# An Analysis of Comparative Correlatives in English*

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**Abstract**

This paper investigates the syntax of so-called Comparative Correlative Constructions in English. After reviewing Iwasaki's (2017) analysis of the construction, I present three sets of evidence against the analysis with respect to the assumption that the first clause is base-generated in the left periphery of the second clause. Alternatively, I propose that the first clause is base-generated in the sister position of the V head in the second clause and subsequently moves to Spec,TopP of the second clause.

**_Keywords_**: Comparative Correlatives, relative clause, Cartography, variable binding, VP substitution, central adverbial clause, peripheral adverbial clause

## 1. Introduction

Comparative Correlatives, exemplified in (1a), is a construction which consists of two clauses each of which begins with a definite article *the* and a comparative phrase (e.g., *more*), and express the correlational meaning between the comparative phrase in each clause in terms of their degree. In the discussion below, the first clause beginning with *the* and a comparative phrase (*more* in (1)) is referred to as C1, and the second one as C2, as in (1b), only for ease of explanation:

(1) a.  The more you eat, the fatter you get.        (Den Dikken (2005: 497))

    b.   [$_{C1}$ The more you eat], [$_{C2}$ the fatter you get]

In the literature, C2 is assumed to be the main clause of the Comparative Correlative sentence, on the basis of the following three pieces of evidence, which come from Culicover and Jackendoff (1999). First, tag-questions in Comparative Correlatives can only refer to the subject of C2, as in (2):

(2)    Tag-questions
        a.   The more we eat, the angrier you get, don't you?
        b.  *The more we eat, the angrier you get, don't we?

                               (Culicover and Jackendoff (1999: 548))

Given that pronouns in tag-questions are typically assumed to refer only to subjects in main clauses, it is evident from the contrast in (2) that C2 is the main clause.

    Second, when Comparative Correlatives are selected by predicates which takes subjunctive complements, only C2 may have subjunctive morphology, as in (3):

(3)    Subjunctive Morphology
      It is imperative that/I demand that
        a.   the more John eats, the more he pay(s).
        b.  *the more John eat, the more he pay(s).

                               (Culicover and Jackendoff (1999: 548))

    The third evidence comes from Subject-Auxiliary Inversion (SAI). In Comparative Correlatives, only C2 permits SAI:

(4)    Subject-Auxiliary Inversion (SAI)
        a.  ?The more Bill smokes, the more does Susan hate him.

      b.  *The more does Bill smoke, the more Susan hates him.

      c.  *The more does Bill smoke, the more does Susan hate him.

Given that SAI is one of the main clause phenomena, the contrast between (4a) and (4b, c) indicates that C2 is the main clause.

Following the literature in assuming that C2 is the main clause, I will focus on the structural relationship between C1 and C2 in this paper. I will first review the recent analysis of Comparative Correlatives, specifically, by Iwasaki (2017), and then point out one problematic aspect of the analysis, with regard to his proposal that C1 is base-generated in the left periphery of C2. Alternatively, I will modify Iwasaki's analysis and argue that C1 is base-generated in the complement of the verb in C2 and subsequently moves to the left periphery of C2.

This paper is organized as follows. Section 2 reviews Iwasaki (2017), focusing on three points of his analysis: (i) movement of comparative phrases to Spec,FocP in each clause, (ii) base-generation of C1 in Spec,TopP of C2, and (iii) the status of C1 as DP with a relative clause. Section 3 provides three pieces of evidence which show that the second point of Iwasaki's (2017) analysis is problematic. Section 4 presents an alternative analysis. Section 5 concludes the paper.

## 2.    Previous Analysis: Iwasaki (2017)

This section reviews Iwasaki (2017), which is the latest work on Comparative Correlatives in English.[1] He adopts Iwasaki and Radford's (2009) analysis of Comparative Correlatives, which is based on Rizzi's (1997) cartographic approach to the clausal left periphery:

(5)  $[_{\text{ForceP}}$ $[_{\text{Force}}$ Ø$]$ $[_{\text{TopP}}$ $[_{\text{DP}}$ The more you eat$]$ $[_{\text{Top}}$ Ø$]$ $[_{\text{FocP}}$ $[_{\text{DP}}$ the fatter$]_i$

      $[_{\text{Foc}}$ Ø$]$ $[_{\text{FinP}}$ $[_{\text{Fin}}$ that$]$ $[_{\text{TP}}$ you $[_{\text{T}}$ will$]$ $[_{\text{RP}}$ $[_{\text{R}}$ be$]$ $t_i]]]]]]$

                                    (Adapted from Iwasaki (2017: 86))

In (5), C1, *The more you eat*, is analyzed as DP which is base-generated in Spec,TopP. The comparative phrase *the fatter* in C2 moves to Spec,FocP of C2. In what follows, we will see his analysis in detail, focusing on (i) movement of comparative phrases to Spec,FocP, (ii) base-generation of C1 in Spec,TopP, and (iii) the status of C1 as DP with a relative clause.

## 2.1   Comparative Phrases Move to Spec,FocP

Iwasaki (2017) presents evidence for focalization in Comparative Correlatives, which he attributes to Iwasaki and Radford (2009). He follows Hatakeyama (2004) in assuming that a focalized element functions as an operator and shows the Weak Crossover effects, as illustrated in the following examples in (6):

(6)   a.   *ROBIN$_i$ his$_i$ mother really appreciates.

    b.   *To ROBIN$_i$ his$_i$ mother gave lots of presents.

(7)   a.   Robin$_i$, his$_i$ mother really appreciates.

    b.   To Robin$_i$, his$_i$ mother gave lots of presents.

((6)-(7), Culicover (1991: 34))

In (6), focus topicalization of *ROBIN* and *to ROBIN* induces Weak Crossover effets, whereas in (7), topicalization of *Robin* and *to Robin* does not show Weak Crossover effects. Similarly, in the Comparative Correlative examples below, *the* + comparative phrases in C1 and C2 show Weak Crossover effects:

(8)   a.   *The more money the University has, [THE MORE RESEARCH PROJECTS]$_i$ its$_i$ members can concentrate on $t_i$.

    b.   The more money [the University]$_j$ has, [THE MORE RESEARCH PROJECTS]$_i$ its$_j$ members can concentrate on $t_i$.          [i ≠ j]

    c.   ??The more books$_i$ their$_i$ covers misrepresent $t_i$, the worse it is.

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    d.  ??The more you complain, the more books$_i$ their$_i$ covers will misrepresent.

(Iwasaki (2017: 80))

In (8a), THE MORE RESEARCH PROJECTS moving across the co-indexed *its* produces Weak Crossover effects, while in (8b), movement of THE MORE RESEARCH PROJECTS across the non-co-indexed *its* does not induce the same effects. It is also the case that the examples in (8c, d) both illustrate that movement of *the* + a comparative phrase across the co-indexed elements leads to degradation. Given this observation, Iwasaki (2017) concludes that fronting of the comparative phrases in Comparative Correlatives involves focalization.

    Another piece of evidence Iwasaki offers comes from Subject-Auxiliary Inversion (SAI). Focus fronting of negative expressions triggers SAI, as in (9a). Likewise, SAI occurs in Comparative Correlatives, as in (9b):

(9)  a.  Under no circumstances would I cheat in exams.

(adapted from Iwasaki (2017: 9))

    b.  The more you praise him, the more willing *will* he be to cooperate with you.    (Iwasaki (2017: 48), citing Fillmore (1989: 24))

SAI in (9b) suggests that comparative phrases are focalized in Comparative Correlatives.

## 2.2  C1 is base-generated in Spec,TopP

    Now let us turn to Iwasaki's (2017) analysis of the base-generated position of C1. Iwasaki argues that C1 is base-generated in Spec,TopP of C2, following Iwasaki and Radford (2009):

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(10)  [TopP The more we eat [Top′ [Top Ø ] the fatter you get]]

(Iwasaki (2017: 46))

He assumes with Beck (1997) that Comparative Correlative is a kind of the conditional construction and offers three pieces of evidence. First, English Comparative Correlatives allow subjunctive mood as *if*-clauses do:

(11)  a.   If I *were* more handsome, I *could* attract more ladies.

　　　b.   If he *had found* the cancer earlier, he *could* (likely) *have remedied* it.

(12)  a.   The more handsome I *were*, the more ladies I *could* attract.

　　　b.   The earlier he *had found* the cancer, the more likely he *could have remedied* it.

((11)-(12), Iwasaki (2017: 44))

In (11), *if*-clauses allow the subjunctive mood and morphology, and in (12), the C1 of Comparative Correlatives allow the subjunctive mood and morphology, too. This indicates that C1 is similar to *if*-clauses.

The second evidence comes from NPI licensing. As shown in (13), *if*-conditional clauses license NPIs:

(13)  a.   If you put so much as a pinch of salt in this soup, I will throw it out.

　　　b.   If he has ever told a lie, he must go to confession.

　　　c.   If you had left any later, you would have missed the plane.

　　　d.   If John has stolen the least amount of money, Mary has probably noticed it.

(Heim (1984: 99))

In (13), NPIs (i.e., *so much as*, *ever*, *any*, and *the least amount of*, respectively) are

licensed within *if*-conditional clauses. As with *if*-conditionals, Comparative Correlatives license NPIs:

(14) a. The earlier one finds *any* kind of cancer, the more likely one can remedy it.

    b. The more kids *care for* animals, the more they love their neighbours.

    c. The more you have *ever* read, the more you can understand the meaning of life.

<div align="right">(Iwasaki (2017: 44))</div>

In (14), NPIs such as *any*, *care for*, and *ever* are licensed in the C1, which also suggests that C1 is similar to conditional clauses.

    The third evidence comes from unavailability of the future tense *will*. Iwasaki assumes that conditional clauses do not allow future tense *will*, following Fillmore (1986: 177) and Huddleston and Pullum (2002: 744):

(15) a. *If it'll rain, I'll bring my umbrella.

    b. *If you'll win, you'll get a nice prize.

<div align="right">(Fillmore (1986: 177))</div>

Iwasaki cites the observation of Abeillé and Borsley (2008: 1146) which shows that C1 in Comparative Correlatives excludes the future tense *will*:

(16) The more I (*will) read, the more I will understand.

<div align="right">(Abeillé and Borsley (2008: 1146))</div>

In (16), *will* cannot occur in C1. Iwasaki argues that the unavailability of *will* in C1 in (16) "supports the position that the first clause is a conditional clause" (Iwasaki

(2017: 45)).

Thus, C1 shares a number of properties with conditional clauses. Given this similarity, Iwasaki argues that C1 plays the same informational role as conditional clauses, which are informationally old/given, and that C1 and C2 comprise *topic* and *comment*; the (English) Comparative Correlative construction as a whole can be analyzed as a *Topic-Comment* structure.[2]

On the basis of the consideration of the informational contrast, Iwasaki proposes that after the formation of TP, TP will be built up to FocP, to which the comparative phrase in C2 moves, and that TopP is built above the FocP to satisfy the requirement of the informational contrast.

## 2.3   C1 is DP with Relative Clauses

Lastly, let us see Iwasaki's argument that C1 is DP with a relative clause. Applying to C1 Kayne's (1994) raising analysis of relative clauses, as in (17a), he proposes the structure for C1, as in (17b):

(17)  a.   $[_{DP} [_D \text{ the}] [_{CP} \text{friends}_i [_C \text{ that/Ø }] [_{TP} \text{ you have } t_i]]]$

b.   $[_{DP} [_D \text{ the}] [_{FocP} [\text{more friends}]_i [_{Foc} Ø] [_{FinP} [_{Fin} \text{ that/Ø }] [_{TP} \text{ you have } t_i]]]]$

(Iwasaki (2017: 59))

In (17b), *the* occurs as D head of the whole C1, and the comparative phrase *more friends* is solely fronted to Spec,FocP. He argues that this structure has the following advantages. First, he argues the structure in (17b), where the determiner *the* and the comparative phrase *more friends* do not form a single constituent, is supported by the following pattern of coordination:

(18)  a.   [The more and more snow] we have, the more time would be needed

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to walk to the station.

b. *[The more and the more snow] we have, the more time would be
needed to walk to the station.

c. ??[The more rain and more snow] we have, the more time would be
needed to walk to the station.

d. [[The more rain] and [the more snow]] we have, the more time would
be needed to walk to the station.

(Iwasaki (2017: 59))

In (18b), if *the* and *more* formed a constituent, the sentence would have a structure
as in (19):

(19) [[&P [the more] [&' and [the more]]] [NP snow]]

In (19), *the more* and *the more* are coordinated and the resulting *the more and the
more* modifies the NP *snow*. If coordination like 19 were permitted by the grammar,
18b would be acceptable, contrary to the fact. With respect to (18c) and (18d),
Iwasaki argues that the contrast between them can be explained by assuming with
Taylor (2006: 50) that the sentences such as (18c) and (18d) are derived by Right
Node Raising (RNR). Taylor gives (20a) the structure in (20b):

(20) a. The more apples and the less candy Bill eats, the healthier he is.

b. The more apples [Bill eats] and the less candy [Bill eats], the
healthier he is.

(20a) is derived from (20b) by deleting *Bill eats* in the first conjunct. Given that (18c)
and (18d) are derived by RNR in the same manner, Iwasaki argues that (18c) is
degraded since the bracketed phrase in (18c) lacks *the* in the second conjunct and

cannot be the combination of two instances of "*the* + comparative phrase".

Second, Iwasaki argues that the structure in (17b) can account for the ban on preposition pied-piping in C1, as in (21):

(21)  a.  *To the more people that you give offence, the harder a time you'll have.

   b.  The more people to whom you give offence, the harder a time you'll have.

(Iwasaki (2017: 60-61))

The ungrammaticality of (21a) is explained by the analysis in (17b). An element cannot move out of a restricted relative clause to a position preceding the head noun of the restricted relative clause in general.

Third, Iwasaki's structure can avoid the problem of the Doubly Filled Comp Filter (DFCF, Chomsky and Lasnik (1977)), which requires that C head be empty when Spec,CP is overtly filled. With a simple CP structure, C1 would have the structure in (22):

(22)  [CP [*The more books*]i [C *that*] you read *t*i]         (Iwasaki (2017: 61))

Since Spec,CP and C head are both overtly filled, (22) violates DFCF. In contrast, Iwasaki's analysis gives C1 the structure in (23):

(23)  [DP [D *The*] [FocP *more* friendsi [Foc Ø] [FinP [Fin *that*] [TP you have *t*i]]]]
(Iwasaki (2017: 61))

Since the head and its Spec are not filled simultaneously, (23) does not violate DFCF.

Fourth, Iwasaki's analysis can also explain the fact that SAI is prohibited in

C1, as shown in (24):


(24)  a.   The more (*do) you study, the more you understand.

      b.   The more you study, the more (%do) you understand.

<div align="right">(Iwasaki (2017: 56))</div>


The relative clause also excludes SAI in Standard English:


(25)   *The car which only rarely did I drive is in excellent condition.

<div align="right">(Iwasaki (2017: 62))</div>


The similarity between C1 and the relative clause with respect to SAI can be straightforwardly captured by Iwasaki's proposal that C1 is DP with a relative clause.

    So far, we have seen Iwasaki's (2017) analysis of Comparative Correlatives, focusing on movement of comparative phrases, base-generation of C1 in Spec,TopP, and DP status of C1. In the next section, I will point out that the second point of Iwasaki's analysis, namely, base-generation of C1 in Spec,TopP, is problematic on the basis of three pieces of evidence.


## 3.   Evidence against Base-Generation of C1 in Spec,TopP

    The previous section focused on the ingredients of Iwasaki's (2017) analysis. This section turns now to point out that the second point of his proposal faces at least three problems, two of which have been hitherto unreported. One problem comes from variable binding. Iwasaki's analysis predicts that the elements in C2 cannot bind the elements in C1, since the elements in C2 cannot c-command any element in C1 throughout the derivation. However, this prediction is not borne out. Culicover and Jackendoff (1999) observe the following contrast with respect to variable binding:

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(26) a.   The more lobbyists he$_i$ talks to, the more corrupt every senator$_i$
          seems to become.

     b.   *The more time that every senator$_i$ spends with lobbyists, the more
          likely he$_i$ is to succumb to corruption.

                                        (Culicover and Jackendoff (1999: 563))

(26a) illustrates that the variable *he* in C1 can be bound by *every senator* in C2. In contrast, (26b) shows that the variable *he* in C2 cannot be bound by *every senator* in C1.

Furthermore, two pieces of new evidence below are also problematic for Iwasaki's proposal on the base-generated position of C1. The first evidence comes from VP substitution. Haegeman (2003, 2012) divides adverbial clauses into two groups: *peripheral* adverbial clauses and *central* adverbial clauses. Haegeman (2012) proposes that "peripheral adverbial clauses are external to TP and are merged in parallel with the CP" (Haegeman (2012: 170)), and hence not affected by VP substitution and VP ellipsis. VP substitution is exemplified in (27) with the peripheral adverbial clause *while his thesis will not be discussed*:

(27)   While his thesis will not be discussed, John will be invited for the
       interview and so will Bill.
       (i)   'Bill will also be invited for the interview.'            [strict identity]
       (ii)*'Bill$_i$ will also be invited for the interview while his$_i$ thesis is not
             being discussed.'                                        [sloppy identity]
                                        (Adapted from Haegeman (2012: 171))

In (27i), VP substitution with the peripheral adverbial clause has a strict identity reading in which *his* in the adverbial clause refer to *John* in the antecedent clause. In contrast, (27ii) shows that VP substitution with the peripheral adverbial clause

excludes a sloppy identity reading where *his* in the adverbial clause refers to Bill. Given that peripheral adverbial clauses are merged with CP, the peripheral adverbial clause in (27) is external to the domain subsumed by VP substitution, so that VP substitution with the peripheral adverbial clause can only have a strict identity reading.

As for the central adverbial clauses, Haegeman (2003) proposes that they are merged with the matrix clause at an earlier point of the derivation than the peripheral adverbial clauses, before TP is completed, so that they are affected by VP substitution, as illustrated in (28):

(28) If his paper is accepted, John will go to the conference and so will Mary.

    (i)   Mary will go to the conference if *John's* paper is accepted.

[strict identity]

    (ii)  Mary will go to the conference if *her* paper is accepted.

[sloppy identity]

(Adapted from Haegeman (2003: 325))

In (28), VP substitution with the central adverbial clause permits both a strict identity reading and a sloppy identity reading. Given that central adverbial clauses are merged within TP, the central adverbial clause *if his paper is accepted* are subsumed by the domain for VP substitution, so that the central adverbial clause can be construed with both a strict and a sloppy identity reading for *his*.

Assume with Haegeman (2003, 2012) that TP external, peripheral adverbial clauses cannot have a sloppy identity reading in VP substitution. Then, Iwasaki's proposal predicts that C1 cannot have a sloppy identity reading in VP substitution. However, this prediction is not borne out, as the following sentence shows:

(29) The more papers of his are accepted, the more conferences John will go

to, and so will Mary.

(i) The more papers of John's are accepted, the more conferences Mary

will go to.                                                    [strict identity]

(ii) The more papers of hers are accepted, the more conferences Mary

will go to.                                                    [sloppy identity]

In (29), VP substitution with Comparative Correlatives can have both a strict identity reading (29i) and a sloppy identity reading (29ii). Thus, Iwasaki's analysis wrongly excludes a sloppy identity reading.

The second evidence comes from an example where C1 occurs as an element of C2:

(30)  I am going to swat this fly with War and Peace.

(Riemsdijk (2017: 1667))

(31)  With the heavier books you have finished reading, the more strongly

I am going to swat this fly.

In (30), *with War and Peace* occurs as an Instrument in the verbal phrase *swat this fly*. In the same manner, *with the heavier books you have finished reading* in (31) is interpreted as an Instrument in the verbal phrase *swat this fly* in C2 *the more strongly I am going to swat this fly*. This suggests that C1 *with the heavier books you have finished reading* in (31) is base-generated as an Instrument in the verbal phrase in C2.

So far, we have seen that the facts concerning variable binding, VP substitution, and C1 as an Instrument argument in C2, are problematic for one ingredient of Iwasaki's (2017) analysis, namely, base-generation of C1 in Spec,TopP. In the next section, I will propose a refinement of Iwasaki's analysis regarding this point.

## 4. Refinement of Iwasaki's (2017) Analysis

In this section, I propose a refinement of Iwasaki's analysis with respect to the problematic point of his analysis, specifically, his proposal that C1 is base-generated in Spec,TopP of C2. Instead, I will argue that C1 is base-generated in the complement of V in C2 and then moves to Spec,TopP of C2.

To implement my analysis, I assume with Stroik (1990) that adverbial elements are base-generated in the sister of V, as in (32):

(32)  $[_{VP} [_{V'} V_i [_{VP} DP [_{V'} t_i Adv]]]]$          (Adapted from Stroik (1990: 657))

Given (32), I propose that C1 is base-generated in the sister of V in C2, as in (33a), and subsequently moves to Spec,TopP of C2, as in (33b):[3]

(33)  *Proposed Structure*
   a.   $[_{VP} [_{V'} V_i [_{VP} DP [_{V'} t_i C1]]]]$
   b.   $[_{ForceP} Force [_{TopP} [_{DP} The more ...]_j Top [_{FocP} [_{DP} the more]_i Foc [_{FinP}$ Fin $[_{TP} you T [_{vP} ... [_{VP} t_i ... t_j ...]]]]]]]]$

In (33), C1 is base-generated in the sister of V in C2, and moves to Spec,TopP in C2. In what follows, we will see how the proposed analysis accounts for the cases problematic for Iwasaki's analysis.

First, we consider the case of variable binding in (26), repeated in (34):

(34)  a.   The more lobbyists he_i talks to, the more corrupt every senator_i seems to become.
       b.   *The more time that every senator_i spends with lobbyists, the more likely he_i is to succumb to corruption.

The proposed analysis in (33) gives (34a) the following structure:

(35)   ... [$_{TopP}$ [The more lobbyists *he* ...]$_j$ Top [$_{FocP}$    [the more...]$_i$ Foc ... [$_{TP}$ *every senator* T [$_{vP}$ ... $t_i$ ... [The more lobbyists he ...]$_j$]]]]

In this structure, *every senator* in Spec,TP of C2 c-commands C1 in the base position, and therefore *every senator* can bind *he* in C1. In contrast, (34b) has the following structure:

(36)   ... [$_{TopP}$ [The more time that *every senator* ...]$_j$ Top [$_{FocP}$ [the more likely]$_i$ Foc ... [$_{TP}$ *he* T [$_{vP}$ ... $t_i$ ... [The more time that every senator ...]]]]]

In (36), *every senator* does not c-command *he* throughout the derivation, and therefore cannot bind *he*, leading to ungrammaticality.

In addition to the case where subjects in C2 bind elements in C1, as in (34a), objects in C2 can also bind elements in C1:

(37)   a.   The more positively *it*$_i$ is evaluated by two reviewers, the more likely they will be to accept *every paper*$_i$ for publication.

   b.   The more teaching load *she*$_i$ accepted, the more salary they gave *every female teacher*$_i$.

In (37a), *every paper* in the object position of *accept* in C2 binds *it* in the subject position of C1, and in (37b), *every female teacher* in the object position of *gave* in C2 binds *she* in the subject position of C1. The structure in (33) can also account for these examples. The examples in (37a, b) have the following structures in (38a, b), respectively:

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(38) a. ... [$_{TopP}$ [The more ... *it* ...]$_j$ Top [$_{FocP}$ [the more ...]$_i$ Foc ... [$_{TP}$ they T ... [$_{vP}$ accept [$_{VP}$ $t_i$ ... [$_{VP}$ *every paper* [$_{VP}$ ... ~~[the more ... *it* ... ]~~$_j$]]]]

   b. ... [$_{TopP}$ [The more ... *she* ...]$_j$ Top [$_{FocP}$ [the more ...]$_i$ Foc ... [$_{TP}$ they T ... [$_{vP}$ gave [$_{VP}$ *every female teacher* [$_{VP}$ $t_i$ ... [$_{VP}$ ... ~~[the more ... *she* ... ]~~$_j$]]]]

In these structures, objects in C2 c-command C1 in their base positions, and hence the objects can bind variables in C1.

Next, let us turn to the case of VP substitution in (29), repeated here in (39):

(39) The more papers of his are accepted, the more conferences John will go to, and so will Mary.

   (i) The more papers of John's are accepted, the more conferences Mary will go to.                          [strict identity]

   (ii) The more papers of hers are accepted, the more conferences Mary will go to.                          [sloppy identity]

Assume with Hatakeyama et al. (2010) that *So*-inversion is derived in three steps: VP ellipsis, *so* insertion, and I-to-C movement. Then. the sentence in (40a) has the structure in (40b):

(40) a. Bill must be a genius and so must be Ann.

   b. [$_{CP}$ *so* [$_{C'}$ *must-be*$_i$ [$_{TP}$ *Ann* [$_{T'}$ $t_i$ [$_{VP}$ Ø]]]]]

                                        (Hatakeyama et al. (2010: 32))

On the basis of this assumption about derivation of *So*-inversion constructions, the proposed analysis of Comparative Correlatives gives the antecedent clause in

(39) the base structure in (41a) and the surface structure in (41b):

(41)　a.　John will [$_{vP}$ go to the more conferences  [the more papers of his are accepted]]

　　　b.　[[the more papers of his are accepted],  John will [$_{vP}$ go to the more conferences [the more papers of his are accepted]]]

On the other hand, the elliptical clause in (39) has the following derivation:

(42)　a.　Mary will [$_{vP}$ go to the more conferences [the more papers of his are accepted]]

　　　b.　*VP Ellipsis*

　　　　Mary will [$_{vP}$ go to the more conferences [the more papers of his are accepted]]

　　　c.　*So-insertion*

　　　　[$_{CP}$ *so* [$_{C'}$ C [$_{TP}$ *Mary* [$_{T'}$ *will* [$_{vP}$ go to the more conferences [the more papers of his are accepted]]]]]]

　　　d.　*I-to-C Movement*

　　　　[$_{CP}$ *so* [$_{C'}$ C+*will* [$_{TP}$ *Mary* [$_{T'}$ *will* [$_{vP}$ go to the more conferences [the more papers of his are accepted]]]]]]

(42a) indicates the underlying structure of the elliptical clause. This structure yields (42b) by VP Ellipsis. Then the resulting structure leads to (42c) by *So*-insertion. Finally, I-to-C movement of *will* results in the surface structure of the elliptical clause in (39).

　　　As we have seen above, Haegeman (2012) argues that the VP substitution with central adverbial clauses has both a strict identity reading and a sloppy identity reading, since central adverbial clauses are base-generated within TP and affected by

VP substitution. The same analysis holds for VP substitution in Comparative Correlatives, given the proposed analysis of Comparative Correlatives. Since C1 is base-generated in VP of C2, as shown in (42a), C1 is affected by VP substitution. Consequently, as with VP substitution with central adverbial clauses, a strict identity reading and a sloppy identity reading are both available in VP substitution with Comparative Correlatives.

Finally, let us consider the sentence in (31), repeated below in (43), where C1 is *Instrument* of the verb *swat* in C2:

(43)  With the heavier books you have finished reading, the more strongly I
am going to swat this fly.                                    [= (31)]

The proposed analysis gives the sentence in (43) the following underlying structure:

(44)  ... [$_{TopP}$ [With the heavier books...]$_j$ Top [$_{FocP}$  [the more ...]$_i$ Foc ... [$_{TP}$ ...
T [$_{vP}$ ... swat $t_i$ [$_{VP}$ this fly [$_{VP}$ ~~swat~~ ~~[with the heavier books...]$_j$~~]]]]]]

C1, *with the heavier books you have finished reading*, is base-generated in the complement position of C2, and hence C1 can be construed as an instrumental argument of the verb in C2.

Summarizing this section, we have proposed a refinement of Iwasaki's (2017) analysis regarding the base-generated position of C1, and then argued that the proposed structure in (33) provides a unified account of the problematic cases for Iwasaki's (2017) analysis of the base-generated position of C1.

## 5.    Conclusion

In this paper, reviewing Iwasaki's (2017) analysis of the Comparative Correlative constructions, I have pointed out empirical problems with the

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assumption that the first clause C1 is base-generated in Spec,TopP of the second clause C2. Instead, I have proposed that C1 is base-generated in the sister position of V in C2, and subsequently moves to Spec,TopP in C2.

**Notes**

1)    Iwasaki (2017) also proposes analyses of Comparative Correlatives in Jamaican English, German, Dutch, and Japanese.

2)    As another argument for topic status of C1, Iwasaki applies Boeckx's (2007) analysis of the Cleft construction in English to Comparative Correlatives. Boeckx argues that in some languages like Hungarian which structurally represent focus, 'sole focus-driven fronting' works to provide an appropriate focal interpretation, while English does not represent focus in a structural way in Cleft constructions. To achieve an appropriate focal interpretation, topicalization is obligatory in addition to focus fronting in English in Clefts. Iwasaki further follows Boeckx in that this

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strategy in English realizes the informational contrast between the elements in Spec,FocP and Spec,TopP in a structural way.

3)  According to Iwasaki (2017: 51, fn.3; 79), Iwasaki (2008) proposes a similar analysis, in which C1 is adjoined to VP in C2 in the underlying structure and subsequently moves to Spec,TopP of C2. However, since I found it impossible to obtain the original paper either from the author or by the institution, I cannot compare our analysis with Iwasaki's (2008) analysis in the present paper.

## References

Abeillé, Anne and Robert D. Borsley (2008) "Comparative Correlatives and Parameters," *Lingua* 118, 1139-1157.

Beck, Sigrid (1997) "On the Semantics of Comparative Conditionals," *Linguistics and Philosophy* 20, 229-271.

Chomsky, Noam and Howard Lasnik (1977) "Filters and Control," *Linguistic Inquiry* 8, 425-504.

Culicover, Peter W. and Ray Jackendoff (1999) "The View from the Periphery: The English Comparative Correlatives," *Linguistic Inquiry* 30, 543-571.

Den Dikken, Marcel (2005) "Comparative Correlative Comparatively," *Linguistic Inquiry* 36, 497-532.

Fillmore, Charles J. (1986) "Varieties of Conditional Sentences," *ESCOL* 3, 163-182.

Fillmore, Charles J. (1989) "'Seiseikōzō-bumpō' ni yoru Nihongo no Bunseki Ichishian [A Tentative Analysis of Japanese by Construction Grammar]," *Nihongogakuno Shin Tenkai*, ed. by Susumu Kuno and Masayoshi Shibatani, 11-28, Kuroshio Shuppan, Tokyo.

Haegeman, Liliane (2003) "Conditional Clauses: External and Internal Syntax," *Mind & Language* 18, 317-339.

Haegeman, Liliane (2012) *Adverbial Clauses, Main Clause Phenomena, and the Composition of Left Periphery*, Oxford University Press, Cambridge.

Hatakeyama, Yuji (2004) *Eigono Kozoto Ido Gensho: Seiseirironto Sono Kagakusei* [*Syntactic Structure of English and Movement Phenomena: Generative Linguistics and Philosophy of Science*], Ootori-shobo, Tokyo.

Hatakeyama, Yuji, Kensuke Honda and Kosuke Tanaka (2010) "The So-Inversion Construction Revisited," *The Linguistic Review* 27, 25-36.

Heim, Irene (1984) "A Note on Negative Polarity and Downward Entailingness," *NELS* 14, 98-107.

Huddleston, Rodney and Geoffrey Pullum (2002) *The Cambridge Grammar of the English Language*, Cambridge University Press, Cambridge.

Iwasaki, Eiichi (2008) *A Minimalist Solution to the English Comparative Correlative with the Split CP Hypothesis and the Phase*, MA dissertation, University of Essex.

Iwasaki, Eiichi (2017) *The Syntax and Semantics of Comparative Correlatives: A Generative-Cognitive Language Design*, Sankeisha, Nagoya.

Iwasaki, Eiichi and Andrew Radford (2009) "Comparative Correlatives in English: A Minimalist-Cartographic Analysis," *Essex Research Reports in Linguistics*, 57.6, 1-14.

Larson, Richard K. (1988) "On the Double Object Construction," *Linguistic Inquiry* 19, 335-391.

Riemsdijk, Henk C. van (2017) "Free Relatives," *The Blackwell Companion to Syntax*, Second Edition, ed. by Martin Everaert and Henk C. van Riemsdijk, 1665-1710, John Wiley & Sons Inc., Hoboken, NJ.

Rizzi, Luigi (1997) "The Fine Structure of the Left Periphery," *Elements of Grammar*, ed. by Liliane Haegeman, 281-337, Kluwer, Dordrecht.

An Analysis of Comparative Correlatives in English

Stroik, Thomas (1990) "Adverbs as V-Sisters," *Linguistic Inquiry* 21, 654-661.

Taylor, Heather L. (2006) "Out on Good Syntactic Behavior," Ms., University of Maryland, College Park.

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