

SOME PROBLEMS CONCERNING THE ENGLISH EXPLETIVE 'IT'

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1. INTRODUCTION. The expletive it appears in a wide variety of English sentence types, of which the following are illustrative.<sup>1</sup>

- (1) It turned out that the governor was unavailable for comment.
- (2) It bothers me for you to have the radio turned up so loud.
- (3) It's terribly hot in the studio.
- (4) It's a long way from here to the moon.
- (5) It's too soon yet for us to tell whether the patient will recover.
- (6) It has been a while since I last played checkers with Bert.
- (7) It was John who(m) we ran into on our way to the office.

These sentences may be divided into two broad classifications: cleft sentences, exemplified by (7), and non-cleft sentences, exemplified by (1)-(6). It is the non-cleft sentence types that we shall consider in this paper.

Within the framework of transformational-generative linguistic theory, at least two approaches to the grammatical description of these sentences are possible. One is to say that these sentences are subjectless in their underlying representation, and that the dummy noun it has been inserted to provide a derived (or superficial) subject. The other is to maintain that the underlying subjects of these sentences are noun phrases in which the noun it occurs in construction with some other constituent, which either appears elsewhere in the derived representation of these sentences or is deleted.<sup>2</sup>

Of these two approaches, the first is really the more radical, since it involves a rather serious alteration in the form of the 'first' rule of the phrase structure component of English from what has usually been presented in the fragmentary English grammars that have developed so far. It also involves making use of a transformation which inserts a constituent, a semantically 'empty' one to be sure, but nevertheless

a constituent. Such a transformation must not only introduce the expletive, but also must supply it with the analyses 'Noun' and 'Noun-Phrase', since these analyses are required to account for the treatment of the expletive by other transformations in the syntactic component.

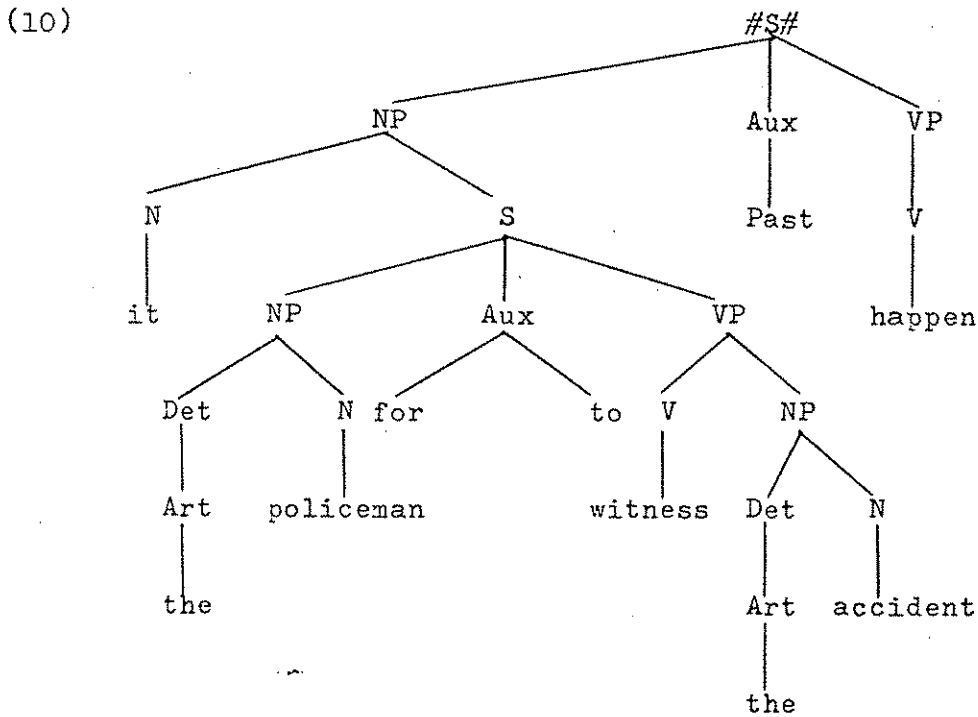
The second approach, while apparently more conservative, runs up against the problem of determining what the constituent is which is in construction with the expletive in the underlying phrase marker (henceforth abbreviated UPM) for the sentence in which it occurs. In sentences (1) and (2) it is not difficult to determine what the constituent is; in (1) it is the clause that the governor was unavailable for comment, while in (2) it is the infinitive for you to have the radio turned up so loud. In his dissertation The grammar of English predicate complement constructions (Cambridge, Mass., 1965), P. S. Rosenbaum made precisely such a claim about UPM's for sentences such as (1) and (2). In addition, he argued that to obtain the derived phrase markers (henceforth abbreviated DPM) for these sentences, a rule, which he called the extraposition transformation, applies to delete the complement to the expletive in its original position, and reattaches it to the end of the main sentence.<sup>3</sup> The extraposition transformation is optional, except in the case that the expletive and its complement is the subject of an intransitive verb, as in sentence (1), in which case the rule is obligatory. If the extraposition is not applied to a phrase marker to which it could have applied, then an obligatory rule applies which deletes the expletive. The rule may be formulated to say that it is deleted whenever it occurs immediately before the constituent 'Sentence'. We shall refer to this rule as the expletive deletion transformation. In the derivation of (2), the extraposition transformation has been applied. If it is not applied, however, to the phrase marker corresponding to (2), then the expletive deletion transformation necessarily applies, resulting in the derivation of the sentence:

(8) For you to have the radio turned up so loud bothers me.

Finally, in certain cases in which the extraposition transformation has applied to move an infinitival complement to the end of the sentence, the subject of the infinitive then replaces the expletive.<sup>4</sup> Rosenbaum has called this rule the pronoun replacement transformation; we shall refer to it as the expletive replacement transformation, since it is the expletive, not the pronominal it, that is replaced. In the derivation of the sentence:

(9) The policeman happened to witness the accident.

first the extraposition transformation, and then the expletive replacement transformation are applied. The UPM for sentence (9) is:

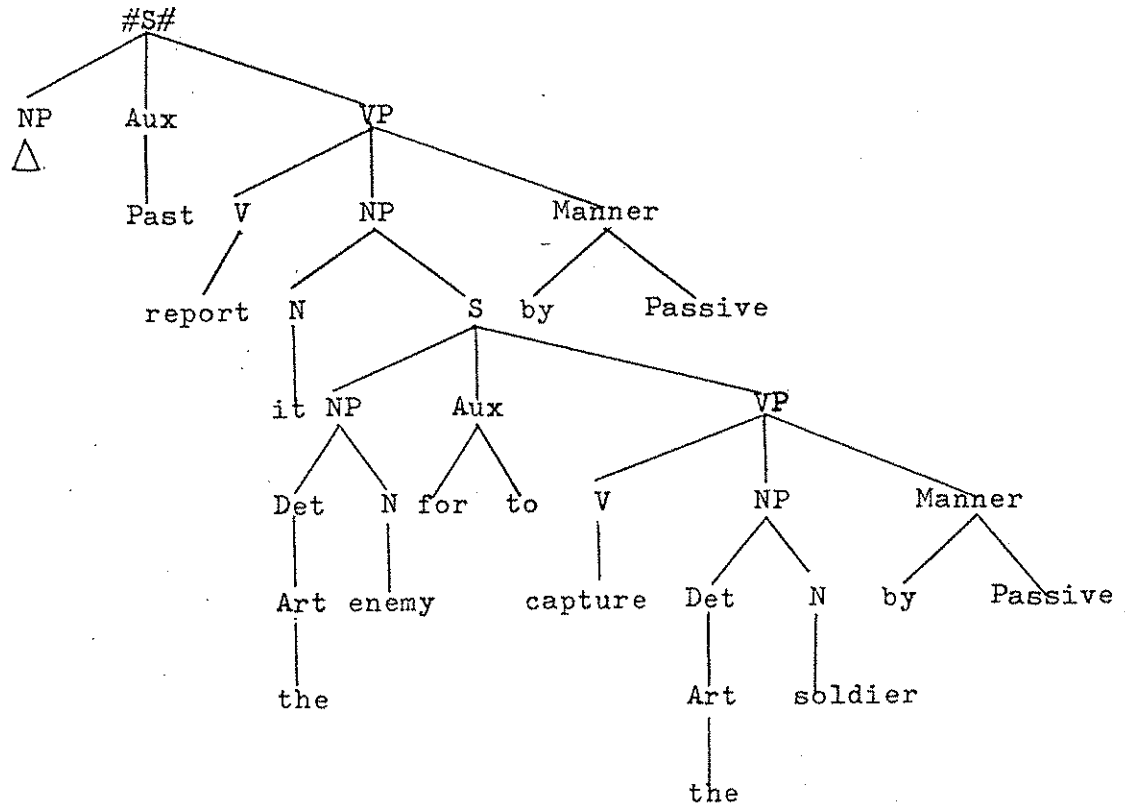


The expletive replacement transformation figures also in the derivation of some complex passive sentences in English. Consider the example:

(11) The soldier was reported captured by the enemy.

The UPM for (11), under the interpretation that the enemy did the capturing, rather than the reporting, is as follows:

(12)



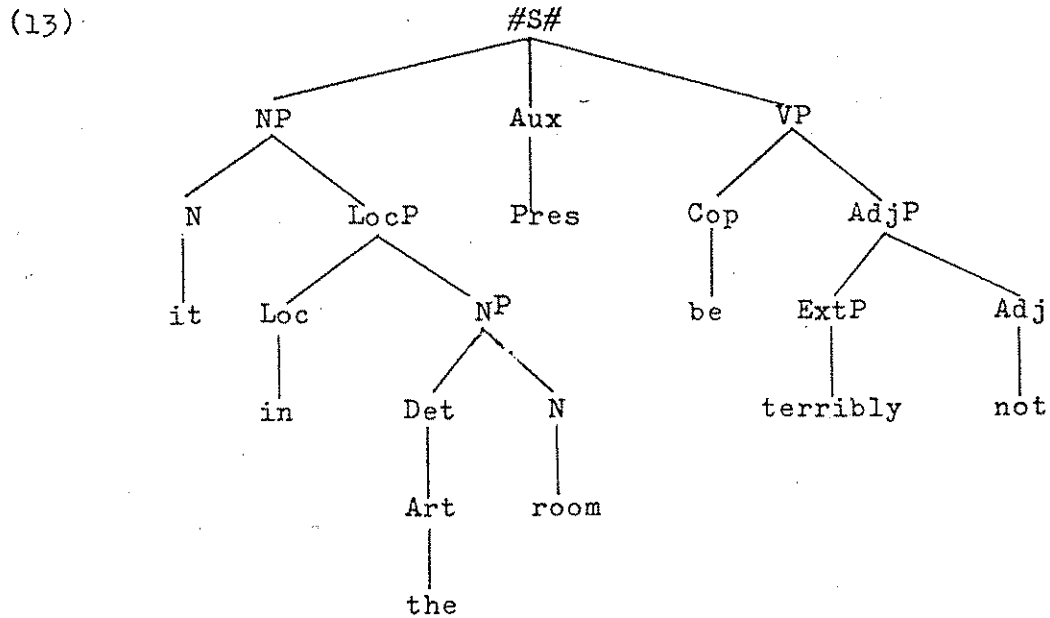
Following Chomsky's theory of syntax in which the transformations apply cyclically, starting with the most deeply embedded sentence, we observe that on the first cycle, the soldier is made the subject of the passive infinitive, and that to be is deleted. On the second cycle, the direct object is made subject of the main clause by application (again) of the passive transformation. Next, the infinitival complement is extraposed, and finally the subject of the infinitive replaces the expletive subject.

The preceding discussion of the transformational apparatus required for the description of the sentences (1), (2), (8), (9) and (11), under the interpretation that the expletive is in construction with a complement sentence in the UPM's of these sentences, is based on Rosenbaum's

fragment of English syntax. Because of the elegance and descriptive power of that grammatical fragment, it is not unreasonable to hope that its rules can be extended appropriately to handle sentences like (3)-(6), in which we suppose that the expletive, in the UPN's of such sentences, is in construction with some other constituent. It is this hypothesis which we shall explore in the following sections. In section 2, we shall examine sentences, such as (3), for which we have reason to believe that the expletive is in construction with a locative phrase. In section 3, we shall consider sentences in which the expletive occurs with a measure phrase of distance, as in (4). In section 4, we shall deal with time phrase adjuncts to the expletive, as illustrated in sentences (5) and (6). Sections 3 and 4 will appear in a second installment of this paper.

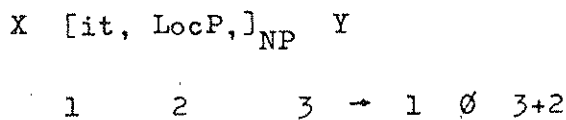
2. The expletive in construction with locative phrases.

The UPM for sentence (3), we maintain, is one in which the locative phrase in the studio is a constituent of the subject noun phrase whose head is the expletive it. We represent it as follows:<sup>5</sup>



In order to obtain the DPM for (3), we require a rule which will extrapose the locative phrase to the end of the sentence; in other words a rule exactly like Rosenbaum's extraposition transformation except that it extraposes locative phrase adjuncts rather than sentential ones. We represent that rule as follows:<sup>6</sup>

(14) LOCATIVE PHRASE EXTRAPOSITION (obligatory):



It might be thought instead that the locative phrase appearing in (3) is really a reduced infinitive clause (with to be deleted); however, the adjective hot can not co-occur with subjects of the form 'it S'. If one accepts such sentences as:

(15a) It's terribly hot to be in the studio.

the infinitive is actually a constituent of the extent phrase modifier of the adjective, just as in the undisputedly grammatical sentence:

(15b) It's too hot to be in the studio.

Just what the expletive is in construction with in sentences (15a-b) will be dealt with further on in this section.

Upon application of rule (14), the locative phrase, which was originally a constituent of the subject noun phrase, becomes merely a constituent of the main sentence, and as such becomes more or less freely moveable. If another sentence adjunct, such as a time phrase, is present, the extraposed locative phrase is free to occur either before or after it, as in:

(16a) It was terribly hot in the studio yesterday.

(16b) It was terribly hot yesterday in the studio.

The locative extraposition transformation is obligatory. If the locative preposition in an extraposed locative phrase is one of the designated elements in, on or at, that preposition may optionally be deleted under certain circumstances, and the noun phrase in the original locative phrase must then replace the expletive. These rules are required in order to derive such sentences as:

(17) The studio is terribly hot.

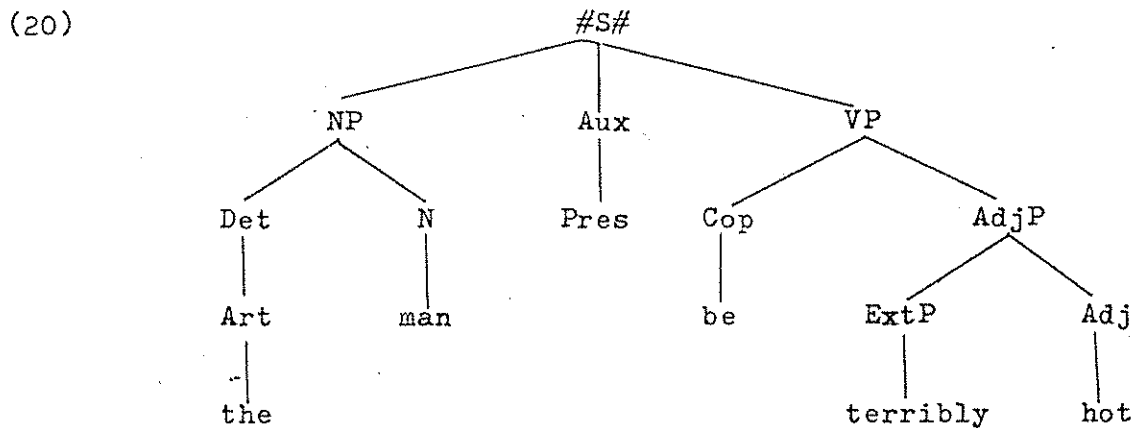
which is essentially synonymous with (3). Sentence (17) does not mean that the studio as a physical object is hot, or that any part of it, say its walls or the air in it, is hot, but rather that the studio as a place is hot. Thus (17) contrasts semantically with:

(18) The fire is terribly hot.

the interpretation of which being that the man as a physical object is hot. Syntactically, this fact is reflected in the non-existence of any sentence like:

(19) \*It's terribly hot in the fire.

parallel to sentence (3). We would like the UPM's for (17) and (18) to reflect their semantic difference in a syntactic one. This is accomplished if we suppose that the UPM for sentence (17) is identical with that of (3), namely (13), but that the UPM for (18) is as follows:



The following pairs of sentences are also related as are (3) and (17); in the derivation of the second of each pair, the locative preposition has been deleted and the locative noun phrase has replaced the expletive.



- (21a) It was very busy at the airport yesterday.
- (21b) The airport was very busy yesterday.
- (22a) It was very crowded on the sidewalks.
- (22b) The sidewalks were very crowded.

Sentence (22b) is in fact ambiguous. It may be interpreted either as (22a) or to mean that the sidewalks were themselves crowded together. Under the latter interpretation, of course, the sidewalks is the underlying subject of the sentence.

Locative preposition deletion is restricted to the three designated prepositions in, on and at. When the locative phrase adjunct to the expletive subject of a sentence is introduced by any other preposition, or by no preposition at all, only the extraposition transformation is applied. Thus we have only:

- (23) It was dirty underneath the bed.
- (24) It was crowded between the sheets.
- (25) It was hot outside yesterday.
- (26) It is very pleasant here.

There are selectional restrictions between the choice of the locative preposition and the noun in the locative phrase. Nouns such as room, building, box govern the selection of in; station, airport, site select at, while nouns such as roof, platform, sidewalk select on. Certain nouns govern the selection of two of the deletable prepositions, for example office may select either in or at; we may say either:

- (27a) It was hot in the office yesterday.
- (27b) It was hot at the office yesterday.

Therefore the sentence:

- (27c) The office was hot yesterday.

is ambiguous, having as possible UPM's each of the ones underlying (27a) and (27b), but the ambiguity is hardly felt since (27a) and (27b) differ so little in meaning.

Even if a deletable locative preposition is selected for the locative phrase adjunct to the expletive, it may not be deleted apparently (i) if it is not followed by a noun phrase, or (ii) if, upon extrapolation, the locative phrase does not follow an adjective phrase. The first restriction accounts for the fact that we have only:

(28a) It was busy in there yesterday.

and not:

(28b) \*There was busy yesterday.

while the second restriction accounts for the fact that we have only:

(29a) It was raining in Cincinnati yesterday.

(30a) It was bad weather in Cincinnati yesterday.

and not:

(29b) \*Cincinnati was raining yesterday.

(30b) \*Cincinnati was bad weather yesterday.

whereas we have both:<sup>7</sup>

(31a) It was hectic in Cincinnati yesterday.

(31b) Cincinnati was hectic yesterday.

These observations lead us to formulate the locative preposition deletion transformation as follows:

(32) LOCATIVE PREPOSITION DELETION TRANSFORMATION (optional):

$$\begin{array}{ccccccc}
 X & [\text{it}]_N & Y & \text{AdjP} & Z, & [ \begin{array}{c} \text{in} \\ \text{on} \\ \text{at} \end{array} ] & , \text{ NP}]_{\text{LocP}} \\
 & & & & & & \\
 & & 1 & & & 2 & & 3 & \rightarrow & 1 & \emptyset & 3
 \end{array}$$

Rosenbaum's expletive replacement transformation then applies, being extended now to the following case:<sup>8</sup>

(33) EXPLETIVE REPLACEMENT (BY LOCATIVE NOUN PHRASE) TRANSFORMATION (obligatory):

$$\begin{array}{ccccccc}
 X, & [\text{it}]_N, & Y, & [\text{NP}]_{\text{LocP}} \\
 1 & 2 & 3 & 4 & \rightarrow & 1 & \emptyset+4 & 3 & \emptyset
 \end{array}$$

Application of rules (32) and (33), however, to simple locative noun phrases introduced by the indefinite article a or an result in definitely awkward sentences:

(34) \*An office was hot yesterday.

(35) \*A sidewalk was crowded last week.

The awkwardness felt in (34) and (35) does not seem to carry over when the noun is plural (so that the indefinite article is not phonetically realized), and to me at least, the awkwardness is less if the locative noun, introduced by an indefinite article, is further modified by a relative clause:

(36) Offices were hot yesterday.

(37) Sidewalks were crowded last week.

(38) ?An office which I knew about was hot yesterday.

(39) ?A sidewalk which can be seen from this window was crowded last week.

The oddity of (34) and (35) is probably due to a selectional restriction concerning the article and the number appearing in the locative noun phrase adjunct to the expletive. The following seem to me to be as unacceptable as (34) and (35):

(40) \*It was hot at an office yesterday.

(41) \*It was crowded on a sidewalk yesterday.

If we wish to exclude both (34)-(35) and (40)-(41) as ungrammatical, then no further restrictions are required in the formulation of the transformations (14), (32) and (33); the matter is for the lexical component to handle.

The exclusion of the deviant:

(42a) \*Home was busy yesterday.

would appear to have to be handled transformationally, however, since the following 'source' for (42a) is perfectly acceptable:

(42b) It was busy at home yesterday.

Moreover, it is not simply a matter of restricting rule (32) so as not to apply when the locative preposition is followed by a singular non-proper noun not preceded by an article, since both of the following sentences are grammatical:

(43a) It was crowded at school yesterday.

(43b) School was crowded yesterday.

Perhaps the traditional classification of home in such sentences as (42b) as an 'adverb' rather than as a 'noun' is on the right track; in any event, if we claim that home is not a noun phrase in (42b), we can exclude the derivation of (42a) on the same grounds as we excluded that

of (28b). We can also prevent the derivation of:

(44a) \*Town was busy yesterday.

despite the existence of:

(44b) It was busy in town yesterday.

on these same grounds.

This completes, for the moment, our discussion of the transformational apparatus required for the syntactic description of English sentences whose underlying phrase markers contain subject noun phrases made up of the expletive plus a locative phrase. We turn now to the phrase structure and lexical rules which are required.

One of the rules of the phrase structure must expand the noun phrase into a noun plus a locative phrase:

(45) NP  $\rightarrow$  N LocP

The locative phrase must, among other things, be rewritten as a locative preposition plus a noun phrase:

(46) LocP  $\rightarrow$  Loc NP

If there were no restrictions on which nouns could be chosen as heads of noun phrases appearing in the left-hand side of rule (45) or in the right-hand side of rule (46), these two rules, taken together, would make 'Noun-Phrase' a recursive category in English, contrary to Chomsky's expectation, as expressed in Aspects of the theory of syntax, p. 137, that only the category 'Sentence' will be found to be recursive in the grammars of natural languages. But, of course, there are restrictions on which nouns may appear as heads of these two noun phrases, and they are such that rules (45) and (46) cannot be applied more than one time each to expand a particular noun phrase. The head of a noun phrase containing a loca-

tive phrase adjunct must either be the expletive it or one of a class of abstract nouns including situation and event, as for example in the sentences:<sup>9</sup>

(47) The situation at headquarters was hopeless.

(48) The attention of the world was focused recently on events in Rhodesia.

The head noun of the noun phrase inside of a locative phrase must be a place noun. The two sets of nouns do not overlap each other, and thus rules (45) and (46) cannot be applied more than once each to expand any particular noun phrase. The category 'Noun-Phrase' is thus not recursive in English, at least by virtue of these two rules.

It would appear that noun phrases made up of the expletive plus a locative phrase can only occur as subjects of sentences, and then only when the predicate has as its head an intransitive verb, an adjective, or a predicate nominal. Following Chomsky (Aspects of the theory of syntax, chapter 2), we shall assume that it is the verb or adjective which is selected on the basis of the choice of the subject noun phrase. Those verbs, furthermore, which are marked as occurring with expletive plus locative phrase subjects appear to be restricted to those which indicate certain meteorological conditions, such as rain, snow, clear up, etc., or to those designating bodily feelings such as hurt, itch, pain. Sentence (29a) is illustrative of those in which a verb of the first type is chosen. There is good reason to believe that the specified locative phrase adjunct out may optionally be deleted, and if it is, sentences such as the following may be obtained:

(49a) It's raining.

Sentence (49a) does not differ in meaning from:

(49b) It's raining out.

so that there can be no objection to a transformation which deletes the locative phrase out in the derivation of (49a) on the basis of the effect of this rule on the semantic interpretation of the sentences to which it applies. In my speech, it is also possible to say such things as:

(50) It's raining out now in Cincinnati.

which leads me to suspect the possibility that out occurs generally as the locative phrase adjunct in subjects of verbs such as rain, snow, clear up, etc., and that the locative phrase in Cincinnati, both in (50) and in (29a) is really an adjunct to the main sentence. If we maintain this, we also must maintain that out has been deleted in the course of the derivation of (29a).<sup>10</sup> Alternatively, we could consider that out in Cincinnati occurs as a complex locative phrase adjunct to the expletive in the UPM for (50).<sup>11</sup> I do not find this alternative quite as attractive as the first, although I cannot at the moment convincingly argue against it.

In any event, certain of these verbs, a subclass of those somehow derived from adjectives, need not occur with out at all, since they do not necessarily express outside-world meteorological conditions. Thus, we may say:

(51a) It's warming up in the room.

but certainly not:

(51b) \*It's warming up out in the room.

But note that we may also say:

(51c) The room is warming up.

which appears to be related to (51a) by locative preposition deletion and expletive replacement. However, recall that we have restricted the application of the locative preposition deletion transformation so as not to apply to structures in which the extraposed locative phrase follows a verb. Thus we cannot derive (51c) by our rules from the UPM which also underlies (51a).

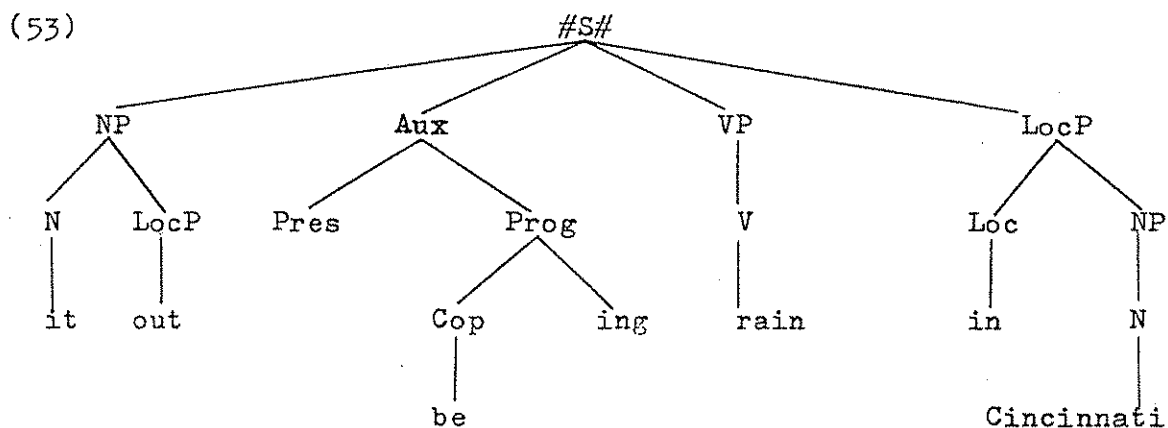
It is here that the claim that the specified locative phrase out necessarily occurs as the adjunct to the expletive in subjects of such verbs as rain, snow, clear up, etc., which denote outside-world meteorological conditions, takes on added attractiveness. Suppose we relax the constraint on locative preposition deletion, so that the rule may apply regardless of what intervenes between the expletive and the extraposed locative phrase:

(52) REVISED LOCATIVE PREPOSITION DELETION TRANSFORMATION  
(optional):

$$\begin{array}{ccccccc}
 X & [it]_N & Y, & [ & \left. \begin{array}{l} [in] \\ [on] \\ [at] \end{array} \right\} & , & NP]_{LocP} \\
 1 & & & & 2 & & 3 & \rightarrow & 1 & \emptyset & 3
 \end{array}$$

Using rule (52) it is now possible to derive (51c) from the same UPM which (51a) has; (51c) is obtained by applying rules (52) and (14) in addition to the other rules needed to derive both sentences. We can still prevent the derivation of (29b), however, by maintaining that the UPM for (29a) is:





Upon application of rule (14), out is extraposed to the end of the sentence. Rule (52) therefore cannot apply to delete the locative preposition in, since it is not in a sentence-final locative phrase. If out is not subsequently deleted, it is obligatorily moved to a position immediately following the verb rain, as in sentence (50). If out is deleted, then (29a) is obtained.<sup>12</sup> A similar argument could be given to account for the ungrammaticality of (30b).

A few verbs which indicate physical feeling appear to be selected by expletive plus locative phrase subjects, as the following sentences illustrate:

(54a) It hurts right here, doctor.

(55a) It itches where I can't scratch.

Hurt, and perhaps also itch (depending upon one's dialect and upbringing) may also occur with animate objects to whom the body part belongs which hurts or itches:

(54b) It hurts me right here, doctor.

(55b) (\*) It itches me where I can't scratch.

This is true for the verb hurt also when it occurs with an expletive plus sentential phrase subject.

It appears to me that locative preposition deletion and expletive replacement occur obligatorily with these verbs, since I can say only:

- (54c) My stomach hurts (me), doctor.
- (55c) My back itches (me).

and not:

- (54d) \*It hurts (me) in my stomach, doctor.
- (55d) \*It itches (me) on my back.

An interesting problem is posed by the following sentences in which what was the object of hurt, itch in (54b) and (55b) is now the subject:

- (54e) I hurt right here, doctor.
- (55e) I itch where I can't scratch.

Such constructions seem to me to be most acceptable when the locative phrase cannot replace the expletive. Thus the counterparts to (54c) and (55e) with I as subject seem awkward:

- (54f) \*I hurt in my stomach, doctor.
- (55f) \*I itch on my back.

Another paradigm illustrating this same pattern is the following in which the main verb is ache:

- (56a) It aches ~~from~~ the neck up.
- (56b) \*It aches me from the neck up.
- (56c) My head aches. (but \*My head aches me.)
- (56d) \*It aches (me) in my head.
- (56e) I ache from the neck up.
- (56f) \*I ache in my head.

I rather tentatively suggest the following analysis for this data. The verbs hurt, itch, ache are selected by expletive plus locative phrase subjects (in which the locative refers to the body of an animate being) and an object which is that being. Locative preposition deletion and expletive replacement obligatorily apply (cf. n. 16), but if the conditions for its replacement by the noun phrase of the locative phrase are not met, then the object replaces the expletive by a special rule, which I shall not attempt to state formally. The direct object, if it remains as such, is optionally (sometimes obligatorily, as in (56c)) deleted. This deletion is recoverable, since the object is contained in the subject (it is the 'inalienable' possessor noun in the subject noun phrase).

I submit this analysis with a considerable amount of reservation since the patterning is so complex, and it is not entirely clear to me even what the "facts of English" are. It goes without saying that there are important dialectal, especially socio-economic, differences in this patterning. This concludes our discussion of sentences in which the expletive plus locative phrase subject selects a verb in its predicate. We turn now to the selection of a predicate nominal.

Sentence (30a) is of some interest, because it is practically unique in structure among English sentences, in that a predicate nominal occurs opposite a subject made up of the expletive plus a locative phrase. It will be observed (at least by those who agree with me in accepting it as bona fide English) that the predicate noun itself must be modified by an adjective (but not by a relative clause!):

(57a) \*It's weather in Cincinnati.

(57b) \*It's weather which is bad in Cincinnati.

I have no idea what the rules are which allow for (30a), but disallow (57b).<sup>13</sup>

Those adjectives which can occur with expletive plus locative phrase subjects are restricted to those which designate accidental (in the Aristotelian sense) qualities possessed by place or 'container'

nouns, although perhaps not all such adjectives can occur with such subjects. Thus while the adjectives crowded and deserted can occur with such subjects, I am not quite so sure that full and empty can. The sentences:

(58a) The room is empty.

(59a) The room is full of smoke.

are perfectly grammatical, but I have certain reservations about accepting wholeheartedly:

(58b) ? It's empty in the room.

(59b) ? It's full of smoke in the room.

If one accepts such sentences as (58b) and (59b), where the predicate adjective has the features of designating the appropriate qualities of space, locations and containers, then the selectional feature of occurrence with expletive plus locative phrase subjects is redundant, being predictable by rule from the presence of the subcategorizational feature or features.

I find that the adjective which selects such subjects may in fact refer to emotional or mental states which people feel about places or containers, as well as to accidental physical ones. Thus, I accept both:

(60a) It's lonesome in this place at night.

(60b) This place is lonesome at night.

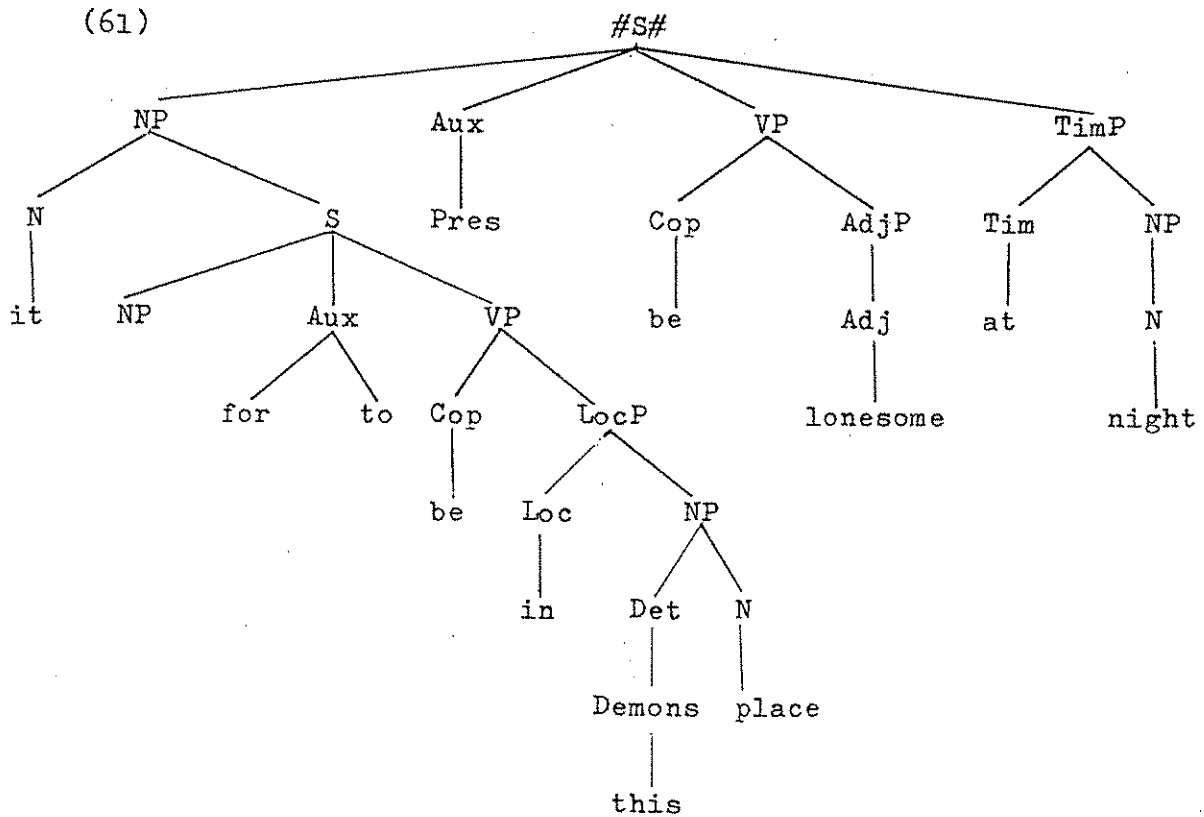
If, however, we consider other sentences with lonesome as predicate adjectives, we see that the locative phrase in (57a) should probably be considered a reduced infinitival clause (with to be deleted).

(60c) It's lonesome to be in this place at night.

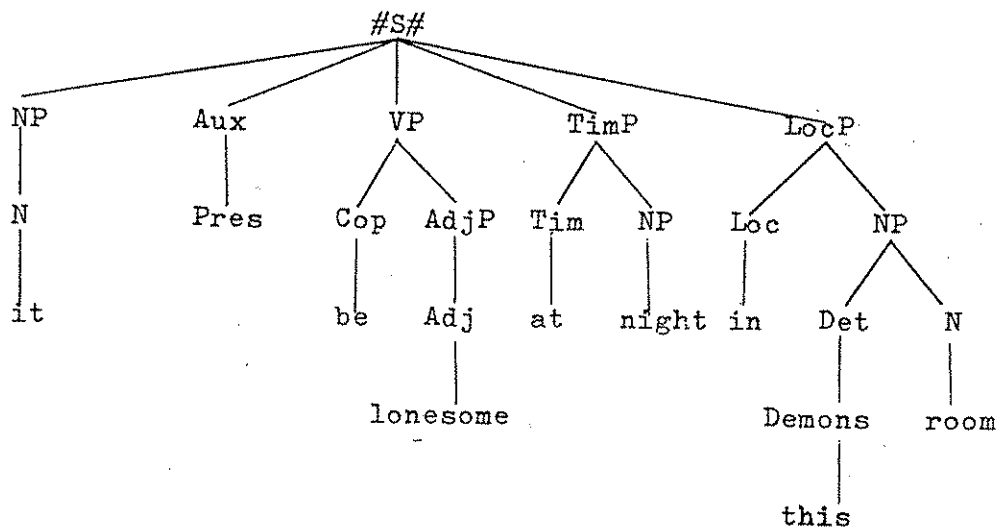
(60d) It's lonesome for me in this place at night.

(60e) It's lonesome for me to be in this place at night.

Under this interpretation, the UPM for (60a) is:



To obtain (60a), the infinitive must be extraposed, and the to be deleted. Following John Ross' conventions governing 'tree-pruning', as given in his 'A proposed rule of tree-pruning', read to the 1965 Annual Meeting of the Linguistic Society of America, the node S dominating the infinitive is eliminated, and perhaps also the node VP (this is not by Ross' convention, however), the phrase marker becomes:



Phrase marker (62), however, is susceptible to locative preposition deletion and expletive replacement, resulting in the derived phrase marker for (60b).<sup>13a</sup>

This completes our discussion of the phrase structure and lexical rules required for handling sentences containing expletive plus locative phrase subjects. Such sentences may of course be embedded as dependent clauses into other sentences. Consider the following examples, in which such a sentence is itself embedded as a complement to the expletive:

- (63a) It seemed that it was hot in the studio.
- (63b) It seemed that the studio was hot.
- (63c) It seemed (to be) hot in the studio.
- (63d) The studio seemed (to be) hot.

In (60a), we see that the extraposition transformation has applied on both the first and second cycles of derivation, in the first to extrapose the locative phrase to the end of the dependent clause, and on the second to extrapose the entire dependent clause to the end of the main clause. (in (60b), in addition, locative preposition deletion and expletive replacement have occurred on the first cycle. In (63c), only extraposition has taken place on the first cycle, but on the

second, the expletive of the embedded sentence has itself replaced the expletive of the main sentence, by Rosenbaum's version of expletive replacement. In addition, to be may be deleted on the second cycle.<sup>14</sup> In (63d), extraposition, locative preposition deletion and expletive replacement have all applied on the first cycle, while expletive replacement, this time by the derived subject of the embedded sentence the studio, has occurred on the second cycle. To be may optionally be deleted, as in (60c).

In the foregoing discussion, we have shown that noun phrases made up of the expletive plus a locative phrase can occur in subject position in underlying phrase markers for English sentences with a wide variety of predicates. We may now raise the natural question of whether there is any evidence for maintaining that such noun phrases can occur in other positions in UPM's for English sentences, for example, in object position. There is such evidence, as we shall now indicate.

Consider such passive<sup>15</sup> sentences as:

(64) It isn't heated in the attic during winter.

It is not immediately obvious what the active counterpart to (64) is; in particular there is no English sentence:

(65a) \*We don't heat in the attic during the winter.

but only:

(65b) We don't heat the attic during the winter.

to which the passive sentence:

(66) The attic isn't heated during the winter.

seems to correspond.

The foregoing observations suggest the possibility that the attic is not by itself the underlying direct object of the verb heat, but rather that it is the expletive plus the locative phrase in the attic. To obtain the form of the active sentences, we must assume that locative preposition deletion is obligatory, so that expletive replacement necessarily occurs, thus excluding the derivation of (65a), and insuring the derivation of (62b). In passive sentences, locative preposition deletion is not obligatory;<sup>16</sup> if it is not applied, (64) is obtained, and if it is, (66) is obtained.

This suggested analysis receives support from the observation that the verb heat is a causative form of the adjective hot. Since in general the object of a causative verb is the subject of the corresponding non-causative, we can expect quite naturally that expletive plus locative phrase noun phrases would be possible direct objects to verbs such as heat.

If a locative phrase adjunct which is not introduced by one of the deletable prepositions is chosen for the expletive in object position, then of course locative preposition deletion cannot be applied, nor can expletive replacement. This raises an interesting problem, which I am not sure about how to solve. What, for example, are the active counterparts to the following passive sentences?

(67) It isn't heated here during the winter.

(68) It isn't heated above the first floor during the winter.

The best that I have been able to come up with are the following:

(69) ?We don't heat it here during the winter.

(70) We don't heat above the first floor during the winter.

In (69), it is to be understood as the expletive, not the pronoun. If it were left out, I would understand the here of the corresponding sentence as a sentence adverb. The deletion of the expletive in (70)



probably has to be handled by the expletive-deletion transformation of Rosenbaum (this rule has up to this point played no role in our discussion).

There are also a fairly substantial number of apparently non-derived verbs which select expletive plus locative phrase objects. Consider the following paradigm.

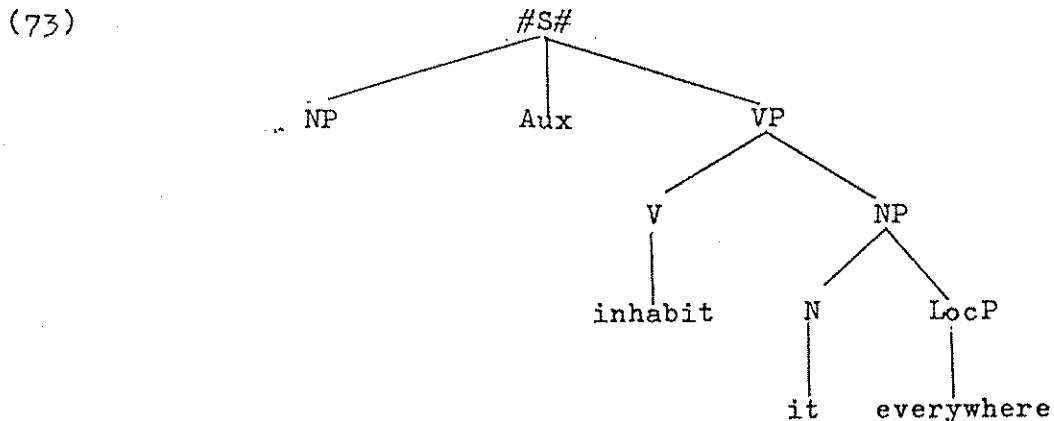
- (71a) Fishermen inhabited the coastal regions.
- (71b) It was inhabited with/by fishermen in the coastal regions.
- (71c) The coastal regions were inhabited with/by fishermen.
- (71d) \*Fishermen inhabited everywhere.
- (71e) It was inhabited with/by fishermen everywhere.
- (71f) \*Everywhere was inhabited with/by fishermen.

This paradigm is not to be confused with that of verbs such as abound, (72):

- (72a) Quahogs abound in Narragansett Bay.
- (72b) Narragansett Bay abounds with/in quahogs.

which must be handled by other rules (cf. n. 8).

The ungrammaticality of (71d) is noteworthy. It suggests that the phrase-marker:



cannot underlie any English sentence, but that its passive counterpart can. This situation is comparable with that discussed in connection with sentences (67)-(70), except that here there is no question that the active sentence is ungrammatical.

FOOTNOTES

<sup>1</sup>Examples, phrase markers and rules are simply numbered consecutively throughout the text. Sentences comprising a paradigm or partial paradigm illustrative of some point in the text are assigned the same number and are distinguished by letters of the alphabet.

I am indebted in this paper to the help of a number of linguists, especially to my colleague Charles J. Fillmore and to Peter S. Rosenbaum. Others who have either helped by criticizing points in earlier versions of this paper or who have suggested new ideas to me include: Sandra Annear, James Heringer, Gregory Lee and J. R. Ross.

<sup>2</sup>Of course, other approaches besides these are possible, such as maintaining that both the underlying and the surface subjects of these sentences is the expletive. However, the two approaches outlined in the text seem to be much more plausible than any third possible alternative, and the real linguistic problem is to find a basis for choosing one over the other.

<sup>3</sup>Cf. also the remarks in Noam Chomsky, Aspects of the theory of syntax (Cambridge: The M.I.T. Press), 1965, pp. 100-101, 229; in which he suggests the adoption of the same position regarding the structure and derivation of sentences like (1) and (2).

<sup>4</sup>There is also another rule which replaces the expletive with the object or other post-verbal noun phrase of the infinitive, if the extraposition rule places the infinitive after an adjective such as easy, hard or difficult. This rule is optional, whereas the rule which replaces the expletive with the subject of the infinitive is generally obligatory. Cf. Aspects, op. cit., p. 162 and various other writings of Chomsky for further discussion.

<sup>5</sup>The extent adverb terribly in (3) is most likely derived transformationally from an underlying prepositional phrase to a terrible extent. We ignore this fact in order to simplify our exposition.

<sup>6</sup>Rule (14) adjoins the locative phrase to the end of the sentence, and deletes it in its original position. We assume, in our statement of the transformational rules in this paper, that the constituents in the structural analysis taken together comprise a sentence, so that the left and right boundary symbols flanking the main sentence need not be mentioned explicitly in the rules.

<sup>7</sup>These observations are not quite correct as they stand, and hence rule (32), which is based on them is only a first approximation to the truth. We shall make certain corrections later on, and correspondingly revise the locative preposition deletion transformation.

<sup>8</sup>Following a suggestion by Fillmore, we may instead apply rule (33) ahead of rule (32) and make the preposition deletion rule a part of a much more general rule which deletes prepositions before noun phrases in subject positions (Fillmore would argue that the preposition is in fact a part of the noun phrase.). One can then compare English directly with a language which designates locative noun phrases by special case endings, but which "converts" the case to nominative when such noun phrases are made subjects.

<sup>9</sup>The locative phrase adjuncts to the nouns situation and events in (47) and (48) cannot be considered to be derived from relative clauses by means of which is/are deletion, since there are not sentences in English which could possibly underlie those relative clauses:

\*The situation is at headquarters

\*Events are in Rhodesia

Therefore these locative adjuncts should be considered to be simply precisely that, and not derived from underlying sentential adjuncts.

Locative phrase adjuncts to nouns such as policy, value, etc. while not obtainable by which is/are deletion from relative clauses, nevertheless are derived from relative clauses whose main verb is have. Thus, in the sentences:

America's policy in Viet Nam is indefensible.

The value of the function at the origin cannot be determined.  
the subject noun phrases are derived by various transformational rules from:

The policy which America has in Viet Nam.

and

The value which the function has at the origin.  
respectively. Note that this is not a possible analysis in the case of the relevant noun phrases in (47) and (48).

<sup>10</sup>And also in that of (15a-b), presumably.

<sup>11</sup>I am somewhat at a loss as to how to account for the certainly idiomatic expression:

It's raining in.

meaning that the rain is coming into an enclosure, say through an open window. One possibility, which certainly receives support semantically, is to say that the adjunct to the expletive adjunct is from out to in (which is not strictly speaking a locative phrase, however) and that from out to is somehow deleted.

<sup>12</sup>In a sense, our analysis of the underlying subject of such verbs as rain, snow, etc. is comparable to the tradition that holds (or used to hold) that the understood subject of these verbs is God. We claim that these verbs are selected by the specific subject it out. Paul Postal has suggested, alternatively, that the underlying subject is really the noun rain and that the verb is a "dummy" verb comparable

semantically to fall ("Review of Robert Longacre, Grammar discovery procedures", IJAL 32 (1966), p. 98.). I do not, however, see how Postal can readily extend his analysis to cover the wide variety of expletive subject cases discussed in this paper; in particular such sentences as It's hot, It's freezing, It's drafty, It's clearing. Postal's suggestion does, nevertheless, provide a way of relating the noun rain to the verb rain, namely that the latter is transformationally derived from the former. I am inclined to believe, however, that either the relationship is the other way around, or else that the lexical item rain (and similarly snow, hail) is not marked as either a noun or a verb, but that it is free to substitute for both lexical categories.

In disagreeing with the details of Postal's suggestion, we do not deny that his criticism of Longacre, which motivated his discussion of this point, is valid.

<sup>13</sup>Like (30a) in structure are the following sentences, which I give only for illustration. The same curious restrictions concerning adjectival modifiers to the predicate noun also hold:

It's tough sledding out.

It's good skiing in Vermont this weekend.

It's hazardous driving in parts of Central Ohio tonight.

<sup>13a</sup>If the time phrase at night were considered to be a constituent of the infinitive, rather than of the main clause, then the time phrase rather than the locative phrase would be sentence-final in the phrase marker (62), and expletive replacement could not apply. It is for this reason, primarily, that we believe that the time phrase is an immediate constituent of the main clause.

<sup>14</sup>Note that to be deletion is obligatory following certain verbs, such as become, optional following verbs such as seem, and obligatorily non-applicable following happen. If we take the to be deletion transformation to be an optional minor rule of syntax, we may, following

George Lakoff, On the nature of syntactic irregularity, Report 16 of the Harvard Computational Laboratory, 1965, consider seem to be unmarked with respect to that deletion.

<sup>15</sup>Generally, the passive sentences we shall exhibit in the following discussion, in which it functions as the derived subject, the locative phrase being extraposed, do not express the agent. It is problematical whether such sentences with the agent expressed is grammatical. I find such sentences as:

It isn't heated in the attic by the landlord.  
at best 'awkward'.

<sup>16</sup>Since we know that the passive transformation must be applied before the extraposition transformation (and hence also before the locative preposition deletion transformation), we can formulate the condition under which the locative preposition deletion transformation is obligatory; namely when the expletive follows the verb.