

Combined Process and Implied Limits *

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0. Introduction

Ross (1967:89) proposes a constraint called the Coordinate Structure Constraint as in (1) which can account for the ungrammaticality of examples like (2):

- (1) In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.
- (2) a. *What sofa will be put the chair between some table and?
b. *The lute which Henry plays and sings madrigals is warped.
c. *Which trombone did the nurse polish and the plumber computed my tax?

The Coordinate Structure Constraint captures the generalization that relative clauses and questions as in (2) cannot be derived by extracting one of the conjuncts or its part.

As Ross himself notes, however, there are some counterexamples to this constraint:¹

- (3) A. Here's the whisky which I went to the store and bought.
(Ibid.:93)
- B. How much can you drink and still stay sober?
(Lakoff (1986:152))
- C. That's the joke Spiro told and infuriated Paul.
(Morgan (1975:299))

These examples are acceptable sentences although each of them involves the extraction of the *wh*-element from one of the conjuncts.

The purpose of this paper is to attempt to explain the characteristics of the constructions as in (3A-C) in terms of "combined process" and "implied limit."

1. Some Examples of Combined Process

Quirk et al. (1972:592-4) note that in some coordinate clauses, “there is a combined process rather than two separate processes.” Consider the next examples:²

- (4) Did Peter tell lies and hurt his friend? (Ibid.:592)
 (5) Did John play football or go for a WÁLK? (Ibid.)
 (6) Did John break the window but refuse to pay for it? (Ibid.:593)

In these questions, what the interlocutor is asking is not whether one of the processes denoted by the coordinated verb phrases (henceforth, VPs) did take place or not, but whether these two processes occurred as a single combined process.³

Similarly, we can observe a combined process in imperative sentences as Quirk et al. notice:

- (7) a. Don’t drink and drive. (Ibid.)
 b. Make your bed and put away your clothes.
 (Schmerling (1975:224))

For example, in (7a), you are not forbidden to drink or to drive, but you are forbidden to drive after drinking (namely, to drive in a drunken state).

The same observation can be made in negative sentences like (8) and (9):

- (8) I didn’t go to the store and buy the whisky. (Ibid.:223)
 (9) John DIDN’t break the window but refuse to pay for it.
 (Quirk et al. (1972:593))

What is negated in (8) is a combined process of “going to the store and buying the whisky.” Then the statement in (8) can be understood to be true, for example, even when the person described as “I” went to the store but he didn’t buy the whisky there. In the same way, example (9) is a denial of the statement “John broke the window but refused to pay for it” and one could retort to the speaker of (9), saying “Yes, he did” (Quirk et al.:593).

There are some other examples of combined processes:⁴

- (10) How much can you drink and still stay sober?
(Lakoff (1986:152))
- (11) She's gone and ruined her dress now. (Schmerling (1975:217))
- (12) Sullivan wants the government to declare martial law and arrest
labor activities. (Goldsmith (1985:136))
- (13) I went to the store and bought some whisky.
(Schmerling (1975:217))

These sentences can be analyzed as having a coordinate structure involving VPs.

A combined process is, intuitively speaking, a single process which consists of two or more sub-processes represented by VPs. We can form a question in which two processes take place as a single process, we can tell you to do something that is a single action which is made of two sub-actions, we can negate a combined process, or we can make a statement of a single combined process.

2. Combined Process and Referential Expression

In this section, let us consider the relationship between a combined process and a referential expression. First, see the next example, where two sentences are conjoined:

- (14) I went to the store and I bought some whisky. (Ibid.:220)

According to Schmerling (1975), the meaning of sentence (14) includes the case in which "I went to the store and I did not buy the whisky at that store, but at some other store." Namely, example (14) denotes two separate processes. Compared with (14), all the examples (4)-(13), which have been treated as examples of combined processes, seem to contain conjoined VPs. We may, though tentatively, form the generalization that a compound sentence like (14) denotes separate processes while a sentence having conjoined VPs denotes a single combined/complex process. From these observations, we may postulate the assumption in the following way:

- (15) It is necessary for a sentence to contain conjoined VPs in order

for it to have a combined process reading.

One might object that in example (13), what is conjoined are bigger elements than VPs, [_I I VP] and [_I I VP], for example, where “I” and “I” are abbreviations of the categories INFL(ection) and its projection, respectively. There is no reason to deny that possibility, but there is another possibility that what is called Affix Hopping applies in a structure like [_I I [_{VP} VP and VP]] at PF-component.⁵ In this case, at LF-component, there is a structure of the configuration [_I I [_{VP} VP and VP]]. Since there is no reason to hinder those two derivations, at least two different coordinate structures seem to be available for sentences such as (13).

Related to this problem is Morgan’s (1975) observation that there is an ambiguity in meaning in the following example:

(16) I went to Gino’s and bought some raki. (Morgan (1975:299))

He points out that this sentence could be used to report two separate events or it could be used to report two connected acts. These intuitive interpretations can be explained more easily if we assume that the grammar of English allows two different coordinated structures in (16): conjoined sentences (or conjoined I’s) and conjoined VPs.

Here consider the following assumption:

(17) Just as an NP comes to have a referential function when it is closed by a DET(erminer), a VP comes to have a referential function and denote a single process when it is closed by an INFL element which is a function element like a DET.⁶

The idea that a function word like DET has the function of closing the construction is found in Bloomfield (1933) and Stowell (1989), among many others.

If the assumption (17) is correct, we have an explanation for the question of why a sentence that takes conjoined VPs as complement of its INFL element can refer to a single complex process, and an explanation is also given to the question of why a (compound) sentence can refer to two separate processes, when it can be analyzed as having

the coordinate structure of bigger phrases than VPs (typically Sentences (=IPs)), where a VP is a complement of INFL in each conjunct. In the former case, there is only one INFL phrase and in the latter case, there are two INFL phrases.

In this section we have considered the fact that VP conjoining involves a combined process readings, from the view point of referentiality. In the next section, we shall examine the facts about *wh*-movement from the coordinate structure, in terms of combined processes.

3. Combined Process and Extraction

Wh-movement obeys Ross's Coordinate Structure Constraint in the case of compound sentences and therefore extraction of a *wh*-element from one of the conjuncts is prohibited as examples in (18) show:

- (18) a. *This is the whisky which I went to the store and I bought.
 b. *When was that meeting that Roy called and he offended
 Bob and Jeff? (Schmerling (1975:221))

In these ungrammatical examples, *wh*-movement (relativization) has taken place and extracted a *wh*-element from one of the conjuncts (sentences), violating Ross's constraint. If we reconsider this fact from the view point of combined processes, we must say that extraction of a *wh*-element from one of separate processes is impossible.

Morgan (1975) makes an interesting observation on the counter-examples to Ross's constraint. Consider the next examples, where *wh*-movement takes place from only one of the conjuncts:

- (19) a. This is the skate that John got up and tripped over.
 b. Where's the raki I went to Gino's and bought?
 c. That's the joke Spiro told and infuriated Paul. (=3C)
 (Morgan (1975: 299))

Morgan observes that in each of the examples in (19), there is not a meaning of separate processes but only that of a combined process. The readings obtained from the conjoined VPs in these counterexamples are

only those of combined processes, although both combined process readings and separate process readings are available in the corresponding non-relativized sentences as we have seen in (16) above. In other words, the material just discussed also suggests that extraction is not allowed in the case of separate conjoined processes.

In addition to the condition that a combined process is possible when VPs are conjoined, there seems to be another kind of condition for a combined process involving *wh*-movement. See the following examples:

- (20) *What did he go to the store and scratch? (Lakoff (1986:157))
 (21) a. *Who did John hit Bill and kick?
 b. *Who did John hit and kick Sam? (Ibid.:158)
 (22) *What kind of a sandwich did John make and eat an apple?
 (Ibid.:159)

Of the various kinds of factors that make these examples unacceptable, the semantic relationships between the processes described by the VPs appear to be relevant to the unacceptability here.

Whatever relationships might be found between these conjoined VPs, they do not help *wh*-movement take place from one of the VP conjuncts. It seems that the relationships are not enough to combine any two processes to form a single complex process. What must be clarified is what kind of relationship is necessary for the constructions to be acceptable.

4. Some Characteristics of Extraction from One of the Conjuncts

This section makes clear the characteristics of the phenomenon of extraction from combined VP conjuncts. Three types of exceptions as in (3) (henceforth, referred to as type 3A, type 3B and type 3C) will be described here.

4.1. Type 3A

Let us start with the (3A) type, repeated here as (23):

(23)(=3A) Here's the whisky which I went to the store and bought.

In this type, extraction occurs from the second (right) conjunct.

Ross (1967:93-4) has made clear four characteristics of the second conjunct of this type. First, the verb of the second conjunct must be a non-stative verb:

- (24) a. Tony has a Fiat and yearns for a tall nurse.
 b. *The tall nurse who Tony has a Fiat and yearns for is cruel to him.

Secondly, the second conjunct cannot include negation:⁷

- (25) a. I went to the movies and didn't pick up the shirts.
 b. *The shirts which I went to the movies and didn't pick up will cost us a lot of money.

Thirdly, the tenses in the conjuncts must be same/parallel:

- (26) a. I went to the store and have bought some excellent whisky.
 b. *The excellent whisky which I went to the store and have bought was very costly.

Fourthly, the difference in relativizability between (23) and the (b) examples of (24)-(26) correlates with the difference between (27a) and (27b-d):

- (27) a. I went to the store to buy some whisky.
 b. *Tony has a Fiat to yearn for a tall nurse.
 c. *I went to the movie $\left. \begin{array}{l} \text{not to} \\ \text{to not} \end{array} \right\}$ pick the shirts up.
 d. *I went to the store to have bought some whisky.

The second conjunct from which extraction is allowed can be paraphrased to the purpose clause while the ones from which extraction is not allowed cannot be paraphrased to purpose clauses.

The second and third characteristics can be explained on the basis of (i) the assumption that if extraction from one of the conjunct VPs is possible, those VPs must form a combined process and (ii) the

assumption that in order to form a combined process, they must be closed by the same INFL element. (Cf. Morgan's observation on the examples in (19) and assumptions (15) and (17).)

We may at least say that a kind of "purposive" relationship is necessary between the two conjoined VPs in order for the type 3A to be possible.⁸

4.2. *Type 3B*

Now let us go to type 3B, repeated here as (28):

(28)(=3B) How much can you drink and still stay sober?

In this type, extraction takes place from the first (left) conjunct as does type 3C, in contrast with type 3A.

Goldsmith (1985) treats this type in detail and makes clear some interesting characteristics of the phenomenon of extraction from the first conjunct of conjoined VPs. Here are some examples:

- (29) a. How many courses can we expect our graduate students to teach and (still) finish a dissertation on time?
(Goldsmith (1985:133))
- b. How many counterexamples can the Coordinate Structure Constraint sustain and still be considered empirically correct?
- c. How many lakes can we destroy and not arouse public antipathy?
- d. Who is the most competent member the Commission can nominate and still preserve face in the international community?
- e. How much can you drink and not end up with a hangover the next morning?
(b)-(e) from Ibid.:135)

Goldsmith (1985) first notices the kind of extracted elements and points out that extraction works best when the element is a scalar quantity:

- (30) a. What can you drink and not end up with a hangover the next morning?

b. Who can this country elect and still survive? (Ibid.:136)

The examples in (30) is lower in acceptability than the examples in (29). He accounts for the difference, simply saying that a scalar quantity “enhances the contextual understanding that the action of the second conjunct takes place despite that of the first conjunct” (p. 136). But he does not pursue further the question of why it does indeed enhance the understanding. I will attempt to explore the reason for this in section 6.

Secondly, he observes that the second conjunct must be a bare VP, not an infinitival VP with *to*:

(31) How many courses can we expect our students to teach and

$$\left. \begin{array}{l} \text{still} \\ *to\ still \\ *still\ to \end{array} \right\} \text{write a decent dissertation?}$$

(Ibid.)

He does not provide an explanation of the question of why extraction from the first conjunct is not allowed if the second conjunct is a full infinitival VP.⁹ This question is also considered in section 6.

Thirdly, Goldsmith claims that the difference in acceptability depends on whether the actions described are specific or generic:

(32) a. How many courses can we expect our graduate students to teach and still finish their dissertations on time?

b. *How many courses did Mrs. Sykes teach last year and still finish her dissertation on time?

(Ibid.)

The reason, he asserts, is that generic activity types enhance the “despite” sense. He does not go into further detail about it.

Some informants, however, point out that (32b) improves if we put the adverbial *last year* at the end of a sentence as in (33). Other informants report that the unacceptability of the sentence does not change, but the sentence improves if you incorporate *was able to* into the sentence, as in (34) (regardless of the position of the adverbial).

(33) ?How many courses did Mrs. Sykes teach and still finish her dissertation on time last year?

(34) a. How many courses was Mrs. Sykes able to teach and still finish her dissertation on time last year?

- b. How many courses was Mrs. Sykes able to teach last year and still finish her dissertation on time?

In addition, the same informants that judge example (33) unacceptable say that the same sentence becomes acceptable if there is a context prior to (33) in which Mrs. Sykes had finished other dissertations in other fields twice before and in both cases she had been writing a thesis and teaching classes at the same time.

Furthermore, some informants say that examples like (35), though they contain the past tense just like (32b) and seem to represent actions which took place in a specific time and place, are acceptable:

- (35) a. How much did you drink last night and still stay sober?
b. How much did you drink and still stay sober last night?

The above data suggest that the acceptability of the actions described as “specific” varies depending on individuals, contexts, and kinds of relationships between conjoined actions.

Fourthly, Goldsmith (1985) points out that extraction from the first conjunct is not allowed if the conjunction does not have a “despite” reading:

- (36) a. *I tried to learn Sanskrit and become a palm-reader;
which language did you try to learn and become a mystery?
b. *Which bank did she urge Sam to open a bank account at
and pay his bills by check? (Goldsmith (1985:138))

He says that a kind of temporal/causal sense is involved in the conjunction in (36a) but the example is not acceptable.

Lakoff (1986) also makes interesting observations on the wide range of examples of types 3A, 3B and 3C.¹⁰ Let us concentrate on the characteristics of type 3B. Consider the following sentences:

- (37) What kind of herbs can you eat and not get cancer?
(38) What forms of cancer can you eat herbs and not get?
(Lakoff (1986:154))

Example (37) is one where extraction occurs from the first conjunct and

example (38) from the second conjunct. They correspond, in our terms, to type 3B and 3A, respectively. He notes that the implication in (37) is that eating herbs would lead to getting cancer while that in (38) is that eating herbs can lead to not getting cancer.

Lakoff also observes the contrast between (39) and (40):

(39) *How big a meal did he eat and feel satisfied?

(40) How small a meal can you eat and feel satisfied? (Ibid.)

His explanation is that type 3B can be used when the course of events is counter to expectation, while type 3A can be used when a course of events is expected. To eat a small meal and feel satisfied is counter to expectation. But it does not seem to explain why type 3B can be used when a course of events is counter to conventional expectation.

Related with example (39) is the observation made by my informants that example (39) becomes grammatical if you assume this situation: if you eat too great a meal, you will have a stomachache and get sick. This observation seems important in understanding the nature of cases of type 3B (and other types). This will be discussed in the next section.

4.3. Type 3C

Finally, note the examples of type 3C:

(41)(=3C) That's the joke Spiro told and infuriated Paul.

(42) a. That's the stuff that the guys in the Caucasus drink and live to be a hundred.

b. That's the kind of firecracker that I set off and scared the neighbors.

(Lakoff (1986:156))

Lakoff says that the relation between conjuncts in this type is that of "because" but that this type is different from type 3A in meaning as well as the place where extraction occurs.

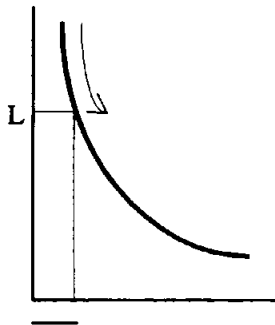
In the next section, an attempt will be made to account for the above-mentioned characteristics of extraction from one of the conjoined VPs.

5. Combined Process and Implied Limits

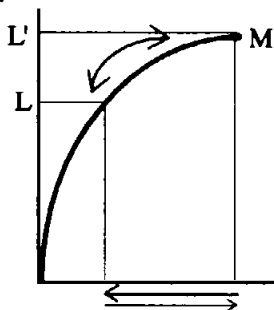
Here I introduce the notion “implied limit” and investigate the characteristics of types 3A, 3B and 3C somewhat more closely, focusing on the notion “implied limit” in the combined process; I also attempt to solve some questions concerning the combined processes involving extraction.

First, I will consider the meaning of extraction from the first conjunct of the VPs. We have both shared and individual knowledge. Suppose we have some shared/understood knowledge about the relation between two processes that take place at the same time. The following graphs intend to show examples of such relations:

- (43) a. How much can you drink and still stay sober?
b.



- (44) a. *How big a meal did he eat and feel satisfied?
b. How small a meal can you eat and feel satisfied?
c.



Graph (43b) shows the relation found in examples like “How much can you drink and still stay sober?” The horizontal axis indicates the amount of alcohol you drink. The vertical axis indicates the degree of sobriety. You will find a point below which sobriety ceases and inebriation takes over, which I will call “limit” and which is indicated as L as in (43b). The meaning of (43a) is to find the amount of alcohol which corresponds to the limit, satisfying the condition of staying sober: to determine the limit of staying sober while drinking. The notion of “limit” is present only in the idea of how much one can drink before not being sober. In this sense I will refer to the limit as implied limit.

Let me explain the point with a slightly different relation as in graph (44c), which is assumed to be the relation found in (44a-b). In (44c), the horizontal axis indicates the amount of food you eat and the vertical axis indicates the degree of satisfaction. Suppose that L in (44c) is a point below which the degree of satisfaction is not high enough for complete satisfaction and that in the range from L to L', you can say that you feel completely satisfied. And remember L' is a point above which you cannot feel satisfied but only feel sick.

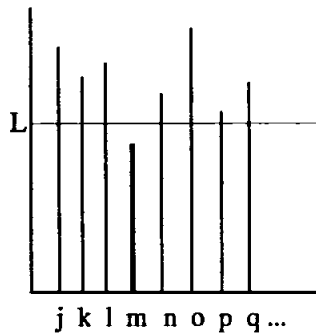
The meaning of (44b) is to find the amount of eating which corresponds to the limit of feeling satisfied while keeping the condition of feeling satisfied. The way to approach the limit L along the line which indicates the range of satisfaction is by going downwards. This is why you can use *how small a meal*, and why you cannot use *how big a meal*.¹¹

But why does (44a) become possible in a certain context? In the analysis here, we can explain it in the same manner as we have explained (44b). The meaning of this type of question is to fix the amount of x-process which corresponds to the limit of y-process while continuing y-process. Since there is another limit L' in the range of feeling satisfied, you can discover the amount of eating which corresponds to the limit L' while keeping the condition of feeling satisfied. In (44c), the way to do this is to proceed toward M(aximum) in an upwards direction along the line. This is why you can use *how big a meal* in (44a).

The idea of “implied limit” seems to work well in the next example:

- (45) a. What kind of music can you listen to and still get your work done. (Goldsmith (1985: 136))

b.



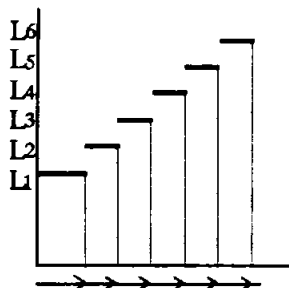
In (45), the horizontal axis represents the kind of music and the vertical axis represents the degree of disturbance in getting your work done. The meaning of the question is to ask the kind of music whose annoyance level is not beyond the limit within which you can get your work done.

Further examples provide the empirical background for the claim that extraction from the first conjunct is possible if there is an implied limit. Consider the following examples and graphs:

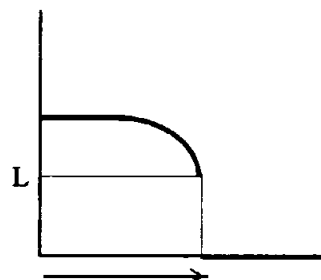
- (46) a. How far can you send a postcard and pay the same?
 b. How heavy a package can you send in Japan and pay the same?

(47) How long can you stop breathing and stay conscious?

(48) a.



b.



What sentences in (46) mean can be demonstrated by (48a), where the horizontal axis is distance/weight and the vertical axis is the amount of

money. What the speaker of (46) does is to find the distance/weight which corresponds to a kind of limit in money which in turn happens to be equal to a certain fixed amount of money. It can be used to ask about the system of postal service or to determine the maximum distance/weight which corresponds to each limit (L1, L2, L3, L4, L5, L6).

Similarly, graph (48b) shows that the meaning of sentence (47) is to find the length of time which corresponds to the limit of your consciousness.

The examples of type 3B and type 3C and their graphs discussed above suggest that:

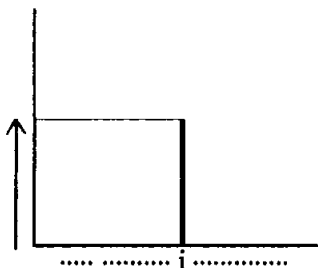
- (49) The basic property of extraction from the first conjunct of coordinated VPs is to determine the degree or the kind indicated by the first conjunct VP that can satisfy the conditions imposed by the second conjunct VP.

How about type 3A? The extraction from the second conjunct seems to have nothing to do with the correlation between the processes described by the first and second conjunct VPs. Rather, it is to determine the degree/kind of the process described by the second conjunct which takes place after the process described by the first conjunct VP. See example (50):

- (50) How many bottles of beer will you go to the store and buy?

The meaning of the extraction in (50) can be described by the following graph:

(51)



Suppose the horizontal axis represents the places where you go and the vertical axis, the number of bottles. Question (50) is to ask how many bottles of beer you will buy at the store. It does not involve a notion of limit that would follow from the correlation implied between the two processes in the case of type 3B/C.

6. Some Problems that Need Explanation

In this section, I will attempt to account for some of the problems noted in section 4 by the basic assumptions about the extraction of a *wh*-element from the first conjunct VP.

6.1. *Why Scalar?*

Why is there a difference in acceptability between (29) and (30)? We may explain this fact by the property stated in (49). The function of the extraction from the first conjunct is to seek the implied limit that will arise from satisfying two processes at the same time and to determine the degree/kind of the process denoted by the first conjunct VP which corresponds to the limit. Then it follows that scalar expressions as in (29) and extraction from the first conjunct are compatible.

6.2. *Why Must the Second Conjunct Be a Bare VP When the First Conjunct Is a Full Infinitival VP?*

The question is why there is a difference in grammaticality between the examples in (31). In the analysis here, extraction from the first conjunct must meet the condition that the coordinated VPs be a single combined process. (Cf. Morgan's observation on the examples in (19).) That means, from assumptions (15) and (17), we must say that the second conjunct VP in (31) cannot be closed by *to*, assuming *to* is one of the INFL elements. In order to be a single combined process, the coordinated VPs in (31) must constitute a VP which is headed by INFL *to*. Therefore, extraction from the first conjunct is not allowed if the second conjunct is a full infinitival VP.

6.3. *Why Are Actions Described Generic, Not Specific?*

Although the acceptability of the actions described as “specific” seem to vary as is shown in (32)-(35), the difference between (32a) and (32b) still exists. Under the assumption described in (49), the extraction from the first conjunct in (32a) is to presuppose a certain relationship and ask the number of courses which corresponds to the implied limit that arises from doing both teaching and finishing a dissertation. It seems that the reason for the difference in grammaticality between (32a) and (32b) is the possibility of the existence of the presupposition that such a relationship is more compatible to generic actions than specific ones.

6.4. *Why Is Extraction from the First Conjunct Not Allowed in Temporal/Causal Relationships?*

This question is about why the examples in (36) are unacceptable. The answer is that temporal/causal relationships as in (36) do not have an implied limit described in (49). The sentences in (36) do not involve that kind of limit which will arise from satisfying both of the processes denoted by two VPs at the same time.

6.5. *Why Are the Implications Different between (37) and (38)?*

The possibility of extraction depends on the presupposition about the relationship between the processes described by the VPs. If the presupposition is compatible with the condition described in (49), then you can extract a *wh*-element out of one of the conjunct VPs. If the presupposition is that eating herbs usually leads to getting cancer and they contain some amount of substance that invites cancer, then the presupposed relation is, for example, characterized by the following:

- (52) (i) If you eat herbs, you usually get cancer. But
 (ii) if you eat some kind of herbs, you cannot get cancer.

Then you are asking for the identification of the kind by uttering (37). You can draw this situation in a graph similar to (45b). You can take the

kinds of herbs on the horizontal axis, and the degree of how strongly the herbs invite cancer, on the vertical axis. Then it is implied that there is a kind of limit to the degree below which you cannot get cancer and there is some kind of herb the substance of which does not reach that level above which cancer is caused.

If the presupposition in (38) is that eating herbs can lead to not having cancer, the situation may be characterized by the following:

(53) If you eat herbs, you cannot get some forms of cancer.

In uttering (38), you are asking the interlocutor to specify exactly what forms of cancer. You can draw this situation in a graph similar to (51). You can take herbs somewhere on the horizontal axis, and the kinds of cancer the herbs don't invite, on the vertical axis. When you utter (38), you are only concerned with the point on the horizontal axis which indicates the case where you eat herbs. The kind of limit as mentioned in (51) is not implied here.

The main difference between (37) and (38) is that in (37), it looks as if you were asking/specifying the things in the *if*-clause of the presupposition described in (52), but in (38), it seems that you are asking/specifying the things described in the main clause of the presupposition (53).

7. Japanese Examples

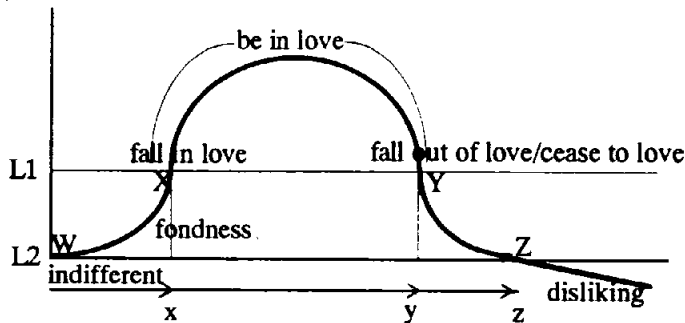
This section demonstrates that what we have seen explains the same phenomena found in Japanese. Consider the following examples:

- (54) dore-kurai awa-nai de kanojo-o aishi-te-ir-are-masu ka?
 how long meet-not and she-Acc be-able-to-love Q?
 'How long can you stay away from your girlfriend and (still) love her?' (correlation is implied)
- (55) kanojo-ni awa-nai de dore-kurai kanojo-o aise-masu ka
 her-Dat meet-not and how much she-Acc can-love Q
 'How much can you love your girlfriend without seeing her.'
 (asking about the degree of your love)

(54) implies that there is a limit on the relationship between the time of absence and the continuation of love: out of sight, out of mind. The most salient reading of (55), however, is to ask about the degree of your love during the absence. Example (54) is of the type exemplified by (3B) and example (55) is of the type exemplified by (3A).

Let us consider another example:

(56)



Graph (56) describes the understood knowledge about the relationship between the emotional state and the frequency of the dates you have with a woman, assuming that there is one like that. Here the vertical axis indicates the emotional gradience from disliking to love. L1 and L2 are intended to be the limits of the emotional states. L1 refers to the emotional state between being in love and fondness. L2 refers to the emotional state between fondness and disliking. The horizontal axis indicates the frequency of the dates you have with the woman.

If you share an understood knowledge exemplified by a graph like (56), the examples in (57) are understood to ask about the frequency of the dates you have at the point where you shift from one emotional stage to another:

- (57) a. Dorekurai sono josei-to deito-o shi-te aishite shimai-mashi-ta
How often that woman-with date-Acc do-and fall in love-past
ka?
Q
'How often did you see the woman and fall in love?'
- b. Dorekurai sono josei-to deito-o shite
How often that woman-with date-Acc do-and

kirai-ni nari-mashi-ta ka?

disliking-to become-past Q

'How often did you see the woman and cease to be fond of her?'

'How often did you see the woman and cease to love?'

c. Dorekurai sono josei-to deito-o shite shikamo ais-anai-de
How often that woman-with date-Acc do and still not love
irare-masu ka?

can Q

'How often can you see the woman and still not fall in love?'

Example (57a) is used to ask the frequency of the dates at the moment when you exceed the limit of being fond of the woman and just enter the state of being in love. The answer is x.

Example (57b) is ambiguous: one interpretation of it is to ask about the frequency of the dates at the moment when you exceed the limit of being fond of the woman and just enter the state of disliking. In this case, the answer is z. The other interpretation is equal to asking about the frequency of the dates at the moment when you cease to love. The reason why we have this reading is that we often experience the abrupt emotional shift from love to hatred; in that case the graph should be different from the one in (56). In that case, the line from Y to X would be deleted and the line from Z would start from the point y.

Example (57c) is to be used for asking about the frequency of the dates which corresponds to the emotional state of fondness that is maximally close to the limit L1.

Examples (57a-b) are of the type exemplified by (3C) and example (57c) is of the type exemplified by (3B). It seems that the notion of implied limit plays a crucial role in the combined processes of Japanese examples like (57) as well.¹²

8. Summary and Conclusion

In section 1 the notion of combined process and its examples were introduced. A combined process is a single process which consists of

two or more sub-processes represented by VPs. In sections 2 and 3, the fact that combined process interpretations involve VP rather than S conjoining was considered in terms of referential expressions. Furthermore it was argued that extraction of a *wh*-element from one of the separate processes is impossible. In section 4 the characteristics of types (3A-C) observed in previous works and in the present work were surveyed. In section 5 it was shown that the notion of “implied limit” plays a crucial role in interpreting constructions of the types (3B-C). The basic property of extraction from the first conjunct of coordinated VPs was shown as (49). In section 6 some answers were given to some of the problems about why the properties of constructions of the types (3A-C) were as they were in section 4. It was suggested that extraction from the first conjunct must be out of a combined process in which sub-processes must stand in a certain relationship that would create “implied limits” in a given (assumed) world. In section 7 it was argued that the same consideration holds true of Japanese analogous constructions.

I hope to have shown in this paper that the notion of “implied limit” that I have proposed plays a crucial role in accounting for the characteristics observed in the phenomenon of extraction of a *wh*-element from one of the VP conjuncts.

Notes

* This paper is based on the papers read at the 5th Tsukuba Summer Linguistics Forum held at Hirosaki University on August 2, 1990 and at the 43rd Regional (Chugoku-Shikoku) Meeting of the English Literary Society of Japan held at Ehime University on October 27, 1990. I am grateful to Shin Ohshima, Yukio Hirose, Nobuhiro Kaga and Yoshio Endo for their useful comments at the meetings. I would like to express my deepest gratitude to Prof. Minoru Nakau for valuable comments and kind suggestions on the earlier version of this paper. I want to thank Prof. Ronald Sheen for suggesting stylistic improvements in my English. I am also indebted to the anonymous reviewers for *Tsukuba English Studies* for useful comments and suggestions on this

paper. Needless to say, all remaining inadequacies and errors are my own.

1 Ross treats rather carefully the construction of the type exemplified by (3A).

2 Capitals in examples (5) and (9) indicate nuclear syllables, and accents indicate the intonation.

3 In this paper, the word process is used as a cover term for the whole range of types of dynamic situation, including action and event, as well as process.

4 Example (11) is from Ross (1967:94). With respect to example (12), Goldsmith (1985:137) states that the conjoined VPs represent “a single mental representation.”

Two verbs in (13) represent tense while those in (10)-(12) do not. Prof. Nakau pointed out to me in a personal communication that this uniqueness of (13) may be attributed to the property of declaratives without Aux elements, because only declarative sentences without Aux elements show this uniqueness. Consider the following negative sentence, the declarative sentence with *did* and the interrogative sentence:

- (i) I didn't go to the store and buy some whisky.
- (ii) I did indeed go to the store and buy some whisky.
- (iii) Did you go to the store and buy/*bought some whisky?

5 Cf. Chomsky and Lasnik (1977). As for the name Affix Hopping, it is used here simply for descriptive purposes. In a recent framework, it is treated as one of the head movements.

6 The symbol NP in (17) is used for the constituent that is left after taking away the determiner from the traditional noun phrase.

7 Of these four characteristics that Ross notes, the second one is questionable because we have examples like (i):

- (i) What forms of cancer can you eat herbs and not get?

Prof. Nakau in a personal communication pointed out to me that the crucial difference between (25b) and (i) is that the former has finite tense in the second conjunct while the latter doesn't. The reason why negation

is not permitted in the second finite conjunct is that the presence of tense along with negation makes it easier to understand the second conjunct as a separate process.

8 Lakoff (1986) uses “natural course of events” to describe the constructions of type 3A.

9 Goldsmith notices that this restriction is not confined to extraction from the first conjunct of VP coordination:

- (i) Do you expect to hold down three jobs and
 { still }
 { *to } lead a normal life?
 { *to still }
 { *still to }
- (Goldsmith (1985:136))

10 He has done his own analysis involving predication but we will not review his analysis here.

11 An anonymous TES reader has pointed out that the Japanese example which is equivalent to (44a) (except the use of the modal ‘can’) is also unacceptable:

- (i) *Kimi-wa donokurai takusan tabe-te manzokudekiru nodesuka?
 you-Top how big (a meal) eat-and feel-satisfied-can Q
 ‘How big a meal can you eat and feel satisfied?’

As we will see in section 7, we can explain the Japanese analogous constructions in terms of implied limits as well. The unacceptability of (i) can be accounted for in the similar way as that of (44a) is accounted for.

12 Remember that the presupposed knowledge demonstrated by (56) is just one example. The presupposed knowledge about the relationship between the frequency of dates and the emotional state varies according to nationality and groups and individuals. Some people might believe that the frequency of dates does not matter but the first impression decides everything; some might believe that more frequently you have dates, the worse your feeling becomes. But what is important is that the same procedures as explained above about the examples in (57) are taken in these cases.

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