# Subjacency and the Minimality Condition

Ted Gibson

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Laboratory for Computational Linguistics

139 Baker Hall
Department of Philosophy
Carnegie Mellon University
Pittsburgh, PA 15213

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**Edward Gibson**
**Program in Computational Linguistics**
**Department of Philosophy**
**Carnegie Mellon University**
**Pittsburgh, PA 15213-3890, USA**
**electronic mail: eafg@cad.cs.cmu.edu**

## 1 Introduction

Before *Barriers* (Chomsky (1986a)), Subjacency was defined as follows:

(1) A single instance of movement can cross at most one bounding node, where the bounding nodes are S and NP in English, [paraphrased from Chomsky (1973)]

In attempt to partially unify the theories of bounding and government, Chomsky (1986a) redefined Subjacency with respect to the term **barrier:**

(2) /? is subjacent to a iff there is at most one barrier for *f3* that excludes a.

A **barrier** is defined in (3):

(3) 7 is a barrier for *ft* if 7 is a maximal projection and (a) or (b):
a. 7 immediately dominates 5, *6* a blocking category for /?;
b. 7 is a blocking category for /?, 7 ^ IP.

However, the *Barriers* definition of Subjacency makes a number of incorrect empirical predictions that were previously accounted for by the original definition of Subjacency. First consider the left branch extraction in (4) and its corresponding representations in (5):

(4) * Who do you believe pictures of to be on sale?

(5)
a. **[5/ Who,- do *[s* you believe** [5 [;vp pictures of *t{ ]* to be on sale ]]]
b. *[cp* Who,- do *[IP2* you *[vp t\ [vp* believe *[jpx [NP* **pictures of *t{ ]* tt**o be on sale ]]]]]

Sentence (4) violates Subjacency under the definition in (1), since movement from the position occupied by i,- in (5a) to the matrix Comp position crosses three bounding nodes: two S nodes and an NP node. Thus (4) is correctly ruled ungrammatical by the original Subjacency definition. However, (4) is incorrectly ruled grammatical by the theory present in *Barriers.* First, the ungrammaticality of (4) cannot be explained by the Empty Category Principle: the gap *t{* in (5b) is ^-governed and hence properly governed by the noun *pictures.* Neither can the ungrammaticality of (4) be explained by Subjacency. Since *believe* is an $\overline{S}$-deletion verb, it L-marks the NP *pictures* o/i,-, and thus this noun phrase cannot be a barrier. The IP dominating this NP is therefore not a barrier, and as a result, no barriers separate

*t* from *U.* As a result, Subjacency is not violated under the current theory.

Consider now the deep right branch extraction in (6) along with its analyses in the 1973 and 1986 versions of the theory:

(6) * Who did you give books to friends of?

(7)
a. [5/ Who; did [5 you give books to [^p friends of £; ]]]
b. *[cp* Who; did *[jp* you [vp i;' [vp give books *[pp* to [TVP friends of i; ]]]]]]

The original definition of Subjacency is violated by structure (7a), since two bounding nodes, one S node and one NP node, are crossed in the movement from t; to the matrix Comp position. Hence (6) is correctly ruled ungrammatical under the 1973 definition of Subjacency. On the other hand, under the 1986 definition (6) is incorrectly ruled grammatical. As in (4), the ungrammaticality of (7) cannot be explained by the ECP. But Subjacency is not violated either under the definitions given in *Barriers.* The NP headed by *friends* is not a barrier, since it is ^-governed and thus L-marked by the preposition *to.* Neither is the PP headed by *to* a barrier, and, as a result, no barriers intervene between the object of *friends* and the adjunction to VP, so Subjacency is not violated. Sentence (6) is therefore incorrectly ruled grammatical.

In this paper I propose that the Minimality Condition can be used to obtain the appropriate Subjacency effects. The Minimality Condition gives one way that a node may achieve barrier status. Intuitively, the Minimality Condition states that the closest lexical governor is a barrier to government by more distant possible governors. Chomsky claims, however, that although the Minimality Condition applies to the ECP, it does not apply to Subjacency. Chomsky makes this stipulation because of an unwanted interaction between the Minimality Condition and the stipulation that a tensed Infl phrase is a weak inherent barrier for Subjacency. In this paper I present an alternative to IP's weak inherent barrier status that lacks these unwanted interactions. Thus the Minimality Condition can indeed apply to Subjacency in addition to proper government. It will be shown that the presented modifications do not alter the desired predictions of the *Barriers* system. It will also be shown that these new definitions have a number of desirable empirical consequences, including correctly predicting the ungrammaticality of sentences like (4) and (6). Due to the greater coverage of empirical data and the conceptually simpler theory, I argue that the changes proposed in this paper offer an improvement to the *Barriers* system.

Section 2 of this paper gives the relevant definitions from Chomsky (1986a). Section 3 presents changes to the current definitions that allow the Minimality Condition to apply to bounding theory. Further empirical effects of the altered definitions are also given in this section. Concluding remarks may be found in Section 4.

## 2 Definitions

The definitions that will be referred to in this paper are given in (8) through (19).

Government is defined in terms of **barrier** and **exclusion:**

(8) *a* governs /? iff a m-commands *f3* and there is no 7, 7 a barrier for /?, such that 7 excludes a.

(9) *P* excludes a if no segment of /? dominates a.

A barrier, (3), is defined in terms of a **blocking category,** which is defined in terms of **L-marking:**

(10) A maximal projection 7 is a blocking category (BC) for *(3* iff 7 is not L-marked and 7 dominates /?.

(11) Where a is a lexical category, *a* L-marks /? iff /? agrees with the head of 7 that is ^-governed by a.

**^-government** is defined in (12):

(12) a ^-governs */3* iff *a* is a zero-level category that 0-marks /?, and a, /? are sisters.

The Empty Category Principle (ECP) states that a nonpronominal empty category must be 7-marked at Logical Form (LF) (Lasnik *h* Saito (1984)). A trace is 7-marked at a level of representation if it is **properly governed** at that level, where proper government is defined in (13):

(13) *a* properly governs */3* iff (a) or (b):
a. *a 6*-governs *fl* (head-government);
b. ***a*** governs *ft* and or, *ft* are co-indexed (antecedent-government).

Furthermore, the property of being 7-marked is not an erasable property. That is, once a trace is 7-marked at one level, it is 7-marked at all later levels of representation. Thus if a trace is 7-marked at S-structure then it is also 7-marked at Logical Form. Finally, traces in A-positions are 7-marked at S-structure, while traces in $\overline{\text{A}}$-positions are 7-marked at LF (Lasnik ***k*** Saito (1984)).

**Subjacency** is a constraint upon chain formation:

(14) If {a,-, a,-+i} is a link of a chain, then a,-+i is subjacent to a,-.

The definition of n-subjacency is given in (15):

(15) *fi* is n-subjacent to *a* iff there are fewer than **n** + 1 barriers for *f3* that exclude *a.*

When the generic term subjacent is used, *as* in (14), it means 1-subjacent. Chomsky's

initial definition of the Subjacency constraint states that a chain satisfies Subjacency if at most one barrier is crossed at each link during its formation (Chomsky (1986a)., p. 30). Subsequently, Chomsky points out that evidence from Italian due to Rizzi (1982) forces the definition of Subjacency to refer to the number of barriers crossed during the formation of an entire chain rather than the number crossed in each link. This evidence consists of the Italian translations of (16) and (17):

(16) What; do you $[_{VP}$ *tf* $[_{VP}$ wonder $[_{CP}$ who; $[_{IP}$ *tj* $[_{VP}$ *t]* $[_{VP}$ saw *U* ]]]]]

**(17) * What; do you $[_{VP}$ *t;?* $[_{VP}$ wonder $[_{CP}$ who; $[_{IP}$ *tj* $[_{VP}$ *t* $[_{VP}$ knew $[_{CP}$ who* $[_{IP}$ $t_k$ $[_{VP}$** *t]* $[_{VP}$ saw *U* ]]]]]]]]]

Although (16) is ungrammatical in English, it is grammatical in Italian. (17) is ungrammatical in both English and Italian. Note that the ungrammaticality of (17) is not due to the ECP: *whoj* antecedent-governs *tj, whok* antecedent-governs *tk* and *saw* head-governs *t{*. If Subjacency applies only to each chain link, then (17) does not violate Subjacency: only one barrier is crossed by each of the chain links *{l}, t}}* and {if, *t]*}. If, however, Subjacency applies to the formation of an entire chain, then (17) violates Subjacency, since two barriers are crossed in the formation of the chain headed by *what.*

The Minimality Condition as defined in Chomsky (1986a) is given in (18):

(18) 7 is a barrier for *(3* if both (a) and (b) axe satisfied:
a. 7 dominates /?;
b. 7 is the immediate projection of £, a zero-level category that has sufficient features and is distinct from /?, *S* ^ Infl.

The definition given here incorporates the definition given on page 42 of Chomsky (1986a) with the conclusions of the Minimality Condition chapter. In that chapter Chomsky argues for reference to *'immediate* projection rather than simple projection in the definition. Chomsky also argues that *8* in (18) must have *sufficient* agreement features to invoke the Condition. Although the definition of *sufficient* is never made explicit, it is intended to account for complementizer-trace effects, among others (see Chomsky (1986a) p. 47 for more discussion). Finally, Chomsky points out that Infl is a degenerate category with respect to the Minimality Condition. I have explicitly stated this exception in the definition.

## 2.1 Weak Inherent Barrierhood

Stipulation (19) is added to the definition of Subjacency for languages like English, but not languages like Italian:

(19) The most deeply embedded tensed IP is a weak inherent barrier with respect to Subjacency.

Stipulation (19) is made in order to account for the ungrammaticality of sentences such

as (16) in English.

(16) What; do you *[VP t}* *[VP* wonder *[CP* who,· *[IP tj* *[VP t]* *[vp* saw *U* ]]]]]]

Note that the ECP is satisfied by (16), since *who* antecedent-governs *tj* and *saw* head-governs *t{*. The ungrammaticality of (16) must therefore be due to Subjacency. Without the stipulation that tensed IP is an inherent barrier, IP is still a blocking category in (16) since it is not L-marked. Hence CP becomes a barrier by inheritance, but it is the only barrier between *t]* and *t}*. *t]* is therefore subjacent to *tf* and Subjacency is satisfied without the new stipulation. If IP is a barrier in (17), however, two barriers intervene between i? and *t]* and Subjacency is violated, as desired.

The specification that the IP must be tensed in (19) is given in order to distinguish between examples such as (20a) and (20b):

(20)

a. [Which car],- did you tell John *[cp* how [/p to fix *U* ]]

b. * [Which car],- did you tell John *[cp* how [/p Bill fixed £,- ]]

Sentence (20a) is grammatical: the embedded IP is not a barrier since it is untensed. Sentence (20b), however, is ungrammatical: the embedded tensed IP counts as a barrier by (19).

Since Subjacency rules out sentences that contain a chain crossing more than one barrier, it is necessary to stipulate that only the most deeply embedded IP counts as an inherent barrier for Subjacency. Otherwise, sentences like (21) would be severe violations:

(21) Who do *[IP* you *[VP* if *[vp* think *[CP* $t^{A}_{\ell}$ that *[IP* John said *[CP* t? that *[IP* Bill *[VP* t? **[VP saw *t] }}]]}}}}]**

Each IP in (21) is tensed, so if (19) were not restricted to the most embedded IP, then each would count as a barrier. Since (21) is fully grammatical, (19) is restricted to the most embedded IP.

## 3 Applying the Minimality Condition to Subjacency

Before examining the empirical effects of applying the Minimality Condition to Subjacency theory, I propose some minor changes to Chomsky's definitions that make the exercise possible.

### 3.1 Preliminary Definition Changes

The first change to the original *Barriers* definitions that I propose involves relaxing the immediate dominance condition in the definition of barrier to simple dominance so that more than one node may obtain barrierhood status from a blocking category:

(22) 7 is a barrier for /? if 7 is a maximal projection and (a) or (b):
a. 7 dominates 6, *6* a blocking category for /?;
b. 7 is a blocking category for /3, 7 ^ IP.

This change will allow Minimality Condition blocking categories to trigger multiple barriers. It turns out that it has no effect on either government theory or Subjacency theory as present in Chomsky (1986a). First consider government theory. There are two parts to the proof that the proposed change has no effect on government: first, it must be shown that if *a* governs /? under the original definition, then *a* still governs *f3* under the new definition; and second, it must be shown that if *a* does not govern /? under the original definition, then *a* still does not govern *(3* under the new definition.

Suppose that under the original definition of barrier there is a barrier between two nodes, *a* and /?, so that *a* does not govern *(3.* Under the new definition of barrier there will still be at least one barrier between *a* and /?, so *a* will continue to not govern /?. Thus the first part of the proof is complete.

Now suppose that under the original definition of barrier there are no barriers between *a* and /3, so that *a* governs /?. Note that if there are no blocking categories for /?, then *a* governs /?. Thus if there are no blocking categories for /?, we are done. Now consider the alternative case: that there is a blocking category 7 for *(3.* Furthermore, suppose that 7 excludes a, for if it did not, then neither 7 nor any node dominating 7 could be a barrier for government of *f3* by a. Now let us determine 7's category. If 7 is of any category other than Infl, then it is also a barrier between *a* and /?. Since we are assuming *a* governs /?, 7 cannot a barrier between *a* and *(3.* Thus 7 is of category Infl. Since 7 is a blocking category, it is not L-marked. Thus its immediately dominating category must be Comp. By hypothesis, there are no barriers between *a* and *(3.* Thus 7's immediately dominating CP is not a barrier for government of *f3* by *a.* Suppose *a* dominated this CP node and the CP node excludes a. Then the CP node would be a barrier between *a* and /?, thus giving a contradiction to our assumptions. Thus either *a* does not dominate the CP node, or the CP node does not exclude a. In either case, relaxing the immediate dominance condition to dominance in the definition of barrier has no effect on the number of barriers separating *a* and *(3.* Thus the proposed change has no effect on the theory of government.

It can be proved in a very similar manner that the empirical consequences of Subjacency theory under the proposed definition of barrier remain unchanged.

The second definition change that I propose further consolidates the definitions presented in *Barriers.* Conceptually, a *barrier* is something that lies between two things. However, in Chomsky (1986a) a barrier is defined with respect to a single argument. Thus it is possible for a node 7 to be a barrier for a node *(3* without ever blocking any relationship from taking place across the barrier. For example, despite the fact that there is a barrier, 7, between *a* and /? in (23), *a* is still O-subjacent to *f3* under Chomsky's definitions:

**(23)** $[_7\ a\ 1, 0\ ]]$

In (23), *a* is O-subjacent to *(3* because, although 7 is a barrier with respect to /?, 7 does not

exclude $\alpha$. A barrier is only relevant to the Subjacency or government relation between $\alpha$ and $\beta$ if it excludes $\alpha$.

In order to change the term barrier from a one-place relation into a two-place relation, I propose to move the exclusion clauses of the Subjacency and government definitions into the definition of barrier. This move is possible since the term *barrier* is referenced in only the definitions of government and Subjacency. Furthermore, this change is desirable since the exclusion clause appears in only one place in the proposed grammar– in the definition of barrier– whereas it appears twice in the original grammar– in each of the definitions of government and Subjacency. The new definitions of barrier, government and Subjacency are given in (24) – (26):

(24) $\gamma$ is a barrier for $\alpha$, $\beta$ iff $\gamma$ is a maximal projection that excludes $\alpha$ and (a) or (b):
a. $\gamma$ dominates $\delta$, $\delta$ a blocking category for $\beta$;
b. $\gamma$ is a blocking category for $\beta$, $\gamma \neq$ IP.

(25) $\alpha$ governs $\beta$ iff $\alpha$ m-commands $\beta$ and there is no $\gamma$, $\gamma$ a barrier for $\alpha$, $\beta$.

(26) $\alpha$ is $n$-subjacent to $\beta$ iff there are at most $n$ barriers for $\alpha$, $\beta$.

Note that moving the exclusion clause into the definition of barrier does not change the empirical predictions of the definitions of government and n-subjacency. However, as noted above, the change is warranted on theoretical grounds, since, under the new definitions, it is only necessary to state the exclusion clause once.

### 3.2 Empirical Effects

As observed in Section 1, the *Barriers* theory does not explain the ungrammaticality of certain left branch and certain deep right extractions:

(27)
a. * [$_{CP}$ Which book$_i$ do you [$_{VP}$ $t'_i$ [$_{VP}$ believe [$_{IP}$ [$_{NP}$ the first [$_{N'}$ chapter of $t_i$ ]] to be full of lies ]]]]
b. * [$_{CP}$ Who$_i$ did you see [$_{VP}$ [$_{NP}$ friends of $t_i$ ]] leave ]]
c. * [$_{CP}$ Who$_i$ do you want [$_{IP}$ [$_{NP}$ pictures of $t_i$ ]] to go on sale ]]

(28)
a. * [$_{CP}$ Who$_i$ did you [$_{VP}$ $t'_i$ [$_{VP}$ give books [$_{PP}$ to [$_{NP}$ [$_{N'}$ friends of $t_i$ ]]]]]
b. * [$_{CP}$ What$_i$ did you read [$_{NP}$ books about [$_{NP}$ pictures of $t_i$ ]]]
c. * [$_{CP}$ Who$_i$ did you put the paperweight [$_{PP}$ on [$_{NP}$ a picture of $t_i$ ]]]]
d. * [$_{CP}$ Who$_i$ did Rick buy the ring [$_{PP}$ for [$_{NP}$ a friend of $t_i$ ]]]]
e. * [$_{CP}$ Who$_i$ did you talk [$_{PP}$ about [$_{NP}$ friends of $t_i$ ]]]

I propose that the ungrammaticality of sentences like these can be explained when the

Minimality Condition is permitted to apply to bounding theory. If we apply the Minimality Condition exactly as stated in (18) to bounding theory, all of the above sentences still satisfy Subjacency. In sentence (27a), for example, the N' immediately dominating the noun *chapter* would be a new barrier for Subjacency because of the Minimality Condition, but it would be the only one between trace *t{* and trace *t[*. It is necessary to move the Minimality Condition into the definition of blocking category to give the Minimality Condition an effect on bounding theory. By doing so, more than one node may become a barrier as a result of the Minimality Condition. Once this change has been made, it is necessary to further alter the definitions of blocking category and barrier to allow each to be nonmaximal projections, since barriers invoked by the Minimality Condition are not necessarily maximal projections (see, for example, complementizer-trace effects). Consider then, the updated definitions of blocking category and barrier:

(29) 7 is a blocking category (BC) for */3* iff 7 dominates *f3* and (a) or (b):
a. 7 is a maximal projection that is not L-marked;
b. 7 is an immediate projection of <5, a zero-level category that has sufficient agreement features and is distinct from /?, *S* ^ Infl.

(30) 7 is a barrier for a, /? iff 7 excludes *a* and (a) or (b):
a. 7 is a maximal projection that dominates <5, (5 a blocking category for /?;
b. 7 is a blocking category for /?, 7 ^ IP.

Consider now sentence (27a) with respect to the altered definitions of blocking category and barrier. The N' immediately dominating the noun *chapter* is a blocking category with respect to trace <t because of the Minimality Condition. This N' is therefore a barrier with respect to trace $t_t$. The NP immediately dominating this N' is another barrier for trace £, due to the blocking category status of the N'. Furthermore the IP immediately dominating the NP achieves barrierhood status, again by virtue of N' being a blocking category. Thus three barriers separate $i_t$ from *t* under these preliminary definition changes, and Subjacency is violated. However, consider sentence (31) with respect to the definitions in (29) and (30):

(31) $Who_t$ *[c* did $[_{IP}$ you $[_{VP}$ *t'ί* $[_{VP}$ see $[_{NP}$ a $[_{N}>$ picture of *U* ]]]]]]

Under the proposed definitions, the N' immediately dominating the noun *picture* is a blocking category with respect to trace £, because of the Minimality Condition. As a result of this blocking category status, both N' and its immediately dominating NP are barriers with respect to <t, and two barriers would separate $i_t$ from $t'_t$. Furthermore, the matrix C node is a blocking category and barrier with respect to i(-, also because of the Minimality Condition. Finally the matrix IP node is a weak inherent barrier for Subjacency and four barriers are crossed in the formation of the chain linking *who* to its trace £,-. Hence these definitions predict that sentence (31) should be a severe violation of Subjacency, which is clearly false, since the sentence is grammatical.

In order to partially correct the predictions made by the new definitions, I propose an additional stipulation: that barriers for Subjacency must be maximal projections. Thus the new definition of barrier is given in (32):

(32) 7 is a barrier for a, /? iff 7 excludes **a** and (a) or (b):
a. 7 is a maximal projection that dominates £, *S* a blocking category for /?;
b. 7 is a blocking category for /?, 7 7^ IP, and (for Subjacency only) 7 is a maximal projection.

As a result of this change, the N' immediately dominating the noun *picture* and the matrix C are no longer barriers with respect to chain-formation in (31). It is also possible to purge the matrix IP's weak inherent barrier status (see Section 3.3 below) so that only one barrier is crossed in the formation of the chain headed by *who.* As a result, Subjacency is once again satisfied by (31).

Let us now check that the sentences in (27) and (28) violate Subjacency as required under the updated definitions. Consider first sentence (27a) with respect to the new definitions. The N' immediately dominating the noun *chapter* remains a blocking category for trace $i_t$-, but is no longer a barrier for it. The NP headed by *chapter* is still a barrier for £$_t$-, as is its immediately dominating IP. Thus two barriers separate *t{* from *t*, and Subjacency is violated, as required.

Consider now sentence (28a) with respect to the new definitions. The N' immediately dominating the noun *friends* is a blocking category for the chain link {i(-, £,-} because of the Minimality Condition. Hence the NP node headed by *friends* is a barrier for this link, as is the PP node headed by *to.* Resultantly, two barriers separate $i_t$- from *t* and Subjacency is violated.

### 3.3 Weak Inherent Barrierhood

If the Minimality Condition is applied to bounding theory, it is necessary to alter stipulation (19) in order to avoid Subjacency violations in sentences like (31):

(31)
Who*;* did *[IP* you *[yp t\ [yp* see *[pjp* a [## picture of *U* ]]]]]

First, the NP headed by *picture* is a barrier with respect to the chain link between traces *t{* and $t'_{t}$*]* and second, the weak inherent barrier IP separates *t* from *who{.* Since two barriers are crossed in the formation of the chain headed by *who,* Subjacency is violated as long as (19) is in effect. However, there are a number of conceptual problems with the stipulation in (19):

(19)
The most deeply embedded tensed (IP, CP) is a weak inherent barrier with respect to Subjacency.

First of all, the word "weak" is not well-defined. A "weak" barrier presumably causes less severe violations than normal barriers. This claim is made since crossing one weak barrier does not cause a degradation in grammaticality. The derivations of simple *wh*-questions contain chain links that cross one weak barrier, but these sentences are perfectly grammatical. As a result these barriers must be claimed to be deficient in some way. Simply

calling them "weak", however, is not a solution: it is a restatement of the problem. Secondly, it is conceptually problematic to claim that only the deepest tensed IP is a barrier. Why only the deepest? What is it about the deepest IP that sets it apart from the others? Finally, a barrier is defined with respect to another category. Given this definition, it is odd to say that there exists such a thing as an "inherent" barrier; "barrier" is a relative term, not an absolute one.

Because of these difficulties, (19) amounts to a number of unjustified stipulations. It is necessary to either explain (19) or remove it from the grammar. I propose to replace the stipulation that IP is a weak inherent barrier for Subjacency with (33):

(33) $\gamma$ is a barrier with respect to $\alpha$, $\beta$ for Subjacency iff $\gamma$ is a tensed IP that excludes $\alpha$ and dominates $\beta$, and the first maximal projection dominating $\gamma$ is a barrier for $\alpha$, $\beta$.

Furthermore, I assume that (33) is parameterized so that it applies to languages like English but not to languages like Italian. Intuitively (33) amounts to saying that if, through the definitions of barrier and blocking category, the first maximal projection dominating a tensed IP is a barrier, then propagate that barrierhood back down to the tensed IP. The stipulation in (33) obtains the same empirical effects as does (19), without the notion of "weak" barrier.

Note that stipulation (33) is not circular: the parent of IP relies on the *blocking category* status of IP, not its *barrier* status, to obtain barrierhood. As a result, if IP is a blocking category, and hence causes its parent to be a barrier with respect to some categories, stipulation (33) takes effect, and IP will also be a barrier.

The final update of the definition of barrier is given in (34):

(34) $\gamma$ is a barrier for $\alpha$, $\beta$ iff $\gamma$ excludes $\alpha$, dominates $\beta$, and (a), (b) or (c):
a. $\gamma$ is a maximal projection that dominates $\delta$, $\delta$ a blocking category for $\beta$;
b. $\gamma$ is a blocking category for $\beta$, $\gamma \neq$ IP, and (for Subjacency only) $\gamma$ is a maximal projection.
c. (for languages like Engish only) $\gamma$ is a tensed IP and the first maximal projection dominating $\gamma$ is a barrier for $\alpha$, $\beta$.

Note that the precondition in (33) that states that $\gamma$ must dominate $\beta$ has been moved up to a precondition for the definition of barrier. This change has no empirical effect, but makes the definition simpler because it simplifies the third disjunct. Also note that it is no longer stipulated that the tensed IP barrier in clause (c) of (34) is only a barrier with respect to Subjacency: it may also be a barrier for government. Since the CP immediately dominating a tensed IP that satisfies clause (c) of (34) will also be a barrier for government, it makes no difference if there is another barrier for the same government relation. Hence (33) is permitted to apply to government as well as bounding theory.

As a result of the replacement of weak inherent barrierhood with (33), the matrix IP in sentence (31) is no longer a barrier, since its immediately dominating maximal projection is not a barrier. Thus Subjacency is satisfied by this sentence as desired.

Consider now sentence (16), which was the motivation for stipulation (19) and the reformulated stipulation (33):

(16)
* What; do you $[_{VP}\ t^2_i\ [_{VP}$ wonder $[_{CP}$ whoj $[IP\ tj\ [vp\ t]\ [_{VP}$ saw $U\ ]]]]]]$

IP is a blocking category with respect to ij, so CP becomes a barrier with respect to the chain link *{l}, t}}.* As a result IP becomes a barrier with respect to the chain link {£?, *t}}* in this example, and Subjacency is violated by this link, as desired. Note that (33) is parameterized so that it does not apply to languages like Italian. Thus the Italian translation of (16) does not violate Subjacency.

### 3.4 Further Empirical Effects

Consider the sentences in (35):

(35)
a. *[NP* The decision *t{* ] upset me $[cp_i$ that John was acquitted ]
b. * [ATP The proclamation of $[N_P$ the decision $i_t$- ]] upset me *[cPi* that John was acquitted ]

Sentence (35a) is correctly marked grammatical in the original *Barriers* system. The NP headed by *decision* is a barrier separating $t_t$- from $CP_t$, since this NP is not L-marked. This NP is the only barrier crossed in the derivation of (35a), so the sentence is ruled grammatical.

Under the system proposed here, exactly the same derivation takes place. Only one barrier is crossed, so (35a) is ruled grammatical as desired.

In (35b), CPi cannot be associated with trace $t_t$-, as an argument of *decision,* although it can be associated with a trace that modifies *proclamation.* The ungrammaticality of the interpretation in (35b) cannot be due to the ECP: trace *ti* is ^-governed by *decision* and hence properly governed. This ungrammaticality must therefore be due to Subjacency. Under the definitions in Chomsky (1986a), however, Subjacency is not violated. Since the noun *decision* is ^-governed by *proclamation,* the embedded NP is not a barrier. Only one barrier is crossed in the derivation of (35b), so it is incorrectly ruled grammatical.

Under the proposed changes, however, the embedded NP is a barrier for £t-, $CP_t$- because of the Minimality Condition. The subject NP inherits barrierhood and, as a result, at least two barriers separate $i_i$ from $CP_i$, thus violating Subjacency. The interpretation of sentence (35b) that coindexes the extraposed CP with trace $i_t$- is thus marked ungrammatical as desired.

Another empirical effect of the definitions proposed here comes from languages like Italian. As noted in footnote 5, Chomsky proposes that the definition of weak inherent barrier be parametrized so that in languages like Italian it is the lowest tensed *CP* (not IP) that counts as an inherent barrier for Subjacency. This parameterization predicts a contrast between the sentences in (36) and those in (37):

**(36)**

a. Tuo fratello, a cui mi domando che storie abbiano raccontato, era molto preoccupato.
"Your brother, to whom I wonder which stories they told, was very troubled."

b. La macchina che mi domando se Mario potrà utilizzare nel week end è la mia.
"The car that I wonder whether Mario will be allowed to use during the weekend is mine."

(37)

a. Tuo fratello, a cui mi domando che storie pensassi abbiano raccontato, era molto preoccupato.
"Your brother, to whom I wonder which stories you thought they told, was very troubled."

b. La macchina che mi domando se Mario creda che potrà utilizzare nel week end è la mia.
"The car that I wonder whether Mario believes that he will be allowed to use during the weekend is mine."

While the sentences in (36) are correctly predicted to be grammatical in Italian, those in (37) are predicted to be ungrammatical by Chomsky's parameterization of weak inherent barrier. Consider (37a). Two barriers are crossed in the formation of the chain headed by *a cui:* the most deeply embedded CP as well as the CP which contains *che storie* as specifier. Thus the *Barriers* definitions predict that (37a) is ungrammatical. This result is in accordance with the judgments from Rizzi (1982). Note, however, that the parameterization of (33) does not make the this prediction: the sentences in (37) are predicted to be grammatical, since (33) does not apply to languages like Italian. This is clearly a problem for (33) with respect to Italian dialects such as Rizzi's. However, it turns out that numerous Italian speakers find no difference in grammaticality between the sentences in (36) and those in (37). Thus the parameterization of (33) that I offer here appears to make the right predictions with respect to these Italian speakers. I leave a more complete parameterization of Italian dialects to future research.

## 4 Conclusions

I have proposed a system that differs conceptually from the original *Barriers* system in two ways. First, the stipulation that the most deeply embedded tensed IP is a weak inherent barrier, (19), was replaced by a simpler stipulation, (33). This change allows for the second major conceptual change in the system: that the Minimality Condition applies to bounding theory as well as government. Although this proposal still necessitates a distinction between barriers for bounding theory and barriers for government in that barriers for government may be maximal projections while barriers for bounding theory may not, this disruption is less severe than is found in the original system. Thus the two changes offered here simplify the *Barriers* system since the problems associated with (19) are removed and the unification of bounding and government is more complete.

In addition, these changes allow a number of empirical facts to be explained by the new

system that were not explained in the original *Barriers* system. Left branch extractions, deep right branch extractions, and extraposition facts provide some of this evidence. Hence I argue that the changes proposed here are beneficial to the *Barriers* system, while offering support for the framework.

## Notes

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[1] See Section 2 for the definitions of **exclusion** and **blocking category.**

[2] I assume, following Chomsky (1986a, 1986b), that nouns have the same complement structure as verbs and that *of* is the realization of Case. See Chomsky (1986b) for further details.

[3] See Chomsky (1986a), p. 30 for justification.

[4] See the following section for an explanation of the ungrammaticality of (16) in English.

[5] Chomsky also proposes that (19) be parameterized so that in languages like Italian, the most deeply embedded tensed CPis a weak inherent barrier. See Section 3.4 for a description of the empirical effects that are predicted by this parameterization.

[6] It will be proposed that the Minimality Condition should be paxt of the definition of blocking category, rather than barrier.

[7] See Kayne (1984) for an alternative explanation of the ungrammaticality of left branch extractions. See Clark (1985) for an alternative treatment of deep right branch extractions.

[8] This is an undesirable stipulation in that, much like Chomsky's original formulation of the Minimality Condition, it disrupts the unification of government and bounding theory. However, I argue that it is superior to Chomsky's stipulation since more empirical effects are obtained. Moreover, it forces the removal of "weak inherent barrierhood", a desirable consequence on theoretical grounds (see Section 3.3).

[9] I consulted four native Italian speakers, all from northern Italy, regarding sentences like these. None of the Italian speakers found a distinction between the sentences in (36) and those in (37): all of these sentences were considered grammatical.

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