

On Syntactic Distinctness and Phase Head in English Relative Clause¹

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1. Introduction

In this paper, I propose that Rel, Top and Force, which are functional heads in the Cartographic approach, are phase heads whereas Foc and Fin are not, by exploring some problems of Distinctness introduced by Richards (2010). Distinctness is a condition that bans two identically labeled constituents from being linearized in the same syntactic domain. This condition can uniformly explain a variety of syntactic phenomena. However, when Topicalization occurs in relative clauses, it has two problems. First, in this case, a linearization statement $\langle \alpha, \alpha \rangle$, such as $\langle \text{PP}, \text{PP} \rangle$, are in the same Spell-out domain, so it is the violation of Distinctness. Therefore, Richards wrongly predicts that this sentence is ungrammatical. Second, multiple Topicalization of English is banned. I address two problems by modifying his approach.

This paper is organized as follows. Section 2 overviews framework used in this paper. Section 3 summarizes Distinctness condition, and I point out two problems with his approach. In section 4, in order to solve this problem, I propose that Force, Top, Rel are phase heads. In section 5, I show that my proposal accounts for these problems. Section 6 concludes this paper.

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2. Framework

In Minimalism (Chomsky (1995, 2000, 2001, 2004, 2008)), syntactic objects (SOs) are built from bottom to top, by iterative application of the operation Merge, which combines two SOs. SOs built by Merge are mapped onto the semantic interface of the *Conceptual-Intentional system* (C-I) and the phonological interface of the *Sensorimotor system* (SM). The operation which maps SOs onto these two interfaces is called *Transfer* (in particular, mapping SOs onto the phonological side is called *Spell-Out*). Chomsky (2004, 2008) assumes that Transfer applies by syntactic derivational chunks which are called *phases*. In this phase theory, syntactic computations are derivationally determined by application of iterating Merge and Transfer phase by phase. Phases are assumed to be CP and *v*P, whose head triggers Transfer.

While Minimalism focuses on the elementary syntactic operations, Rizzi's (1997, 2004) Cartographic approach focuses on the fine details of syntactic structures. It is the attempt to draw maps as precise as possible by relating syntactic configurations with information structures. This research topic assumes that CP is split into a number of different functional projections. This approach offers an interesting question when it meets the phase theory: if CP has a number of functional projections, which head is a phase head and triggers Transfer?

Following Cartographic approach (Rizzi (1997)), I adopt the Split CP hypothesis, where CP is not a single projection, but layered projections. In particular, I assume that CP has the following structure.

(1) CP = [ForceP [TopP [FocP [FinP [TP ...

(1) assumes that each projection has a single projection and cannot be recursive in English.

Rizzi (1997) supposes that the left periphery in a clause is a kind of interface with TP and the higher clausal domain than CP, or discourse. ForceP gives to discourse the information of clausal type, for example, a question, a declarative, an exclamative, a relative, a comparative, an adverbial of a certain kind, etc. On

the other hand, Fin(iteness)P gives to TP the information of the verbal system of the clause. For example, if a complementizer is that, an embedded TP clause must be a finite clause in English, or if a complementizer is for, an embedded TP clause must be a non-finite clause in English. CP should be divided as ForceP and FinP.

Top and Foc also have one and only one head in each projection because multiple specifier cannot be linearized under the Kayne's Linear Correspondence Axiom (LCA). A topicalized or focalized element moves to a specifier position of each phrase to satisfy Topic or Focus feature. Thus, the specifier of TopP is occupied by one topicalized element. On the other hand, the specifier of FocP is occupied by one focalized element, one *wh*-element, or one element of Neg-Preposing.

In the following sections, based on these frameworks, I discuss Distinctness condition Richards (2010) proposes.

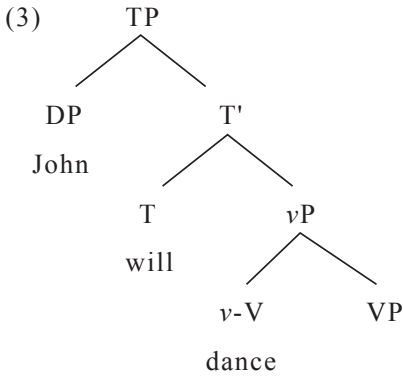
3. Distinctness: Its property and problems

Richards (2010) proposes *Distinctness* to account for a variety of syntactic phenomena that bans two identically labeled constituents from being linearized in the same Spell-Out domain. Distinctness is the condition on the syntax-phonology interface.

(2) Distinctness

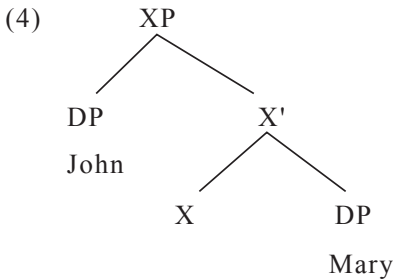
If a linearization statement $\langle \alpha, \alpha \rangle$ is generated, the derivation crashes.

This condition is based on Kayne's (1994) LCA. In particular, Richards (2010) assumes that one of the tasks of the grammar is to establish a linear order between the terminal nodes of the sentence at least by the point of Spell-Out, and that this linear order is determined by properties of the tree. Kayne's theory establishes a set of linearization statements $\langle \alpha, \beta \rangle$, such that α asymmetrically c-commands β , and such linearization statements are taken to determine that α must precede β .



In the tree in (3), for example, the grammar constructs linearization statements like $\langle \text{DP (John), T (will)} \rangle$, $\langle \text{T (will), } v\text{-V (dance)} \rangle$, and so forth.

However, Richards (2010) assumes that linearization statements are limited to node labels. Let us consider the linearization of a tree in (4):



If a tree like the one in (4) are sent to PF, the linearization algorithm will generate the linearization statement $\langle \text{DP, DP} \rangle$, since the DP *Mary* asymmetrically c-commands the DP *John*. Crucially, linearization process is unable to make reference to any of the richer information that would distinguish these DPs from each other; the linearization statement cannot say, for example, $\langle \text{DP (Mary), DP (John)} \rangle$, or $\langle \text{DP-in-specifier-of-X, DP-complement-of-X} \rangle$. Since the linearization statement $\langle \text{DP, DP} \rangle$ is uninterpretable, such a structure will be rejected at PF or SM interface. Thus, Distinctness effectively

bans structures in which different syntactic objects with the same label in an asymmetric c-command relation occupy the same Spell-Out domain.

The proposal makes crucial use of the approach to Spell-Out developed in Chomsky (2000, 2001) and much subsequent work, in which material is sent to PF or SM interface periodically throughout the derivation, whenever a phase has been completed.

Let us consider concrete examples of a Distinctness effect in English: Quotative Inversion and Multiple Sluicing.

(5) Quotative Inversion

- a. “It’s cold,” said John.
- b. “It’s cold,” said [_{DP} John] [_{PP} to Mary].
- c. * “It’s cold,” told [_{DP} John] [_{DP} Mary].

(Richards (2010: 13))

(5a) is an instance of Quotative Inversion, in which the subject remains in a post verbal position and a quotation appears before the verb. We can see in (5b) that Quotative Inversion is possible because DP *John* and PP *to Mary* are not the same label in a post verbal position, that is the Spell-Out domain, so this sentence does not violate Distinctness condition. However, in (5c), since, in a post verbal Spell-Out domain, DP *John* and DP *Mary* have the same label, this sentence offend Distinctness condition and then Quotative Inversion is impossible.

(6) Multiple Sluicing

- a. I know everyone danced with someone, but I don’t know [_{DP} who][_{PP} with whom]
- b. *I know everyone insulted someone, but I don’t know [_{DP} who][_{DP} whom]

(Richards (2010: 3))

The contrast in (6) shows that sluicing with multiple remnants is in principle possible, but not if both of the sluicing remnants are DPs. Distinctness allows us

to capture this difference.

In Richards (2010), he uniformly tries to explain phenomena like these, which ban two identically labeled constituents from being linearized in the same Spell-Out domain.

Moreover, consider the case of infinitival relatives in English, as in (7)

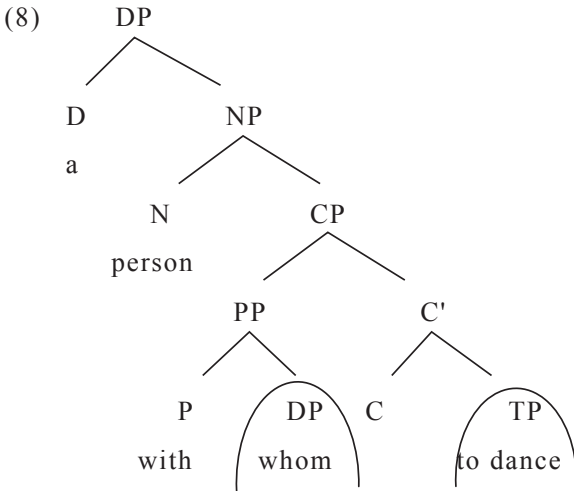
(7) Relativization

a. [_{DP} a person][_{PP} with whom] to dance

b. *_{[DP a person][_{DP} whom] to admire}

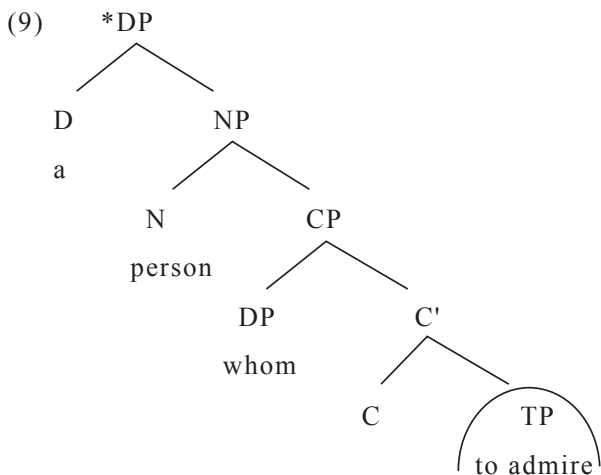
(Richards (2010: 34))

The structure of (7) are shown in (8) and (9) respectively.



In (8), the PP *with whom* may appear as a relative operator, but the DP *whom* cannot. Richards (2010) explains that the relative operator in this example cannot be the DP because the DP is in the same Spell-Out domain where the D of the relative clause's head is involved and this linearization statement is <DP, DP> or <D, D>, causing violation of Distinctness condition. However, if the PP is a relative operator, a linearization statement becomes <DP, PP>, or <D, P>, and so this does not violate Distinctness condition. Richards (2010) assumes that PP is a phase and a phase head P Transfers the complement DP into PF or

SM interface. Therefore DP *whom* and the D of the relative clause's head are not in the same Spell-Out domain



In (9), the relative operator DP *whom* is in the highest specifier of the CP phase. The DP *whom* is not Transferred with the TP, but rather with the next higher spell-out domain. Therefore, the D of the relative clause's head and the DP *whom* are linearized in the same Spell-Out domain, and the resulting linearization statement $\langle D, D \rangle$ is uninterpretable, so the derivation crashes.

However, English tensed relative clauses have some problems, because the constraints discussed above do not hold of these tensed relative clauses.

Richards (2010) adopts the proposal of Bianchi (1999), who offers arguments that finite relative clauses have more layers in the CP field than infinitival ones do. She assumes that tensed relative clauses in English involve not just a CP, but a ForceP along with a TopP, and the overt relative Operator *whom* occupies the lower of these positions as in (10).

- (10) a. the man whom I admire
 b. [_{DP} the [_{ForceP} [_{NP} man][Force [_{TopP} [_{DP} whom][Top [_{TP} I admire]]]]]]
 (Richards (2010: 36-37))

In this case, Force is a phase head and Transfers its complement TopP. As a result, DP *the man* and DP *whom* are not in the same Spell-Out domain and so the derivation converges.

But there are problematic examples to the analysis.²

- (11) a. This is the man [with whom next year I will dance.]
 b. This is the man [with whom, about linguistics, I talked.]

In (11), Topicalization occurs in the finite tensed relative clause, and PP *next year* and *about linguistics* occupy the specifier of TopP respectively.^{2 3} These structures are shown in (12).

- (12) a. [_{DP} the [_{ForceP} [_{NP} man][Force [_{TopP} [_{PP} **with whom**][Top [_{TopP} [_{PP} **next year**][Top [_{TP} I will dance]]]]]]]]
 b. [_{DP} the [_{ForceP} [_{NP} man][Force [_{TopP} [_{PP} **with whom**][Top [_{TopP} [_{PP} **about linguistics**][Top [_{TP} I will dance]]]]]]]]

(12) has two problems. First, if Force is a phase head following Richards (2010), two PPs are in the same Spell-Out domain, so the resulting linearization statement violates Distinctness condition. Therefore, Richards wrongly predicts that this sentence is ungrammatical. Second, generally, multiple Topicalization in English is banned as in (13)

² In this paper, I owe the judgment of sentences with no reference to my informants.

³ Following Larson (1985), I assume that bare-NP adverb *next year* is PP.

(13) a. **This book_i, to Robin_j I gave t_i t_j.*

(Culicover (1991:31))

b. **Last year, in St. Louis, we were living.*

(Culicover (1991:33))

English has only a single TopP, so multiple Topicalization in (13) cannot occur. Sentences of (11), however, are grammatical and therefore the structures of (12) may be wrong.

In this section, we overviewed Distinctness condition. This condition has to do with the process of imposing a linear order on the same labeled constituents of the tree and explain a variety of syntactic phenomena that bans two identically labeled constituents from being linearized in the same Spell-Out domain. However, it has the two problems as we saw above. In the next section, I try to solve these problems.

4. Proposal

In this section, in order to account for two problems discussed above, I modify the structure of (12). The modified structure is (13).

(13) [_{DP} the [_{ForceP} [_{NP} man]][_{Force} [_{RelP} [_{PP} with whom]][**Rel** [_{TopP} [_{PP} *next year*]][_{Top} [_{TP} I will dance]]]]]]]]

Based on this assumption, I propose (14).

(14) Three functional heads Rel, Top and Force are phase heads, trigger Transfer, and form Spell-out domains.

First, let us consider the case where Top is introduced into derivations. In this case, Spell-Out occurs when Top probes a topic element in its complement and then attracts it to its specifier, transferring its complement FocP or FinP to PF or SM interface, as shown in (15a). And then, Force merges with TopP and then Transfer it as shown in (15b).

- (15) a. $[\text{TopP Top } \underbrace{[\text{FocP Foc } [\text{FinP Fin } [\text{TP} \dots]}]}_{\text{Transfer}}$
 b. $[\text{ForceP Force } \underbrace{[\text{TopP Top} \dots]}_{\text{Transfer}}$

On the other hand, when Top does not occur in derivations, Force merges with FocP (or other phrases) and Transfer it as shown in (16).

- (16) $[\text{ForceP Force } \underbrace{[\text{FocP Foc } [\text{FinP Fin } [\text{TP} \dots]}]}_{\text{Transfer}}$

In the same way, the derivation of Rel head proceeds as in (17).

- (17) $[\text{RelP Rel } \underbrace{[\text{TopP Top } [\text{FocP Foc } [\text{FinP Fin } [\text{TP} \dots]}]}_{\text{Transfer}}$

Three phase heads, Force, Rel, and Top, are subject to Phase Impenetrability Condition (PIC).

- (18) Phase Impenetrability Condition (Chomsky (2000: 108))

In phase P with head H, the domain of H is not accessible to operations outside P and only H and its edge are accessible to such operations.

Given PIC, we predict that extraction of syntactic objects is banned from the complements of these phase heads. In the following subsections, I will discuss empirical supports for my proposal.

4.1. Top as Phase Head

The contrast between Topicalization and Focalization shows that Top head

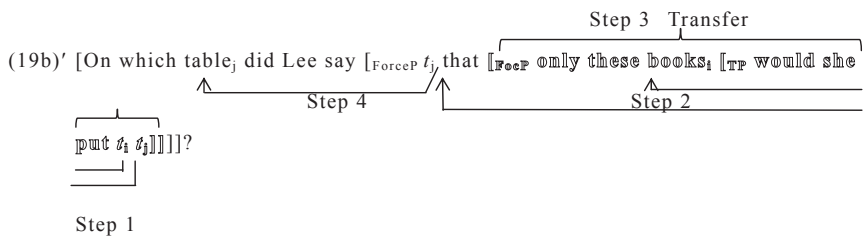
is a phase head. The former induces a syntactic island from which extraction of elements is banned, while the latter does not. This is illustrated in the following examples.

- (19) a. * On which table did Lee say that *these books* she will put?
 b. On which table did Lee say that **only these books** would she put?
 (Koizumi (1999:141))

When Topicalization occurs in an embedded clause, Top as a phase head triggers Transfer and then sends its complement to two interfaces. Then, the complement will be inaccessible to further syntactic operations due to PIC. First, in step 1, Top attracts *these books* to the specifier of TopP. Second, in step 2, the head Transfers TP. Finally, in step 3, *on which table* tries to move to the specifier of ForceP, but this movement violates PIC. Accordingly, this sentence is ungrammatical.



On the other hand, when Focalization occurs in an embedded clause, Foc as a non-phase head does not trigger Transfer of its complement which will be accessible to further syntactic operations. Therefore, which books can be extracted from the embedded clause. In step 1, Foc attracts **only these books** to the specifier of FocP. Then, in step 2, *on which table* moves into the specifier of ForceP, which serves as an escape hatch. Finally, in step 3, Force Transfers FocP. The *wh*-element at the specifier of ForceP is accessible to the attraction of Foc in the matrix clause. Thus, this sentence becomes grammatical.



4.2. Rel as Phase Head

Next, let us consider the case of Rel head.

- (20) a. This is the man [with whom *next year*_i I will dance t_i.]
 b. **Next year*_i, this is the man [with whom I will dance t_i.]
 c. *This is the man [*next year*_i with whom I will dance t_i.]
 d. *Next year*_i, I think [that I will dance with the man t_i.]

In finite relative clauses, Topicalization can be applied as shown in (20a). topicalized elements, however, cannot be extracted from relative clauses as shown in (20b) and also move into the highest positions of relative clauses in (20c). On the other hand, topicalized elements can be extracted from finite that-complement clause as shown in (20d). a phase head Rel triggers Transfer and then sends its complement to two interfaces. Then, the complement will be inaccessible to further syntactic operations due to PIC.

4.3. Force as Phase Head

Finally, let us consider the case of Force head. Force is the highest head of C-domain and has the same function of standard C as a phase head. Therefore, it is a phase head, but the phasehood differs between finite clauses and non-finite clauses.

- (21) a. * Sam_i, who I know [when you said you saw t_i], ...
 b. Sam_i, who I know [when to try to see t_i], ...

(Frampton (1990: 69-70)

In (21a), Sam cannot be extracted from finite clauses, whereas it can be extracted from non-finite clauses as shown in (21b). This asymmetry shows that Force head of non-finite clauses is not subject to PIC, and therefore does not operate as a phase head.

Furthermore, on the contrary to finite tensed clauses, non-finite clauses in English do not have the layered projections.

- (22) a. John wants to give a book to this student.
 b. **EVEN THIS STUDENT**, John wants to give a book to.
 c. *John wants **EVEN THIS STUDENT** to give a book to.
 d. *This student*, John wants to give a book to.
 e. *John wants *this student*, to give a book to.

(Barrie (2010: 272))

As (22) shows, Topicalization and Focalization cannot occur in non-finite clauses though topicalized or focalized elements can move to a sentence first position. Therefore, non-finite clauses in English do not have functional projections such as TopP or FocP.

5. Analysis

In this section, I will solve the two problems we saw in section 3, and also can explain examples of (7) by my proposal.

First, let us consider (11), which has the following modified structure (23) by my proposal.

- (11) a. This is the man [with whom *next year* I will dance.]
 b. This is the man [with whom, *about linguistics*, I talked.]

- (23) a. $[_{DP} \text{ the } [_{Force} [_{RelP} [_{PP} \text{ with whom}]] [_{Rel} [_{TopP} [_{PP} \text{ next year}]]] [_{Top} [_{TP} \text{ I will dance}]]]]]]]$
 b. $[_{DP} \text{ the } [_{Force} [_{RelP} [_{PP} \text{ with whom}]] [_{Rel} [_{TopP} [_{PP} \text{ about linguistics}]]] [_{Top} [_{TP} \text{ I will dance}]]]]]]]$

In (23), Phase heads, Top, Rel, Force, trigger Transfer, and then, linearization statements which violate Distinctness condition are not in the same Spell-Out domain. Moreover, two different positions, the specifier of RelP and the specifier of TopP, are occupied by two different PPs respectively. Therefore, my proposal can solve the two problems for Richards (2010).

Secondly, my proposal can explain the asymmetry between finite relative clauses and non-finite relative clauses as shown in (7). Non-finite relative clause (7) has the following structures (24) by my proposal.

(7) a. [_{DP} a person]_[PP with whom] to dance

b. *_[DP a person]_[DP whom] to admire

(24) a. [_{DP} [a [_{ForceP} [_{NP} person]] [_{Force}_[non-phase] [_{RelP} [_{PP} with whom [Rel [_{TP} PRO to dance]]]]]]]]]]

b. *_{[DP} [a [_{ForceP} [_{NP} person]] [_{Force}_[non-phase] [_{RelP} [_{DP} **whom** [Rel [_{TP} PRO to dance]]]]]]]]]]

In (24a), Force head in non-finite relative clause is not a phase head and cannot trigger Transfer. Therefore, it has no linearization statements which are bans on Distinctness condition in the Spell-Out domain. In contrast, in (24b), it has a linearization statement which violates Distinctness condition in the Spell-Out domain, <DP, DP>.

6. Conclusion

In this paper, by exploring some problems of Distinctness introduced by Richards (2010), I proposed that Rel, Top and Force in the Cartographic approach are phase heads whereas Foc and Fin are not. This proposal solved the problems for Richards (2010) and also tried to unify Cartographic approach with phase model.

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