GAPPING AND PERIPHERAL DELETIONS*

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Gapping is a rule which has received much attention from the earliest work in transformational-generative grammar, but which has still not been formulated exactly. In this paper, I will propose a new analysis of Gapping, showing that the failure of previous analyses in formulating such a rule is due to the fact that they have proceeded from the wrong premises that Gapping is responsible for all sorts of examples in which clause-internal gaps appear, and that it needs to be characterized on the basis of all the elements within a clause.

1. INTRODUCTION. Gapping is a rule which deletes internal elements in one conjunct of a conjoined sentence under identity with elements in some other conjunct.

- (1) a. Max ate the apples and Sally ϕ the hamburgers.
 [ϕ = ate] (Jackendoff 1971: 21)
 b. I ordered mashed potatoes, and Tom ϕ peaches, and Suzie
 ϕ liver. [ϕ = ordered] (Ross 1967: 1)

In a gapped sentence, the conjunction used is restricted to *and*, *or*, *nor*, and *but*.¹

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¹ Sag 1980 notes that *but* is excluded by most speakers.

(i) (%)*Joan likes Richard, but Betsy ϕ Peter. (Sag 1980: 191)

Rooryck 1985, however claims that the relative inacceptability of *but* in (i) is due to the semantic content of the conjunction: despite the fact that *but* requires an opposition between the two conjuncts of the coordination, (i) does not meet the requirement. A similar claim is found in Neijt 1979. Observe also the following:

- (ii) a. ?Bill ate the peaches, but Harry ϕ the grapes. (Jackendoff 1971: 22)
 b. Many Greeks speak Spanish, but not many Spaniards ϕ Greek.
 (Postal 1974: 96)
 c. Fourteen-year-olds like punk and new wave, but sixteen-year-olds ϕ
 only punk. (Sag et al. 1985: 157)

- (2) a. Peter hit a double, and Betsy ϕ a triple.
 b. Either Peter hit a double, or Betsy ϕ a triple.
 c. John didn't go to the laundromat, nor Betsy ϕ to the grocery store. (Sag 1980: 190-1)
 d. Paul likes Mary, but Peter ϕ Joan. (Quirk et al. 1972: 578)
 e. ?Sandy played the guitar, so Betsy ϕ the recorder.
 f. *Sandy played the guitar, for Betsy ϕ the recorder.

The conjunction may not be overt.

(3) Peter plays first base; Betsy ϕ second base. (Sag 1980: 191)
 Backward application on Gapping is not allowed in English.

- (4) *Peter ϕ first base, and Alan played left field. (Sag 1980: 191)

Within generative grammar, since Ross's 1967 first proposal, a very large number of analyses have attempted to define the form and function of Gapping,² but nevertheless none of them have succeeded in formulating it in a satisfactory way. Even Sag's 1980 formulation, while generally assumed to be most promising, has many empirical problems (see Terazu 1979, 1980 for some discussion), and is overly complex in its form, as in 5.³

$$(5) \quad \dots \left\{ \begin{array}{c} \text{and} \\ \text{or} \end{array} \right\} - [{}_s X^2 - W_1 - [X^2]^* - W_2] - W_3$$

SD:	1	2	3	4	5	6
SC:	1	2	ϕ	4	ϕ	6

In the next section, I will propose a new analysis of Gapping, which shows that given a certain condition on the structural description of such a rule, it is possible to reach a formulation which is more adequate not only descriptively but also explanatorily. In section 3, it will be argued that in order to give a more appropriate account of Gapping, it is necessary to pay attention to the elements to be deleted as well as the ones left behind. Finally, section 4 will be devoted to the conclusion of this paper.

² Some transformationalists try to derive gapped sentences by proposing an interpretive rule (see Jackendoff 1972, Fiengo 1974, Williams 1977, Koster 1978, Stump 1978, Wasow 1979, Pesetsky 1982, Rooryck 1985, Sag et al. 1985, etc.). However, I will assume throughout this paper that gapped sentences are derived by way of a deletion rule.

³ Under the assumption that the identity condition on deletion rules is ensured by some general principle, the first part of his formulation is omitted in 5.

2. A NEW ANALYSIS. Our formulation of Gapping is as follows:

$$(6) \quad \dots \left\{ \begin{array}{c} \text{and} \\ \text{or} \\ \text{but} \end{array} \right\} - [\bar{S} \ N^3 - W_1 - X^3] - W_2$$

SD:	1	2	3	4	5
SC:	1	2	ϕ	4	5

2.1. THE GAP. In 6, W_1 in term 3 indicates a variable, which explains the fact that Gapping may delete more than just the verb. For example, when infinitival clauses are embedded, infinitival marker *to*'s may optionally be deleted along with verbs.

(7) John tried to begin to write a play, and Harry

a. ϕ to begin to write a novel.

b. ϕ to write a novel.

c. ϕ a novel.

(Sag 1980: 200)

Moreover, auxiliaries, if present, also undergo Gapping.

(8) a. Alan should have been upset, and Peter ϕ overjoyed.

[ϕ = should have been]

b. Alan has talked to his editor, and Janis ϕ to her graduate advisor. [ϕ = has talked]

(Sag 1980: 195)

2.2. THE LEFT REMNANT. Unlike Sag's, our formulation adopts Jackendoff's 1977 Uniform Three-Level Hypothesis as the $\bar{X}$ notation. Thus N^3 in term 2 corresponds to NP in the conventional terminology. Therefore, 6 correctly generates the following:

(9) Sandy played short stop, and Betsy ϕ first base.

(Sag 1980: 189)

Sag, however, claims that since 10 is also the instance for which Gapping is responsible, term 2 should be specified so as to allow Adv. P's and PP's as well. (This is why his term 2 is X^2 rather than N^2 .)

(10) a. Yesterday we went to the movies, and last Thursday ϕ to the circus.

b. At our house, we play poker, and at Betsy's house, ϕ bridge.

(Sag 1980: 265)

But we assume that the grammaticality of 10 is due to the fact that it is generated by Left-peripheral deletion,⁴ an independently motivated rule

⁴ The term Left-peripheral deletion is due to Sag 1980. Note that this rule is generally referred to as Conjunction reduction or Coordinate deletion.

to permit left-peripheral ellipsis such as 11:

- (11) a. John talked to Bill and ϕ seemed upset. [ϕ = he = John]
 b. John persuaded Sandy to stand up, and ϕ Peter to sit down. [ϕ = John persuaded] (Sag 1980: 202)

This assumption can be confirmed by the observation that such examples exhibit some properties common to left-peripheral ellipsis rather than to the gapped sentence. For instance, Gapping cannot delete as far as the head of a prepositional phrase, while Left-peripheral deletion can.

- (12) *John was happy with his girlfriend, and Betsy ϕ her boyfriend.
 [ϕ = was happy with] (Sag 1980: 204)

- (13) My mother met with the principal on Thursday, and ϕ the dean on Friday. [ϕ = my mother met with] (ibid.)

The examples like 10 also allow the deletion of a preposition.

- (14) a. Yesterday we went to the movies, and last Thursday ϕ the circus. [ϕ = we went to]
 b. At our house, my mother met with the principal, and at Betsy's house, ϕ the dean. [ϕ = my mother met with]

Moreover, the gapped sentence cannot permit as right remnants more than one of the constituents which strictly subcategorize a verb, but left-peripheral ellipsis can.

- (15) a. *Arizona elected Goldwater Senator, and Massachusetts ϕ McCormack Congressman. (Jackendoff 1971: 25)
 b. *Max gave Sally a nickel, and Peter ϕ Susan a dime.
 (16) a. Arizona elected Goldwater Senator, and ϕ McCormack Congressman.
 b. Max gave Sally a nickel, and ϕ Susan a dime.

The examples like 10 also permit more than one of such constituents.

- (17) a. Yesterday Arizona elected Goldwater Senator, and last Thursday ϕ McCormack Congressman.
 b. ?At our house, Max gave Sally a nickel, and at Betsy's house, ϕ Susan a dime.

However, if it is the case that 10 is generated by Left-peripheral deletion, one might suspect that the appearance of the elements *last Thursday* and *at Betsy's house* should not be allowed to the left of the gap. As a matter of fact, though, some such elements do appear in obvious left-peripheral ellipsis, as shown by 18:

- (18) a. He went at once to see Harkavy and *over a cup of coffee in a corner cafeteria*, told him the whole story.
 b. A new corporation formed to pick up the pieces likewise

failed, and *in 1902 happily* unloaded its interest on the U.S. government for \$40 million.

[The italics are mine.] (Terazu 1975: 26)

Therefore, there is no problem with our assumption. Notice here that in left-peripheral ellipsis, the elements to the left of the gap are restricted to adverbials. In 10, the elements in question are time and locative adverbials, respectively, thus satisfying the condition.

Our term 2, which restricts the kind of categories to NP's, neatly excludes the following, where an $\bar{S}$ occurs as the left remnant:⁵

- (19) *That Harry is a fool bothers Dick, and that Bill is a fool ϕ Sam.⁶ (Sag 1980: 265)

In contrast, Sag's term 2, specified as X^2 , fails to exclude 19.⁷ Then he proposes the following constraint:

- (20) Gapping cannot apply after a sentential subject.

However, the fact is not simple as he supposes. 21 is grammatical though it too contains a sentential subject.

- (21) That the sky is blue has been [*sic*] proved last Tuesday, and that the earth is round ϕ last Wednesday. (Neijt 1979: 61)

Therefore, some additional explanation must be given for the grammaticality of 21. We will return to this issue below.

2.3. THE RIGHT REMNANT. X^3 in term 4 represents all the major phrasal categories (expect VP), and S or $\bar{S}$ (note that in Jackendoff's $\bar{X}$ system, V^3 , the maximal projection of V, corresponds to S or $\bar{S}$, not to VP). This enables us to explain the following,

- (22) a. Peter loves Betsy, and Betsy ϕ Peter. (NP)
 b. Alan seemed happy, and Sandy ϕ sad. (AP)
 c. Betsy stood in the left field, and Sandy ϕ in the right field. (PP)
 d. Alan claimed that he was cheated, and Sandy ϕ that she was the one who cheated him. ($\bar{S}$)

⁵ If the assumption that a sentential subject is dominated by an NP node is correct, some condition will have to be added to term 2 in order to exclude examples like 19.

⁶ Sjoblom 1980 states that even in his dialect, 19 is only semi-grammatical, and is improved if *Dick* and *Sam* are replaced by *some people* and *the rest*, as in (i):

(i) That the world is flat might surprise some people, and that there's no bottom ϕ the rest.

However, my informant perfectly rejects both 19 and (i).

⁷ Sag treats $\bar{S}$ as S^2 , and S as S^1 , to assimilate them to the general $\bar{X}$ system.

- e. Alan prefers for Tom to do it, and Sandy ϕ for Alan to do it. ($\bar{S}$) (Sag 1980: 197-8)

while rejecting 23 without any condition.⁸

- (23) *?He may stay inside, and she ϕ go to the beach. (VP)
(Ross 1975: 444)

But it wrongly predicts that S's may occur in this position.

- (24) a. *Sandy said (that) he was a fool, and Betsy ϕ he was out of his mind.
b. *Sandy preferred for Alan to do it, and Betsy ϕ Peter to do it. (Sag 1980: 198-9)

We assume, however, that the unacceptability of 24 is attributed to the violation of the perceptual constraint that a complementizer cannot be omitted when the clause without it is difficult to assign a grammatical status. Note that this constraint is independently necessary to exclude the following:

- (25) a. *He never came to the realization it would be easy. (Bolinger 1972: 20)
b. *I hate it you won't be with me. (ibid.: 27)

In Sag's formulation, on the other hand, some ad hoc constraint would have to be postulated to exclude 23, since in the general $\bar{X}$ system, $V^2(=VP)$ is also a member of X^2 .⁹

Unlike Sag's, our term 4 does not contain the recursive maker []*. Thus 6, as it stands, cannot generate the following, where two elements occur to the right of the gap:

- (26) Charlie entered the bedroom at 5:30, and Vera ϕ the kitchen at 6:00. (Sag 1980: 277)

In order to accommodate 26, then, we will propose the following condition:

⁸ Some grammarians accept the following:

- (i) a. John must clean the shed and Peter ϕ read the book. (Quirk et al. 1972: 577)
b. John will sing and Mary ϕ dance. (Hudson 1976: 543)
c. Harry may leave and Fred ϕ stay. (Pullum and Wilson 1977: 744)

Terazu 1975, however, notes that since many speakers reject similar examples, (i) might be marginally derived by Gapping. Or, perhaps some other rule, say AUX deletion, might be involved in the derivation of (i), though we do not intend to take up this problem here.

⁹ If his claims are correct that the VP which immediately dominates an AUX is treated as V^2 , and the other VP's as recursive V^1 , 23 would not be exception to his term 4.

(27) Adjuncts are invisible to Gapping.

This condition means that adjuncts are not analyzed (or regarded) in 6. Therefore, in 26, the time adverbial *at 6:00* is excluded from the analysis of the second conjunct; and the SD of 6 will be satisfied.

It should be noted that given 27, the example 15, repeated here as 28 with further data added, can be ruled out automatically.

- (28) a. *Arizona elected Goldwater Senator, and Massachusetts ϕ McCormack Congressman.
 b. *Max gave Sally a nickel, and Peter ϕ Susan a dime.
 c. ?*Willy put the flowers in a vase, and Charlie ϕ the book on the table. (Jackendoff 1971: 26)
 d. *Alan told Harry that the sky was falling, and Sam ϕ Betsy that Chicken Little was right. (Sag 1980: 196)
 e. *Bill loaded the truck with iron ore, and Max ϕ the ship with coal.
 f. *Jack treats his dog badly, but Mary ϕ her cat well.

For, now that adjuncts are not analyzed in 6, the possible candidates for term 4 are only the constituents which strictly subcategorize a verb, and they are limited in number to just one at that. Sag, on the other hand, tries to explain the ungrammaticality of examples like 28 by proposing the following surface filter:

- (29) $*[{}_S X^2 [{}_V X^2 - C^*]]$, where C^* stands for any non-null sequence of constituents (within V^1 (VP)).

This filter claims that more than one of the constituents which strictly subcategorize a verb should not be allowed as right remnants. It is true that insofar as 28 is concerned, the filter 29 has the same effect as our condition 27. However, considering that the filter in itself is nothing but a descriptive device to prevent the overgeneration, it is evident that to do without it is more desirable.

Our condition 27 has further consequences. Consider the following:

- (30) a. In 1939 Germany invaded Poland, and in 1940 Italy ϕ the South of France.
 b. At Stalingrad, the Soviet Union defeated Germany, and at Midway, America ϕ Japan.
 (31) He wore pants at home on Sundays, and I ϕ_1 a toga ϕ_2 on Mondays. [ϕ_1 = wore; ϕ_2 = at home] (Ross 1975: 438)
 (32) a. John turned the radio on and you ϕ the TV off.
 b. *John turned on the radio and you ϕ off the TV.

(Koutsoudas 1971: 384)

- (33) Father was in the shop, mother ϕ in the kitchen cooking dinner.

In each example of 30, the two elements appear to the left of the gap. Since 27 excludes the time adverbial *in 1940* and the locative adverbial *at Midway* from each analysis, our formulation 6 can readily generate 30. However, in order for Sag's formulation to handle 30, a recursive marker would have to be added to term 2 as well. In 31, the two gaps appear within the clause. Again, since 27 excludes the locative adverbial *at home* and the time adverbial *on Mondays* from the analysis, 6 successfully generates 31.¹⁰ However, if Sag's formulation were to handle 31, it would have to be revised in such a way that another constant is postulated to the right of term 5, for the second gap is not the final element within the clause. In 32, the two elements occur to the right of the gap. What is important to notice here is the characteristic behavior of a particle. For instance, the intensifier *right* generally modifies time and locative adverbials, as in *right after supper* and *right in the room*, but can also modify a particle only if it follows an NP object, as in 34:

- (34) a. He put the toys right back.
 b. *He put right back the toys. (Emonds 1972: 552)

This example seems to indicate that a particle, when following an NP object, is interpreted as if it were adverbial. If so, then the particle *off* in 32a is interpreted as adverbial, and is excluded from the analysis by 27, while that in 32b is not so interpreted and is subject to the analysis along with the NP *the TV*. As a result, it is only 32a that can be generated by 6. In terms of Sag's formulation, however, not only 32b but also the grammatical 32a could not be generated, because a particle is not a major phrasal category, so that it cannot be analyzed by term 4. Finally, in 33, the adverbial clause corresponding to *cooking dinner* is absent in the first conjunct. Since 27 directs 6 to disregard such an adverbial clause, 33 can be correctly generated. In Sag's analysis, on the other hand, 33 must be

¹⁰ If our argument is correct, one might wonder what kind of rule derives the second gap. I believe, however, that *at home* is not deleted by a deletion rule, but is absent already in the base (note the optionality of locative adverbials), and that if one perceives *at home* as if it had been there in 31, it is because the conjoined sentence requires a semantic parallelism between the two conjuncts.

Notice incidentally that this idea cannot be adopted into Sag's analysis, for if he assumes that *at home* is not present in the base, the parallelism of constants between the two conjuncts would be lost.

ruled out as ungrammatical, for it lacks the parallelism of constants between the two conjuncts.

By proposing 27, however, 6 cannot generate the following, where only adverbials occur to the right of the gap:

(35) a. John writes poetry in the garden, and Max ϕ in the bath-room. (Jackendoff 1971: 24)

b. Charlie entered the bedroom at 5:30, and Vera ϕ at 6:00.

Thus we will assume that 35 is not generated by Gapping, but by Right-peripheral deletion,¹¹ an independently necessary rule to permit right-peripheral ellipsis such as 36:

(36) a. Yesterday, Tom came to see me, and today, Mary ϕ .
[ϕ = came to see me] (Kuno 1976: 301)

b. On Mondays, John washes up, and on Tuesdays, Mary ϕ .
[ϕ = washes up] (Hudson 1976: 546)

No formulation of the rule has, to the best of my knowledge, been made in the literature, so that we will define it, though informally, as follows:

(37) Delete everything within a clause except the subject (and adjuncts).¹²

We are now in a position to answer the question of why 21 is grammatical despite its containing a sentential subject.

(21) That the sky is blue was proved last Tuesday, and that the earth is round ϕ last Wednesday.

We have already argued that 21 cannot be generated by our formulation of Gapping. But in 21, the remnants to the left and to the right of the gap are the subject of the clause and the time adverbial; hence they are compatible with the definition 37. Therefore, we can say that 21 is grammatical because it is generated by Right-peripheral deletion.

Unlike Sag's, our formulation includes only one variable within the $\bar{S}$.

¹¹ The term Right-peripheral deletion is due to Sag 1980, but he does not posit the rule on the basis of the examples like 36. His Right-peripheral deletion is the same as what Stillings 1975 calls Truncation, which is originally suggested to permit the following:

(i) Grimshaw presented a great paper at NELS this year and even Joey Bagstock came through with one of his better efforts ϕ . [ϕ = at NELS this year]

¹² Although the precise form of the rule is not clear to me, it seems that when no adjuncts are present in a clause, there must be instead an adverb like *too* at the end of the clause, as in (i), or another contrasting element in its higher clause, as in 38 below.

(i) John wrote a poem, and Max, too.

Thus it cannot derive the second gap in the following example:

- (38) Betsy believed Peter to be sexy, and Alan ϕ_1 Barbara ϕ_2 .

[ϕ_1 = believed; ϕ_2 = to be sexy] (Sag 1980: 223)

However, since *Barbara* in 38 is the subject of the embedded clause, it is possible for Right-peripheral deletion to derive the second gap. So there is no need to postulate another variable to the right of term 4.¹³

2.4. THE DOMAIN. W_2 in term 5 indicates an end-variable, which is effective in dealing with the example in which Gapping applies in an embedded clause.

- (39) That Alan played 1st base and Betsy ϕ shortstop, is not surprising. (Sag 1980: 267)

39 is generable since the string *is not surprising* can be analyzed as term 5.

Unlike Sag's, our domain of Gapping is $\bar{S}$,¹⁴ but the following examples can be explained, whichever domain is adopted.

- (40) a. Did Bill eat the peaches, or Harry ϕ the grapes?

b. *Did Bill eat the peaches, or did Harry ϕ the grapes?

(Sag 1980: 275)

- (41) a. Betsy said that Alan went to the ballgame, and Betsy ϕ to the movies. [ϕ = went]

b. *Betsy said that Alan went to the ballgame, and that Betsy ϕ to the movies. [ϕ = went] (ibid.: 276)

For 40b, where *did* stands between *or* and the NP *Harry*, and 41b, where

¹³ An anonymous reviewer points out that (i) is an exception to our analysis, since *to Oxford* is not an adjunct but an adverbial complement, and therefore Right-peripheral deletion cannot derive the second gap.

(i) Bill wanted his son to go to Cambridge, and Mary ϕ_1 her daughter ϕ_2 to Oxford. [ϕ_1 = wanted; ϕ_2 = to go] (Terazu 1980: 39)

But my informant says that (i) is understandable but sounds odd.

¹⁴ Jackendoff 1971 suggests that the examples like (i) are to be derived by the rule $\bar{N}$ -Gapping, which deletes $\bar{N}$ under identity with some other $\bar{N}$.

(i) a. Bill's story about Sue and Max's about Kathy both amazed me.

b. I bought three quarts of wine and two of Clorox.

And he claims, on the basis of the observation that $\bar{N}$ -Gapping and Gapping share some properties, that they should be integrated into a single rule $\bar{X}$ -Gapping. But Terazu 1975 refutes this, saying that (i) is not derived by a deletion rule but by a sort of pronominalization rule, because *Max's*, which appears to be a possessive determiner in (i), is in fact a possessive pronoun, as (ii) attests:

(ii) Bill's story about Sue and $\left\{ \begin{array}{l} \text{*my} \\ \text{mine} \end{array} \right\}$ about Kathy both amazed Nancy.

that stands between *and* and the NP *Betsy*, do not meet the SD's of either his formulation or ours, and hence cannot be possible inputs for Gapping. However, the following, in which *wh*-phrases appear in COMP positions, are crucial in determining between the two domains.

- (42) a. Who wants to invite Peter and who ϕ Mary?
(Neijt 1979: 25)
- b. You and I will see in the years ahead which of us was right and which ϕ wrong. (Terazu 1975: 29)
- (43) a. The girl who Agatha gave a book and (*who) Bill ϕ a box of candy is coming downstairs. (Inagawa 1978: 44)
- b. I don't know when John met his girlfriend, and (when) Betsy ϕ her boyfriend.

Under the $\bar{S}$ domain, these examples can be accounted for as follows: 42, where *who* and *which* are both NP's, will satisfy the SD of 6, hence it can be accepted; 43a, where the remnants to the left of the gap are the sequence of NP-NP, will not satisfy the SD of 6, hence it is ruled out; 43b, where the time adverbial *when* is disregarded by 27, will satisfy the SD of 6, and thus can be accepted. Under the S domain, however, 42 would be impossible to generate since *who* and *which* are unanalyzed by term 2; moreover, 43 would be ruled out as ungrammatical for the same reason as 41b, though in this case the result happens to be correct for example (a).

3. GAPPING AS A VERB DELETION. In the preceding section, we have demonstrated that given the condition 27, all the examples that have been presented so far are successfully explained by our formulation. We can say especially that 27 is a fairly effective condition, since it also makes it possible for 6 to generate the following:

- (44) a. Monk probably enjoyed epistrophy, and Albert Ayler almost certainly ϕ ghosts. (Stillings 1975: 249)
- b. John frequently beats his wife, and Peter sometimes ϕ his dog.¹⁵ (Rooryck 1985: 193)

Unfortunately, however, it wrongly predicts the possibility of 45.

¹⁵ Jackendoff 1971 judges (i) to be impossible.

(i) *Max sometimes beats his wife, and Ted frequently ϕ his dog.

Rooryck 1975 notes, however, that "the impossibility of (i) seems rather due to the fact that the first adverb doesn't imply the second."

- (45) a. *John quickly cooked the rice, and Mary slowly ϕ the beans. (Hankamer 1971: 103)
 b. *Simon enthusiastically counted the gold and Jack nervously ϕ the diamonds. (Terazu 1975: 36)

Thus, with clause-internal adverbials, another approach seems to be necessary. In this light, we will turn now to the basic property of Gapping.

As is clear from the previous examples, the elements most likely to be deleted by Gapping are verbs, but when auxiliaries are present, they must also undergo such a rule, as shown in 46:

- (46) a. John has written the words and Paul (*has) ϕ the music.
 b. If the ants were called elephants and elephants (*were) ϕ ants, I'd be able to squash an elephant.

(Jackendoff 1971: 23)

What is of particular importance here is that there is a close relationship between verbs and auxiliaries. This is evident from the fact that it has been and still is a controversy among transformationalists whether auxiliaries should be treated as main verbs or not. Therefore, we will assume that what are to be deleted concomitantly by Gapping are those elements which bear close relationships with verbs. This assumption can be verified by the following example:

- (47) a. Beth left after the first act, and Norma ϕ *(after) the second act. (Sag 1980: 268)
 b. Carol was happy with her Oldsmobil, and Margie ϕ (upset) with her Porsche. (ibid. 271)

47 shows that while Gapping cannot delete the head of a prepositional phrase, it can delete optionally that of an adjectival phrase. This fact seems to be difficult to explain in structural terms, however, since under the present theory, all the phrasal categories are assigned the identical internal structures.¹⁶ But if we appeal to the feature system, as in 48, it turns out that an adjective and a verb have the feature [+V] in common,

¹⁶ Sag 1980 assigns to the prepositional phrase in 47a and the adjectival phrase in 47b the following internal structures:

so that an adjective is the category bearing the closest relationship with a verb.

(48)

	+N	-N
+V	A	V
-V	N	P

Thus it is not surprising that the head of an adjectival phrase should be subject to Gapping.

With the discussion above in mind, let us return to the clause-internal adverbials in question. Notice that the adverbials in 44 are sentential, while those in 45 are verb phrasal. Therefore, it is obviously the latter which bear a close relationship with verbs. So it is a natural consequence that 45 is not possible as a gapped sentence.¹⁷

4. CONCLUSION. This paper has argued that if the gapped sentence is distinguished from left- and right-peripheral ellipses, and the condition 27 is imposed on its structural description, we are able to obtain a more explanatory formulation of Gapping. We have also argued in section 3 that what are to be deleted by Gapping are verbs and the related elements. After all, the reason for the previous analyses having failed in formulating such a rule is that they have relied on the wrong premises

Here, the head of the preposition phrase is immediately dominated by the phrasal node, while that of the adjectival phrase is not. Although he postulates these structures without giving any reason, note that the structure in (ia) is incompatible with the $\bar{X}$ convention.

¹⁷ One might conceive that (i) is an exception to our assumption.

(i) Max sometimes beats his wife, and Ted ϕ his dog.

[ϕ = sometimes beats]

(Jackendoff 1971: 23)

I believe, however, that *sometimes* is not deleted by a deletion rule, but is absent already in the base (note the optionality of frequency adverbials), and that if one perceives *sometimes* as if it had been there in (i), it is because the conjoined sentence requires a semantic parallelism between the two conjuncts.

Furthermore, (i) becomes ungrammatical if *sometimes* is present in the second conjunct, as in (ii):

(ii) Max sometimes beats his wife, and Ted (*sometimes) his dog.

(Terazu 1975: 37)

But I believe that the ungrammaticality of (ii) is due to the redundancy. Notice that (iia) is also rendered ungrammatical by the redundancy.

(iii) a. *John plays tennis with Sally and Jack ϕ tennis with Nancy.

b. John plays tennis with Sally and Jack ϕ with Nancy.

(Terazu 1975: 38)

that Gapping is responsible for all sorts of examples in which clause-internal gaps appear, and that it needs to be formulated on the basis of all the elements within a clause. Consequently, this has led to a serious situation where Gapping is too complex to describe in any way. However, if the analysis presented here is correct, Gapping is by no means recalcitrant, and is easy to describe in terms of a simple formulation.¹⁸

Finally, I would like to make some remarks on the problem of over-generation that has not once been mentioned in this paper. For instance, our formulation predicts that 49 is also possible as a gapped sentence, but 49 allows a- rather than b-interpretation:

- (49) John persuaded Bill to donate \$200, and Tom to donate \$400.
 a. ____ and [John persuaded] Tom to donate \$400.
 b. ____ and Tom *[persuaded Bill] to donate \$400.

(Kuno 1976: 312)

This example shows that when a sentence is ambiguous between the reading of left-peripheral ellipsis and that of the gapped sentence, the former reading is preferred in most cases. However, such a fact is an indication that our formulation should be supplemented by the sort of perceptual constraints proposed by Kuno 1976 and others, not that it is inadequate.

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¹⁸ Unfortunately, the fact about negations is impossible to explain even under our analysis. As (i) shows, a negation in the auxiliary cannot gap nor survive.

(i) a. *Max didn't eat fish and Tom ϕ rice.

b. *Max didn't eat fish and not Tom ϕ rice. (Terazu 1975: 36)

The only environment in which a negation is tolerated is that it unites with *and* to become *nor*, as in (ii):

(ii) Max didn't eat fish nor Tom ϕ rice. (ibid.)

However, this does not hold for the cases in which the first conjunct is affirmative.

(iii) a. Mary supports John, not John ϕ Mary. (Klima 1964: 301)

b. John invited Mary, not Bill ϕ Jane. (Hudson 1976: 545)

See Jackendoff 1972, Terazu 1975 and Siegel 1984 for some discussion.

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