3.1.1 Subjacency

Chomsky (1986a) proposes the following formulation of Subjacency:

(1) (= Chomsky's (59))
β is *n-subjacent* to α iff there are fewer than $n + 1$ barriers for β that exclude α.

(2) is Chomsky's proposed constraint (p.30).[5]

(2) In a well-formed chain with a link (α_i, α_{i+1}), α_{i+1} must be 1-subjacent to α_i.

Exclusion is defined as in (3).

(3) (= Chomsky's (17))
α *excludes* β if no segment of α dominates β.

With respect to the notion "segment" in (3), following May (1985), Chomsky proposes the following (p. 7):

> [I]n a structure of the form [4], a typical adjunction structure with α adjoined to β, α is not dominated by the category β; rather, β consists of two "segments," and a category is dominated by β only if it is dominated by both of these segments.

(4) (= Chomsky's (11))
$[_\beta \alpha [_\beta \ldots]]$

We will mainly be concerned with the question of what constitutes a barrier for the purposes of definition (1). Chomsky introduces the concept *blocking category* (BC), and then defines *barrier* in terms of BC.

(5) (= Chomsky's (25))
γ is a *BC* for β iff γ is not L-marked and γ dominates β.

(6) a. (= Chomsky's (28))
α *L-marks* β iff α is a lexical category that θ-governs β.

b. (= Chomsky's (27))
α *θ-governs* β iff α is a zero-level category that θ-marks β, and α, β are sisters.

c. (= Chomsky's (12))
α *is dominated by* β only if it is dominated by every segment of β.

(7) (= Chomsky's (26))
γ is a *barrier* for β iff (a) or (b):
a. γ immediately dominates δ, δ a BC for β;
b. γ is a BC for β, $\gamma \neq$ IP.

Immediate domination in (7) is a relation between maximal projections. γ immediately dominates δ if there is no intervening maximal projection, that is, no maximal projection that dominates δ and is dominated by γ.

The Subjacency Condition as defined in (2) unifies the classical cases of Subjacency violations (complex NP constraint, WH-island constraint) with those subsumed under Huang's (1982) CED (subject condition, adjunct condition). Let us briefly consider some examples:

(8) a. *where$_2$ did you see [$_{NP}$ the book$_1$ [$_{CP}$ which$_1$ [$_{IP}$ John put t_1 t_2]]]
b. ?*who$_1$ [$_{IP}$ did [$_{NP}$ pictures of t_1] please you]

The movement of *where* in (8a) clearly crosses two barriers. The embedded CP is a BC since it is not θ-marked by any lexical category. Thus, it is a barrier, and it also makes the NP dominating it a barrier. Similarly, in (8b), the subject NP is a BC. Thus, it is itself a barrier and makes the IP another barrier. Therefore, the movement of *who*$_1$ from the position of t_1 to SPEC of CP crosses two barriers, and hence, (8b) violates Subjacency.

Let us next consider some grammatical examples:

(9) a. what$_1$ [did you [see t_1]]
b. what$_1$ [did you [think [[John [saw t_1]]]]]

Chomsky (1986a) assumes that VP is not L-marked. Thus, if the movement of *what* in (9a) takes place in one step from the position of t_1 to SPEC of CP, then it violates Subjacency, since it crosses VP and IP, both barriers. VP is a barrier since, by hypothesis, it is a BC (and is not IP). IP is a barrier since it immediately dominates a BC, VP. This implies that *what* in (9a) moves to SPEC of CP in two steps. Chomsky (1986a) therefore proposes that *what* in (9a) first adjoins to VP and then moves to SPEC of CP, as shown in (10).

(10) [$_{CP}$ what$_1$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ see t_1]]]]

The VP is a BC—and hence, a barrier—for t_1. However, since this node does not exclude the landing site of the first movement, it does not count for the purpose of Subjacency (see (1)). Thus, t_1 is 0-subjacent to the position adjoined to VP. The position adjoined to VP is also 0-subjacent to SPEC of CP. The VP is not a BC, thus not a barrier for this movement, since it does not dominate the position adjoined to VP. IP is a BC for this movement, but is not a barrier since IP, by definition, is a barrier only when it immediately dominates a BC. Thus, (10) does not violate Subjacency.

The hypothesis that WH-movement can proceed through adjunction also saves (9b) from violating Subjacency. The movement can proceed as follows:

(11) [$_{CP}$ what$_1$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ think [$_{CP}$ [$_{IP}$ John [$_{VP}$ [$_{VP}$ saw t_1]]]]]]]]
4 3 2 1

Movement 1 is allowed just like the first movement in (10). Movements 2 and 4 are just like the second movement in (10). For movement 3, neither the CP nor the VP is a barrier for Subjacency. CP is not a BC, and hence, not a barrier, since it is L-marked by the verb *think*. The VP of the matrix clause is a potential barrier, but it is irrelevant for this movement, because it does not exclude the landing site. Thus, (9b) is allowed.

However, if WH-movement can adjoin phrases to all maximal projections, then the definition of Subjacency becomes too permissive. Consider (12).

(12) ??what$_1$ did you wonder whether John bought t_1

As Chomsky (1986a) points out, if IP-adjunction is allowed for WH-movement, then (12) will, incorrectly, not violate Subjacency, as shown in (13).

(13) [$_{CP}$ what$_1$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ wonder [$_{CP}$ whether [$_{IP}$ [$_{IP}$ John [$_{VP}$ [$_{VP}$ bought t_1]]]]]]]]]

In (13), there are *no* barriers. CP, the likeliest candidate, is not, since it is not a BC, nor is the IP that it immediately dominates a BC for IP-adjoined position. This is so because IP does not dominate this position (see definition (5)). To eliminate this difficulty, Chomsky (1986a: 5, 32) thus proposes (14).

(14) A WH-phrase may not adjoin to IP.

Derivation (13) is excluded by (14). Now, as illustrated in (15), the embedded IP will be a BC for the position adjoined to the embedded VP, and CP will thus be a barrier for movement 2.

(15) [$_{CP}$ what$_1$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ wonder [$_{CP}$ whether [$_{IP}$ John [$_{VP}$ [$_{VP}$ bought t_1]]]]]]] (3, 2, 1)

Since each link still conforms to 1-subjacency, Chomsky suggests that 0-subjacency is required for full grammaticality. The marginality of the example is then a consequence of the fact that link 2 does not conform to 0-subjacency.

Before we can conclude that the marginal status of (12) is accounted for, there is one more derivation that must be considered. Even if IP is not an available adjunction site, nothing we have said so far prevents adjunction to the complement CP. But such an operation makes a derivation available in which 0-subjacency is satisfied everywhere:

(16) [$_{CP}$ what$_1$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ wonder [$_{CP}$ [$_{CP}$ whether [$_{IP}$ John [$_{VP}$ [$_{VP}$ bought t_1]]]]]]]] (4, 3, 2, 1)

The crucial link is created by step 2 of the derivation. Note that VP is not a BC in this case; hence, IP is not a barrier. Further, although IP is a BC, it is not a barrier, by the second clause in (7b). The movement must not be allowed to proceed as in (16), then; instead, it must be as in (15). Chomsky ensures this by principle (17).[2]

(17) (= Chomsky's (6))
Adjunction is possible only to a maximal projection (hence, X″) that is a nonargument [thus generally not NP or CP].

Given the restrictions on adjunction sites stated in (14) and (17), Subjacency correctly rules out complex NP constraint violations and subject condition violations, even on the sorts of successive adjunction derivations just examined. Consider the examples in (8) again, repeated here in (18).

(18) a. *where$_2$ did you see [$_{NP}$ the book$_1$ [$_{CP}$ which$_1$ [$_{IP}$ John put t_1 t_2]]]
b. ?*who$_1$ [$_{IP}$ did [$_{NP}$ pictures of t_1] please you]

If IPs and NPs were possible adjunction sites for WH-movement, then these examples would not violate Subjacency at all, as shown in (19).

(19) a. [$_{CP}$ where$_2$ [$_{IP}$ did you [$_{VP}$ [$_{VP}$ see [$_{NP}$ [$_{NP}$ the book$_1$ [$_{CP}$ [$_{CP}$ that [$_{IP}$ John [$_{VP}$ [$_{VP}$ put t_1 t_2]]]]]]]]] (5, 4, 3, 2, 1)

b. [$_{CP}$ who$_1$ [$_{IP}$ did [$_{NP}$ [$_{NP}$ pictures of t_1]] please you]] (2, 1)

Given (17), the steps 2, 3, and 4 in (19a) must be combined, and this movement crosses two barriers, CP and NP. Similarly, steps 1 and 2 in (19b) must be combined, and this movement also crosses two barriers, NP and IP. Note that each step in the derivations in (19) crosses no barrier for Subjacency. Thus, without (17), we would incorrectly predict that the examples in (18) are perfect.

3.1.2 Antecedent Government

The concepts discussed in the preceding section are relevant not just to Subjacency but to antecedent government as well. Chomsky (1986a: 17) suggests the following formulation of antecedent government:

(20) Antecedent government holds of a link (α, β) of a chain, where α governs β.

In this formulation, antecedent government is an instance of government. *Govern* is defined in (21).

(21) (= Chomsky's (18))
α governs β iff α m-commands β and there is no γ, γ a barrier for β, such that γ excludes α.

The notion "barrier" here is the same one developed above for Subjacency. Finally, *m-command* is defined in (22) (Chomsky 1986a: 8).

(22) *α m-commands β* iff α does not dominate β and every maximal projection that dominates α dominates β.

Now consider (23).

(23) $[_{CP}$ who$_1$ $[_{IP}$ do you $[_{VP}$ t_1' $[_{VP}$ wonder $[_{CP}$ why$_2$ $[_{IP}$ t_1 won the race $t_2]]]]]]$

Here, t_1 is not antecedent-governed: t_1' does not govern t_1, since the lower CP is a barrier for t_1, by "inheritance" from the IP that it immediately dominates. Similarly, *who*$_1$ does not govern t_1. Since t_1 is not antecedent-governed, and since it clearly is not lexically governed, it is not properly governed at all, the desired result in this case.[3]

The treatment of adjuncts is now also straightforward. Recall from chapters 1 and 2 that LF is the only relevant level for the traces of non-arguments. Recall further that in the LF component, *that* can be deleted as an instance of Affect α. Thus, we need not consider a representation with *that*. With this in mind, consider (25), the LF representation of both (24a) and (24b), under the assumptions of the preceding section.[4]

(24) a. how do you think $[_{CP}$ that John fixed the car $t]$
b. how do you think $[_{CP}$ John fixed the car $t]$

(25) $[_{CP}$ how$_1$ $[_{IP}$ do you $[_{VP}$ t_1'' $[_{VP}$ think $[_{CP}$ t_1' $[_{IP}$ John fixed the car $t_1]]]]]]$

Here, t_1' governs t_1, since IP is "defective," that is, never an inherent barrier; t_1'' governs t_1', since CP, being L-marked, is not a barrier; and finally, *how* governs t_1''. In both (24a) and (24b), then, antecedent government holds, and extraction of the adjunct is correctly permitted.

We now turn to a configuration where antecedent government fails. Consider (26).

(26) $[_{CP}$ how$_1$ $[_{IP}$ did Bill $[_{VP}$ t_1''' $[_{VP}$ wonder $[_{CP}$ who$_2$ $[_{IP}$ t_2 $[_{VP}$ t_1'' $[_{VP}$ wanted $[_{CP}$ t_1' $[_{IP}$ PRO to fix the car $t_1]]]]]]]]]$

As in (25), t_1' governs t_1. Further, t_1' is governed by t_1'', CP being L-marked and hence not a barrier. However, t_1'' violates the ECP. t_1''' is too distant to govern it, since the intervening CP inherits barrierhood from the intermediate IP. Recall that the BC effect of this IP cannot be evaded

by adjunction to it, given (14). t_1'' is thus an offending trace. Note that t_1'' need not have been created, but if it were not present, t_1' would be an offending trace. Similarly, t_1' need not have been created, but then t_1 itself would be the offending trace. Correctly, then, extraction of an adjunct from an island always results in an ECP violation.[5]

In the following sections, we will examine a further range of data in the light of this theory, and based on that examination, we will suggest certain revisions.

3.2 Analyses of Topicalization

3.2.1 The Standard Analysis

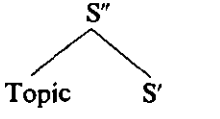
Chomsky (1977a) presents a detailed analysis of topicalization in English. He notes first that the construction with a gap, shown in (27), seems in some respects to parallel the so-called left dislocation (LD) construction, shown in (28), which lacks a gap.[6]

(27) John, I like t

(28) John, I like him

This parallelism suggests a common structure. Chomsky proposes that in both constructions, the "topic" is base-generated in Topic position under S″:

(29)



The difference between (27) and (28) does not involve the position of *John* at any level, then. Rather, the difference is that (27) involves movement of a WH-operator (later deleted) to COMP, whereas (28) involves no such movement, in fact involves no movement at all.

This analysis of (28) straightforwardly explains Ross's (1967) original observation that LD freely violates island constraints. For example, the relationship between *this book* and *it* in (30) crosses the boundary of a complex NP, yet the example is well formed:

(30) this book, I accept the argument that John should read it

Topicalization, on the other hand, conforms to island constraints. The topicalized analogue of (30) is substantially worse.

(31) ??this book, I accept the argument that John should read t

This difference is predicted by the interaction between Chomsky's theory of island constraints—namely, Subjacency as a constraint on movement—