

초청논문

SYNTAX AND SEMANTICS OF ADVERBS

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요약

본 논문은 영어에 있어 부사의 분포를 통사-의미론적으로 설명함을 목적으로 한다. 영어부사의 분포는 표면상 문장 내에서 매우 자유로운 듯하여 이 분포의 자유가 부사의 이동에 기인한다는 주장도 나왔으나, 본고에서 저자는 의미상 그리고 하위범주화상 부사의 이동은 있을 수 없음을 주장하고, 나아가 부사의 분포는 사실상 자유롭지 않고 매우 제한되어 있다는 언어학자들(Jackendoff(1972), Travis(1988), Cinque(1999))의 자료를 제시했다. 부사는 문장 내의 위치에 제한을 받을 뿐만이 아니라 부사들 사이의 상대적 순서에도 제한을 받는데 본고에서는 여러 학자들의 분석 중 가장 최근의 분석인 Cinque(1999)의 이론을 중점적으로 고찰하고 그 문제점을 지적했다. Cinque의 부사분포를 설명하려는 이론은 지나치게 복잡화된 기능범주투사를 필수요건으로 하는데 이는 통사적으로 너무 많은 값을 치루기에 비경제적이다. 저자는 부사의 의미유형에 따라 영향을 받는 부사의 상대적 순서 효과는 통사적 해결이 아니라 의미유형들의 작용역 관계에 기반한 의미적 해결을 하여야 하며, 부사의 문장 내 분포는 부사를 크게 세 가지 의미유형으로 나누고 이 각각의 의미유형이 최근 Chomsky에서 논의되고 있는 세 가지 국면에 사상된다고 가정하면 포착될 수 있다고 주장하였다.

1 The Apparent Free Distribution of Adverbs

It has been observed that adverbs enjoy considerable mobility in relation to clause structure as in (1) and (2).

- (1) a. *Cleverly*, John has been answering their questions.
b. John *cleverly* has been answering their questions.
c. John has *cleverly* been answering their questions.
d. John has been *cleverly* answering their questions.

- e. John has been answering their questions *cleverly*.
- (2)
- a. *Quickly*, John will be arrested by the police.
 - b. John *quickly* will be arrested by the police.
 - c. John will be *quickly* arrested by the police.
 - d. John will be arrested *quickly* by the police.

This free distribution of adverbs motivated the Transportability Convention of Keyser(1968) Adverb Placement of Emonds (1976), Adverb Movement of Baltin(1982), etc.. Is it really true that adverbs move around in a sentence and this makes possible the free distribution?

First of all, I will argue that the free distribution cannot be due to adverb movement since it is clear in consideration of meaning and subcategorization that adverbs do not undergo movement at all. Then, we will see that the free distribution of adverbs is in fact only apparent; the distribution of adverbs is fairly restricted with respect to other sentential elements as observed in Jackendoff(1972), Travis(1988), Rochette(1988), and Cinque(1999). The relative sequencing of adverbs is also strictly fixed. Among the various analyses on the distribution of adverbs, I will look over Cinque (1999) in detail, pointing out problems; her analysis to catch the distribution of adverbs including the relative sequencing effect costs too much syntactically. I will suggest that the distribution of adverbs can best be captured by a syntactic-semantic approach; the relative sequencing effect should be explained by a sort of scope principle rather than the extremely complicated clause structure as in Cinque(1999). The positional distribution of adverbs in a sentence can be caught by classifying adverbs into three semantic types, propositional/eventual adverbs, aspectual adverbs, and actional/stative adverbs and by mapping these three semantic types to the three syntactic phases, CP, AspP, vP in the sense of Chomsky(1998, 1999, 2001).

2 Argument against Adverb Movement

Contrary to the argument of some linguists that adverb movement results in the free distribution of adverbs, in this section I will give two pieces of evidence against adverb movement: one from meaning consideration and the other from subcategorization consideration.

Given the assumption that transformations such as movement do not change the meaning of sentences, (3a) and (3b) will have the same meaning if one is derived from the other through adverb movement.

- (3) a. *Carefully* John told me to fix the car.

- b. John told me to fix the car *carefully*.

However, while carefulness is predicated of John's character in (3a), it is predicated of my ordered manner of fixing the car in (3b). The meaning difference in (3) then indicates that (3a) and (3b) are not transformationally related. One could argue that the meaning difference in (3) does not necessarily evidence that adverbs do not move since the meaning difference in (3) could be due to the clause-boundness of adverb movement. However, the meaning difference depending on position occurs even within one clause; for example, (1b), repeated as (4a) below, and (1e), repeated as (4b) below, have different meanings.

- (4) a. John *cleverly* has been answering their questions.
 b. John has been answering their questions *cleverly*.

(4a) has the subject-oriented interpretation only, while the manner interpretation only is possible in the cases of (4b); that is, it was clever of John to have answered their questions in (4a), while the way John answered their questions was clever in (4b). In fact, the two sentences in (4) can be combined as in (5), with two occurrences of the adverb *cleverly* having two distinct interpretations; the former the subject-oriented interpretation and the latter the manner interpretation.

- (5) John *cleverly* has been answering their questions *cleverly/stupidly*.

The grammaticality of (5) as well as the meaning difference in (4) then clearly implies that it is not the case that adverbs can move around freely in a sentence.

Even in the cases where there is no clear meaning difference, it is evident that adverbs do not move around in a sentence; *cleverly* not only in (6a) but also in (6b) has the manner interpretation. In spite of the fact that there is no meaning difference between the postverbal and post-object position and the pre-verbal position, only the former but not the latter can satisfy subcategorization requirements as shown in (7-10) and can license the middle interpretation as in (11).

- (6) a. John has been *cleverly* answering their questions.
 b. John has been answering their questions *cleverly*.
- (7) a. John has worded the letter *carefully*.
 b. *John has *carefully* worded the letter.
- (8) a. John learned French *perfectly*.
 b. *John *perfectly* learned French.

- (9) a. Bill recited his lines *poorly*.
 b. *Bill *poorly* recited his lines.
- (10) a. Mary played the violin *beautifully*.
 b. *Mary *beautifully* played the violin.
- (11) a. This bag opens up *easily*.
 b. *This bag *easily* opens up.
 (as a middle construction. OK as a plain unaccusative)

If the (b) sentences in (7-10) were derived from the (a) sentences, the (b) sentences would be as grammatical as the (a) sentences since the (b) sentences could satisfy the subcategorization requirement at Deep Structure. Likewise, if (11b) were derived from (11a), (11b) would license the middle interpretation, whatever the licensing mechanism is, as much as (11a) would.

3 Restriction on Adverb Distribution

In the previous section I have argued that the free distribution of adverbs is not due to adverb movement since adverbs in fact do not move at all. In this section I will show that the truth on the adverb distribution is that they do not distribute freely; their distribution is fairly restricted. We will first see the restrictions on the positional distribution of adverbs in a sentence and then the relative sequencing effect.

3.1 Positional Restrictions in a Sentence

Even though sentences in (1) and (2) above seem to show that adverbs can occur in various positions of a sentence without restrictions, this free distribution in fact applies only to some types of adverbs and further that even these types of adverbs exhibit meaning change depending on the position in which they occur.

Jackendoff(1972) classifies adverbs into six major types with respect to their possibilities of occurrences in a sentence. According to him, only Class I and II adverbs among these six types exhibit the alleged free distribution as in (1) and (2).

- (12) Class I: Initial, Aux, VP-final (meaning change)
 cleverly, clumsily, carefully, carelessly, happily, truthfully
 Class II: Initial, Aux, VP-final (no meaning change)
 quickly, slowly, reluctantly, sadly, quietly, frequently

For Class III and IV adverbs, it is not the case that they may appear anywhere in a sentence. Class III adverbs can appear in the initial position and in the Aux position only as illustrated in (13), whereas Class IV adverbs can be located in the Aux position and in the VP-final position only as shown in (14).

- (13) Class III: Initial, Aux
 evidently, probably, certainly, unfortunately, naturally
- a. *Evidently* George read the book.
 - b. George *evidently* read the book.
 - c. *George read the book *evidently*. (without comma intonation)
- (14) Class IV: Aux, VP-Initial
 completely, easily, totally, handily, badly, mortally
- a. **Completely* George read the book.
 - b. George *completely* read the book.
 - c. George read the book *completely*.

Rochette(1990) notes that the distribution of Class III and IV adverbs is in fact much more restricted than what Jackendoff(1972) claims. Consider the data in (15).

- (15) a. George *probably*/**completely* has read the book.
 b. George will *probably*/**completely* have read the book.
 c. George will have **probably*/*completely* read the book.
 d. George has *probably*/*completely* read the book.

Even if the data in (13) and (14) seem to show that both Class III and IV adverbs can occur in the same Aux position, the data in (15) with the addition of auxiliary verbs indicate that the Aux position should be redefined depending on the adverb class. The adverbs of Class III, like *probably*, can appear immediately to the left or to the right of the first auxiliary, but they cannot appear after the second auxiliary. On the other hand, the adverbs of Class IV, like *completely*, can appear only in the position that immediately precedes the main verb, but not in the Aux position that is separated from the main verb.

The distribution of Class V and VI adverbs is much more restricted than that of Class III and IV adverbs. As illustrated below, Class V adverbs can appear only VP-finally, while Class VI adverbs can be located only in the Aux position.

- (16) Class V: VP-final
 hard, well, more, less, early, fast, home, slow, terribly

- a. **Hard* John hit Bill.
- b. *John *hard* hit Bill.
- c. John hit Bill *hard*.

(17) Class VI: Aux

truly, virtually, merely, simply, hardly, scarcely

- a. **Simply* Albert is being a fool.
- b. Albert is *simply* being a fool.
- c. *Albert is being a fool *simply*.

The data from my informant¹ below show that Class VI adverbs cannot occur to the left of the first auxiliary position.

- (18) a. *Albert *simply* has been being a fool.
- b. Albert has *simply* been being a fool.
- c. Albert has been *simply* being a fool.
- (19) a. *He *merely* will be having the most exciting time of his life.
- b. He will *merely* be having the most exciting time of his life.
- c. He will be *merely* having the most exciting time of his life.

That is, Class VI adverbs can only appear in the Aux position after the first aux.

Even for the adverbs of Class I and Class II which seem to enjoy the free distribution, many linguists (Jackendoff (1972), Thomason and Stalnaker (1973), McConnell-Ginet (1982), Travis (1988), Rochette (1990), Cinque(1999)²) argue that these adverbs exhibit meaning change depending on the position in which they occur. Consider (1), the example of Class I adverb, again.

- (1) a. *Cleverly*, John has been answering their questions.
- b. John *cleverly* has been answering their questions.
- c. John has *cleverly* been answering their questions.
- d. John has been *cleverly* answering their questions.
- e. John has been answering their questions *cleverly*.

¹ The data in (12) and (13) are due to Kari Eline Schenk (personal communication).

² More correctly, as for Jackendoff(1972), he claimed that only Class I adverbs show the meaning difference depending on the positions. Other linguists later argued that both Class I and Class II adverbs show the meaning difference.

Despite the apparent free distribution, the (1 a, b, c) sentences have the subject-oriented interpretation only, while the manner interpretation only is possible in the cases of (d, e) sentences (cf. (4)).

The similar sort of meaning change depending on the position can be found with Class II adverbs as well. Consider (2) again.

- (2) a. *Quickly*, John will be arrested by the police.
 b. John *quickly* will be arrested by the police.
 c. John will be *quickly* arrested by the police.
 d. John will be arrested *quickly* by the police.

Even though the adverb quickly shows the apparent free distribution in (2), it receives different interpretations depending on its positions; in (2 a, b) it modifies the event of arrest, while in (2 c, d) it modifies the process of the arrest. In other words, in (2 a, b) the arrest will happen right away, while in (2 c, d) the manner of the arrest will be hurried.

The fact that Class I and II adverbs change meaning depending on the position means that even the alleged free distribution of these types of adverbs is not a real free distribution. We can then conclude that no adverbs enjoy the alleged free distribution, i.e., all types of adverbs, including Class I and II adverbs, are subject to some sort of positional restrictions, though there remains small-range free distribution as shown in the alternation, for example, among (1a), (1b), and (1c).

3.2 Relative Sequencing of Adverbs

In the previous section I have shown that the positional distribution of adverbs in a sentence is in fact fairly restricted in spite of the apparent freedom. In this section we will see that the relative order of adverbs is also restricted.

Jackendoff(1972) observes that while both *probably* and *carefully* can appear in Initial position and Aux position, when they co-occur, *probably* must precede *carefully*.

- (20) a. *Probably* Max *carefully* was climbing the walls of the garden.
 b. Max *probably* was *carefully* climbing the walls of the garden.
 c. **Carefully* Max *probably* was climbing the walls of the garden.
 d. *Max *carefully* was *probably* climbing the walls of the garden.
 (cited from Travis(1988))

Bowers(1993) also notes that evidential adverbs like *clearly*³ must precede epistemic adverbs like *probably*⁴, which in turn must precede manner adverbs.

- (21) a. *Clearly*, John *probably* will *quickly* learn French *perfectly*.
 b. **Clearly*, John *quickly* will *probably* learn French *perfectly*.
 c. **Quickly*, John *probably* will *clearly* learn French *perfectly*.
 d. **Clearly*, John *perfectly* will *quickly* learn French *probably*.
 e. **Perfectly*, John *probably* will *quickly* learn French *clearly*.
 f. **Quickly*, John *perfectly* will *probably* learn French *clearly*.
 g. **Quickly*, John *perfectly* will *clearly* learn French *probably*.
 h. **Perfectly*, John *quickly* will *clearly* learn French *probably*.
 i. **Perfectly*, John *quickly* will *probably* learn French *clearly*.

Even if several linguists has discussed this relative sequencing effect since Jackend-off(1972), Cinque(1999) is the one who gives the most elaborate picture to this relative order. She notes that speech act adverbs such as *honestly*, *frankly*⁵ precede evaluative adverbs such as *unfortunately*⁶ as in (22), evidential adverbs such as *obviously* as in (23), subject-oriented adverbs as in (24), *perhaps*⁷ as in (25).

- (22) a. *Honestly* I am *unfortunately* unable to help you. (speech act>evaluative)
 b. **Unfortunately* I am *honestly* unable to help you. (evaluative>speech act)
- (23) a. *Frankly* John *obviously* left early. (speech act>evidential)
 b. **Obviously* John *frankly* left early. (evidential>speech act)
- (24) a. *Frankly* John *wisely* left early. (speech act>subject-oriented)
 b. **Wisely* John *frankly* left early. (subject-oriented>speech act)
- (25) a. *Frankly* John *perhaps* exaggerated. (speech act>perhaps)

³ Evidential Adverbs are adverbs which express the type of evidence the speaker has for his/her assertion such as *allegedly*, *reportedly*, *apparently*, *obviously*, *clearly*, *evidently*.

⁴ Epistemic Adverbs are those adverbs which express the speaker's degree of confidence about the truth of the proposition (based on the kind of information he/she has) such as *probably*, *likely*, *presumably*, *supposedly*.

⁵ Speech Act Adverbs such as *frankly*, *honestly*, *sincerely*, *qualify* the speaker's act of declaration.

⁶ Evaluative Adverbs such as *(un)fortunately*, *luckily*, *regrettably*, *surprisingly*, *strangely/oddly* (*enough*), *(un)expectedly*, express the speaker's positive, negative, or other evaluation of the state of affairs described in a proposition.

⁷ Perhaps Mood is used when the speaker doesn't know if the proposition is true and doesn't think the addressee knows either.

- b. **Perhaps* John *frankly* exaggerated. (perhaps>speech act)

Evaluative adverbs such as *unfortunately* precede evidential adverbs such as *evidently* as in (26).

- (26) a. *Fortunately* he had *evidently* had his own opinion of the matter. (evaluative>evidenti
 b. **Evidently* he had *fortunately* had his own opinion of the matter.
 (evidential>evaluative)

Evidential adverbs must precede epistemic adverbs as shown in (21), while epistemic adverbs precede tense adverbs as in (27).

- (27) *Probably* he once had a better opinion of us. (epistemic>tense)

Tense adverbs precede *perhaps/almost certainly*, which precede subject-oriented adverbs.

- (28) a. He was *then almost certainly/perhaps* at home.
 (*tense*> *perhaps/almost certainly*)
 b. *He was *almost certainly/perhaps then* at home.
 (*perhaps/almost certainly*>*tense*)
- (29) a. John will *perhaps wisely* withdraw. (*perhaps*>subject-oriented)
 b. ?*John will *wisely perhaps* withdraw. (subject-oriented>*perhaps*)

The data in this section show that adverbs are strictly ordered with respect to each other depending on their semantic types. This relative sequencing effected by the semantic types, Cinque(1999) tries to catch syntactically. In the next section I will discuss her analysis pointing out problems.

4 Cinque(1999)

In the previous two sections I have shown that the distribution of adverbs is fairly restricted. In this section among various approaches (Travis(1988), Alexiadou (1997), Larson (1988, 1990)) to capture the distribution of adverbs I will look over Cinque (1999) in detail which deals with adverbs most elaborately and most recently.

4.1 The Universal Hierarchies of Clausal Functional Projections

Cinque(1999) focuses on the relative sequencing effect. She shows that adverbs are ordered as in (30).

(30) Fixed Relative Order

- a. pre-VP (pre-complement) adverbs > post-VP (post-complement) adverbs
- b. higher adverbs > lower adverbs > (V-Object) > circumstantial adverbials
> focused lower adverbs > de-accented material(higher/circumstantial)
- c. higher adverbs
speaker-oriented adverbs > subject-oriented adverbs
- d. speaker-oriented adverbs
domain > pragmatic > evaluative > modal(evidential>epistemic>tense) >
irealis *politically* > *frankly* > *fortunately* > *allegedly* > *probably* > *once/then*
> *perhaps* > *wisely*
- e. lower adverbs
usually > *already* > *no longer* > *always* > *completely* > *well*

Then, she argues that apparent counter-examples to the canonical order occurs when an adverb phrase directly modifies another adverb phrase, when one adverb phrase is wh-moved across another as in (31), when one and the same adverb phrase can be base-generated in two different positions in the clause as in (1), when non-inherently focusing adverb phrase is used as a focusing adverb as in (32), or when an adverb phrase is used parenthetically.

- (31) a. *He is *badly already* treating his assistant.
b. How *badly* is he *already* treating his assistant?

- (32) a. He hates *probably* everybody.
b. He has drunk *already* seven beers.

She observes that not only adverbs enter a rigidly ordered sequence but also the order of head morphemes is rigidly fixed. Furthermore, the hierarchy of adverbs and that of functional heads, she argues, matches systematically from left to right. Based on these, she proposes that each adverb is the spec of the phrase projected by the corresponding functional head morpheme. (33) is the hierarchical structure of clausal functional projections the specs of which are filled with adverbs.

(33) The Universal Hierarchies of Clausal Functional Projections

[*frankly* Mood_{speech act} [*fortunately* Mood_{evaluative} [*allegedly* Mood_{evidential} [*probably* Mod_{epistemic} [*once* T(past) [*then* T(Future) [*perhaps* Mood_{irrealis} [*necessarily* Mod_{necessity} [*possibly* Mod_{possibility} [*usually* Aspect_{habitual} [*again* Asp_{repetitive(I)} [*often* Asp_{frequentative(I)} [*intentionally* Mod_{volitional} [*quickly* Asp_{celerative(I)} [*already* T(Anterior) [*no longer* Asp_{terminative} [*still* Asp_{continuative}

[*always* Asp_{perfect} [*just* Asp_{retrospective} [*soon* Asp_{proximative} [*briefly* Asp_{durative} [*characteristically* Asp_{generic/progressive} [*almost* Asp_{prospective} [*completely* Asp_{SGCompletive} [*tutto* Asp_{PLCompletive} [*well* Voice [*fast/early* Asp_{celerative(II)} [*again* Asp_{repetitive(II)} [*often* Asp_{frequentative(II)} [*completely* Asp_{SGCompletive(II)}

She assumes that the same, rich, hierarchy of functional projections is present in all languages and in every sentence of each language, even when no morphological material overtly realizes the corresponding head or specifier. Hence, a simple sentence such as (34a) will have the same functional structure as the apparently much richer (34b) or (34c).

- (34) a. Prices rise.
 b. Prices must have not been being raised.
 c. Fortunately prices probably already no longer rise so rapidly.

4.2 The Explanation of the Adverb Distribution

The relative sequencing effect of adverbs naturally follows from (33), i.e., positing the strictly ordered hierarchy of functional projections and assuming that adverbs are the specs of these strictly ordered functional projections. Or more correctly, (33) is set up to capture the relative sequencing effect.

Then, how can Cinque(1999) explain the positional distribution of adverbs in a sentence? Since (33) does not specify the relation between adverb-related functional projections and other projections, (33) alone cannot catch the positional distribution of adverbs. She proposes that DP-related functional projections are interspersed among the adverb-related ones. Consider (35) with small-range free distribution.

- (35) a. Probably George will have read the book.
 b. George probably will have read the book.
 c. George will probably have read the book.
 d. *George will have probably read the book.

(35) shows that Class III adverbs such as *probably* can appear sentence-initially, before the first auxiliary verb, after the first auxiliary verb, but not after the second auxiliary verb. Cinque(1999) argues that the distributional fact in (35) follows if we assume that there are two subject-related functional projections, one over and the other below the *probably*-related one. The subject then can move to the spec of either subject-related functional projections depending on the intended reading on the assumption that each DP-related positions are positions specialized for particular readings (e.g., existential,

distributive, or specific) or particular scopes (Moltmann(1990), Diesing(1992), Diesing and Jelinek (1995), Beghelli and Stowell (1997)). The first auxiliary but not the second can optionally move to the head of the DP-related functional projection.

Once we adopt the strictly ordered adverb-related functional projections and the DP-related ones interspersed among them, the positional restrictions of adverbs seem to be easily captured; for example, one could say that the *evidently*-related functional projection is far higher than the object-related projections to rule out (36c) and the *completely*-related functional projection is lower than the subject-related projections to rule out (37a).

- (36) a. *Evidently* George read the book.
 b. George *evidently* read the book.
 c. *George read the book *evidently*. (without comma intonation)
- (37) a. **Completely* George read the book.
 b. George *completely* read the book.
 c. George read the book *completely*.

Even though Cinque's(1999) analysis seems to capture the distribution of adverbs nicely, a deeper thought reveals that her analysis bears many problems. In the next section I will discuss the problems.

4.3 Problems of Cinque(1999)

Consider her assumptions made to explain (35); (i) there are two subject-related functional projections in addition to the *probably*-related ones, (ii) the subject moves to the spec of either subject-related functional projection, and (iii) the first auxiliary moves optionally to the D head. All of these assumptions have problems as discussed below.

Take the assumption of two subject-related functional projections. Adding just two subject-related functional projections does not suffice since the subject can be located to the right or the left of any of the adverbs higher than *already*. That is, the subject can be located in any V-marked position in (39).

- (38) The subject in English has to precede *already* and all adverbs lower than *already*.
- a. Frequently John takes his holidays abroad.
 b. Quickly John raised his arm.
 c. *Already John knows that you are coming.
 d. *No longer John likes Mary.

- e. *Still John misses Mary
- f. *Always John takes his holidays abroad.
- g. *Just John has left.
- h. ?Soon the train leaves. So hurry up!
- i. *?Briefly I consider it in my book.
- j. *Almost John fell through fright.
- k. *Completely John destroyed all that he had constructed.
- l. *Well John did his homework.
- m. *Early John woke up every Sunday.

(39) The distribution of the subject

∨ honestly ∨ luckily ∨ evidently ∨ probably ∨ now ∨ perhaps ∨ necessarily ∨
willingly ∨ obligatorily ∨ wisely ∨ usually ∨ again ∨ often ∨ quickly ∨ already
* no longer * still * always * just * soon * briefly * almost * completely * well
* early *

This means that we need to add 15 subject-related functional projections to the 30 adverb-related ones in (33), which is already complicated enough. Moreover, Cinque(1999) argues that Swedish and Norwegian object shift data indicate that there are also object-related functional projections interspersed among the adverb-related ones.

I am not quite sure that this move toward a highly complicated clausal structure is truly desirable, especially when she assumes that the same, rich, hierarchy of functional projections is present in all languages and in every sentence of each language as mentioned above. It seems to me that her explanation of the relative sequencing effect costs too much syntactically. That is, she has to pay a highly articulated clausal structure (33) for the relative sequencing effect and, because of that payment, she needs to add DP-related functional projections to (33) when she wants to explain the positional distribution. I claim that the relative sequencing of adverbs effected by the semantic types of adverbs should be captured by a scope principle regulating the sequencing rather than a syntactically highly complicated clausal structure. In the next section, I will argue that the positional distribution can be captured by a semantic-syntactic approach without complicating clause structures, assuming a scope principle.

Before closing this section, I will show that despite the syntactically high cost, Cinque(1999) still bears problems in explaining the distribution of adverbs.

Consider the movement of a subject to the spec of either subject-related functional projection. What is the nature of this movement? If it is really true that each projection has a specific semantic interpretation as Cinque argues, how are the sentences in (35 a,

b) different from each other and what are the exact semantic properties of the various subject positions implicated in (39)? Furthermore, why should the subject obligatorily move to the left of *already* and the adverbs lower than *already* (Class IV, V and VI adverbs) as in (38) and (40), while there is an option in (35) (Class I, II, III adverbs)?

- (35) a. *Probably* George read the book.
b. George *probably* read the book.

- (40) a. **Completely* George read the book.
b. George *completely* read the book.

Should we say that there is no subject-related functional projection below *already*? Is it really true that no particular reading or scope is available to a subject below *already*? This has to be researched.

Next, consider the assumption of the optional movement of the first auxiliary to a D head. This also raises many questions. What is the nature of the movement and why is it optional? If it is true that the first auxiliary moves optionally to a D head in as in (35) as Cinque(1999) argues, why is it that it has to move to the D head in (41)? What sort of difference is there between the subject-related functional projection over *probably* (Class I, II, III adverbs) and the one over *simply* (Class VI adverbs)? Cinque needs to clarify this point.

- (35) b. George *probably* will have read the book.
c. George will *probably* have read the book.

- (41) a. *Albert *simply* has been being a fool.
b. Albert has *simply* been being a fool.

So far we have seen that Cinque's (1999) analysis not only costs too much syntactically but also bears problems in explaining the adverb distribution in spite of the high cost. In the next section I will suggest a possible syntactic-semantic approach that does not cost much syntactically.

5 A Syntactic-Semantic Approach

In this section I will propose a possible syntactic-semantic approach to the distribution of adverbs.

Suppose that adverbs are semantically predicational in that they are subcategorized with respect to the type of semantic argument that they select (Rochette(1988),

Ernst(1998)). The selectional properties of adverbs should be encoded in terms of semantic categories such as proposition, event, action, etc.. Further assume that the semantic arguments have the following scopal relation.

- (42) Speech Act > Fact > Proposition > Event > Aspectual Action or State > Action or State⁸

Each entity to the left includes those to its right, so that a Speech Act is a fact plus a qualification of the speaker's act of declaration, a Fact is a proposition plus a truth value, a Proposition includes some event, an Event includes an Aspectual Action or State, and an Aspectual Action or State is Action or State plus Aspect. Given (42), the relative sequencing of adverbs presented by Cinque(1999) as in (43) will follow if we hypothesized (44).

- (43) speaker-oriented adverbs (domain > pragmatic > evaluative > modal (evidential > epistemic > tense) > irrealis) > subject-oriented adverbs > lower adverbs (aspectual adverbs) > (V-Object) > circumstantial adverbials

- (44) The Mapping Hypothesis I

The semantic categories are mapped onto syntactic categories, respecting the semantic scopal relation.

Pragmatic adverbs are predicated of Speech Acts, while evaluative adverbs select Facts as their arguments as in (46). Given (42) and (44), pragmatic adverbs then must precede evaluative adverbs. While evaluative adverbs select Facts as their arguments, evidential or epistemic adverbs take Propositions as their arguments. Hence, evaluative adverbs precede evidential or epistemic adverbs.⁹ Subject-oriented adverbs take events as one of their arguments. Therefore, they follow evidential or epistemic adverbs. Aspectual adverbs, as predicates of Aspectual Action or State, follow subject-oriented adverbs.¹⁰

⁸ (42) is my modified version of Ernst's (1998) in (i).

(i) Speech Act > Fact > Proposition > Event > Specified Event

⁹ Evidential adverbs precede epistemic adverbs probably because an evidential proposition is an epistemic proposition plus a type of evidence the speaker has for his/her assertion, while an epistemic proposition expresses the speaker's degree of confidence about the truth of the proposition (based on the kind of information he/she has).

¹⁰ Circumstantial adverbs (place, time, manner, means, company, reason, purpose) are not predicational unlike other adverbs but rather they act as arguments of Action or State predicates. Just like other arguments of predicates they will follow predicates.

Adverb Types	Selected Semantic Argument Types
	Pragmatic adverbs Speech Acts
(45)	Evaluative adverbs Facts
	Evidential or epistemic adverbs Propositions
	Subject-oriented adverbs Events
	Aspectual adverbs Aspectual Action or State
	Manner adverbs Action or State
(46)	a. Luckily, the horse threw a shoe.
	b. LUCKY [_{FACT} (Threw (horse, shoe))

The current analysis that catches the relative sequencing of adverbs depending on the semantic types of the adverbs with the semantic scope relation and the mapping hypothesis seems natural and is free of the syntactic cost that is paid by Cinque(1999).

The positional distribution of adverbs can also follow through similar assumptions. Suppose that we hypothesize (47) and (48).

- (47) The Mapping Hypothesis II
The semantic categories are mapped onto syntactic heads such as Comp, Infl, Asp and V.

Semantic Argument Types	Matching Head
	Speech Acts C
(48)	Facts C
	Propositions C
	Events I
	Aspectual Action or State Asp
	Action or State V

Further assume that each adverb is licensed by a syntactic head that matches a semantic category of which the adverb is predicated. Pragmatic adverbs are predicate of Speech Acts, which are mapped onto C. Then, pragmatic adverbs are licensed by C. Evaluative adverbs, as predicates of Facts, are also licensed by C. Subject-oriented adverbs are licensed by I, which Events are mapped onto. Aspectual adverbs are licensed by Aspect and Manner adverbs are licensed by Verb. Given this licensing relation, the positional distribution of adverbs will follow on the assumption that adverbs and licensers should be in the same phase as proposed in Rhanghyeyun Kim (2000) as a locality condition on

adverb licensing (refer to this paper for detail).; Speech Actual, Factual, Propositional, and Eventual adverbs should be in CP phase to be licensed, Aspectual adverbs in AspP phase, and Manner adverbs in vP phase; Class I and II adverbs will have subject-oriented and eventual reading in CP phase ((1 a, b, c), (2 a, b)), while they will have manner reading in vP phase ((1 d, e), (2 c, d)).

- (1) a. *Cleverly*, John has been answering their questions.
 b. John *cleverly* has been answering their questions.
 c. John has *cleverly* been answering their questions.
 d. John has been *cleverly* answering their questions.
 e. John has been answering their questions *cleverly*.
- (2) a. *Quickly*, John will be arrested by the police.
 b. John *quickly* will be arrested by the police.
 c. John will be *quickly* arrested by the police.
 d. John will be arrested *quickly* by the police.

Class III adverbs cannot appear in VP-final positions since they should be in CP phase, while Class IV adverbs cannot occur initially since they should be in vP phase.

- (13) a. *Evidently* George read the book.
 b. George *evidently* read the book.
 c. *George read the book *evidently*. (without comma intonation)
- (14) a. **Completely* George read the book.
 b. George *completely* read the book.
 c. George read the book *completely*.

Class VI adverbs can occur only in the Aux position since they should be in AspP phase.

- (17) a. **Simply* Albert is being a fool.
 b. Albert is *simply* being a fool.
 c. *Albert is being a fool *simply*.

In sum, I have briefly shown that the distribution of adverbs can be captured by a semantic- syntactic approach based on the semantic scope relation, the mapping hypothesis, and the phase theory. The current analysis is free of the syntactic cost that is paid by Cinque(1999).

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