was* in (10a), and in spec-VP as the object of *believe* in (10b), with the verb *believe* raising to adjoin to the head *v* of *v*P. In its base position in spec-*v*P, extraction out of the bracketed DP is barred by the Edge Condition, and in its intermediate and superficial positions it is blocked by the Freezing Condition. Thus, the account sketched above wrongly predicts that sentences like (10) are ungrammatical. To circumvent this problem, we have to abandon or modify one of the existing constraints. If we abandon the Edge Condition, we are seemingly left with no account of the contrast in (6). This suggests that we need to replace the Freezing Principle by a more targeted constraint. But what?

Chomsky (2008: 150) suggests that the answer lies in an Inactivity Condition which makes an A-chain invisible to further computation (and hence opaque to extraction) once it has been rendered inactive by the valuation of its uninter-

pretable features. For present purposes, we can formulate this condition as follows:[9]

(11) **Inactivity Condition**
An inactive A-chain (i.e. one with no unvalued A-features) is opaque for extraction

We can illustrate the effect of (11) by considering the derivation of (10a). The DP *the driver of which car* will originate in spec-*v*P as in:

(12) [$_{CP}$ [$_{C}$ ø] [$_{TP}$ [$_{T}$ is] likely [$_{TP}$ [$_{T}$ to] [$_{vP}$ *the driver of which car* [$_{v}$ cause] a scandal]]]]

The Edge Condition (7) prevents C from probing at this point to attract the PP *of which car* to move to the edge of CP. Instead, T-*to* probes and attracts DP *the driver of which car* to become its specifier, so deriving (13):

(13) [$_{CP}$ [$_{C}$ ø] [$_{TP}$ [$_{T}$ is] likely [$_{TP}$ *the driver of which car* [$_{T}$ to] [$_{vP}$ *t* [$_{v}$ cause] a scandal]]]]

If T-*is* probes before C in (13), T-*is* will agree with and assign nominative case to DP *the driver of which car* and attract it to move to spec-TP, deriving (14):

(14) [$_{CP}$ [$_{C}$ ø] [$_{TP}$ *the driver of which car* [$_{T}$ is] likely [$_{TP}$ *t* [$_{T}$ to] [$_{vP}$ *t* [$_{v}$ cause] a scandal]]]]

The Inactivity Condition (11) will then prevent C from probing in (14) to attract the PP *of which car* to move to spec-CP, because the DP *the driver of which car* is inactive by virtue of its case feature having been valued, and so is opaque for extraction. So, at first sight, it might seem as if Chomsky's analysis wrongly predicts that sentences like (10a) should be ungrammatical.

However, this is not the case, since there is an alternative derivation for (10a) which does not induce an inactivity violation. To see this, let's return to the stage of derivation in (14). This time, let us suppose that C probes before T-*is*. If so, the Inactivity Condition will not bar C from attracting PP *of which car* to move to spec-CP (since the uninterpretable case feature on the subject DP will be

9 The Inactivity Condition is arguably a subcase of the Freezing Principle which is restricted to A-chains. See Richards (2011) for an argument against the Inactivity Condition, and Boeckx (2012: 105–106) for a rebuttal and for a defence of the conceptual rationale of the condition.

unvalued at this point, leaving the subject active and hence transparent for extraction), and wh-movement will derive (15):

(15) [$_{CP}$ **of which car** [$_{C}$ ø] [$_{TP}$ [$_{T}$ is] likely [$_{TP}$ *the driver* ***t*** [$_{T}$ to] [$_{vP}$ *t* [$_{v}$ cause] a scandal]]]]

Subsequently, T-*is* probes, agreeing with and assigning nominative case to the residual DP *the driver* ***t***, and attracting it to move to become the specifier of *is*. Auxiliary Inversion will derive the structure associated with (10a) *Of which car is the driver likely to cause a scandal?* Chomsky's analysis thus predicts that sentences like (10a) involving extraction out of a subject undergoing long A-movement are grammatical.

Now consider extraction out of ECM subjects in sentences like (10b) *Of which car did they believe the driver to have caused a scandal?* Let us suppose we have reached a stage of derivation where we have formed (16):

(16) [$_{vP}$ they [$_{v}$ ø] [$_{VP}$ [$_{V}$ believe] [$_{TP}$ [$_{T}$ to] have [$_{vP}$ *the driver of which car* [$_{v}$ caused] a scandal]]]]

The higher *v* cannot probe and extract PP *of which car* out of the DP subject *the driver of which car* at this point, because DP is on the edge of a *v*P phase, and so extraction is barred by the Edge Condition. Instead, T-*to* probes and attracts DP to become the specifier of *to*, deriving (17):

(17) [$_{vP}$ they [$_{v}$ ø] [$_{VP}$ [$_{V}$ believe] [$_{TP}$ *the driver of which car* [$_{T}$ to] have [$_{vP}$ *t* [$_{v}$ caused] a scandal]]]]

At this point, the higher *v* probes and can attract PP *of which car* out of DP to become its (outer) specifier, because DP remains active through its unvalued case feature, so deriving (18):

(18) [$_{vP}$ **of which car** they [$_{v}$ ø] [$_{VP}$ [$_{V}$ believe] [$_{TP}$ *the driver* ***t*** [$_{T}$ to] have [$_{vP}$ *t* [$_{v}$ caused] a scandal]]]]

Subsequently, V-*believe* agrees with and assigns accusative case to the residual DP *the driver t*, and attracts it to move to spec-VP, an instantiation of 'subject to object raising'. Adjunction of V-*believe* to *v* will then result in the verb *believe* coming to immediately precede its object *the driver*. The remainder of the derivation will proceed, ultimately deriving the structure associated with (10b) *Of which*

car do they believe the driver to have caused a scandal? Extraction out of ECM subjects is thus predicted to be fully grammatical.[10]

While Chomsky's analysis has gained widespread currency in Minimalism, it does raise some problems. We examine three of these in sections 1.1.2–1.1.4 below.

1.1.2 On Thematic effects

Chomsky (2008) notes that contrasts such as the following pose a potential empirical challenge to his account of extraction from subjects:

(19) a. **Of which car did [the driver] cause a scandal?* (= 6b)
b. *Of which books did [the authors] receive a prize?*
(Chomsky 2008: 160, fn.39)

In both cases, extraction takes place out of the subject of a transitive verb. Extraction from the superficial position of the subject in spec-TP will be barred by the Inactivity Condition (11), and extraction from the base position of the subject in spec-*v*P will be barred by the Edge Condition (8). On these assumptions, both sentences should be equally ungrammatical. Noting the problematic difference in acceptability between the two, Chomsky (2008: 160, fn.39) comments that "difference among theta roles might be relevant", since the bracketed subject is an AGENT argument in (19a) but a GOAL argument in (19b). However, he does not make any explicit proposal about how to deal with the relevant thematic effect.

---

10 A potential complication relating to ECM subjects which we set aside here is posed by sentences such as those below (from Lasnik 2001b: 112):

(i) ?**Who did Mary make out [friends of] to be fools?*
(ii) ?**Who did Mary make [friends of] out to be fools?*

On one view, the bracketed ECM subject moves only as far as spec-TP in the infinitive clause in (i) but moves further to the matrix spec-VP in (ii). Such data might suggest that ECM subjects always raise at least as far as spec-*to* and can optionally raise further to spec-VP in the matrix clause. However, if this were so, we would expect both (iii) and (iv) below to be grammatical, with the subject raising to spec-VP and crossing the matrix adverb *sincerely* in (iii), and raising to spec-*to* and so following the adverb in (iv):

(iii) *We believe **him** sincerely to be innocent.*
(iv) **We believe sincerely **him** to be innocent.*

The ungrammaticality of (iv) suggests that ECM subjects obligatorily raise to spec-VP, leaving open the question of how to deal with (i).

Chomsky's observation is in line with a body of research arguing that the accessibility of constituents is determined by their thematic properties. It is well known that the argument structure of a predicate determines the relative prominence of its arguments: the higher the position which a constituent occupies on the Thematic Hierarchy in (20) below, the higher its canonical position is in the syntactic structure, for instance. Accordingly, AGENTs are canonical external arguments occupying the highest argument position within the *v*P in which they originate, viz. spec-*v*P. (see Grimshaw 1990, Choi 1996 and Alexiadou et al. 2007: 503–504 for a survey of the literature; we use small caps to name thematic roles).

(20) **Thematic Hierarchy** (cf. Choi 1996)
AGENT > BENEFICIARY > EXPERIENCER/GOAL > CAUSE/INSTRUMENT > PATIENT/THEME > LOCATIVE

The Thematic Hierarchy has been argued to play a role in determining extractability from DPs: the presence of a thematically more prominent argument (i.e. one occupying a higher position on the Thematic Hierarchy) has been shown to block the extraction of a less prominent one (See Alexiadou et al. 2007: 585–591 for references).

In the light of this, it might seem as if one way of capturing the contrast in (19) would be to suppose that the theta role carried by a constituent determines how readily it permits extraction, and to capture this in terms of a (hypothetical) condition such as (21):

(21) **Thematic Extraction Condition/TEC**
The more prominent a constituent is on the Thematic Hierarchy (20), the greater structural integrity it has and the more resistant it is to extraction.

The prediction of TEC is that an AGENT subject like that bracketed in (19a) will show greater resistance to extraction than a GOAL subject like that bracketed in (19b), because an AGENT is positioned higher on the hierarchy (20) than a GOAL.

However, a constraint like (21) would pose both empirical and theoretical problems. One empirical problem is that (as an anonymous reviewer points out) a purely thematically based constraint on extraction would fail to account for why extraction is possible out of a passive AGENT in a sentence such as (22):

(22) *Which of the two teams was the referee verbally abused [by supporters of]?*

Since agents are the most prominent arguments on the hierarchy (20), they would be expected to be the most extraction-resistant; and yet this is not true of passive agents like that bracketed in (22).

In addition to empirical problems, TEC also faces the theoretical problem that it is not clear what "structural integrity" is, and how or why this should be correlated with theta-roles. Since the core function of the Thematic Hierarchy (20) is to determine the relative structural prominence of arguments (i.e. how high up in the structure they are projected), one way of capturing the thematic effect illustrated by the contrast between (19a) and (19b) is to suppose that they reflect the relative position of arguments within *v*P. In this connection, it is interesting to note that Schäfer (2012) argues that (active) agent arguments occupy a higher position within *v*P than other arguments. More specifically, he claims that agents are generated as the specifier of a VoiceP which is the highest projection within the verb phrase (See Kratzer 1996), and that other arguments are generated in lower projections (e.g. a CAUSE argument[11] is generated as the specifier of an ApplicativeP projection, and oblique arguments (introduced by prepositions) are generated even lower (typically within VP). If so, and if extraction is possible from the base position of the subject, the contrast between sentences like (19a) and (19b) can potentially again be handled in terms of the Edge Condition (8): if active VoicePs are phases and only active AGENT subjects are positioned on the edge of a VoiceP phase, only they will resist subextraction, not CAUSE or GOAL arguments, since the latter are specifiers of lower projections. Perhaps this is the kind of structural analysis which Chomsky had in mind when he conjectured (2008: 160 fn.39) that 'a deeper analysis of base structures' might account for the contrast in (19). The possibility of extracting from passive *by*-phrases in sentences like (22) can be accounted for by supposing that (like other PPs) they are contained within VP.

Overall, then, it would seem that it may well be possible to handle the thematic effect illustrated in (19) in terms of the Edge Condition, if AGENT subjects originate on the edge of a phase, but other subjects originate in a lower position.

11 Pylkkänen (2008) and Tubino (2011) draw a distinction between an AGENT (a typically animate instigator of an event as in *John rolled the ball along the road*) and a CAUSE (a typically inanimate entity as in *The wind rolled the ball along the road*). However, see Ramchand (2008) for a dissenting view.

1.1.3 On PP extraction out of DP

Broekhuis (2006) claims that apparent cases of PP-from-DP extraction in examples like (10) are fake, and that the PP is directly generated in situ in the clause periphery as "an independent adverbial phrase" (2006: 62). He argues that there are important asymmetries between PPs internal to DP and PPs external to DP, and that these argue against treating DP-external PPs as extracted from DPs, and in favour of generating them in situ (2006: 62). One such asymmetry is that in PP . . . DP structures, we can find a pronoun in place of the lexical DP. Jurka (2010: 152) makes the same point for English in relation to structures such as (23B):

(23) SPEAKER A: *There was a terrible explosion and the hoods of certain cars were damaged.*
SPEAKER B: *Of which cars were <u>they</u> damaged?*

Since pronouns generally cannot be modified by PPs (cf. **The explosion damaged them of several cars*), Jurka and Broekhuis conclude that the DP-external PPs must be base-generated.

A second asymmetry reported by Broekhuis is that in Dutch, a DP-external PP can be modified by a focus particle like *alleen* 'only', but not a DP-internal PP: cf.

(24) a. *<u>Alleen van DEZE auto</u> hebben ze [de eigenaar] nog niet gevonden*
only of this car have-3PL they the owner yet not found
b. **Ze hebben [de eigenaar <u>alleen van DEZE auto</u>] nog niet gevonden.*
'They have the owner only of THIS car yet not found.'

Broekhuis (2006: 63) concludes: "If the preposed *van*-PP in (24a) originates from within the object DP, the ungrammaticality of (24b) would be very surprising."

Jurka (2010) adduces experimental evidence in support of the claim that DP-external PPs are generated in situ. He reports (2010: 154) that in an experiment involving extraction from (transitive) subject or object DPs in English, there was a strong subject effect where the preposition was stranded. On a 7-point Likert scale (where 7 represents the highest and 1 the lowest level of acceptability), extraction in P-stranding structures received a relatively high mean score of 5.08 for objects compared to a markedly lower score of 2.51 for subjects. However, a very much weaker effect was found under P-pied-piping, with extraction receiving a score of 3.86 for objects and 3.29 for subjects. The observation that "the subject/object asymmetry almost goes away with pied-piping" (2010: 156) leads Jurka to con-

clude that "the PP was base-generated as some sort of hanging topic or aboutness construction in the C-domain." (2010: 157). His overall conclusion is that "genuine extraction only takes place in the P-stranding conditions" (2010: 159).

If (as Broekhuis and Jurka claim) DP-external PPs are indeed directly generated in situ, this would mean that Chomsky's PP-fronting analysis of sentences like (10) is fatally flawed, since the initial PPs will be generated in situ and there will no extraction from subject DPs. However, before rushing to this conclusion, we need to evaluate the strength of the evidence offered by Broekhuis and Jurka. Sentences like (23B) arguably tell us no more than that *of*-PPs have one particular use in which they serve as peripheral topics – and indeed a similar topic use with no plausible extraction site is found in structures such as (25B):

(25) SPEAKER A: *Do you prefer ice-cream or chocolate?*
SPEAKER B: *Of the two, I think I'd have to say that I prefer chocolate*

However, the fact that this one particular use of an *of*-PP does not have an adnominal source does not exclude the possibility that other uses of other PPs may have a different (adnominal) source. The case for an adnominal source being available is clearly more compelling in structures like (26) where there are selectional dependencies between the (bold-printed) head preposition and the (underlined) noun whose complement it introduces:

(26) a. ***On/*of*** *smoking in public parks, there has never been [any ban]*
b. ***In/*at*** *product marketing, there needs to be [substantial improvement]*
c. ***To/*from*** *maintaining standards, there needs to be [a strong commitment]*
d. ***From/*At*** *our commitment to brand image, there cannot be [any retreat]*

Furthermore, the dependency in (26) is sensitive to island constraints, as we see from the wh-island effect illustrated below:

(27) a. **On smoking in public, I'd like to know what you would feel about [a ban]*
b. **To government ministers, he asked how often there had been [secret payments]*
c. **In profits, he tried to find out why there had been [a fall]*

Sentences such as (26) and (27) thus lend empirical support to an extraction analysis.

But what of Broekhuis's *focus* argument? Even for Dutch, it seems far from conclusive, since sentences like (24) arguably tell us little more than that the focus particle *alleen* 'only' can only be used to modify a PP on the edge of a

peripheral Focus Phrase projection. More importantly for our analysis of English, the relevant constraint does not hold for English, since DP-internal PPs can be modified by a focus particle, as we see from the following internet-sourced examples:

(28) a. *They have no trace of a circulation, and [traces only of nerves]*
(*Journal of Practical Medicine* 19: 218)
b. *[Traces only of resin, gum and extractive matter] can be separated from the mass . . .*
(*Philosophical Magazine*: 17)
c. *. . . we find [the remains only of marine plants and animals]*
(Brewster's *Edinburgh Encyclopaedia* vol. 13: 435)

Nor is Jurka's experimental evidence any more compelling. Indeed, he reports a "statistically significant" difference between extracting a PP out of a DP subject in English (score = 3.29) and extracting a PP out of a DP object (score = 3.86). If both PPs are generated in situ, this effect remains unaccounted for. By contrast, if the PP is extracted from its containing DP, we expect the asymmetry because extraction from a moved subject should yield a freezing violation which does not hold in the case of extraction from an object. The somewhat low score of 3.86 for extracting a PP out of an object can be accounted for by the perceived unnaturalness of pied-piping in colloquial English in contexts where preposition stranding is also possible. The very low score of 2.51 for extraction of a DP out of a subject can be accounted for by the fact that this involves violation of an additional constraint on preposition stranding discussed in Section 1.3.1.

Overall, then, we conclude that there is no compelling evidence in support of a categorical ban on extracting PPs out of DPs. This conclusion will turn out to be particularly important for the discussion of Spanish, where all cases of extraction that we will discuss involve fronting of PP rather than of DP.

1.1.4 On extraction from non-terminal positions

One of the most interesting theoretical aspects of Chomsky's analysis is his claim that for moved subjects extraction is possible from their non-terminal positions (e.g. in their base or intermediate positions). However, this claim is potentially problematic from a conceptual point of view for two reasons. Firstly, allowing extraction from the base, intermediate or superficial position of the subject in sentences like (10) means that the ultimate acceptability status of a given sentence can only be determined by a transderivational comparison of a number of

alternative competing derivations of the same sentence (e.g. one where extraction takes place from the base position, another where it takes place from the intermediate position, and a third where it takes place from the superficial position), and such an assumption leads to an undesirable increase in the power and complexity of grammars. Secondly, extracting from the base rather than the superficial position of a moved subject leads to an *economy* violation, in that it results in the formation of a longer wh-chain than which would arise if extraction took place from the superficial position of the subject.[12]

Furthermore, the empirical robustness of the data on which Chomsky's analysis is based is in dispute. For example, contrary to his claim that extraction from ECM subjects is fine, extraction from ECM subjects in sentences like (29) has been argued to lead to ungrammaticality:

(29) a. *<u>*Of whom*</u> *does Mary believe [friends] to be stupid?*
(Sabel 2002: 293)
b. *<u>*Who*</u> *do you expect [stories about] to terrify John?*
(Chomsky 1973)
c. *<u>*Which artists*</u> *did you find [works by] to be offensive?*
(Uriagereka 2004: 10)
d. *<u>*Who*</u> *did John believe [pictures of] to have caused the riot?*
(Boeckx 2012: 116)

Moreover, Broekhuis (2006) presents evidence from Dutch sentences like (30) against Chomsky's assumption that extraction is possible from the base position of a moved subject:

(30) a. <u>*Wat*</u> *zijn (er) jouw vader [voor rare verhalen] verteld?*
what are-3PL (there) your father for strange stories told
'What kind of strange stories were (there) told to your father?'
b. *<u>*Wat*</u> *zijn [voor rare verhalen] jouw vader verteld?*
what are-3PL for strange stories your father told
'What kind of strange stories were told to your father'

12 In addition, we note that extraction from the intermediate position of the subject (as the specifier of infinitival *to*) in structures like (14) is potentially problematic in terms of Chomsky's own assumptions. If A-movement is contingent on agreement (e.g. if T attracts the closest constituent it agrees with in one or more φ-features), and if T inherits its agreement features from C, it is not clear how the subject can move to spec-TP if (as generally assumed) ECM and raising infinitives are defective clauses which project TP but not CP, since T will have no C to inherit agreement from.

Extraction is possible from the base position of the in situ subject in comp-VP bracketed in (30a), but not from the superficial position of the ex situ subject in spec-TP in (30b). This finding is unexpected under Chomsky's analysis, since extraction should be possible from the base position of the subject in (30b), and would thus be expected to yield an outcome which is just as grammatical as (30a).

Experimental research by Jurka (2010) further undermines Chomsky's analysis. In an experiment on German (where transitive subjects can occupy spec-*v*P, spec-TP or spec-CP), Jurka found (2010: 63, Table 3.2) that the mean acceptability score (on a 7-point scale) for extraction out of an in situ transitive subject in spec-*v*P was 3.55, whereas it was significantly lower (2.28) for extraction out of a subject in spec-TP. If extraction from a transitive subject which has moved to spec-TP were possible from its base position in spec-*v*P, the acceptability of extraction out of a spec-TP subject should be on a par with extraction from a spec-*v*P subject, whereas in actual fact it is substantially lower. Moreover, Jurka also reports that extraction from in situ objects in German yielded a markedly higher acceptability score (6.14) than extraction from a moved object (2.84). These findings suggest that extraction is always from the superficial position of a constituent. This generalisation can be captured in terms of the following constraint:

(31) **Extraction Constraint**
Extraction is only possible from the head of a chain.

This is not a primitive constraint per se, but rather follows from more general locality principles such as Chomsky's (1995) Minimal Link Condition/MLC (requiring movement to be as local as possible), with MLC itself being a reflex of a more general Economy condition.

Jurka also conducted a series of experiments on English which further undermine the empirical foundation of Chomsky's analysis. Recall that Chomsky claims that extraction is possible out of subjects which undergo A-movement in sentences like (10) (e.g. ECM subjects); he also claims that extraction is possible from unaccusative and passive subjects which undergo local A-movement in sentences like (6a), but not from their transitive counterparts like (6b). However, Jurka's findings cast doubt on the observational adequacy of these claims. In one experiment, Jurka found that extraction from ECM subjects (e.g. in *Which politician did John believe a book about to have caused a scandal?*) received a low acceptability score of 2.24, which was even lower than the 2.61 score for extraction out of a local transitive subject (e.g. in *Which politician did a book about cause a scandal?*), thereby calling into question Chomsky's claim that extraction from ECM subjects is acceptable. In a second experiment, Jurka found that extraction

from a passive subject (e.g. in *John wondered which man a book about was released last year*) yielded a score of 2.68, which was not significantly different from the score of 2.55 for extraction out of the corresponding active subject (*John wondered which man a book about caused a scandal last year*). These findings provide experimental support for the Extraction Constraint (31), and strongly suggest that the base and intermediate positions of a moved subject do not affect its extractability.

This in turn means that Chomsky's analysis needs to be modified in the light of experimental support for the Extraction Constraint. But how? In order to answer this question, consider how to account Jurka's findings for *was . . . für* 'what . . . for' extraction in German. On one experiment (2010: 88) he reports acceptability scores of 4.74/4.65 for extraction out of in situ passive/unaccusative subjects, but a significantly lower score of 3.51 for extraction out of in situ transitive agentive subjects. On another (2010: 63), he reports scores of 3.55 for extraction out of an in situ transitive agentive subject in spec-*v*P, but a significantly lower score of 2.28 for extraction out of a transitive agentive subject in spec-TP. Extraction out of an in situ passive/unaccusative subject in comp-VP will not induce an Edge violation, nor a Freezing violation, nor an Inactivity violation (as long as C probes before T values the case feature on the subject), nor an Extraction violation (since extraction takes place from the head of a trivial A-chain). Extraction from an in situ AGENT subject in spec-*v*P will be degraded because it violates the Edge Condition, but not the Freezing, Inactivity or Extraction conditions. Extraction from an ex situ subject in spec-TP will be doubly degraded because it violates both the Inactivity Condition (since a subject in spec-TP will be inactive by virtue of having had its case feature already valued as nominative) and the Freezing Condition.

Now consider Jurka's findings for English, where extraction of a PP from a passive THEME subject yielded a very low score of 2.68, which was not significantly different from the score of 2.55 for extraction out of the corresponding transitive AGENT subject. These very low scores can be accounted for by positing that (in consequence of the Extraction Condition) extraction in both cases takes place from the superficial position of the subject in spec-TP and involves a double constraint violation, since both the Freezing Principle and the Inactivity Condition are flouted. A similar violation of the same two constraints will occur in cases of extraction from an ECM subject. The somewhat lower score of 2.24 for extraction out of an ECM subject can be attributed to the additional complexity (and perhaps infrequency) of ECM structures, given that Jurka (201: 161) reports that ECM structures in non-extraction contexts receive a much lower acceptability score than their non-ECM counterparts (e.g. *John believed a book about Obama to have caused a scandal* received a score of 4.48 compared to 6.77 for *A book about Obama caused a scandal*).

To summarise: This section has been concerned with how the position of a subject affects the possibility of extracting out of it. Chomsky (2008) argued that extraction can (in principle) take place from the base, intermediate or superficial position of a subject, but noted that particular types of extraction can induce constraint violations which cause degradation. More specifically, Chomsky claimed that extraction from subjects which undergo local A-movement to the specifier position of a finite TP is barred from their superficial position by the Inactivity Condition, and barred from their base position (for subjects originating in spec-*v*P) by the Edge Condition: by contrast, he posited that extraction from subjects which undergo long-distance movement is possible from intermediate positions. However, we saw that research by Jurka (2010) provided experimental evidence that extraction is only possible out of the head of a chain (an effect which we captured in terms of the Extraction Constraint/EC 31). We offered an alternative account of extraction from subjects under which (in consequence of EC), extraction is only possible from the head of a chain, with the Edge Constraint yielding degradation when extracting out of an in situ AGENT subject on the edge of a *v*P phase, and the Inactivity Condition and the Freezing Principle yielding double degradation when extracting out of a subject in the specifier position of a finite TP (or, in the case of ECM subjects, in spec-VP).

1.2 Properties of the subject

In addition to being affected by the external syntax of the subject, i.e. its position in the clause, the possibility of extraction out of subjects is also affected by the internal properties of the subject itself. We have already discussed the issue of whether thematic properties of subjects affect extraction from them in Sections 1.1.2 and 1.1.4. In this section, we look at the impact of specificity on extraction possibilities.

Among others, Horn (1974), Hornstein (1977), May (1977), Chomsky (1977, 1981), Cinque (1990), Mahajan (1992), Ormazábal (1992), Chung (1994), Kluender (1998, 2004), Stepanov (2001), Davies and Dubinsky (2003), and Goodall (2004) have observed that extraction is barred out of a *specific* nominal introduced e.g. by a demonstrative like *that* or a possessive like *your*, but not out of a non-specific nominal introduced e.g. by the indefinite article *a* or a quantifier like *several*. The following examples show that extraction is more readily permitted out of non-specific nominals like the bracketed object in (32a) or the bracketed subject in (32c) than out of specific nominals like those bracketed in (32b) and (32d):

(32) a. *Of what did he want [a picture ---]?*
b. ?*Of what did he want [that picture ---]?*
c. ??*Of what did [pictures ---] upset him?*
d. **Of what did [those pictures ---] upset him?*

Fiengo and Higginbotham (1981) propose a *Specificity Condition* which can be formulated within the spirit of their proposal as follows:

(33) **Specificity Condition**
Specific nominals are opaque domains for extraction.[13]

As should be obvious, the Specificity Condition is again not specific to subjects, but holds of all DPs: specificity of the DP makes extraction more difficult.

A number of different accounts have been proposed of the Specificity Condition, but for succinctness we will mention only one here. Campbell (1996) posits that specific/referential nominals contain an abstract specificity operator in spec-DP which blocks extraction. On this view, the DP bracketed in (32d) would have the structure (34) below, where OP is an abstract specificity operator:[14]

(34) *[$_{DP}$ OP [$_{D}$ those] pictures of what]*

Extraction of *what* out of its containing DP in (34) results in a structure in which the wh-operator *what* crosses the intervening specificity operator OP, thereby incurring a violation of the Intervention Constraint discussed in section 1.3.3.[15]

13 See Enç (1991) for arguments that specificity rather than definiteness is the factor responsible for creating opaque domains. Experimental evidence in support of a specificity effect comes from Sprouse and Almeida (2012a). We abstract away here from other factors affecting extractability, including the semantic properties of the associated predicate (Diesing 1992; Erteschik-Sher 1981; Kluender 1992; Keller 2000).

14 (34) is simplified, *inter alia*, by not showing the launch site of the operator which moves to spec-DP: see Campbell (1996) and Aboh (2004) for evidence of movement internally within DP. Haegeman and Ürögdi (2010a,b) extend the null specificity operator analysis to factive complement clauses and claim that the operator is what renders the clause "referential". The assumption that an Operator in spec-DP makes DP a barrier to extraction raises interesting questions about why DP loses its barrierhood when its head is extracted (Stepanov 2012).

15 See Baunaz (2012: 37–38) for a more fine-grained analysis of DPs in which three degrees of extractability are distinguished.

1.3 Position and properties of the extractee

In addition to being sensitive to the position (external syntax) and properties (internal syntax) of the constituent out of which it takes place, extraction is also sensitive to the external syntax and the internal syntax of the extractee itself.

1.3.1 Pied piping

In relation to the external syntax of the extractee, consider contrasts such as the following (noted in Ross 1967, 1986; Chomsky 1977, 1986 and much subsequent work):

(35) a. *He is the only player of whom [pictures] were taken.*
b. **He is the only player who [pictures of] were taken.*

Why is the preposition pied-piping structure (35a) more acceptable than the preposition stranding example in (35b)? This is all the more puzzling as in general preposition stranding is found to be more acceptable than pied-piping in English. For example, Jurka (2010: 154) reports the results of an experiment which showed that stranding the preposition under extraction from an object in structures like (36a) received a far higher acceptability score (parenthesized) than pied-piping the preposition:

(36) a. *Phil wondered which topic Scott had filmed [a documentary **about**] last year.* (5.08)
b. *Phil wondered **about** which topic Scott had filmed [a documentary] last year.* (3.86)

The contrast in (36) follows if (as suggested by Chomsky 1995: 262) pied-piping only takes place when required for convergence (e.g. when some constraint bars stranding).[16] This line of reasoning suggests that the preposition *of* is pied-piped along with *who(m)* in (35a) because some constraint prevents the preposition from being stranded in (35b). But what is this constraint?

Kuno (1973) attributes the ill-formedness of sentences like (35b) to violation of the following constraint:

16 An interesting question which we set aside here is why (as noted by Sag 2010) pied-piping is generally more acceptable in relative than in interrogative clauses.

(37) **Incomplete Subject Constraint**
It is not possible to move any element of a subject noun phrase/clause if what is left over constitutes an incomplete noun phrase/clause. (Kuno 1973: 380)

Kuno defines *incompleteness* as follows: "A noun phrase/clause is incomplete if an obligatory element is missing. Thus, the [NP Prep] pattern is incomplete because the object of the preposition is missing" (Kuno 1973: 380). (37) is intended to capture the generalization that a preposition can't be stranded inside a subject in a sentence like (35b).

The theoretical status of (37) is unclear and it is also empirically inadequate. As the examples below illustrate, a preposition can be stranded inside an in situ subject as in (38a), thus violating (37), but not inside an ex situ subject as in (38b):

(38) a. *There are several players whose fitness there remain [doubts about].*
b. **There are several players whose fitness [doubts about] remain.*

At first sight, it might seem as if the contrast in (38) could be handled in terms of the linear position of the preposition in relation to the clause. It could be argued that stranded preposition must not be followed by any clausal material and must thus effectively occur on the right edge of the clause. However, any such constraint would be called into question by attested (internet-sourced) examples like (39), all of which contain a preposition stranded clause-internally and followed by additional material:

(39) a. *. . . and has already cut her first CD, which I can send [samples of] to anyone that's interested.*
b. *Who can I talk [to] about my depression?*
c. *What do astronauts like to take [pictures of] from space?*
d. *You have the stress of (as yet) unresolved debt payments which you will need to get [advice on] from debt counsellors.*
e. *There is the Access to Learning Fund available on a criteria basis which you can get [information about] from the University.*

Instead, it seems more plausible to take the contrast in (38) to be an effect of the Freezing Principle (3), whereby a preposition can be stranded inside an in situ but not an ex situ (i.e. moved) constituent. Pursuing this possibility, let us posit the following constraint:

(40) **Preposition Stranding Constraint/PSC**
A preposition cannot be stranded inside a moved constituent.

Evidence in support of (40) comes from contrasts such as the following:

(41) a. *Tell me who you're touching up [a picture of]?*
b. ??*Tell me who you're touching [a picture of] up?*
(Kayne 2002: 74)

(42) a. *Who do you think that John wanted [pictures of]?*
b. ?**Who do you think that [pictures of] John wanted?*
(Stepanov 2007: 102, 41b)

In (41a/42a), the bracketed direct object remains *in situ*, and the preposition *of/about* can be stranded inside it. By contrast, in (41b/42b) the direct object moves – to a position above the particle *up* in (41b) and to a position above the subject *John* in (42b) – and stranding a preposition inside an ex situ object leads to a much lower level of acceptability.

In the light of PSC (40), consider the relative acceptability scores (indicated in parentheses, using a 7-point scale) reported by Jurka (2010) for sentences such as (43):

(43) a. *Phil wondered about which topic [a documentary] had swayed the voters last year.* (3.29)
b. *Phil wondered which politician [a documentary about] had swayed the voters*. (2.51)

Given the Extraction Condition (31), extraction will take place out of the superficial (spec-TP) position of the subject in both examples. This means that both incur a Freezing violation (since the subject has moved from its initial position within *v*P) and also an Inactivity violation (since once it reaches spec-TP the subject has had its case feature valued and is therefore inactive). However, (43b) will additionally incur a violation of the Preposition Stranding Constraint (40), since the preposition *about* has been stranded inside a moved constituent (i.e. inside a subject which has moved to spec-TP).[17]

17 A factor which we set aside here is that, as noted by Chaves (2013), P-stranding violations can be ameliorated by the presence of a parasitic gap, e.g. in (i):

(i) *Who did [the rivals of ---] shoot ---?*
(Chaves 2013: 7, 8a)

An interesting side-issue which we note in passing is that although sentences like (35a) involving extraction of a PP out of a subject in spec-TP are implicitly treated as fully acceptable in much of the syntactic literature, studies like Jurka's show that they are actually given quite low acceptability ratings under experimental conditions (e.g. 3.29 on a 7-point scale for 43a). This low score is consistent with our earlier claim that they incur Freezing and Inactivity violations.

1.3.2 Argument vs. adjunct

Consider (44):

(44) a. ?*Of which dress did [the designer] cause a scandal?
b. *From which fashion house did [the designer] cause a scandal?

In both examples extraction takes place from a specific, inactive, moved DP at the head of an A-chain. Hence both (44a) and (44b) lead to Specificity, Inactivity and Freezing violations. If these conditions were absolute then they would wrongly predict both examples to be equally ill-formed, contrary to fact (see Starke 2001: 34–5 for a similar contrast from French). However, it has long been known that the semantic properties of the extractee play a role in regulating extraction. The relevant factors claimed to play a part in determining extractability include theta roles (Rizzi 1990), case (Manzini 1992), individuation (Frampton 1991; Cresti 1995) and richness of internal semantic structure (Szabolcsi and Zwarts 1997). For instance, Rizzi (1990: 86) observed that only constituents with a "referential" theta-role (e.g. one like AGENT, THEME, GOAL referring to a participant in the event described by the verb) can be extracted out of weak islands. The effect of this constraint can be illustrated by the following examples involving extraction of an (underlined) constituent out of a (bracketed) weak wh-island:

(45) a. *How did he wonder [whether to fix the car]?
b. ??What did he wonder [whether to fix]?
c. ?This is the car which he wondered [whether to fix].
d. ?Which car did he wonder [whether to fix]?

More generally, a structure where a moved constituent is associated with an illicit gap inside an island is ameliorated if the moved constituent is also associated with a licit gap not inside an island: see Phillips (2006) for experimental evidence.

In all four cases an italicised wh-constituent moves across the intervening wh-word *whether*, inducing an intervention violation (see also Section 1.3.3). So why should extraction of *how* in (45a) lead to much greater degradation than extraction of *what/which/which car* in (45b–d)? The answer is that the adjunct *how* in (45a) has no referential theta-role or case and so it is more difficult to extract than the argumental extractees in (45b–d), which all have a referential (THEME) theta-role and (accusative) case. For present purposes we can formulate the relevant constraint as follows:

(46) **Argument Condition**
Extraction out of an island is degraded when the extractee is not an argument.

In terms of Rizzi's approach the adjunct/argument asymmetry may ultimately also follow from intervention effects, since arguments are associated with a referential theta role, a point which may be related to their featural composition and perhaps to their internal syntax (see section 1.3.3 and Starke 2001 for further discussion). As we see from (45a), the Argument Condition is a relatively strong constraint, and violating it leads to heavy degradation. This explains why (45b) is worse than (45a): in (45a) the extracted PP is the complement of the noun *designer*, whereas in (45b) it is an adjunct to *designer*.

1.3.3 Internal properties of the extractee

In addition to its thematic properties discussed in the preceding section other semantic properties of the extractee also play a role in determining the level of degradation of extraction from a subject.[18] In this respect, it should be noted that extraction of *which* in (45c) and of *which car* in (45d) leads to lesser degradation than extraction of *what* in (45b). This is not unexpected. Pesetsky (1989) has shown that D-linking plays a major role in ameliorating extraction out of weak islands; a similar observation is reported inter alia in Chung and McCloskey (1983); Chomsky (1986); Cinque (1990); Hegarty (1990); Deane (1991); Pollard and Sag (1994); Comorovski (1996); Starke (2001); Kluender (2004); Ishii (2009); Jiménez-Fernández (2009); Haegeman and Ürögdi (2010); and Bianchi and Chesi

18 Our discussion here abstracts away from the possibility that the animacy of the extractee may influence extractability: see Kluender (2004) for discussion.

(2012). In keeping with the spirit of this work, let us posit that D-linking has the following effect on extraction:

(47) **D-linking Generalisation**
Extraction is ameliorated when the extractee is D-linked.

Since the relative pronoun *which* and the interrogative DP *which car* are D-linked but the interrogative pronouns *how* and *what* are not (at least in the default case – but see Starke 2001), it follows that extracting *which/which car* in (45c,d) will result in greater acceptability than extracting *how/what* in (45a,b). Contrary to some of the literature cited, note that we do not limit the effect of (47) to extraction out of islands, since Hofmeister (2007, 2008, 2011), Hofmeister et al. (2007, 2011) and Hofmeister and Sag (2010) produce experimental evidence that extraction out of non-islands is also ameliorated by D-linking.

To represent the impact of the semantic properties of the extracted constituent such D-linking, referentiality, specificity, etc., Starke (2001) develops a feature-based version of the Relativised Minimality Condition of Rizzi (1990), which aims at providing a principled account of the interaction between the semantic properties of the extractee and those of the constituent out of which it is extracted. (See also, among others, Obenauer 1994; Rizzi 2004; Friedmann et al. 2009; Haegeman 2012).

In Starke's approach, also endorsed in Rizzi (2004), Endo (2007), Haegeman (2012) etc. intervention is determined by the featural make-up of the constituents, and features are organised in feature classes. The movement of a constituent carrying a feature that belongs to one feature class will be blocked by any c-commanding constituent carrying a feature belonging to the same class. Following Starke (2001: 5) and Rizzi (2004) let us take negation, quantification[19], whness, and focalisation to belong to the relevant feature set, which we designate here as *i*-features. Thus, for instance, given that the focus feature and the *wh*-feature belong to the same class, a *wh*-constituent will block the movement of a focussed constituent. On the other hand, a constituent carrying an *i*-feature and which also carries a feature belonging to a different class is featurally "richer". As a result of being featurally richer, it will continue to block the movement of a constituent which only carries an *i*-feature and moreover, being featurally richer,

19 For Starke, quantificational adverbs like *why/when/how/whether/often* are intervention-sensitive, but "most items traditionally referred to as quantifiers (*every*, *some*, *most*, *two*, etc.) . . . appear to fall outside" the Intervention Constraint (2001: 6). See Rizzi (2004, 2012) and Baunaz (2011) for a precise implementation in the French DP.

it will itself be able to overcome the intervention caused by a constituent which merely carries an *i* feature.

(48) **Intervention Condition**
  a. A constituent carrying one or more *i*-features cannot cross (or be extracted out of) a constituent carrying one or more *i*-features.
  b. A constituent carrying one or more *i*-features combined with one or more features from a distinct class can overcome the intervention effect created by an intervener which only carries *i* features.

In Starke's approach, the D-linking Generalization (47) reduces partly to the effect of clause (b) of the Intervention Condition (48). The relevant examples illustrating D-linking were given in (45) and are repeated here:

(45) a. **How did he wonder [whether to fix the car]?*
  b. ??*What did he wonder [whether to fix]?*
  c. ?*This is the car which he wondered [whether to fix].*
  d. ?*Which car did he wonder [whether to fix]?*

In all four examples in (45), a *wh*-constituent has to cross *whether*, which carries the *wh*-feature. The fronted constituents, *how, what, which* and *which car* also carry the *wh*-feature and hence an intervention effect will arise. However, as shown by (45c) and (45d), relative *which* and the D-linked *which car* can overcome the intervention created by *whether* because, in addition carrying the *wh* feature, they are D-linked, which, following Haegeman (2012) we represent by the feature [δ]. By hypothesis, [δ] does not belong to the set of *i* features. Being featurally enriched, *which* in (45c) and *which car* in (45d) can overcome the blocking effect created by *whether*.

The feature based account of intervention can also capture the specificity effect on extraction. To see how the intervention account of specificity works, consider (49):

(49) a. ?**Who did you want to buy [a certain picture of]?*
  (Starke 2001: 26; 65b)
  b. ?**Who did you want to buy [the picture of]?*
  (Starke 2001: 26; 64b)

If the specificity of a DP is the result of DP-internal operator movement, as suggested in (34) above, then, by virtue of this derivation, specific DPs are associated with an operator feature, by hypothesis an *i*-feature (See Haegeman and

Ürögdi 2010a, 2010b). In the above examples, the extractee *who* carries a wh-feature (i.e. an *i*-feature) but it does not carry a feature [δ]. The specific DPs introduced by *a certain, the* and *my* carry an *i* feature. The extractee is thus trapped inside the specific DP.[20]

The examples in (45) and (49) illustrate the role of specificity for extraction out of complements. The same factors constrain extraction out of subjects, as the following contrasts illustrate:

(50) a. ??*Who were [intimate pictures of] published in The Sun?*
b. ?*Which famous royal personage were [intimate pictures of] published in The Sun?*
c. **Who was [a certain picture of] published in The Sun?*
d. ?**Which famous royal personage was [a certain picture of] published in The Sun?*

Recall that given the Extraction Constraint (31), we assume that extraction must take place from the superficial position of the subject in spec-TP. For by now familiar reasons, all four examples in (50) involve violation of the Freezing Principle (3), the Inactivity Condition (11), and the Preposition Stranding Constraint (40). This leads to moderate degradation as shown in (50a). (50b), in which the extractee is D-linked, is improved: by virtue of its δ-feature *which famous royal personage* can extract from the subject.[21] Replacing the subject DP by a specific DP leads to a further degradation: in (50c) and (50d) the subject nominal is itself derived by operator movement, thus it carries an *i*-feature. In addition to violating the Freezing Principle (3), the Inactivity Condition (11), and the Preposition Stranding Constraint (40), (50c) also violates the Intervention Condition: the extracted nominal *who* carries a wh-feature, i.e. an *i-feature*, and the subject DP from which it extracts also carries an *i*-feature. (50d) is improved: the extracted wh-constituent carries both a wh-feature, i.e. an *i*-feature, as well as a [δ] feature, and thus can overcome the *i* feature associated with the subject.

20 The intervention account needs to be worked out in full. For instance, the relation between what we have called "specificity" and what we call "D-linking" needs to be clarified. We refer to Starke (2001) and to Baunaz (2011).

21 If the effect of D-linking is to be fully reduced to featural intervention then the assumption has to be that the subject DPs in (50a) and (50b) also carry an *i*-feature. On that assumption, in (50b) the extractee is featurally richer than the extraction domain and carries a feature that is not drawn from the same feature class.

The examples in (50) illustrate two important points: (i) D-linking of an extractee can ameliorate weak constraint violations; and (ii) constraint violations are cumulative, in that the more constraints that are violated, the greater the unacceptability of the resulting sentence.

1.4 Variability

One important additional observation which needs to be made at the conclusion of our discussion of English in this section is that the judgments reported in the literature and the judgments obtained from informants are far from uniform, with different speakers assigning differing degrees of degradation to the same types of structure. This point is also underlined by Starke (2001: 60), who observes that "speakers report contradictory judgments" about extraction. In Section 2, we will see that similar judgment variability is found in Spanish, and in Section 3 we will offer a principled account of this variability.

2 Extraction out of subjects in Spanish

The discussion of the English data in section 1 led to the conclusion that multiple factors determine the possibility of extraction from the subject in languages like English, specifically (i) internal and external properties of the subject DP such as its specificity on the one hand and its position in the clause on the other, (ii) internal and external properties of the extractee, and (iii) intervention effects constraining the interaction between subject and extractee. Cumulative constraint violation leads to an increasingly degraded outcome, but D-linking the extractee can lead to amelioration of certain types of constraint violation.

One point that we have largely set aside so far concerns cross-linguistic variation in extraction from subjects. According to Starke (2001), languages are classified into the two types below:

Type I: French/Italian:
both pre- and postverbal subjects permit extraction.
Type II: Czech/Slovak:
postverbal subjects permit extraction but preverbal subjects do not.

(51) illustrates Italian. Extraction out of a DP subject is possible irrespective of the syntactic position occupied by the DP subject:

(51) a. *Di che autore credi che hanno causato tanta*
of which author believe-2SG that have-3PL caused such
polemica [molti libri]?
controversy many books
b. *Di che autore credi che [molti libri] hanno causato*
of which author believe-2SG that many books have-3PL caused
tanta polemica?
such controversy
'By which author do you believe that many books have caused a lot of controversy?'
(Jiménez-Fernández 2009: 130, 61)

By contrast, in Czech and Slovak, extraction from postverbal subjects as in (52a) yields acceptable results, whereas extraction from preverbal subjects as in (52b) is systematically banned:

(52) a. *Kolik myslis ze prislo [dopisu]?*
how-many think-2SG that came letters
b. **Kolik myslis ze [dopisu] prislo?*
how-many think-2SG that letters came
'How many letters do you think came?'
(Starke 2001: 56)

Starke also claims that Spanish is a type II language. In this section we will examine this claim. We will investigate to what extent the different conditions constraining the transparency of subjects with respect to extraction observed for English extend to Spanish. Our conclusion will be that, as was the case for English, both the external syntax and the internal syntax of DP subjects, as well as the properties of the extractee and locality constraints on movement influence extraction possibilities. As in English, we will see that the constraints identified are not specific to subjects, but apply equally to other constituents. The picture that will emerge is that a simple typology such as that proposed by Starke must be refined to reflect the various conditions that impact on extractability from the subject.

2.1 Preposition stranding

One issue which needs to be clarified from the outset of the discussion is the fact that Spanish has a categorical ban on preposition stranding. As we see from the

examples below, it differs from English in banning prepositions from being stranded anywhere, even inside an in situ complement PP as in (53b), and requires pied-piping of the preposition instead, as in (53a):

(53) a. *¿**Con** quién hablaba Juan?*
with whom was.speaking-3SG Juan?
'With whom was Juan speaking?'
b. **¿Quién hablaba Juan **con**?*
whom was.speaking-3SG Juan with?
'Who was Juan speaking with?'

The key difference between Spanish and English appears to be that Spanish bans a preposition from being stranded in any position, whereas English bans a preposition from being stranded inside a moved constituent. This suggests that the Preposition Stranding Constraint may be parameterised in the manner specified informally below, where the % diacritic means that the parenthesized condition holds in some languages (e.g. English), but not in others (e.g. Spanish).

(54) **Preposition Stranding Condition/PSC** (revised; final formulation)
No preposition can be stranded (% inside a moved constituent).

A further parametric difference is that PSC appears to be a much stronger constraint in Spanish than in English.[22] Thus, Chaves (2013: 13) maintains that the PSC violation that arises from stranding a preposition inside a moved subject in spec-TP in sentences such as (55) can be alleviated with the prosodic phrasing marked by the square brackets, because this cues where the extraction occurs:

(55) a. *[Which doctors] [have patients of] [filed malpractice suits in the last year]?*
b. *[Which problem] [will a solution to] [never be found]?*

By contrast, PSC violations in Spanish lead to irreparable ungrammaticality (i.e. ungrammaticality which cannot be alleviated e.g. by prosodic phrasing or D-linking).

The global ban on preposition stranding in Spanish means that a prepositional complement can only be extracted out of a subject in Spanish if the preposition is pied-piped along with its complement, not if the preposition is stranded.

22 Ideally we would like to relate this parameterization to other properties of the languages, but this must await future research.

We illustrate this in (56), where extraction takes place from a postverbal subject which, as we will see presently, is more accessible to extraction than a preverbal subject. As illustrated in (56a), a prepositional complement cannot be extracted on its own from within a subject DP, even if the subject is postverbal. Instead, the whole PP has to be extracted, as in (56b):

(56) a. *¿Qué príncipe fueron publicadas [varias fotos
which prince were-3PL published several photos
comprometedoras de]?
compromising of?
'Which prince were several compromising photos of published?'
b. ¿De qué príncipe fueron publicadas [varias fotos
of which prince were-3PL published several photos
comprometedoras]?
compromising
'Of which prince were several compromising photos published?'

We will take this property of Spanish for granted in subsequent discussion, so that all examples involving extraction of a prepositional object out of a subject will illustrate fronting of the containing PP.

2.2 External syntax

2.2.1 Preverbal subjects vs. postverbal subjects

Based on (57), taken from Martí (1999)[23], Starke concludes (2001: 57) that Spanish is a type II language; preverbal subjects like that bracketed in (57a) are opaque for extraction, whereas postverbal subjects like that bracketed in (57b) are transparent.

23 We note, however, that (contrary to Martí's judgments) most of our informants did not consider (57a) markedly worse than (57b), so it would seem that for more liberal speakers, the constraint against extraction from a (non-specific) preverbal subject in Spanish is a mild one. We will attempt to account for inter-speaker judgment variability in section 3. It may be that the wh-phrase is D-linked in (57), ameliorating extraction. The interrogative quantifier *qué* in Spanish corresponds to either 'what' or 'which' in English, with the discourse setting determining whether it is D-linked. Spanish also has the interrogative quantifier *cuál*, which is unambiguously D-linked and so always corresponds to English 'which', but is used much less frequently than *qué*. We will assume that in the examples (57) *qué* is D-linked and hence corresponds to English *which*.

(57) a. ??*¿De qué autor crees que [varios libros] han
of which author believe-2SG that several books have-3PL
recibido premios internacionales?
received awards international-PL

b. ?¿De qué autor crees que han recibido premios
of which author believe-2SG that have-3PL received awards
internacionales [varios libros]?
international various books
'By which author do you think several books have received several international awards?'
(Starke 2001: 57, ex. 135 a–b)

Adopting Uribe-Etxebarria's (1992) claim that Spanish subjects are generated in spec-*v*P and are subsequently moved to spec-TP, Martí (1999) holds, after Takahashi (1994), that extraction from a subject DP in spec-TP in a sentence like (57a) violates the Subject Condition (2), which is taken to be a consequence of the *Freezing* Principle (3) discussed earlier. By contrast, she assumes that postverbal subjects like that bracketed in (57b) remain in spec-*v*P, which is not a freezing position, and hence in situ subjects allow extraction. Martí (1999) concludes that extraction is allowed only if the subject remains in situ in spec-*v*P. As should be obvious, her account is consistent with the conclusion we drew in section 1.1.4 that extraction always takes place from the superficial position of a subject, in consequence of the Extraction Constraint (31). If in situ GOAL subjects occupy a position below the phase edge (as we suggested in section 1.1.2), there will be no violation of the Edge Condition (8). Observe, though, that Martí judges (57b) to be slightly marginal, which is unexpected on her account.

2.2.2 Phases and phase sliding

Adopting the Minimalist framework in general and Phase theory in particular, Gallego and Uriagereka (2007) posit that extraction from a constituent on a phase edge is barred by the Edge Condition (8). More specifically, phases are uniform cross-linguistically, and CP and *v**P (i.e. a *v*P with an external argument) are phases. Thus constituents on the edge of CP and *v**P disallow extraction. However, in Gallego and Uriagereka's approach, phasehood is not immutable: a phase may lose its status as a phase and as a consequence its edge will allow extraction. When *v**P loses its phasehood, extraction from the edge of *v**P becomes licit. In Spanish, *v*-to-T movement results in Phase Sliding, by which TP inherits phasehood from *v** (See den Dikken 2006, 2007 for a similar notion of Phase Extension).

As a result of Phase Sliding, *v**P is no longer phasal and TP becomes the phase. Consequently, the Edge Condition (8) will bar extraction from a preverbal subject on the edge of TP, but it will no longer bar extraction from a postverbal subject on the edge of vP.

Accordingly, based on Spanish data originally from Uriagereka (1988), extraction is banned in (58b) because the subject is in spec-TP, whereas it is permitted in (58a) because the subject is in situ in the specifier position of a *v*P which has lost phasehood as a result of the verb *impresionar* raising to some functional head position above *v*P. If TP is a phase in Spanish, the Edge Condition (8) correctly bars extraction out of the preverbal bracketed subject DP in (58b), since the subject is a specifier on the edge of a TP phase.[24]

(58) a. *¿De qué conferenciantes*$_i$ *te parece que me*$_z$
of which speakers CL-2SG appear-3SG that CL-1SG
van a impresionar$_v$ [$_{v*P}$ [$_{DP}$ *las propuestas* t_i] t_z t_v]?
go-3PL to impress the proposals

b. **¿De qué conferenciantes*$_i$ *te parece que* [$_{DP}$ *las*
of which speakers CL-2SG appear-3SG that the
propuestas t_i]$_j$ *me*$_z$ *van a impresionar*$_v$ [$_{v*P}$ t_j t_z t_v]?
proposals CL-1SG go-3PL to impress
'Which speakers does it appear to you that the proposals by will impress me?'

However, Jiménez-Fernández (2009, 2012) has argued at length against Gallego and Uriagereka's analysis. One of the main empirical shortcomings of their analysis is that their claim that the Spanish TP is a phase and that *v*P is not wrongly predicts that, at least for transitive verbs, extraction will be permitted from postverbal but not from preverbal subjects. The data in (58) are in line with this prediction but the data are far from uniform. In particular, where the subject is non-specific, extraction is permitted from both pre- and post-verbal subjects, as shown in (59):

24 As will be apparent, the grammaticality judgments given by Uriagereka differ from those of Martí. For Martí, extraction from a subject always induces some sort of degradation, whereas for Uriagereka degradation arises only when the subject is preverbal, hence in spec-TP. A confounding factor is that extraction takes place out of a "specific" subject in (58), incurring an additional (specificity) violation – and this may well be why most of our informants found both examples in (58) degraded. Such divergences in judgments raise the general problem of dealing with inter-speaker variability in judgments. We return to this issue in Section 3.

(59) a. *¿<u>De qué</u> <u>cantante</u> te parece que me van a*
of what singer CL-2SG appear-3SG that CL-1SG go-3PL to
escandalizar [varias fotos]?
shock several photos

b. *?¿<u>De qué</u> <u>cantante</u> te parece que [varias fotos]*
of what singer CL-2SG appear-3SG that several photos
me van a escandalizar?
CL-1SG go-3PL to shock
'Of which singer does it appear to you that several photos will shock me?'

If TP were a phase, extraction out of the preverbal subject in spec-TP in (59b) should be categorically barred by the Edge Condition (8). However, as shown by the contrast between (58b) and (59b), extraction out of a subject in spec-TP is not uniformly bad. In both examples the extraction targets the subject in spec-TP: (58b) is ungrammatical, but (59b) is much better. The difference between the two examples is that in (58b) the subject *las propuestas de qué conferenciantes* is specific, whereas that in (59b), *varias fotos de qué cantante* is not. The specificity of a constituent makes extraction from it harder. The degradation detected in (59b) is due to violation of the Freezing Condition (incurred by extracting PP out of a moved subject) and of the Inactivity Condition (incurred by extracting PP out of a subject which is inactive by virtue of having had its case feature valued).

A further problem posed by Gallego and Uriagereka's analysis is that it would seem to make incorrect predictions about extraction out of subjects of mono-argumental clauses with unaccusative, passive and raising predicates. If (as widely assumed), *v*P is not a phase in such clauses[25], it follows that even in the context of v-to-T movement, there will be no phase sliding and TP cannot inherit phasehood from *v*P. If so, the prediction is that extraction should freely be permitted out of either preverbal or postverbal subjects in intransitive clauses. However, this prediction is not borne out by the following (passive) examples:

(60) a. *?¿<u>De qué</u> <u>coches</u> parece que fueron arrestados*
of which cars seem-3SG that were-3PL arrested
[los conductores]?
the drivers

25 However, see Legate (2003) for a contrary view.

b. ??*¿De qué coches parece que [los conductores] fueron*
of which cars seem-3SG that the drivers were-3PL
arrestados?
arrested
'Of which cars does it seem that the drivers were arrested?'

In these two sentences the subject of the passive predicate *arrestados* 'arrested' originates as complement of VP. In (60a) the subject remains in situ and extraction of the PP takes place from this position; since a passive *v*P is not a phase, there is no phase-based violation and yet the sentence is degraded. In (60b) extraction takes place from spec-TP, which in this case would not become a phasal edge through phase sliding, predicting full acceptability. However, example (60b) is even more degraded than (60a). In other words, regardless of the absence of phase sliding, extraction from spec-TP may yield a degraded outcome, which indicates that one or more other constraints have been violated. (In our terms, (60a) and (60b) both violate the Specificity Condition, and (60b) also violates the Inactivity and Freezing conditions.)

A final problem for Gallego and Uriagereka's analysis is that their proposal is dependent on the viability of the Edge Condition. The descriptive adequacy of the Edge Condition for languages like Spanish and Italian has been called into question on the basis of examples like (61), where one wh-phrase seems to have been extracted from within another wh-phrase located on the edge of a CP phase, in violation of the Edge Condition.[26] Chomsky (1986: 26, 49b) provides Spanish (61a) attributed to Esther Torrego, and Rizzi (2006: 114) gives Italian (61b):

(61) a. *¿De qué autora no sabes [qué traducciones] han*
of what author-F not know-2SG what translations have-3PL
ganado premios internacionales?
won awards international-PL
'By which author don't you know what translations have won international awards?'

b. *Di quale autore ti domandi [quanti libri] siano*
of which author CL-2SG wonder-2SG how.many books are-3PL
stati censurati?
been censored
'By which author do you wonder how many books have been censored?'

26 For further discussion of similar structures, see Rochemont and Culicover (1990), Lasnik and Saito (1992), and Maeda (2010).

However, it is not clear that such examples are legitimate counterexamples. Observe that the wh-constituent at stake here is a subject. One option would be to assume that in both examples the *wh*-subject is in fact not moved to the left periphery at all, but remains in its clausal subject position (cf. Agbayani 2000, Chomsky 2013). On this assumption, extraction would not be from the edge of CP but from a subject in spec-TP.[27] Another strategy, pursued in Gallego (2007: 340), is to argue that in sentences like (61) 'the alleged sub-extracted PP is actually base generated outside the embedded wh-phrase, as a PP dependent of the matrix verb: an aboutness phrase'. This hypothesis is argued for at length by Gallego (2007: 335–354) and additional support is provided by Boeckx (2012: 131–132). So, on this account too, sentences like (61) do not undermine the Edge Condition. We will therefore not pursue these data here.

Gallego (2011) goes back on the earlier analysis of Gallego and Uriagereka (2006, 2007); to account for the contrast in (58), he draws a distinction between freezing and non-freezing positions, and follows a well-established tradition (Ormazábal et al. 1994; Takahashi 1994; Boeckx 2003; Rizzi 2006; Stepanov 2007; Chomsky 2008) in claiming that spec-TP is a freezing position, but spec-*v*P is not. For him extraction from the postverbal subject in (58a) is licit in Spanish because the subject remains in spec-*v*P, a non-freezing position. Conversely, if the subject moves to spec-TP extraction is banned, as in (58b), because spec-TP is a freezing position. However, Gallego's analysis faces the empirical problem that it wrongly predicts that sentences like (58b) are categorically ungrammatical in Spanish, whereas in fact the pattern is more complex: such extractions are mildly degraded out of a non-specific subject as in (59b) but they become more severely degraded when extraction is out of a "specific" subject as in (58b).

From the data discussed above it emerges that, as was the case for English, in Spanish extraction from a subject DP gives rise to varying degrees of acceptability. This is due to the interplay of different conditions. Extraction from a preverbal subject in spec-TP will systematically yield a violation of the Freezing Principle (3) and the Inactivity Condition (11), and will lead to additional degradation if the subject is specific, since there will be concomitant violation of the Specificity Condition (33). By contrast, extraction from a postverbal subject in a sentence like (59a) is relatively acceptable. Under our analysis, this is because there is no violation of the Freezing Condition (because the subject remains in situ), nor of the Specificity Condition (because the subject is non-specific) nor of the Edge Condition (if non-agentive subjects originate in a position below the phase edge),

27 Though according to Gallego and Uriagereka (2006) Phase sliding would in fact mean that TP is the phase here.

nor of the Inactivity Condition (if C extracts PP out of the subject before T values the case feature on the subject). However, the situation with extraction out of postverbal subjects in Spanish is made more complex by the fact that the subject can occupy two distinct postverbal positions, as we will see in the next section.

2.2.3 A′-positions vs. A-positions: postverbal subject position in Spanish

In this section we turn to a contrast that has so far not been taken into account in determining the extent to which a constituent allows extraction. With respect to the discussion of English data we have mainly been looking at preverbal subjects in spec-TP and ECM subjects in spec-VP, since these are the default positions for nominative and accusative subjects in that language, postverbal subjects being restricted to occurring in a small number of constructions (e.g. unaccusative/passive expletive clauses).

However, as already shown, Spanish subjects may be postverbal and this is not a marked pattern. Moreover, postverbal subjects may either precede or follow the object, resulting in VSO and VOS orders respectively. Rather than assuming that a postverbal subject is invariably on the edge of the *v**P phase (Ordóñez 1998, Zubizarreta 1998, Ortega-Santos 2006, Jiménez-Fernández and İşsever 2012), we follow Belletti (2001, 2004) and posit that, in addition to remaining in their base position, postverbal subjects in pro-drop languages like Spanish can also occupy the specifier position of a Focus Phrase in the low *v*P-periphery. Specifically, we propose that the two word orders VSO and VOS arise in Spanish by two different mechanisms. VSO is the result of moving V to a higher functional head (Suñer 1992) and leaving the subject in its base position (spec-*v*P). By contrast, VOS comes about when V moves to a higher functional head and the subject itself is displaced to the specifier of a Focus head in the low periphery (between TP and *v*P); subsequently, departing slightly from Belletti (2004) and following Zubizarreta (1998) and Vicente (2009), we assume that O/IO moves to an A position. For concreteness, we take this to be the specifier of a direct/indirect Object Agreement Phrase (AgrOP/AgrIOP) below TP but above FocP, so accounting for why O precedes S.[28]

28 Belletti (2004) proposes remnant VP movement to this low spec-TopP in Italian. She uses binding effects as evidence in favour of her analysis:

(i) a. *Chi ha salutato Gianni?*
who have-3SG greeted Gianni
'Who greeted Gianni?'

Evidence that in VSO patterns the subject remains in situ comes from quantifier binding. As noted by Ordóñez (1998), a sentence-final quantified indirect object cannot bind a pronominal possessor inside a postverbal subject in the VSO structure in (62a), but when the subject occupies final position as in (62b), the bound reading is licensed: in (62a) *su amigo* 'his friend' cannot be bound by the quantifier *cada* 'each' in the direct object that follows it; by contrast, in (62b), where the indirect object precedes, this binding is licit.

(62) a. **Este libro se lo regaló* su_i *amigo [a cada niño]*$_i$.
this book him it gave-3SG his friend to each boy
'This book, his friend gave to each boy.'
(Ordóñez 1998: 318, 9c)

b. *Este libro se lo regaló [a cada niño]*$_i$ su_i *amigo.*
this book him it gave-3SG to each boy his friend
'This book, his friend gave to each boy.'
(Ordóñez 1998: 319, 10c)

---

b. **Hanno [salutato Gianni*$_i$*] i propri*$_i$ *genitori.*
have-3PL greeted Gianni the his.own parents
'His own parents have greeted Gianni.'
(Belletti's examples (46))

The object *Gianni* in (ib) does not c-command the subject, and thus the anaphoric subject *i propri genitori* 'their own parents' is unbound thereby violating Principle A.

With respect to binding and postverbal subjects, Spanish patterns differently. In (ii) postverbal *a Juan* can bind the anaphoric *sus propios padres* ('his parents'):

(ii) *Han saludado a Juan*$_i$ *sus propios*$_i$ *padres.*
have greeted to Juan his own parents
'His parents have greeted Juan.'

If Belletti's remnant VP movement were extrapolated to Spanish, we would expect sentence (ii) to induce a Principle A violation, contrary to fact. If, on the other hand, it is just the object that moves to a low spec-TopP in Spanish, sentence (ii) is predicted to be ill-formed since it occupies an A′-position and hence the subject cannot be bound. We can account for the binding effects in (ii) by assuming that the object moves to the specifier of an A-position, here termed AgrOP because this label is familiar from earlier work. Thus, the object c-commands and so can bind the subject. The idea that direct objects move to spec-AgrOP dates back to Franco (1993, 1994), who maintains that in structures where a direct or indirect object is doubled by a clitic, the clitic is an agreement marker occupying the head of the agreement projection, and the object raises to spec-AgrP. On clitic doubling, see Suñer (1988, 1992), Lyons (1990), García-Miguel (1991), Roca (1992), Torrego (1994), Sportiche (1995), Franco and Mejías-Bikandi (1997, 1999), Parodi (1998), Bleam (1999), Estigarribia (2006), Franco and Huidobro (2006), Belloro (2007), Preminger (2009), Gabriel and Rinke (2010), Ormazábal and Romero (2010), Aranovich (2011). Note incidentally that moving the object to a higher functional phrase is within the spirit of work by Ordóñez (1998) and Ortega-Santos (2006).

Assuming with Belletti that binding can be established at any stage of the derivation, the grammaticality of (62b) with the order VOS can be accounted for by supposing that the subject *su amigo* 'his friend' moves to spec-FocP, and that the Indirect Object *a cada niño* 'to each boy' moves to the specifier position of an AgrIO projection above FocP. This means that the Indirect Object ends up in an A-position from where it c-commands (and can bind) the pronoun *su* contained within the subject on the edge of a *v*P-peripheral FocP projection. Support for the claim that the indirect object occupies an A position in (62b) comes from the fact that movement across the subject *su amigo* does not lead to a Weak Crossover violation (see also Vicente 2009: 174–176) for recent discussion.

In contrast, in (62a), with the order VSO, both subject and indirect object remain in situ within *v*P throughout the derivation, with the result that at no stage does the indirect object c-command (or bind) the subject.

Belletti (2004) provides further evidence that postverbal subjects occupy spec-FocP in VOS structures from the observation that postverbal subjects follow adverbs (if present) that are low on the Cinque (1999) hierarchy. The same pattern holds in Spanish, as shown by examples such as (63), where the low adverb is bold-printed.

(63) a. *¿De qué pintor causaron* ***literalmente*** *un gran escándalo [varios dibujos]?*
of which painter caused-3PL literally a big scandal several paintings

b. **¿De qué pintor causaron un gran escándalo [varios dibujos]* ***literalmente****?*
of which painter caused-3PL a big scandal several paintings literally
'Of which painter did several paintings literally cause a big scandal?'

The conclusion we draw from sentences such as (62) and (63) is that Spanish VOS subjects occupy an A-bar position in spec-FocP, whereas VSO subjects remain in situ in spec-*v*P.

The analysis of Spanish word order outlined above has interesting implications for extraction out of subjects. Extraction out of an agentive subject in VSO structures violates the Edge Condition because agent subjects are positioned on the edge of a *v*P phase; however, it does not violate the Inactivity Condition if C extracts PP from the subject before T case-marks (and thereby inactivates) the subject; nor does it violate the Freezing Principle, since the subject remains in situ. But if Spanish postverbal subjects in VOS structures move to the specifier position within a Focus Phrase position in the low periphery, such postverbal

subjects occupy an A-bar position, and so extraction from them does not yield a violation of the Edge Condition (because they are not on the edge of a phase) nor of the Inactivity Condition (because they are not in an A-position); since the subject has moved to spec-FocP from its base position within *v*P, it does lead to a violation of the Freezing Principle. However, if (as in Greek, according to Spyropoulos and Stamatogiannis 2011) the Freezing Principle is weak in Spanish, we should expect any such freezing violation to be almost imperceptible.[29] By contrast, extraction out of a subject in spec-TP will produce a doubly degraded outcome, since it violates not only the (weak) Freezing Principle (by extracting out of a moved subject) but also the Inactivity Condition (because a subject in spec-TP is inactive and hence opaque for extraction by virtue of having had its case feature valued as nominative).

2.3 The internal syntax of the subject: specificity

Gallego and Uriagereka's (2007) and Gallego's (2011) proposals discussed in section 2.2 are based on the assumption that a preverbal subject in spec-TP is invariably opaque in Spanish, since extraction from a subject in spec-TP will give rise to violation of the Freezing Principle as well as the more specific Inactivity Condi-

29 Spanish behaves differently from Italian in respect of extraction out of postverbal subjects. According to Belletti (2004: 21), extraction from a postverbal subject DP is barred in Italian. The reason she gives is that postverbal subjects move to spec-FocP, and that extraction out of a subject in a non-argument position leads to a violation of CED:

(i) ??*Il giornale di cui ha telefonato [il direttore] al presidente*
the newspaper of which have-3SG phoned the director to.the president
'The newspaper whose director phoned the president'

However, Bianchi and Chesi (2012) provide examples of relative clauses where extraction takes place out of a postverbal subject:

(ii) *il personaggio di cui mi ha scandalizzato [un'intervista]*
The personality of whom me have-3SG scandalized an.interview
'the personality who an interview with scandalized me'
(Bianchi and Chesi 2012: 4, ex. 6c)

In our terms, the picture is different since we assume that in the VSO pattern the subject remains in the *v*P. Given that the subject is followed by the indirect object in (i) we depart from Belletti's analysis and will assume that this is indeed the case in (i). Hence the degradation in (i) is attributable to the Edge Constraint, since extraction in (i) is out of an AGENT subject on the edge of a *v*P phase. Pursuing this derivation, in (ii) extraction can be taken to be launched from the CAUSE argument which occupies a lower position within *v*P (e.g. as the specifier of an ApplicativeP under the analysis in Schäfer 2012).

tion. However, this leads to the expectation that all extraction from preverbal subjects leads to ungrammaticality, and fails to account for why (59b), repeated below as (64a), is less degraded than (58b/64b). Gallego and Uriagereka's (2007) analysis accounts for both sentences being degraded (because subjects in spec-TP are opaque domains for extraction), but it does not explain why (64b) is more degraded than (64a).

(64) a. ?*¿De qué cantante te parece que [varias fotos]*
of what singer CL-2SG appear-3SG that several photos
me van a escandalizar?
CL-1SG go-3PL to shock
'Of which singer does it appear to you that several photos will shock me?'

b. **¿De qué conferenciantes*$_i$ *te parece que* [$_{DP}$ *las propuestas* t_i]$_j$ *me*$_z$ *van a impresionar*$_v$ [$_{v*P}$ t_j t_z t_v]*?*
of which speakers CL-2SG appear-3SG that the proposals CL-1SG go-3PL to impress
'Which speakers does it appear to you that the proposals by will impress me?'

As argued by Jiménez-Fernández (2009), the contrast between (64a) and (64b) suggests that whether subjects permit extraction or not in Spanish also depends on whether the subject is specific/referential as in (64b), or non-specific/non-referential as in (64a). So it turns out that, as was seen to be the case in English (Section 1.2.2), not only the external syntax of the subject DP, i.e. whether it is located in spec-TP or in a lower position (say spec-*v*P or spec-FocP), but also its internal make-up plays a role. In particular, when they occupy the same position, indefinite and non-specific DP subjects will allow extraction more easily than specific DP subjects.

2.4 Cumulative constraint violation

In order to capture the variation in extractability observed for Spanish, we continue to explore the hypothesis adopted in section 1 that there is a cumulative effect in the way that constraints operate and determine extractability. The cumulative nature of constraint violations has precursors in the literature. For example, Ross (1987: 310) posited that "losses in viability are cumulative, and it is only when there have been enough of them for a certain threshold value to be exceeded will the speakers of the language perceive that the sentence is less than

perfect" (see also Fodor 1983: 190 for a similar view). The idea was formalised in subsequent research by Keller (2000) arguing that the acceptability of a structure is determined by the weighted sum of the constraint violations it incurs (See Jäger and Rosenbach 2006, and Adli 2011 and section 4.3 for further discussion). We shall adopt this idea here, although we will not attempt to attach precise numerical weightings to constraints: instead, we will simplify what is in reality a more complex situation by assuming a binary *strong/weak* contrast. Our hypothesis is that each violation of a weak constraint leads to degradation and the more weak constraints that are violated, the more degraded the resulting structure is (unless the degradation is attenuated in some way – e.g. by D-linking the extracted constituent). We will expand on the cumulative effect of extraction constraints in Section 3.

2.5 A thematic effect

In our discussion in Section 1.1.2, we noted that experimental research by Jurka (2010) had shown that extraction out of an in situ transitive AGENT subject in *was . . . für* 'what . . . for' structures in German resulted in a much lower acceptability score of 3.55 than the score of 6.14 for extraction out of an in situ object in comp-VP. We noted that the degradation resulting from extracting out of an in situ AGENT subject could be attributed to violation of the Edge Condition (8). Contrasts like that in (65) suggest that a similar constraint holds for Spanish:

(65) a. ?*<u>*¿De qué*</u> <u>*electrodoméstico*</u> *parece que causó [el*
of which appliance appear-3SG that caused-3SG the
inventor] tanta conmoción?
inventor such commotion
'Of which electrical appliance does it seem that the inventor caused such a stir?'

b. ??<u>*¿De qué*</u> <u>*electrodoméstico*</u> *parece que causó [el*
of which appliance appear-3SG that caused-3SG the
invento] tanta conmoción?
invention such commotion
'Of which electrical appliance does it seem that the invention caused such a stir?'

In a VSO structure like (65a), the subject is in situ within *v*P. Under the analysis of Schäfer (2012) outlined in section 1.1.2, AGENT arguments like that bracketed in (65a) originate on the edge of a *v*P phase (in spec-VoiceP), whereas CAUSE argu-

ments serve as the specifier of a lower ApplicativeP projection. Consequently, extraction from the in situ AGENT subject in (65a) leads to a violation of the Edge Constraint, but extraction from the in situ CAUSE subject in (65b) does not. However, since the subject is specific in both cases, extraction also induces a Specificity violation, so accounting for why even (65b) is degraded.

2.6 Properties of the extractee affecting extraction

2.6.1 Adjunct/argument asymmetries

As discussed in section 1, the properties of the extractee also play a role in determining the possibility of extraction. In the present section we briefly review to what extent the properties uncovered for English are relevant for Spanish.

One factor which was shown to influence the possibility of extracting from subject DPs is whether the extractee itself is an argument or adjunct (see Section 1.3.2). As the contrast below illustrates, Spanish also shows this argument/adjunct asymmetry:

(66) a. *¿De qué político crees que han causado tanta*
of which politician think-2SG that have-3PL caused such
conmoción [algunas propuestas]?
commotion some proposals?
'By which politician do you think that some proposals have caused a stir?'

b. **¿Con cuántos rotos crees que han causado tanta*
with how.many holes think-2SG that have-3PL caused such
conmoción [unos vaqueros]?
commotion some jeans
'With how many holes do you think that some jeans have caused a stir?'

This contrast follows from the Argument Condition (46), which (as we saw in Section 1.3.2) can ultimately be taken to follow from locality constraints on movement (Rizzi 1990; Starke 2001).

2.6.2 D-linking

We have seen that D-linking of the extractee facilitates extraction out of weak islands in English. In Spanish this is also the case. In relation to the adjunct/

argument asymmetry noted in section 2.5.1, we observe that extraction of an adjunct out of a nominal is substantially ameliorated when the extractee is D-linked (and relatively long or heavy), as can be seen by comparing (66b) above with (67) below:[30]

(67) ?*¿Con cuál de los tres tipos de cintura crees que están*
with which of the three types of waist think-2SG that are-3PL
causando tanta conmoción [unos vaqueros]?
causing such commotion some jeans
'With which of the three types of waist do you think jeans are causing a stir?'

As before, D-linking can be reinterpreted in terms of a feature-based implementation of Relativized Minimality (Starke 2001; Rizzi 2004). D-linking a constituent makes it featurally richer and hence may circumvent an intervention effect.

2.7 A cumulative effect

From our discussion it emerges that the question of whether Spanish is a type I or a type II language is over-simplistic and that a range of factors have to be taken into account. The island status of Spanish subject DPs is multi-factorial and both factors pertaining to the extractee and factors relative to the internal or external syntax of the subject play a role. In addition, intervention violations can be ameliorated by D-linking the extractee. Overall judgments of extraction from subjects are gradient, reflecting the combined effect of the different constraints: the more constraints that are violated, the less acceptable the result is.

3 The complex nature of subject islands

3.1 Summary of key conditions

The data presented in sections 1 and 2, from both English and Spanish, show that licensing of extraction out of a subject involves the complex interplay of multiple

30 Extraction from adjuncts is generally taken as degraded in the relevant literature (Stepanov 2007). However, Chaves (2012), Truswell (2007, 2009, 2011), Fábregas and Jiménez-Fernández (2012) and Starke (2001: 40, fn.10), report that extraction out of certain types of adjunct is acceptable in English, German, Spanish and Swedish.

constraints and conditions, key instances of which are listed and renumbered below, and in some cases slightly reformulated. (68–71) are positional constraints:

(68) **Extraction Constraint** (= 31)
Extraction is only possible from the head of a chain.

(69) **Freezing Principle** (= 3)
A moved constituent is frozen for extraction.

(70) **Edge Condition** (= 8)
The edge of a phase is opaque for extraction.

(71) **Preposition Stranding Condition/PSC** (= 54)
No preposition can be stranded (% inside a moved constituent).

Conditions (72–74) are sensitive to the syntactic/semantic/pragmatic properties of the matrix constituent in (72, 73) and of the extractee in (74, 75). In its current formulation, (75) is different in nature from other conditions, since it is an *amelioration* condition rather than a *degradation* condition.

(72) **Inactivity Condition** (= 11)
An inactive A-chain (i.e. one with no unvalued A-features) is opaque for extraction.

(73) **Specificity Condition** (= 33)
Specific nominals are opaque domains for extraction.

(74) **Argument Condition** (= 46)
Extraction is degraded when the extractee is not an argument.

(75) **D-linking Condition** (= 47)
Extraction is ameliorated when the extractee is D-linked.[31]

The constraints are of varying degrees of strength. Some (like the Preposition Stranding Constraint in Spanish) are inviolable and a sentence violating such a constraint is irreparably ungrammatical. Other constraints are violable in the sense that they give rise to moderate levels of unacceptability, an effect which can to a certain extent be repaired by (e.g.) prosodic phrasing or D-linking. Within the

31 It should be noted in passing that (as pointed out in section 1.3.3) the Specificity and D-linking conditions might be taken to follow from a specific implementation of the Intervention Condition (48), given the assumptions made in Starke (2001) and Haegeman (2012).

class of violable constraints, we can differentiate between those which are relatively strong (like the Argument Condition), and those which are relatively weak (like the Freezing Condition). The strength of constraints can vary from one language to another. For example, the Preposition Stranding Constraint is an inviolable constraint in Spanish, but it is a violable constraint albeit relatively strong in English. As mentioned before, a full account of this parameterisation both in violability and in strength of a constraint requires further study.

Sentences which do not violate any constraints are expected to be readily accepted by all speakers.[32] But violation of a single constraint does not necessarily lead to full unacceptability, unless this is an inviolable constraint such as the Preposition Stranding Constraint in Spanish. Rather, the effect of weak constraint violations is cumulative and the ensuing degradation is proportionate to the number (and relative strength) of constraints violated. Using the traditional ?/* notation, let us suppose that (as far as violation of weak constraints is concerned) a sentence is judged ? if involving violation of a single constraint, ?? if involving a double constraint violation, ?* if involving a triple violation, and * if involving a quadruple violation. By contrast, a sentence involving violation of an inviolable constraint leads to outright unacceptability (*).

Ultimately, it would be desirable of course to make this concept of graded judgments more precise and to devise an accurate notation that reflects the cumulative effect of constraint violations: see section 4.3 for discussion. In addition, it would be interesting to explore to what extent such graded judgments can be elicited experimentally (see for instance Alexopoulou and Keller 2007; Haddican 2010; also Haddican and Plunkett 2010 and references cited there; see also the discussion in Section 4.2).

Sentences which violate only one weak constraint will produce a relatively low degree of unacceptability: more sensitive speakers will detect some degree of awkwardness, whereas more tolerant speakers may simply accept them (so accounting for inter-speaker variation in judgments), with the result that the perceived level of degradation may vary from one speaker to another. We account for this by supposing that speakers have differing *tolerance thresholds* (in the sense that some speakers may be more tolerant of particular constraint violations than others).

32 Note that this does not mean that they should be expected to receive a perfect score (e.g. 7 on a 7-point Likert scale), since experimental research suggests that any extraction of one constituent out of another leads to some lowering of acceptability, because of the problems faced by the parser in locating the gap associated with the filler (i.e. the moved constituent): furthermore the greater the distance between filler and gap, the lower the acceptability level is likely to be.

In the next two sections, we will show how our analysis accounts for the gradient acceptability of extraction of various types of constituent out of various types of subject in Spanish (Section 3.2) and English (Section 3.3). An important point to note at the outset, however, is that our judgments in Sections 3.2 and 3.3 below may differ from the judgments of other linguists reported in earlier sections. This is because differences tend to be represented in black and white terms when only two sentences (e.g. a minimal pair) are compared, but often turn out to involve shades of grey when a larger set of sentences are compared. By way of illustration, consider extraction from subjects with and without preposition pied-piping in English. The pied-piping examples are conventionally treated as grammatical, and their stranding counterparts as ungrammatical. However, Jurka (2010) reported that although stranding examples like (43b) received a low acceptability rating of only 2.51 on a 7-point scale, pied-piping examples like (43a) received a score which was very little higher (3.29), suggesting that pied-piping examples are far from fully acceptable.

3.2 Extraction from subjects in Spanish

In the light of the assumptions made above, let's take another look at the varying degrees of degradation resulting from extraction out of subjects in pre- and post-verbal positions in Spanish. An important point to be borne in mind is that we assume here that – in consequence of the Extraction Constraint (31) – extraction is launched from the superficial position of the constituent. We continue to adhere to this position throughout our discussion of English and Spanish in the remainder of the paper.

3.2.1 Structures which violate no constraint

Consider sentence (56b):

(56) b. *¿<u>De</u> <u>qué</u> <u>príncipe</u> fueron publicadas [varias fotos*
of which prince were-3PL published several photos
comprometedoras]?
compromising
'Of which prince were several compromising photos published?'

In this example, extraction is launched from within a postverbal passive THEME subject, which might either be positioned in situ in comp-VP, or have raised to spec-FocP (see Section 2.1.4). In neither case will there be a violation of the Edge

Condition (because the subject is not positioned on the edge of a phase), or of the Preposition Stranding Constraint (because the preposition has not been stranded), or the Specificity Condition (because the subject is non-specific), or of the Argument Condition (because the extractee is an argument). Nor will there be any violation of the Inactivity Condition: this is because, if the subject moves to spec-FocP, it will not be in an A-position, and if it remains in situ in comp-VP it remains active (and hence transparent for extraction) if C probes to extract the PP before T probes to value the case feature on the subject. If the subject moves to spec-FocP, extracting PP from it will result in violation of the Freezing Principle, but this only leads to a mild degradation; however, if the subject remains in situ in comp-VP, there will be no freezing violation (nor any other constraint violation). Accordingly, (56b) would be expected to be judged to be fine, since it has one derivation on which the subject remains in comp-VP, and no constraint is violated.

3.2.2 Structures violating a single constraint

Structures which violate an inviolable constraint (such as the P-stranding constraint in Spanish) are severely degraded, as we see from our earlier example (56a):

(56) a. *¿Qué príncipe fueron publicadas [varias fotos
which prince were-3PL published several photos
comprometedoras de]?
compromising of?
'Which prince were several compromising photos of published?'

By contrast, the violation of a weak constraint will lead to weak degradation, as can be illustrated in relation to (60a):

(60) a. ?¿De qué coches parece que fueron arrestados
of which cars seem-3SG that were-3PL arrested
[los conductores]?
the drivers

The derivation of (60a) is essentially parallel to that of (56b), save for the fact that extraction in (56b) takes place out of a non-specific subject, whereas that in (60a) takes place out of a specific subject. Consequently, since (60a) involves violation of a single weak constraint, it leads to a mild degradation.

A similar weak constraint violation also arises in cases such as (76):

(76) a. ?*¿De qué coche han ganado [varios pilotos] dos carreras?*
of which car have-3PL won several drivers two races
'Of which car have several drivers won two races?'
b. ?*¿De qué equipo han protestado [muchos jugadores]?*
of which team have-3PL protested many players
'Which team have many players in protested?'
(Gallego 2007: 293, fn.8)

Following our discussion in Section 2.1.4, we assume that the bracketed subject in examples like (76) remains in situ, and that the AGENT subject of a transitive or unergative predicate is merged in a position on the edge of a *v*P phase (e.g. spec-VoiceP). This in turn means that extraction out of an in situ agentive subject will give rise to violation of the Edge Condition. However, this is a weak constraint and because no other constraint is violated in (76), the resulting sentences show only mild degradation.

3.2.3 Structures violating multiple constraints

Now consider (77), which Uriagereka (1988: 122) judges to be doubly degraded (??):

(77) ??*¿De qué artistas han herido tu sensibilidad [las obras]?*
of which artists have-3PL hurt your sensitivity the works
'Which artists have the works of hurt your sensitivity?'

In this type of VOS structure, the subject raises to the edge of FocP, and the object raises to the edge of a superordinate AgrOP projection. Since the subject is specific and has moved to spec-FocP, extraction from it violates both the Freezing Principle and the Specificity Condition, causing the sentence to be double degraded.

A similar double degradation is found in (78):

(78) ??*¿De qué coche han provocado [los pilotos] un accidente?*
of what car have-3PL caused the drivers an accident
'Of which car have the drivers caused an accident?'

(78) displays VSO order, so we assume that the subject remains in its initial merge position, spec-*v*P. Here, extraction takes place from a bracketed in situ specific agentive subject on the edge of a phase. This results in a violation of both the Edge Condition and the Specificity Condition, and the resulting double constraint violation leads to double degradation.

More degraded still is (79):

(79) ?*¿De qué electrodoméstico parece que [el inventor]
of which electrical.appliance seem-3SG that the inventor
causó tanta conmoción?
caused-3SG such commotion
'Which electrical appliance does it seem that the inventor of caused a big stir?'

Here, the italicized argumental PP is extracted out of a specific subject in spec-TP. Since the subject has moved to spec-TP, extraction incurs violation of the Freezing Principle. Since the subject is inactive once it reaches spec-TP (by virtue of having had its case feature valued), extraction also leads to violation of the Inactivity Condition. In addition, since the subject is specific, extraction also violates the Specificity Condition. This triple constraint violation leads to triple degradation (?*). Observe that in (79) the extractee is D-linked, which mitigates the severity of the violation. As seen in (80), the degradation becomes even more severe if the extracted PP is not D-linked:

(80) *¿De qué parece que [el inventor] causó tanta
of which seem-3SG that the inventor caused-3SG such
conmoción?
commotion
'What does it seem that the inventor of caused a big stir?'

A parallel quadruple constraint violation is also found in (81):

(81) *¿Con qué tipo de cicatriz en la cara dijiste que [el hombre]
with what type of scar on the face said-2SG that the man
asesinó a una señora anciana?
murdered-3SG to a lady old
'With what kind of scar on his face did you say that [the man] murdered an old lady?'

This is because, by virtue of extracting an adjunct out of a specific, moved, inactive subject at the head of an A-chain, (81) involves a quadruple (Freezing, Inactivity, Specificity and Argument) violation, so leading to extremely severe degradation (especially as the Argument Constraint is a strong one).

3.3 Extraction from subjects in English

In this section, we return to extraction out of subjects in English. Our discussion will be brief, partly to avoid unnecessary repetition, and partly because (as noted earlier), the possibilities for extracting out of subjects are more limited in English than in Spanish, because English subjects canonically raise to spec-TP. However, as we saw in Section 1.1.1, extraction is possible from the base position of a subject in existential expletive structures such as:

(4) a. *Which candidate were there [posters of] all over the town?*
(Lasnik and Park 2003: 651)

This is because, under our analysis, no violation of any constraint occurs in such structures: e.g. there is no Freezing violation because the subject remains in situ within VP, no Edge violation because the subject is not positioned on the edge of a phase, no Inactivity violation if C extracts PP before T values the case feature on the subject, and so on.

As illustrated in Section 3.3 for Spanish, each additional constraint violation leads to further degradation. In this connection, consider the contrast below:

(82) a. ??*Of which famous celebrity were [compromising pictures] published?*
b. ?**Which famous celebrity were [compromising pictures of] published?*

In both cases, the subject has moved to spec-TP and had its case feature valued as nominative. Accordingly, both sentences involve Freezing and Inactivity violations. However, (82a) is even more degraded since it also violates the Preposition Stranding Constraint: thus (82a) is doubly degraded and (82b) triply degraded – in line with the experimental results for sentences like (43) reported by Jurka (2010).

We find even more severe degradation in sentences such as (83):

(83) **Who were [compromising pictures of] published?*

As in (82b), extraction out of the subject in spec-TP leads to Freezing, Inactivity and Preposition Stranding violations; however, the fact that the subject is not D-linked means that (83) is even more degraded than (82). Observe that so far, in keeping with the literature, we have treated the D-linking Condition in (75) as an "amelioration" condition. An alternative possibility would be to treat it as a "degradation" condition such as (84):

(84) **D-Linking Condition** (reformulated as a degradation condition)
Extraction of a (pro)nominal which is not D-linked is degraded.

It would then be the case that (84) involves a quadruple (Freezing, Inactivity, Preposition Stranding and D-linking) violation, so accounting for its severe degradation. The reformulation in (84) will, however, have further ramifications that we cannot pursue here.

Having seen how our analysis accounts for differing degrees of degradation in different types of structure, in the next section we turn to address a number of issues which arise from it.

4 Issues arising from our analysis

Our account raises three important issues.[33] One concerns the nature of the constraints we posit. The second is whether these constraints are ultimately reducible to non-syntactic factors (e.g. processing considerations). The third is whether our assumption that different types of constraint have different degrees of strength is equivalent to importing into the system the concept of constraint-ranking familiar from Optimality Theory/OT. We address each of these questions in the three subsections below.

4.1 The nature of the constraints

The key point of our paper is that the Subject Condition is not a primitive constraint in itself, but rather is reducible to the cumulative interaction of a number of more general constraints which are not specific to subjects. However, this raises the questions of what the nature of these more general constraints is, why they should exist, and why they should have the properties that they do.

33 We thank the anonymous reviewers for bringing up these points. Their comments have enabled us to sharpen the discussion of the issues.

Traditional work conceived of island constraints as derivational conditions which prevent movement operations extracting constituents out of opaque domains in the syntax. However, this derivational view has been challenged by evidence that (certain types of) constraint violation can be repaired by ellipsis operations (Merchant 1999, 2001, 2002, 2004, 2006, 2008; Lasnik 2001a; Fox and Lasnik 2003; Boeckx and Lasnik 2006; Bošković 2011) or by resumption (Boeckx 2001, 2003, 2008, 2012; Aoun et al. 2001; McCloskey 2002). This has led to the suggestion that repairable constraints are PF interface conditions barring traces from occurring in opaque domains at PF, and that they can be circumvented either if the trace is spelled out as a resumptive[34], or if the trace is obliterated by ellipsis of some constituent containing the trace.[35] This raises the question of whether the constraints central to our analysis are derivational or interface conditions.

To elucidate the issue, let's consider the question of whether the Preposition Stranding Constraint/PSC in English is a derivational constraint or a PF Interface Condition/PFIC. If PSC is a PF-interface locality condition and if locality constraints are representational in nature (Bošković 2011: 6), PSC can be formulated in representational terms as a PFIC barring PF representations in which a PP contains a trace which is bound from outside a superordinate XP which itself binds a trace. Such a PFIC account of PSC will correctly specify that an unsluiced structure like (85a) induces a PSC violation, but its sluiced counterpart (85b) does not:

(85) a. **At the rally, supporters of one of the speakers were arrested, but I'm not sure who supporters of were arrested.*
b. *At the rally, supporters of one of the speakers were arrested, but I'm not sure who.*

The underlined clause in (85a) has the structure (86):

34 But see Polinsky et al. (in press) on resumption in English.

35 Richards (2011) argues that the repair property of ellipsis can be accounted for by positing that elided constituents are transferred only to the LF interface, not to the PF interface (hence they will not violate PF constraints). Boeckx (2008, 2012) argues that it is not Sluicing per se which repairs constraint violations, but rather the presence of a null resumptive pronoun (***pro***), e.g. in a structure like:

(i) *John countered the claim that Fido bit someone, but I can't remember who ~~John countered the claim that Fido bit~~ **~~pro~~***
(cf. Boeckx 2012: 93, 22)

Jiménez-Fernández (2009) argues that island constraints are both syntactic and interface-connected.

(86) *$[_{CP}$ *who*$_i$ $[_C$ ø$]$ $[_{TP}$ $[_{QPj}$ *supporters* $[_{PP}$ *of* $t_i]]$ $[_T$ *were]* *arrested* $t_j]]$

The PSC violation arises in (86) because the *of*-PP contains a trace of *who* which is bound from outside the containing QP *supporters of* t_i, and this containing QP binds a trace of itself in comp-VP. As is expected if PSC is a PF interface condition, violation of PSC is obviated by Sluicing of the TP *supporters of* t *were arrested*, because Sluicing erases the traces which give rise to the PSC violation. Interestingly, an alternative way of obviating PSC violations found in colloquial English is the use of a resumptive pronoun in structures like (87):

(87) *Ancelotti played the three, which we thought [one of* ***them****] might be sacrificed.*
(Gabby Logan, BBC Radio 5)

This is in keeping with a substantial body of research suggesting that resumption can be used to repair PF locality constraints (Pesetsky 1997, 1998; Aoun and Li 2003; Boeckx 2012).

Having looked at the nature of PSC, let's now turn to consider more briefly the nature of some of the other constraints central to our analysis. The Edge Condition and the Inactivity Condition are formulated by Chomsky (2008) as *derivational* conditions imposing locality restrictions on the search domain for a probe (i.e. to limit how far a probe can "look" into a syntactic structure it its search for a goal). However, sentences like (88) below suggest that Sluicing can repair violation of these conditions:

(88) a. *The biography of a famous A-list Hollywood celebrity caused a scandal. Guess who!*
b. **Guess who the biography of caused a scandal?*

In this example interrogative *who* is interpreted as the complement of a subject internal PP, corresponding to *of a famous A-list Hollywood celebrity*. Extraction of *who* from the subject in (88b) leads to a quadruple violation: (87b) violates the Freezing Condition (69), the Inactivity Condition (72), the Preposition Stranding Condition (71) and the Specificity Condition (73). And yet the ellipsis of TP including the offending subject leads to a grammatical result in (87a). This would suggest that such locality constraints are repairable PF interface conditions rather than irreparable derivational conditions.

Now consider the Specificity Condition (73), the Argument Condition (74), and the D-linking Condition (75). We argued in sections 1.3.2 and 1.3.3 that these are ultimately reducible to the Intervention Condition (48). Since intervention ef-

fects are sensitive to the semantic properties of the mover and the intervener, it might at first sight seem plausible (on conceptual grounds) to suppose that the Intervention Constraint is an interface condition on LF representations, barring an intervention-sensitive constituent from binding a trace across a relevant type of intervener at LF. If so, we would expect that intervention effects cannot be alleviated by Sluicing, since Sluicing is a PF operation, and the output of PF operations is invisible at LF. However, any such claim would be challenged by the observation made in Chung et al. (1995) that Sluicing can repair wh-island violations, e.g. in sentences such as:

(89) *Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us* <u>*which one*</u>
(Chung et al. 1995, 84a)

The repairability of wh-intervention violations suggests that the Intervention Constraint is a PF Interface Condition/PFIC.

The general conclusion which our brief discussion in this section leads us to is that the constraints central to our analysis are probably PFICs. However, this raises the question of the nature of the relevant PFICs and to what extent PFICs are relevant in the syntax. Bošković (2011), elaborating on earlier work by Chomsky (1972), proposes that locality violations incurred in a derivation result in the marking (in the syntax) of the element that is responsible for blocking movement. He does this concretely by using the diacritic *. With respect to illicit extraction from an island, he proposes that when a *wh*-moved element crosses an island boundary, the island is *-marked. In other words, the diacritic * is assigned to the element that has caused a locality-of-movement violation. The presence of a diacritic * in the final PF representation of a derivation leads to a crash. However, such a violation is "repaired" (i.e., does not occur) if the *-marked element is deleted at PF since in that case, no * is present in the final PF representation.

In the next section, we consider whether the relevant PF interface conditions are reducible to processing constraints designed to increase the parsability of PF structures.

4.2 Processing factors

There is evidence from a range of studies (including Kluender 1998, 2004, 2005; Kluender and Kutas 1993; Hofmeister 2007, 2008, 2011; Sag et al. 2007; Hofmeister et al. 2007; Hofmeister and Sag 2010; Clausen 2010; Chaves 2013) that processing

factors play a significant role in determining the acceptability of extraction structures, including extraction out of subjects (Kluender 2004). Hofmeister (2008) and Hofmeister and Sag (2010) report experimental evidence that extraction of adjuncts from islands is significantly facilitated if the adjunct is syntactically and semantically complex (e.g. *for what period of time after the crash*), in conformity with the *Memory Facilitation Hypothesis* of Hofmeister (2008: 4), whereby syntactically and semantically rich constituents are less prone to memory decay, facilitating their retrieval downstream in hard-to-process structures.

Likewise, Hofmeister et al. (2011) adduce experimental evidence that extraction of argument phrases which are syntactically or semantically richer can offset potential intervention effects. Hofmeister (2007, 2008, 2011), Hofmeister et al. (2007, 2011) and Hofmeister and Sag (2010) argue that memory effects explain why D-linking ameliorates weak constraint violations. They produce experimental evidence that D-linking ameliorates extraction even out of non-islands, and argue that this is because the syntactic and semantic richness of D-linked constituents makes them less prone to memory decay.

Hofmeister (2012) argues that "freezing" effects also arise from processing problems, in that extraction out of moved constituents creates a nested dependency in which a filler is associated with a gap inside another filler associated with another gap (but see the cautionary note at the end of the next section). It may be that the English variant of the Preposition Stranding Constraint (barring a preposition from being stranded inside a moved constituent) represents a specific instance of the grammaticalisation of a more general parsing strategy designed to avoid the problems associated with parsing nested filler-gap dependencies. Potential support for this comes from the observation by Chaves (2013) that violation of PSC can be ameliorated by prosodic phrasing at PF. For example, as noted in section 2.1, the acceptability of (55) improves with the prosodic phrasing indicated by the brackets below.

(55) a. *[Which doctors] [have patients of] [filed malpractice suits in the last year]?*
b. *[Which problem] [will a solution to] [never be found]?*

This is arguably because prosody cues the extraction site and can thus offset the parsing difficulties which would otherwise arise from a PSC violation.

It also seems likely that the Extraction Constraint can be viewed in processing terms. In processing filler-gap dependencies, the parser attempts to associate the filler with the closest gap, and the Extraction Constraint ensures that in structures where extraction takes place out of a moved subject, the filler will be associated with a (closer) gap in the superficial rather than the underlying position of the subject.

More generally, Kluender (2004) argues that the islandhood property of subjects can be accounted for in processing terms, remarking (2004: 10) that subjects, especially complex subjects, are already difficult to process for reasons having to do with both verbal working memory storage and discourse referential processing costs. On top of this independently existing difficulty, attempts to maintain a simultaneous long-distance filler gap-dependency may push the verbal working memory system over threshold. The result would be the perceived ungrammaticality and uninterpretability of subject islands.

Processing factors may also be instrumental in understanding the correlation between the position of subjects and how easy it is to extract out of them in Spanish. An interesting processing perspective on this issue (which we hope to pursue in subsequent research) is that subjects containing gaps cause processing problems, and speakers prefer to position hard-to-process structures toward the end of the sentence, in order to reduce the burden on memory resources (see e.g. Yngve 1960; Hawkins 1994; Wasow 1997, 2002; Gibson 1998). This would account not only for why extraction is easier out of postverbal rather than preverbal subjects, but also for why it is easier out of subjects in VOS structures than in VSO structures – as we showed in section 2.1.4.

Although we have focused on processing factors here, we note that there is also evidence that pragmatic factors play a role in determining extractability (Erteschik-Shir 1973, 2006, 2007; Erteschik-Shir and Lappin 1979; Kuno 1987; Van Valin 1986, 1995; Goldberg 2006; but for a more sceptical note see Boeckx 2012: 28–29). For example, Chaves (2013) argues that *relevance* is an important factor, in that an extracted phrase must bear some relevance to the phrase from which it is extracted. This accounts for the relative acceptability of an example like the following, where brackets mark prosodic phrasing:

(90) *[Which problem] [will the solution to] [impress everyone]?*

This is relatively acceptable, Chaves maintains, because a solution necessarily presupposes the existence of a corresponding problem, so the wh-phrase in (i) is relevant for the subject and for the predicate. In a similar vein, Chaves (2013: 26) conjectures that the constraint on extraction out of agentive subjects can be accounted for in terms of relevance: AGENT subjects resist extraction because an extracted phrase has to be relevant to the phrase out of which it is extracted and to the main assertion, and it is harder for any phrase inside an agent subject to be relevant for the main assertion.

In much the same way, it might be claimed that the Specificity Condition is pragmatic in nature. If so, the unacceptability of sentences like (32d) **Of what did those pictures upset him?* would arise (in part) because using *those*

pictures implies that the speaker is familiar with the pictures and therefore knows what they depict, and this being so, it makes little sense to ask what they are pictures of. See Frascarelli and Jiménez-Fernández (2012, 2013) for an analysis of specificity effects as deriving from the information structure of the relevant DP.

4.3 On constraint strength

Another issue that arises is whether our hypothesis that different types of constraint have different degrees of strength is equivalent to adopting the OT concept of constraint-ranking. In classic OT accounts of syntax[36], output representations produced by a Generator are filtered through an Evaluator containing a universal set of violable constraints which are ranked in terms of their relative strength: languages may differ in the ranking of the constraints, and violation of a lower-ranked constraint is tolerated if it enables the satisfaction of a higher-ranked constraint. This raises the question of whether our assumption that different constraints have different degrees of strength can be seen as extensionally equivalent to an OT-style ranking of constraints, in which stronger constraints are ranked above weaker ones. However, a key difference between our approach and that of OT is that OT assumes that violation of a lower-ranked constraint is tolerated (and can result in a grammatical outcome) if it enables the satisfaction of a higher-ranked constraint. By contrast, we assume that violating a constraint (however weak) always leads to some degree of degradation, and that each additional constraint which is violated adds an additional degree of degradation, in a cumulative fashion. In this respect, our assumptions are more compatible with the variant of OT developed by Frank Keller which he terms *Linear Optimality Theory/LOT* (Keller 1998, 2000, 2005; Keller and Sorace 2003; Sorace and Keller 2005; for related work see Jäger and Rosenbach 2006; Adli 2011).

In the words of Keller (2000: 233) "The core assumption of Linear Optimality Theory is that linguistic constraints are annotated with numeric weights, and that the grammaticality of a structure is determined by the weighted sum of the constraint violations it incurs." The weight of a constraint is determined by the degree of unacceptability induced by violating it. There are two types of constraint, *soft* and *hard*. Soft constraints induce mild unacceptability and so have a low

36 See Grimshaw (1997), Pesetsky (1998), Dekkers (1999, 2000), Bresnan (2000), Sells (2001), Müller (2000, 2001), Vogel (2006), Woolford (2007) and Broekhuis (2008) for a range of theoretical and descriptive implementations of this approach.

weighting, whereas hard constraints induce severe ungrammaticality and so have a high weighting (Keller 2000: 43). A further difference between the two noted by Keller (2000: 160) is that violations of soft (but not hard) constraints can be ameliorated (e.g. by contextual factors like D-linking). Keller conjectures (2000: 321) that it may be the case that "hard constraints are structural (i.e. syntactic) in nature, while soft constraints are non-structural (e.g. semantic or pragmatic)." He further maintains that the weight of a given constraint may differ from one language (or language variety) to another (2000: 269).

We can illustrate how our approach might be reconciled with the LOT model by considering the ungrammaticality of (91)

(91) *<u>What</u> *did [the man in] damage the painting?*

(Cf. *The man in a T-shirt damaged the painting*.) For expository purposes, let us make the simplifying assumption that all the constraints we are concerned with here are soft in English, and that each has a weight of 1, and that violation of a constraint with a 1 weighting results in an acceptability score of –1. Since the subject has raised to spec-TP, violation of the Freezing Constraint reduces the acceptability level to –1. Since subjects have had their case feature valued and so are inactive when they reach spec-TP, (90) also violates the Inactivity Condition, and this further reduces the score to –2. Since the subject is specific, violation of the Specificity Condition further reduces the score to –3. Since the preposition *in* is stranded inside a moved subject, violation of the Preposition Stranding Constraint reduces the score still further to –4. Since the extractee *what* is not D-linked, violation of the D-linking condition (if viewed as a degradation condition as in 84) further reduces the score to –5. And since the *in*-PP is an adjunct, extraction of *what* out of the adjunct *in what* will lead to violation of the traditional Adjunct Island Condition (or perhaps of the more general Constraint on Extraction Domains: see note 3), reducing the score still further to –6, with the result that the sentence is perceived to be extremely severely degraded. The score will be even lower if (e.g.) the Adjunct Island Constraint is a strong constraint and violation of it reduces the overall acceptability score by (say) two points rather than one (lowering the final score to –7).

Now consider the following contrast in Spanish:

(56) a. *<u>*¿Qué*</u> <u>*príncipe*</u> *fueron* *publicadas* *[varias fotos*
which prince were-3PL published several photos
comprometedoras *de]?*
compromising of?
'Which prince were several compromising photos of published?'

b. *¿De qué príncipe fueron publicadas [varias fotos*
of which prince were-3PL published several photos
comprometedoras]?
compromising
'Of which prince were several compromising photos published?'

As we saw earlier, extraction of the italicised PP in (56b) induces no Edge, Specificity, Inactivity, Argument, D-linking or P-Stranding violation, so the sentence does not have a negative acceptability score and is fully grammatical. By contrast, (56a) violates the Preposition Stranding Constraint. Assuming that this is a hard constraint (e.g. with a weight of 7, say) in Spanish, violation of this constraint alone will be enough to yield an acceptability score of –7, and thus to make (56a) extremely severely degraded.

If we follow Keller (2000) in supposing that the strength of constraints can vary from one language to another, we can also offer an answer to the question why some languages permit subextraction out of a moved subject. Greek is a case in point, as the following example from Spyropoulos and Stamatogiannis (2011: 6, 30a):

(91) *pjanu aftokinitu su fanike oti [o oδiγos] paraviase*
which car-GEN you seemed-3SG that the driver violated-3SG
to stop?
the stop
'Of which car did it seem to you that the driver violated the stop sign?'

Assuming that the preverbal subject in Greek occupies the specifier of TP, such a sentence would be expected to induce Inactivity, Freezing and Specificity violations, and thus to be triply degraded; however, Spyropoulos and Stamatogiannis judge it to be acceptable. This suggests that the three violations which we would associate with (91) are in fact not there. If C rather than T is a nominative case-assigner in Greek, and if C can extract PP from the subject before it case-marks the subject, the subject in spec-TP would remain active for extraction and (91) would not lead to an Inactivity violation. Alternatively, it might be argued that the preverbal lexical subject in Greek has moved to topic-like left peripheral position, an A′-position. In addition, if it could be argued that unlike its counterpart in English and Spanish, the definite article *o* 'the' has minimal semantic specification, this could mean that the example does not violate the Specificity Condition either. However, such analyses still leave the question of why there is no Freezing violation in (91). In this connection, it is interesting to note the claim made by Spyropoulos and Stamatogiannis (2011) that freezing violations are readily tolerated in

Greek. Consequently, extraction is possible out of a small clause ECM subject which moves to spec-VP as in (92a), and from a fronted focused constituent as in (92b):

(92) a. *pjanu aftokinitu θeoris [ton oδiγo] poli kalo*
which car think-2SG the driver very good
'Of which car do you consider the driver very good?'

b. *pjanu aftokinitu su fanike oti [ton oδiγo] sinelave i*
which car-GEN you seem-3SG that the driver arrested-3SG the
astinomia
police
'Of which car does it seem to you that it was the driver that the police arrested?'
(Spyropoulos and Stamatogiannis 2011: 52, 54, 55)

This would be consistent with the view that the Freezing constraint has a very low weighting in Greek, with the result that freezing violations are virtually imperceptible.

Overall, our brief discussion here illustrates that our findings can potentially be interpreted in terms of Keller's LOT model. However, the important caveat needs to be made that the precise weight of each constraint in each language will need to be determined experimentally. A second point to note is that if constraints like the Freezing Constraint vary in strength from one language to another, it is less likely that they can be reduced to domain-general cognitive mechanisms relating to problems in processing nested dependencies, since these mechanisms are unlikely to vary across speakers of different languages. From this perspective, it would seem as if there may be a residue of syntactic islandhood which cannot easily be accounted for in purely processing terms (See also Sprouse et al. 2013).

5 Concluding remarks

In this paper we have discussed the complex nature of extraction from subjects and have shown how, in the light of theoretical developments over the last 40 years, the effect of Chomsky's (1973) Subject Condition can be reinterpreted as resulting from the cumulative effect of distinct interacting factors that contribute to the degradation of extraction from subjects. Properties of both the subject and the extractee have been shown to play a role in the licensing of extraction. We have presented evidence that extraction is governed by positional constraints such as (68–71), and feature-based constraints such as (72–74).

(68) **Extraction Constraint** (= 31)
Extraction is only possible from the head of a chain.

(69) **Freezing Principle** (= 3)
A moved constituent is frozen for extraction.

(70) **Edge Condition** (= 8)
The edge of a phase is opaque for extraction.

(71) **Preposition Stranding Condition/PSC** (= 54)
No preposition can be stranded (% inside a moved constituent).

(72) **Inactivity Condition** (= 11)
An inactive A-chain (i.e. one with no unvalued A-features) is opaque for extraction.

(73) **Specificity Condition** (= 33)
Specific nominals are opaque domains for extraction.

(74) **Argument Condition** (= 46)
Extraction is degraded when the extractee is not an argument.

In addition, we have shown how the D-linking effect can either be handled in terms of an amelioration condition like (75), or as a degradation condition like (84):

(75) **D-linking Condition** (formulated as an "amelioration" condition)
Extraction is ameliorated when the extractee is D-linked.

(84) **D-Linking Condition** (formulated as a "degradation" condition)
Extraction of a (pro)nominal which is not D-linked is degraded.

Decomposing the Subject Condition into a set of subconditions whose effect is cumulative allows a more fine-grained scale of judgments: the more conditions which are violated the more degraded the outcome is (in conformity with the assumptions made in Linear Optimality Theory). To account for inter-speaker variation reported in the literature we postulated that different speakers have different tolerance thresholds. It is to be hoped (and expected) that future theoretical developments will lead to further decomposition of constraints like those in (68–75), so that even the principles we have listed here end up being decomposed into primitive constraints. Any such development will be beneficial and will make a more refined account of grammaticality judgements possible. Needless to say, this would not change the general line of our argumentation.

Acknowledgments: Authors' names are listed in alphabetical order. We are grateful to Bob Borsley, Will Harwood, Philip Hofmeister and Louisa Sadler for helpful comments on an earlier version of this paper. Haegeman's research is funded by FWO: 2009-Odysseus-Haegeman-G091409.

Examples cited from other works are adapted in inconsequential typographical ways to fit in with the style of presentation (and the example numbering) adopted here. Grammaticality judgments for sentences cited from other works are those given by the linguists cited.

In response to comments from anonymous reviewers some preliminary remarks are in order to clarify our position. In this paper our approach is essentially syntactic in nature, although at the end of the paper we briefly address alternative (e.g. pragmatic and processing) perspectives. Our data are based on introspective acceptability judgments: for a defense of the use of introspective data and a comparison with usage-based data see Newmeyer (2003, 2005, 2006a, 2006b), and for a comparison between introspective and experimental data see Sprouse (2011), Sprouse et al. (2011), Sprouse and Almeida (2011, 2012a, 2012b), and Schütze and Sprouse (2012). We adopt an approach to syntax which presupposes movement operations, but is relatively theory-neutral in respect of not being tied to a specific (e.g. Minimalist or Cartographic) implementation. Derivations and structural representations are simplified by showing only essential details (and sometimes omitting null constituents); trace copies of moved constituents are shown as *t*, in order to save space.

References

Abels, Klaus. 2003. *Successive cyclicity, antilocality and adposition stranding*. Storrs, CT: University of Connecticut dissertation.

Aboh, Enoch. 2004. *The morphosyntax of complement-head sequences. Clause structure and word order patterns in Kwa*. Oxford: Oxford University Press.

Abney, Steven P. 1987. *The English noun phrase in its sentential aspect*. Cambridge, MA: MIT dissertation.

Ackema, Peter. 2008. Restrictions on subject extraction: A PF interface account. Ms., University of Edinburgh.

Adli, Aria. 2011. A heuristic mathematical approach for modelling constraint cumulativity: Contrastive focus in Spanish and Catalan. *The Linguistic Review* 28. 111–173.

Agbayani, Brian. 2000. Wh-Subjects in English and the vacuous movement hypothesis. *Linguistic Inquiry* 31. 703–730.

Aoun, Joseph and Yen-Hui A. Li. 2003. *Essays on the representational and derivational nature of grammar: The diversity of wh-constructions*. Cambridge MA: MIT Press.

Aoun, Joseph, Lina Choueiri and Norbert Hornstein. 2001. Resumption, movement, and derivational economy. *Linguistic Inquiry* 32. 371–403.

Aguero-Bautista, Calixto. 2012. Non-native acquisition and language design. In Anna Maria Di Sciullo (ed.), *Towards a biolinguistic understanding of Grammar. Essays on interfaces*, 217–238. Amsterdam: John Benjamins.
Aissen, Judith. 1998. Markedness and subject choice in Optimality Theory. Ms., UC Santa Cruz.
Alboiu, Gabriela. 2002. *The features of movement in Romanian*. Bucharest: Editura Universitătii Bucureşti.
Alexiadou, Artemis, Liliane Haegeman and Melita Stavrou. 2007. *Noun phrase in the generative perspective*. Berlin: Mouton de Gruyter.
Alexopoulou, Theodora and Frank Keller. 2007. Locality, cyclicity and resumption: At the interface between the grammar and the human sentence processor. *Language* 83. 110–160.
Alrenga, Peter. 2005. A sentential subject asymmetry in English and its implications for complement selection. *Syntax* 8(3). 175–207.
Aranovich, Roberto. 2011. Optional agreement and grammatical functions: A corpus study of dative clitic doubling in Spanish. Pittsburgh, PA: University of Pittsburgh dissertation.
Bagchi, Tista. 2007. On theta assignment assignment by feature checking. In Eric Reuland, Tanmoy Bhattacharya and Giorgos Spathas (eds.), *Argument structure*. 159–175. Amsterdam: John Benjamins.
Baunaz, Lena. 2011. *The grammar of French quantification* (Studies in natural language and linguistic theory 83). Dordrecht: Springer.
Baunaz, Lena. 2012. The French complementiser *que* under scrutiny. Ms., University of Geneva.
Belletti, Adriana. 2001. Inversion as focalisation. In Aafke Hulk and Jean-Yves Pollock (eds.), *Subject inversion in Romance and the theory of Universal Grammar*. 60–90. Oxford: Oxford University Press.
Belletti, Adriana. 2004. Aspects of the low IP area. In Luigi Rizzi (ed.), *The structure of CP and IP*. 16–51. Oxford: Oxford University Press.
Belloro, Valeria A. 2007. *Spanish clitic doubling: A study of the syntax-pragmatics interface*. Buffalo, NY: State University of New York dissertation.
Bianchi, Valentina and Cristiano Chesi. 2006. Phases, left branch islands, and computational nesting. *UPenn Working Papers in Linguistics* 12: *Proceedings of the 29th Penn Linguistic Colloquium*. 15–28.
Bianchi, Valentina and Cristiano Chesi. 2012. Subject islands and the subject criterion. In Valentina Bianchi and Cristiano Chesi (eds.), *Enjoy Linguistics! Papers offered to Luigi Rizzi on the occasion of his 60th birthday*. 25–53. Siena: CISCL Press. http://www.ciscl.unisi.it/gg60/ (accessed 13 February 2013).
Bleam, Tonia M. 1999. *Leísta Spanish and the syntax of clitic doubling*. Newark, DA: University of Delaware dissertation.
Boeckx, Cedric. 2001. Mechanisms of chain formation. Storrs, CT: University of Connecticut dissertation.
Boeckx, Cedric. 2003. *Islands and chains. Stranding as resumption*. Amsterdam: John Benjamins.
Boeckx, Cedric. 2008. *Bare syntax*. Oxford: Oxford University Press.
Boeckx, Cedric. 2012. *Syntactic Islands*. Cambridge: Cambridge University Press.
Boeckx, Cedric and Howard Lasnik. 2006. Intervention and repair. *Linguistic Inquiry* 37. 150–155.
Bošković, Željko. 2011. Rescue by PF deletion, traces as (non)interveners, and the *that*-trace effect. *Linguistic Inquiry* 42. 1–44.

Bresnan, Joan. 1994. Locative inversion and the architecture of Universal Grammar. *Language* 70. 72–131.
Bresnan, Joan. 2000. Optimal syntax. In Joost Dekkers, Frank Van der Leeuw and Jeroen Van de Weijer (eds.), *Optimality theory: Phonology, syntax and acquisition,* 334–385. Oxford: Oxford University Press.
Bresnan, Joan. 2001. Explaining morphosyntactic competition. In Mark Baltin and Chris Collins (eds.), *The Handbook of contemporary syntactic theory.* 11–44. Oxford: Blackwell.
Broekhuis, Hans. 2006. Extraction from subjects: Some remarks on Chomsky's "On Phases". In Hans Broekhuis, Norbert Corver and Riny Hybreghts (ed.), *Organising Grammar*, 59–68. Berlin: Mouton de Gruyter.
Broekhuis, Hans. 2008. *Derivations and Evaluations: Object shift in the Germanic languages.* Mouton: Berlin.
Campbell, Richard. 1996. Specificity operators in SpecDP. *Studia Linguistica* 50. 161–188.
Cattell, Ray. 1976. Constraints on movement rules. *Language* 52. 18–50.
Chaves, Rui. 2012. On the grammar of extraction and coordination. *Natural Language and Linguistic Theory* 30. 465–512.
Chaves, Rui. 2013. An expectation-based account of subject islands and parasitism. *Journal of Linguistics* 49(2). 285–327.
Choi, Hye-Won. 1996. Optimizing structure in context: Scrambling and information structure. Stanford, CA: Stanford University dissertation.
Chomsky, Noam. 1964. The logical basis of linguistic theory. In Horace G. Lunt (ed.), *Proceedings of the Ninth International Congress of Linguists*, 914–978. The Hague: Mouton and Co.
Chomsky, Noam. 1972. Some empirical issues in the theory of transformational grammar. In Stanley Peters (ed.), *Goals of linguistic theory*, 63–130. Englewood Cliffs, NJ: Prentice Hall.
Chomsky, Noam. 1973. Conditions on transformations. In Stephen R. Anderson and Paul Kiparsky (eds.), *A festschrift for Morris Halle.* 232–286. New York: Holt, Rinehart and Winston.
Chomsky, Noam. 1977. On Wh-movement. In Peter W. Culicover, Thomas Wasow and Adrian Akmajian (eds.), *Formal syntax.* 71–132. New York: Academic Press.
Chomsky, Noam. 1981. *Lectures on government and binding*. Foris: Dordrecht.
Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
Chomsky, Noam. 2000. Minimalist inquiries. In Roger Martin, David Michaels and Juan Uriagereka (eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*. 89–155. Cambridge, MA: MIT Press.
Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge, MA: MIT Press.
Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36. 1–22.
Chomsky, Noam. 2007. Approaching UG from below. In Uli Sauerland and Hans-Martin Gärtner (eds.), *Interfaces + Recursion = Language? Chomsky's minimalism and the view from syntax-semantics*. 1–30. Berlin: Mouton de Gruyter.
Chomsky, Noam. 2008. On phases. In Robert Freidin, Carlos P. Otero and María-Luisa Zubizarreta (eds.), *Foundational issues in linguistic theory*. 133–166. Cambridge, MA: MIT Press.
Chomsky, Noam. 2013. Problems of projection. To appear in *Lingua*.
Chomsky, Noam and Howard Lasnik. 1993. The theory of principles and parameters. In Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld and Theo Venneman (ed.), *Syntax:*

An international handbook of contemporary research, Vol. 1, 506–569. Berlin: Mouton de Gruyter.
Chung, Sandra. 1994. Wh-agreement and "referentiality" in Chamorro. *Linguistic Inquiry* 25. 1–44.
Chung, Sandra and James McCloskey. 1983. On the interpretation of certain island facts in GPSG. *Linguistic Inquiry* 14. 703–714.
Chung, Sandra, William Ladusaw and James McCloskey. 2011. Sluicing: Between structure and inference. In Rodrigo Gutiérrez-Bravo, Line Mikkelsen and Eric Potsdam (eds.), *Representing language: Essays in honor of Judith Aissen*, 31–50. University of California, Santa Cruz: Linguistic Research Center.
Cinque, Guglielmo. 1977. Towards a unified treatment of island constraints. In Wolfgang Dressler and Wolfgang Meid (ed.), *Proceedings of the twelfth international congress of linguists*. 344–348. Innsbruck: Innbrucker Beitrage zur Sprachwissenschaft.
Cinque, Guglielmo. 1990. *Types of A′-dependencies*. Cambridge, MA: MIT Press.
Cinque, Guglielmo. 1999. *Adverbs and functional heads*. Oxford: Oxford University Press.
Cinque, Guglielmo. 2000. On Greenberg's Universal 20 and the Semitic DP. *University of Venice Working Papers in Linguistics* 10. 45–61.
Clausen, David R. 2010. Processing factors influencing acceptability in extractions from complex subjects. Ms., Stanford University.
Collins, Chris. 2007. Home sweet home. *NYU Working Papers in Linguistics* 1. 1–34.
Collins, Chris and Andrew Radford. 2012. Gaps, ghosts and gapless relative clauses in spoken English. Ms., New York University and University of Essex. *To appear in Studia Linguistica*.
Comorovski, Ileana. 1996. *Interrogative phrases and the syntax-semantics interface*. Cambridge, MA: MIT Press.
Contreras, Heles. 1987. Small clauses in Spanish and English. *Natural Language and Linguistic Theory* 5. 225–244.
Cresti, Diana. 1995. Extraction and reconstruction. *Natural Language Semantics* 3. 79–122.
Cruschina, Silvio. 2012. *Discourse-related features and functional projections*. Oxford: Oxford University Press.
Davies, William D. and Stanley Dubinsky. 2003. On extraction from NPs. *Natural Language and Linguistic Theory* 21. 1–37.
Deal, Amy R. 2009. The origin and content of expletives: Evidence from selection. *Syntax* 12. 285–323.
Deane, Paul D. 1991. Limits to attention: A cognitive theory of island phenomena. *Cognitive Linguistics* 2. 1–63.
Dekkers, Joost. 1999. *Derivations and evaluations: On the syntax of subjects and complementizers*. Amsterdam: University of Amsterdam/HIL dissertation.
Dekkers, Joost, Frank van der Leeuw and Jeroen van der Weijer (eds.). 2000. *Optimality theory: Phonology, syntax and acquisition*. Oxford: Oxford University Press.
Diesing, Molly. 1990. The syntactic roots of semantic partition. Amherst, MA: University of Massachusetts dissertation.
Diesing, Molly. 1992. *Indefinites*. Cambridge MA: MIT Press.
Drummond, Alex, Norbert Hornstein and Howard Lasnik. 2010. A puzzle about P-stranding and a possible solution. *Linguistic Inquiry* 41(4). 689–692.
Emonds, Joseph E. 1976. *A transformational approach to English syntax*. New York: Academic Press.
Enç, Mürvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22. 1–25.

Endo, Yoshio. 2007. *Locality and information structure. A cartographic approach to Japanese*. Amsterdam: John Benjamins.
Engdahl, Elisabet. 1980. *The syntax and semantics of questions in Swedish*. Amherst, MA: University of Massachussetts dissertation.
Erteschik-Shir, Nomi. 1973. *On the nature of island constraints*. Cambridge, MA: MIT dissertation.
Erteschik-Shir, Nomi. 1981. On extraction from noun phrases (picture noun phrases). In Adriana Belletti, Luciana Brandi and Luigi Rizzi (eds.). *Theory of markedness in Generative Grammar; Proceedings of the 4th GLOW Conference*, 147–169. Pisa: Scuola Normale Superiore.
Erteschik-Shir, Nomi. 2006. What's what? In Gisbert Fanselow, Caroline Féry, Ralf Vogel and Matthias Schlesewsky (eds.), *Gradience in grammar*. 317–335. Oxford: Oxford University Press.
Erteschik-Shir, Nomi. 2007. *Information structure: The syntax-discourse interface*. Oxford: Oxford University Press.
Erteschik-Shir, Nomi and Shalom Lappin. 1979. Dominance and the functional explanation of island phenomena. *Theoretical Linguistics* 6. 41–86.
Estigarribia, Bruno. Why clitic doubling? A functional analysis for Rioplatense Spanish. In Timothy L. Face and Carol A. Klee (eds.), *Selected Proceedings of the 8th Hispanic Linguistics Symposium*, 123–136. Somerville, MA: Cascadilla Proceedings Project.
Fábregas, Antonio and Ángel L. Jiménez-Fernández. 2012. Extraction from fake adjuncts and first phase syntax. Poster presented at Going Romance, KU Leuven, 1–8 December.
Fassi Fehri, Abdulkader. 1999. Arabic modifying adjectives and DP structures. *Studia Linguistica* 53. 105–154.
Fiengo, Robert and James Higginbotham. 1981. Opacity in NP. *Linguistic Analysis* 7. 347–373.
Fodor, Jerry. 1983. Phrase structure parsing and the island constraints. *Linguistics and Philosophy* 6. 163–223.
Fox, Danny and Howard Lasnik. 2003. Successive-cyclic movement and island repair: The difference between sluicing and VP ellipsis. *Linguistic Inquiry* 34. 143–154.
Frampton, John. 1991. Relativized minimality: A review. *The Linguistic Review* 8. 1–46.
Franco, Jon. 1993. *On object agreement in Spanish*. Los Angeles, CA: University of Southern California dissertation.
Franco, Jon. 1994. The morphological, syntactic and semantic agreement status of Spanish object clitics. *ASJU* XXVIII. 707–789.
Franco, Jon and Errapel Mejías-Bikandi. 1997. Overt and Covert Raising to Spec AGR. *Linguistic Analysis* 27. 79–107.
Franco, Jon and Errapel Mejías-Bikandi. 1999. The Presuppositionality Condition and Spanish clitic-doubled objects. In Jean-Marc Authier, Barbara Bullock and Lisa Reed (eds.), *Formal Perspectives on Romance Linguistics*. 107–119. Amsterdam/Philadelphia: John Benjamins.
Franco, Jon and Susana Huidobro. 2006. Ethical datives, clitic doubling and the theory of *pro*. *Selected Proceedings of the 10th Hispanic Linguistics Symposium*, ed. Joyce Bruhn de Garavito and Elena Valenzuela, 215–224. Somerville, MA: Cascadilla Proceedings Project.
Frascarelli, Mara and Ángel L. Jiménez-Fernández. 2012. Specificity effects at the discourse-grammar interface. Paper presented at Going Romance, University of Leuven, 1–8 December.
Frascarelli, Mara and Ángel L. Jiménez-Fernández. 2013. Contrast at the interfaces. Paper presented at Cambridge Comparative Syntax 2, University of Cambridge, 10–11 May.

Frazier, Lyn and Charles Clifton, Jr. 2002. Processing "d-linked" phrases. *Journal of Psycholinguistic Research* 31. 633–660.
Friedin, Robert. 1978. Cyclicity and the theory of grammar. *Linguistic Inquiry* 9. 519–549.
Friedmann, Naama, Adriana Belletti and Luigi Rizzi. 2009. Relativized minimality: Types of intervention in the acquisition of A-bar dependencies. *Lingua* 119. 67–88.
Gabriel, Christoph and Esther Rinke. 2010. Information packaging and the rise of clitic doubling in the history of Spanish. In Gisella Ferraresi and Rosemarie Lühr (eds.), *Diachronic studies on information structure*: *Language acquisition and change*. 55–77. Berlin: Mouton de Gruyter.
Gallego, Ángel. 2007. *Phase Theory and Parametric Variation*. Barcelona: Universitat Autònoma de Barcelona dissertation.
Gallego, Ángel. 2009. On freezing effects. *Iberia:IJTL* 1. 33–51. http://www.siff.us.es/iberia/index.php/ij/article/view/11/14 (accessed 17 October 2013).
Gallego, Ángel. 2011. Successive cyclicity, phases, and CED effects. *Studia Linguistica* 65. 32–69.
Gallego, Ángel and Juan Uriagereka. 2006. Sub-extraction from subjects: A phase-based theory. Ms., Universitat Autònoma de Barcelona and University of Maryland.
Gallego, Ángel and Juan Uriagereka. 2007. Conditions on sub-extraction. In Luis Eguren and Olga Fernández-Soriano (eds.), *Coreference, modality, and focus*. 45–70. Amsterdam/Philadephia: John Benjamins.
García-Miguel, José María. 1991. La duplicación del objeto directo e indirecto como concordancia. *Verba* 18. 375–410.
Gibson, Edward. 1998. Linguistic complexity: Locality of syntactic dependencies. *Cognition* 68. 1–76.
Goldberg, Adele E. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
Goodall, Grant. 2004. On the syntax and processing of wh-questions in Spanish. *WCCFL 23 Proceedings*. In Benjamin Schmeiser, Vineeta Chand, Ann Kelleher and Angelo Rodriguez (eds.). 101–114. Somerville, MA: Cascadilla Press.
Grimshaw, Jane. 1990. *Argument structure*. Cambridge, MA: MIT press.
Grimshaw, Jane. 1991. Extended Projection. Ms., Brandeis University.
Grimshaw, Jane. 1997. Projection, heads and optimality. *Linguistic Inquiry* 28. 373–422.
Grimshaw, Jane. 2000. Locality and Extended Projection. In Peter Coopmans, Martin Everaert and Jane Grimshaw (eds.), *Lexical specification and insertion*. 115–134. Amsterdam: John Benjamins.
Grimshaw, Jane. 2005. *Words and structure*. Stanford, CA: CLSI Publications.
Grohmann, Kleanthes K. 2003. *Prolific domains: On the anti-locality of movement dependencies*. Amsterdam: John Benjamins.
Grohmann, Kleanthes K. 2010. Anti-locality: Too-close relations in grammar. Ms., University of Cyprus.
Haddican, William. 2010. Theme-goal ditransitives and theme passivisation in British English dialects. *Lingua* 120. 2424–2443.
Haddican, William and Bernadette Plunket. 2010. Formalising syntactic variability: Context and issues. *Lingua* 120(5). 1057–1061.
Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena and composition of the left periphery*. Oxford: Oxford University Press.

Haegeman, Liliane and Barbara Ürögdi. 2010a. Referential CPs and DPs: An operator movement account. *Theoretical Linguistics* 36. 111–152.
Haegeman, Liliane and Barbara Ürögdi. 2010b. Operator movement, referentiality and intervention. *Theoretical Linguistics* 36. 233–246.
Hartmann, Jutta M. 2005. *Wh*-movement and the small clause analyses of the English *there*-construction. *Leiden Papers in Linguistics* 2. 93–106.
Harwood, Will. 2012. There are several positions available: English intermediate subject positions. To appear in *Proceedings of ConSOLE XIX*.
Hawkins, John A. 2004. *Efficiency and complexity in grammars*. Oxford: Oxford University Press.
Heck, Fabian. 2009. On certain properties of pied-piping. *Linguistic Inquiry* 40. 75–111.
Heck, Fabian, Gereon Müller and Jochen Trommer. 2008. A phase-based approach to Scandinavian definiteness marking. In Charles B. Chang and Hannah J. Haynie (eds.), *WCCFL 26*. 226–233. Somerville, MA: Cascadilla Proceedings Project.
Heck, Fabian and Malte Zimmermann. 2004. DPs as phases. Ms., Universität Leipzig and Humboldt-Universität zu Berlin.
Hegarty, Michael. 1990. On adjunct extraction from complements. In Lisa Cheng and Hamida Demirdash (eds.), *Papers on wh-movement* (*MIT Working Papers in Linguistics* 13), 101–124. Cambridge, MA: MIT.
Hiramatsu, Kazuko. 1999. Subject and adjunct island asymmetries: Evidence from syntactic satiation. In Sonya Bird, Andrew Carnie, Jason D. Haugen and Peter Norquest (eds.), *Proceedings of the West Coast Conference on Formal Linguistics* 18. 183–192. Somerville, MA: Cascadilla Press.
Hiramatsu, Kazuko. 2000. *Accessing linguistic competence: Evidence from children's and adults' acceptability judgments*. Storrs, CT: University of Connecticut dissertation.
Hofmeister, Philip. 2007. Retrievability and gradience in filler-gap dependencies. In *Proceedings of the Chicago Linguistic Society* 43. 109–123.
Hofmeister, Philip. 2008. *Representational complexity and memory retrieval in language comprehension*. Stanford, CA: Stanford University dissertation.
Hofmeister, Philip. 2009. Memory Retrieval Effects on Filler-Gap Processing. In Danielle S. McNamara and J. Greg Trafton (eds.), *Proceedings of the 29th Annual Cognitive Science Society*. 1091–1096. Austin, TX: Cognitive Science Society.
Hofmeister, Philip and Ivan A. Sag. 2010. Cognitive constraints and island effects. *Language* 86. 366–415.
Hofmeister, Philip, T. Florian Jaeger, Inbal Arnon, Ivan A. Sag, and Neal Snider. 2007. Locality and accessibility in wh-questions. In Sam Featherston and Wolfgang Sternefeld *(*eds.), *Roots: Linguistics in search of its evidential base*. 185–206. Berlin: Mouton de Gruyter.
Hofmeister, Philip, T. Florian Jaeger, Inbal Arnon, Ivan A. Sag, and Neal Snider. In press. The source ambiguity problem: Distinguishing the effects of grammar and processing on acceptability. *Language and Cognitive Processes*.
Hofmeister, Philip. 2011. Representational complexity and memory retrieval in language comprehension. *Language and Cognitive Processes* 26. 376–405.
Hofmeister, Philip. 2012. Effects of processing on the acceptability of "frozen" extraposed constituents. Ms., University of Essex.
Horn, George M. 1974. *The noun phrase constraint*. Amherst, MA: University of Massachussets dissertation.
Hornstein, Norbert. 1977. S and the X′ convention. *Linguistic Analysis* 3. 137–176.

Huang, Cheng-Teh James. 1982a. *Logical relations in Chinese and the theory of grammar*. Cambridge, MA: MIT dissertation.
Huang, Cheng-Teh James. 1982b. Move wh in a language without wh-movement. *The Linguistic Review* 1. 369–416.
Ihsane, Tabea. 2008. *The layered DP: Form and meaning of French indefinites*. Amsterdam: John Benjamins.
Ishii, Toru. 2009. Amelioration of the Subject Condition Effects by Remnant Movement. Paper presented at the 4th International Conference on Formal Linguistics, Beijing Foreign Studies University, July 2009.
Jäger, Gerhard and Anette Rosenbach. 2006. The winner takes it all – almost: Cumulativity in grammatical variation. *Linguistics* 44. 937–971.
Jaworska, Ewa. 1986. Prepositional phrases as subjects and objects. *Journal of Linguistics* 22. 355–375.
Jiménez-Fernández, Ángel L. 2009. On the composite nature of subject islands: A phase-based approach. *SKY Journal of Linguistics* 22. 91–138.
Jiménez-Fernández, Ángel L. 2012. A new look at subject islands: The phasehood of definiteness. *Anglica Wratislaviensia* 50. 137–168.
Jurka, Johannes. 2010. *The importance of being a complement: CED effects revisited*. College Park, MD; University of Maryland dissertation.
Jurka, Johannes, Chizuru Nakao and Akira Omaki. 2011. It's not the end of the CED as we know it: Revisiting German and Japanese subject islands. In Mary Byram Washburn et al. (eds.), *Proceedings of the 28th West Coast Conference on Formal Linguistics*, 124–132. Somerville, MA: Cascadilla Proceedings Project.
Kayne, Richard S. 1981. ECP extensions. *Linguistic Inquiry* 12. 93–133.
Kayne, Richard S. 2002. Some prepositions that look DP-internal: English *of* and French *de*," *Catalan Journal of Linguistics* 1. 71–115.
Keller, Frank. 1998. Gradient grammaticality as an effect of selective constraint re-ranking. *Papers from the 34th meeting of the Chicago Linguistic Society* 2, 95–109.
Keller, Frank. 2000. *Gradience in grammar. Experimental and computational aspects of degrees of grammaticality*. Edinburgh: University of Edinburgh dissertation.
Keller, Frank. 2005. Linear Optimality Theory as a model of gradience in grammar. In Gisbert Fanselow, Caroline Féry, Ralph Vogel and Matthias Schlesewsky (eds.), *Gradience in grammar: Generative perspectives*, 270–287. Oxford: Oxford University Press.
Keller, Frank and Antonella Sorace. 2003. Gradient auxiliary selection and impersonal passivization in German: An experimental investigation. *Journal of Linguistics* 39. 57–108.
Kitagawa, Yoshihisa. 1986. *Subjects in English and Japanese*. Amherst, MA: University of Massachusetts dissertation.
Kluender, Robert. 1998. On the distinction between strong islands and weak islands: A processing perspective. In Peter W. Culicover and Louise McNally (eds.), *The limits of syntax* (Syntax and Semantics 29), 241–279. New York: Academic Press.
Kluender, Robert. 2004. Are subject islands subject to a processing account? In Vineeta Chand, Ann Kelleher, Angelo J. Rodríguez and Benjamin Schmeiser (eds.), *West Coast Conference on Formal Linguistics (WCCFL) 23*, 101–125. Somerville, MA: Cascadilla Press.
Kluender, Robert and Marta Kutas. 1993. Subjacency as a processing phenomenon. *Language and Cognitive Processes* 8. 573–633.
Koopman, Hilda and Dominique Sportiche. 1991. The position of subjects. *Lingua* 85. 211–258.

Koster, Jan. 1978. Why subject sentences don't exist. In Samuel J. Keyser (ed.), *Recent transformational studies in European languages*, 53–64. Cambridge, MA: MIT Press.
Kratzer, Angelika. 1996. Severing the external argument from its verb. In Johan Rooryck and Laurie Zaring (eds.), *Phrase structure and the lexicon*, 109–137. Dordrecht: Kluwer.
Kuno, Susumu. 1973. Constraints on internal clauses and sentential subjects. *Linguistic Inquiry* 4. 363–385.
Kuno, Susumu. 1987. *Functional syntax – anaphora, discourse and empathy*. Chicago, IL and London: The University of Chicago Press.
Kuroda, Sige-Yuki. 1988. Whether we agree or not. *Lingvisticae Investigationes* 12. 1–47.
Lasnik, Howard. 2001a. When can you save a structure by destroying it? *NELS* 31. 301–320.
Lasnik, Howard. 2001b. Subjects, objects, and the EPP. In William Davies and Stanley Dubinsky (eds.), *Objects and other subjects*, 103–121. Dordrecht: Kluwer.
Lasnik, Howard and Myung-Kwan Park. 2003. The EPP and the subject condition under sluicing. *Linguistic Inquiry* 34. 649–660.
Lasnik, Howard and Mamoru Saito. 1992. *Move alpha: Conditions on its application and output*. Cambridge MA: MIT Press.
Lebeaux, David. 1988. *Language acquisition and the form of the grammar*. Amherst, MA: University of Massachusetts dissertation.
Legate, Julie Anne. 2003. Some interface properties of the phase. *Linguistic Inquiry* 34. 506–515.
Levin, Beth, and Rappaport-Hovav, Malka. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.
Lohndal, Terje. 2011. Freezing effects and objects. *Journal of Linguistics* 47. 163–199.
Lyons, Christopher. 1990. An agreement approach to clitic doubling. *Transactions of the Philological Society* 88. 1–57.
Manzini, Rita. 1992. *Locality*. Cambridge, MA: MIT Press.
Matushansky, Ora. 2005. Going through a phase. In Martha McGinnis and Norvin Richards (eds.), *Perspectives on phases*, 157–181. *MIT Working Papers in Linguistics* 49. Cambridge, MA: MIT Press.
Maeda, Masako. 2010. The criterial freezing effect and split A'-movement. *English Linguistics* 27. 270–296.
Mahajan, Annop. 1992. The Specificity Condition and the CED. *Linguistic Inquiry* 23. 510–516.
May, Robert. 1977. *The grammar of quantification*. Cambridge, MA: MIT dissertation.
Martí, Luisa. 1999. Extraction from subjects in Spanish. Ms., University of Connecticut, Storrs.
McCloskey, James. 1997. Subjecthood and subject positions. In Liliane Haegeman (ed.), *Elements of grammar*, 197–235. Dordrecht: Kluwer.
McCloskey, James. 2002. Resumption, successive cyclicity, and the locality of operations. In Samuel David Epstein and T. Daniel Seely (eds.), *Derivation and explanation in the Minimalist Program*, 184–226. Oxford: Blackwell.
Merchant, Jason. 1999. *The Syntax of Silence*. Santa Cruz, CA: University of California dissertation.
Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
Merchant, Jason. 2002. Swiping in Germanic. In Werner Abraham and Jan-Wouter Zwart (eds.), *Studies in comparative Germanic syntax*, 295–321. Amsterdam: John Benjamins.

Merchant, Jason. 2003. Subject-Auxiliary Inversion in comparatives and PF output constraints. In Kerstin Schwabe and Susanne Winkler (eds.), *The interfaces: Deriving and interpreting omitted structures*, 55–77. Amsterdam: John Benjamin.
Merchant, Jason. 2004. Fragments and ellipsis. *Linguistics and Philosophy* 27, 661–738.
Merchant, Jason. 2006. Sluicing. In Martin Everaert and Henk van Riemsdijk (eds.), *The syntax companion*, 269–289. Blackwell: London.
Merchant, Jason. 2008. Variable island repair under ellipsis. In Kyle Johnson (ed.), *Topics in ellipsis*, 132–153. Cambridge: Cambridge University Press.
Moro, Andrea. 1997. *The raising of predicates: Predicative noun phrases and the theory of clause structure.* Cambridge: Cambridge University Press.
Müller, Gereon. 2000. Shape conservation and remnant movement. In Masako Hirotani, Andries Coetzee, Nancy Hall and Ji-Yung Kim (eds.), *Proceedings of NELS 30*, 525–539. Amherst, MA: GLSA.
Müller, G. 2001. Order preservation, parallel movement, and the emergence of the unmarked. In Géraldine Legendre, Jane Grimshaw and Sten Vikner (eds.), *Optimality-theoretic syntax,* 113–42. Cambridge, MA and London: MIT Press/MITWPL.
Müller, Gereon. 2010. On deriving CED effects from the PIC. *Linguistic Inquiry* 41. 35–82.
Newmeyer, Frederick J. 2003. Grammar is grammar and usage is usage. *Language* 79. 682–707.
Newmeyer, Frederick J. 2005. A reply to the critiques of "Grammar is grammar and usage is usage." *Language* 81. 229–236.
Newmeyer, Frederick J. 2006a. On Gahl and Garnsey on grammar and usage. *Language* 82. 399–404.
Newmeyer, Frederick J. 2006b. Grammar and usage: A response to Gregory R. Guy. *Language* 82. 705–706.
Nunes, Jairo and Uriagereka, Juan. 2000. Cyclicity and extraction domains. *Syntax* 3. 20–43.
Obenauer, Hans. 1994. *Aspects de la syntaxe A-barre*. Paris: University of Paris VIII dissertation.
Ordóñez, Francisco. 1998. Postverbal asymmetries in Spanish. *Natural Language and Linguistic Theory* 16. 313–346.
Ormazábal, Javier. 1992. Asymmetries on wh-movement and Specific DP-s. *International Journal of Basque Linguistics and Philology* 27. 273–294.
Ormazábal, Javier and Juan Romero. 2010. Object clitics and agreement. Ms. Universities of Basque Country/HiTT and Extremadura/HiTT.
Ormazábal, Javier, Juan Uriagereka and Miryam Uribe-Etxebarria. 1994. Word order and wh-movement: Towards a parametric account. Ms., U.Conn/EHU/UMD/MIT.
Ortega-Santos, Iván. 2006. On new information focus, sentence stress assignment conditions and the copy theory: A Spanish conspiracy. *University of Maryland Working Papers in Linguistics* 14. 188–212.
Parodi, Teresa. 1998. Aspects of clitic doubling and clitic clusters in Spanish. In Ray Fabri, Albert Ortmann and Teresa Parodi (eds.), *Models of Inflection*, 85–102. Tübingen: Niemeyer.
Pearl, Lisa and Jon Sprouse. 2013. Syntactic islands and learning biases: Combining experimental syntax and computational modeling to investigate the language acquisition problem. *Language Acquisition* 20. 23–68.
Pesetsky, David. 1987. *Wh*-in-situ: Movement and unselective binding. In Eric J. Reuland and Alice G.B. ter Meulen (eds.), *The Representation of (in)definiteness*, 98–129. Cambridge, MA: MIT Press.

Pesetsky, David. 1997. Optimality theory and syntax: movement and pronunciation. In Diana Archangeli and D. Terence Langendoen (eds.), *Optimality theory: An overview*, 134–170. Oxford: Blackwell.
Pesetsky, David. 1998. Some optimality principles of sentence pronunciation. In Pilar Barbosa, Danny Fox, Martha McGinnis and David Pesetsky (eds.), *Is the best good enough? Optimality and competition in syntax*. 337–383. Cambridge, MA: MIT Press.
Phillips, Colin. 2006. The real-time status of island constraints. *Language* 82. 795–823.
Polinsky, Maria, Carlos Gómez Gallo, Peter Graff, Ekaterina Kravtchenko, Adam Milton Morgan, Anne Sturgeon. 2012. Subject islands are different. http://ling.auf.net/lingbuzz/001619 (accessed 18 October 2013).
Polinsky, Maria, Lauren Eby Clemens, Adam Morgan, Ming Xiang and Dustin Heestand. In Press. Resumption in English. In John Sprouse (ed.), *Experimental syntax and island effects*. Cambridge: Cambridge University Press.
Pollard, Carl and Ivan A. Sag. 1994. *Head-driven Phrase Structure Grammar*. Chicago, IL: The University of Chicago Press and Stanford, CA: CSLI Publications.
Postal, Paul M. 1972. On some rules that are not successive cyclic. *Linguistic Inquiry* 3. 211–222.
Postal, Paul M. 1974. *On Raising*. Cambridge, MA: MIT Press.
Postal, Paul M. 1998. *Three investigations of extraction*. Cambridge, MA: MIT Press.
Preminger, Omer. 2009. Breaking agreements: Distinguishing agreement and clitic doubling by their failures. *Linguistic Inquiry* 40. 619–666.
Prince, Alan and Paul Smolensky. 1993. *Optimality theory: Constraint interaction in generative grammar* (RuCCS Technical Report 2). Piscateway, NJ: Rutgers University Center for Cognitive Science.
Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge, MA: The MIT Press.
Rackowski, Andrea and Richards, Norvin. 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry* 36. 565–599.
Radford, Andrew. 1997. *Syntactic theory and the structure of English*. Cambridge: Cambridge University Press.
Radford, Andrew. 2004. *Minimalist syntax: Exploring the structure of English*. Cambridge: Cambridge University Press.
Radford, Andrew. 2009. *Analysing English sentences: A minimalist approach*. Cambridge: Cambridge University Press.
Ramchand, Gillian Catriona. 2008. *Verb meaning and the lexicon: A first phase syntax*. Cambridge: Cambridge University Press.
Richards, Marc. 2011. No phase is an island (?). Conference abstract, University of Leipzig.
Rizzi, Luigi. 1982. *Issues in Italian syntax*. Dordrecht: Foris.
Rizzi, Luigi. 1990. *Relativised minimality*. Cambridge, MA: MIT Press.
Rizzi, Luigi. 2004. Locality and left periphery. In Adriana Belletti (ed.), *Structures and beyond. The cartography of syntactic structures*, vol. 3, 223–251. Oxford: Oxford University Press.
Rizzi, Luigi. 2006. On the form of chains: Criterial positions and ECP effects. In Lisa Cheng and Norvin Corver (eds.), *Wh-Movement: Moving on*, 97–133. Cambridge, MA: MIT Press.
Rizzi, Luigi. 2012. Cartography, criteria and labelling. Blaise Pascal lectures, Ealing, Paris, 11–13 September.
Rizzi, Luigi and Ur Shlonsky. 2007. Strategies of subject extraction. In Hans-Martin Gartner and Uli Sauerland (eds.), *Interfaces + recursion = language? Chomsky's minimalism and the view from syntax-semantics*, 115–160. Berlin: Mouton de Gruyter.

Roca, Francesc. 1992. Object clitics in Spanish and Catalan. *Catalan Working Papers in Linguistics* 245–280.
Rochemont, Michael and Peter Culicover. 1990. *English focus constructions and the theory of grammar.* Cambridge: Cambridge University Press.
Ross, John R. 1967. *Constraints on variables in syntax*. Cambridge, MA: MIT dissertation.
Ross, John R. 1969. Guess Who? *Papers from the Regional Meeting of the Chicago Linguistic Society* 5. 252–286.
Ross, John R. 1986. *Infinite syntax*. Norwood: Ablex Publishing Corporation.
Ross, John R. 1987. Islands and syntactic prototypes. *Chicago Linguistic Society Papers* 23. 309–320.
Sabel, Joachim. 2002. A minimalist analysis of syntactic islands. *The Linguistic Review* 19. 271–315.
Safir, Ken. 1986. *Syntactic chains*. Cambridge: Cambridge University Press.
Sag, Ivan. 2010. English filler-gap constructions. *Language* 86. 486–545.
Sag, Ivan A., Philip Hofmeister and Neal Snider. 2007. Processing complexity in subjacency violations: The complex noun phrase constraint. *Proceedings of the Chicago Linguistic Society* 43. 215–229.
Sato, Yosuke. 2008. The denotation and morphosyntax of bare nouns in Javanese: Against the nominal mapping parameter. *Kansas Working Papers in Linguistics* 30. 257–271.
Schäfer, Florian. 2012. Two types of external argument licensing: The case of causers. *Studia Linguistica* 66. 128–180.
Schütze, Carson and Jon Sprouse. 2012. Judgment Data. Ms., University of California, Los Angeles and University of California, Irvine.
Sells, Peter. 1997. Optimality theory and economy of expression in Japanese and Korean. *Proceedings of the 7th Japanese/Korean conference*. Stanford: CSLI publications.
Sells, Peter. 2001. *Structure alignment and optimality in Swedish*. Stanford, CA: CSLI Publications.
Sheehan, Michelle. 2010. The resuscitation of CED. *NELS* 40.
Sheehan, Michelle. 2012. Some implications of a copy theory of labelling. Ling.auf.net/lingbuzz/001642/current.pdf (accessed 18 October 2013), to appear in *Syntax* 16.
Sorace, Antonella and Frank Keller. 2005. Gradience in linguistic data. *Lingua* 115. 1497–1524.
Speas, Peggy. 1986. *Adjunction and projections in syntax*. Cambridge, MA: MIT dissertation.
Sportiche, Dominique. 1988. A theory of floating quantifiers and its corollaries for constituent structure. *Linguistic Inquiry* 19. 425–449.
Sprouse, Jon. 2011. A test of the cognitive assumptions of magnitude estimation: Commutativity does not hold for acceptability judgments. *Language* 87. 274–288.
Sprouse, Jon and Diogo Almeida. 2011. Power in acceptability judgment experiments and the reliability of data in syntax. Ms., University of California, Irvine and Michigan State University.
Sprouse, Jon and Diogo Almeida. 2012a. Assessing the reliability of textbook data in syntax: Adger's *Core Syntax*. *Journal of Linguistics* 48. 609–652.
Sprouse, Jon and Diogo Almeida. 2012b. The empirical status of data in syntax: A reply to Gibson and Fedorenko. *Language and Cognitive Processes*. iFirst. 1–7.
Sprouse, Jon, Ivano Caponigro, Ciro Greco, Carlo Cechetto. 2013. Experimental syntax and the crosslinguistic variation of island effects in English and Italian. Ms., Universities of California (Irvine and San Diego) and Milan-Bicocca.

Sprouse, Jon, Carson Schütze and Diogo Almeida. 2011. A comparison of informal and formal acceptability judgments using a random sample from *Linguistic Inquiry* 2001–2010. Ms., University of California, Irvine; University of California, Los Angeles and Michigan State University.
Sprouse, Jon, Shin Fukuda, Hajime Ono and Robert Kluender. 2011. Reverse island effects and the backward search for a licensor in multiple wh-Questions. *Syntax* 14. 179–203.
Spyropoulos, Vassilios and Nikolaos Stamatogiannis. 2011. Subextraction from subjects in Greek. Paper presented at the conference on *Islands in Contemporary Linguistic Theory*, University of the Basque Country Vitoria-Gasteiz, 16–18 November 2011.
Starke, Michal. 2001. Move dissolves into Merge: a theory of locality. Geneva: University of Geneva dissertation. http://ling.auf.net/lingbuzz/000002/current.pdf (accessed 18 February 2012).
Stepanov, Arthur. 2001. *Cyclic domains in syntactic theory*. Storrs, CT: University of Connecticutt dissertation.
Stepanov, Arthur. 2007. The end of CED? Minimalism and extraction domains. *Syntax* 10. 80–126.
Stepanov, Arthur. 2012. Voiding island effects via Head Movement. *Linguistic Inquiry* 43. 680–693.
Sportiche, Dominique. 1995. Clitic constructions. In Johan Rooryck and Laurie Zaring (eds.), *Phrase structure and the lexicon*, 213–276. Dordrecht: Kluwer.
Stowell, Tim. 1981. *Origins of phrase structure*. Cambridge, MA: MIT dissertation.
Suñer, Margarita. 1988. The role of agreement in clitic-doubled constructions. *Natural Language and Linguistic Theory* 6. 391–434.
Suñer, Margarita. 1992. Two properties of clitics in clitic-doubled constructions. In James Huang and Robert May (eds.), *Logical structure and linguistic structure: Cross-linguistic perspectives*, 233–251. Dordrecht: Reidel.
Svenonius, Peter. 2004. On the edge. In David Adger, Cécile de Cat and George Tsoulas (eds.), *Peripheries: Syntactic edges and their effects*, 261–287. Dordrecht: Kluwer.
Szabolcsi, Anna, and Frans Zwarts. 1997. Weak islands and an algebraic semantics for taking scope. In Anna Szabolcsi (ed.), *Ways of scope taking*, 217–262. Dordrecht: Kluwer Academic Publishers.
Takahashi, Daiko. 1994. *Minimality of movement*. Storrs, CT: University of Connecticut dissertation.
Takahashi, Shoichi. 2009. The hidden side of nominal complements. Paper presented at GLOW 2009. Nantes, 16–18 April.
Torrego, Esther. 1994. On the nature of clitic doubling. *ASJU* XXVIII. 199–213.
Truswell, Robert. 2007. Extraction from adjuncts and the structure of events. *Lingua* 117. 1355–1377.
Truswell, Robert. 2009. Preposition stranding, passivisation, and extraction from adjuncts in Germanic. *Linguistic Variation Yearbook* 8. 131–177.
Truswell, Robert. 2011. *Events, phrases, and questions*. Oxford: Oxford University Press.
Tubino, Mercedes. 2011. *Causatives in minimalism*. Amsterdam/Philadelphia: John Benjamins.
Uriagereka, Juan. 1988. *On government*. Storrs, CT: University of Connecticut dissertation.
Uriagereka, Juan. 1999. Multiple spell-out. In Samuel Epstein and Norbert Hornstein (eds.), *Working minimalism*, 251–282. Cambridge, MA: MIT Press.
Uriagereka, Juan. 2004. Spell-out consequences. Ms., University of Maryland.

Uribe-Etxebarria, Myriam. 1992. On the structural positions of the subject in Spanish, their nature and their consequences for quantification. In Joseba Lakarra and Jon Ortiz de Urbina (eds.), *Syntactic Theory and Basque syntax,* 447–491. San Sebastian: ASJU.

Van Valin, Robert D. Jr. 1986. Pragmatics, island phenomena, and linguistic competence. In Anne M. Farley, Peter T. Farley and Karl-Erik McCullough (eds.), *Chicago Linguistic Society (CLS) 22.2: The parasession on pragmatics and grammatical theory*, 223–233. Chicago, IL: Chicago Linguistic Society.

Van Valin, Robert D. Jr. 1995. Toward a functionalist account of so-called extraction constraints. In Betty Devriendt, Louis Goossens and Johan van der Auwera (eds.), *Complex structures: A functionalist perspective*, 26–60. Berlin: Mouton de Gruyter.

Vicente, Luis. 2009. An alternative to remnant movement for partial predicate fronting. *Syntax* 12: 158–191.

Vogel, Ralf. 2006. The simple generator. In Hans Broekhuis and Ralf Vogel (eds.), *Optimality Theory and Minimalism: A possible convergence? Linguistics in Potsdam 25*, 99–136. Potsdam: University of Potsdam. http://www.ling.uni-potsdam.de/lip.

Wasow, Thomas. 1997. Remarks on grammatical weight. *Language Variation and Change* 9. 81–105.

Wasow, Thomas. 2002. *Postverbal behavior*. Stanford, CA: CSLI Publications.

Wexler, Kenneth and Peter W. Culicover. 1980. *Formal principles of language acquisition*. Cambridge, MA: MIT Press.

Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11. 203–238.

Williams, Edwin. 1994. *Thematic structure in syntax.* Cambridge MA: MIT Press.

Woolford, Ellen. 2007. Case locality: Pure domains and object shift. *Lingua* 117. 1591–616.

Yngve, Victor. 1960. A model and a hypothesis for language structure. *The American Philosophical Society* 104. 444–466.

Zagona, Karen. 1987. *Verb Phrase Syntax*. Dordrecht: Kluwer.

Zubizarreta, María Luisa. 1998. *Prosody, focus and word order.* Cambridge, MA: MIT Press.