1 Toward a Universal Characterization of Passivization

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1 Introduction

This paper has two goals: to offer an introductory, relatively informal characterization of 'passivization' in language-independent terms and to draw some implications of this characterization for the nature of grammatical rules and linguistic structure in general.

Any adequate theory of language must be able to achieve the first goal. There exists a vast literature on the most diverse languages making use of concepts such as 'passive', 'passive voice', and 'passivization'. While the phenomena in particular languages referred to in these terms are usually described as having language-particular and idiosyncratic features, what is striking about the descriptions in the literature is the fact that in using such concepts they appeal to a universal underlying reality of some sort. The nature of this universal underlying reality, however, is not specified. We maintain that no grammatical theory can be considered adequate unless it is able to give these notions substantive content. In this paper we take initial steps toward achieving this goal.[1]

2.1 A Characterization in Terms of Word Order

Consider first an active-passive pair in English:

(1) a. Louise reviewed that book.
    b. That book was reviewed by Louise.

Since the appearance of Chomsky 1957, which proposed that the relation between active sentences and the 'corresponding' passives be treated by means of a transformation, a number of different proposals

have been made as to how such a transformation should be stated. The following structural descriptions have all been proposed at one time or another:

(2) a.   X – NP – V – NP – Y
    b.   X – NP – V – (Prep) – NP – Y
    c.   X – NP – V X – NP – Y

Under these proposals, Passive applies to any string that satisfies the structural description, which requires an NP immediately followed by a verb, followed by another NP. The structural descriptions in (2) differ with respect to what, if anything, may intervene between the verb and the second NP. But they agree that the class of structures to which Passive applies in English is characterized in terms of 'NP immediately followed by a verb followed by NP.'

There have also been a number of different proposals concerning the structural change effected by the passive transformation. These have differed as to whether the preposition *by*, the auxiliary verb *be*, and the participial morphology on the verb are inserted by the passive transformation, are already present in deep structures, or are accounted for by separate transformations. Common to the structural changes under various different proposals, however, are postposing of the preverbal NP and preposing of the postverbal NP. Proposals have differed with respect to whether these two operations are performed by a single transformation or two separate transformations.

Despite a great deal of variety in detail, then, most advocates of a passive transformation have agreed that:

(3) a.   Passive in English applies to strings in which an NP, Verb, and NP occur in that order.
    b.   Passivization involves postposing of the preverbal NP and preposing of the postverbal NP.[2]

Given such attempts to characterize passivization in English in terms of the linear order of elements, one might attempt to generalize this approach and characterize passivization in general in such terms. It is easy to see, however, that a statement of passivization along the lines of (3) cannot provide a universal account of the phenomenon. Because different languages have different characteristic word orders, neither structural descriptions like those in (2), summarized in (3a), nor a structural change like that in (3b) could possibly be universal.

Consider the following active-passive pair in Turkish:

(4) a.   Hasan bavulu   açti.
         Hasan suitcase-ACC open-PAST
         'Hasan opened the suitcase.'

    b.   Bavul   (Hasan tarafindan) açildi.[3]
         suitcase-NOM (by Hasan)   open-PASS/PAST
         'The suitcase was opened (by Hasan).'

How Passive would have to be formulated as a transformation for Turkish[4] is not fully clear. But it is at least evident that none of the structural descriptions in (2) can characterize Turkish Passive simply because the verb in Turkish is clause-final.[5]

    A theory of language that requires statement of passivization in terms of a transformational structural description will not only have distinct rules for English and Turkish but will require a distinct rule for each language where the order of relevant constituents is different. Malagasy, where the verb is initial and the subject is normally in final position (see Keenan 1972), has active-passive pairs like:

(5) a.   Nividy ny vary ho an'ny ankizy ny vehivavy.
         bought the rice for the   children the woman
         'The woman bought the rice for the children.'
     b.   Novidin'   ny vehivavy ho an'ny ankizy ny vary.
         bought-PASS the woman   for the   children the rice
         'The rice was bought for the children by the woman.'

To state Passive in Malagasy as a transformation, a structural description something like the following would be necessary:

(6)   V – NP – X – NP

    The structural change would have to permute the two NPs.[6] Passivization in Malagasy would thus be distinct from passivization in both English and Turkish.

    Similarly, consider an active-passive pair in Nitinaht, a Wakashan language of British Columbia discussed in Klokeid 1975:

(7) a.   Ch'ixwat-saʔap ʔa   (ox) bowach ʔaq ʔoyoq Ralph.
         frighten   AUX CASE deer   the CASE Ralph
         'The deer frightened Ralph.'
     b.   Ch'ixwat-saʔab't ʔa   (ox) Ralph ʔoxwit   bowach ʔaq.
         frighten-PASS   AUX CASE Ralph CASE-PASS deer   the
         'Ralph was frightened by the deer.'

Nitinaht has VSO clause order. Thus a transformational statement of Passive in Nitinaht would yield a rule distinct from those in English, Turkish, and Malagasy.

    In addition to yielding distinct Passive rules for different languages, an approach to passivization in terms of linear order, preposing, etc., is inadequate in another respect. Such ideas cannot even provide a gross account of the most superficial facts internal to the grammars of

certain languages. First, there are languages in which the order of constituents in 'corresponding' actives and passives does not differ. Two such languages are cited in §7. Second, a theory that attempts to formulate passivization in terms of preposing and postposing will not yield natural accounts of passivization in languages with a word order free enough to eliminate motivation for positing a fixed 'underlying' order of constituents.

   We have thus argued that attempts to state passivization transfor-mationally require recognition of at least as many distinct passivization rules as there are different possible characteristic orders of relevant constituents in human clause structures. This is a consequence of the fact that the statement of a grammatical phenomenon in transforma-tional terms *requires* reference to the linear order of elements. The failure of a transformational account of Passive to provide an adequate universal characterization is then a special case of the impossibility of a universal characterization of passivization in terms of the notions of lin-ear order, 'preposing', and 'postposing'. Passivization is a phenomenon of natural language that is independent of linear order.

2.2   A Characterization in Terms of Case

In languages such as Latin and Russian, an active sentence and its 'corresponding' passive exhibit the same nominals with different case markings.

(8) Latin:
   a.   Magister   puerōs   laudat.
        teacher-NOM boys-ACC praise-3SG
        'The teacher praises the boys.'
   b.   Puerī   ā magistrō   laudantur.
        boys-NOM by teacher-ABL praise-PASS-3PL
        'The boys are praised by the teacher.'

(9) Russian:
   a.   Car'   soslal Puškina.
        czar-NOM exiled Pushkin-ACC
        'The czar exiled Pushkin.'
   b.   Puškin   byl soslan carem.
        Pushkin-NOM was exiled czar-INSTR
        'Pushkin was exiled by the czar.'

In both Latin and Russian, the nominal that is in the accusative case in the active sentence is in the nominative in the 'corresponding' pas-sive. The nominal that is in the nominative case in the active sentence is marked differently in the 'corresponding' passives in the two lan-guages. In Russian, it is in the instrumental case, while in Latin it is

in the ablative case, accompanied by the preposition *ā*. Since Latin and Russian differ with respect to the marking in passive clauses of the nominal that is nominative in active clauses, a universal characterization of passivization in terms of case would have to focus on what is the same in these two languages, namely:

(10)   The nominal that is in the accusative case in an active clause is in the nominative in the 'corresponding' passive clause.

However, obviously no statement like (10) can even begin to serve as a basis for a universal characterization of passivization, for several reasons. First, (10) makes use of concepts like 'nominative' and 'accusative', which stand in exactly as much need of universal characterization as passivization itself. Second, there are vast numbers of languages like English (barring marginal pronominal phenomena) and Indonesian, in which the relevant 'corresponding' nominals have no case marking at all. Consider Indonesian:

(11) a.   Dokter itu me-meriksa   saya.
          doctor the TRANS-examine I
          'The doctor examined me.'
     b.   Saya di-periksa   oleh dokter itu.
          I   PASS-examine by   doctor the
          'I was examined by the doctor.'

The only difference in nominal marking between an active sentence and the 'corresponding' passive in Indonesian is the fact that one nominal in the passive is accompanied by the preposition *oleh*. Third, there are languages like West Greenlandic Eskimo manifesting both passivization and an ergative type case-marking system. As the following examples from Rischel 1975 illustrate, in such cases the 'corresponding' nominals can be in the absolutive case in both active and passive:

(12) a.   Gimmi-p miiraq   kii-va-a.
          dog-ERG child-ABS bite-3SG-3SG
          'The dog bit the child.'
     b.   Miiraq   gimmi-mik kii-tsip-puq.
          child-ABS dog-INSTR bite-PASS-3SG
          'A child has been bitten by the/a dog.'

Since Eskimo has no accusative case at all in any sense, any characterization like (10) would fail for Eskimo even if it could be given a sound universal basis. Finally, there are languages in which nominals are marked with case but where the case marking of 'corresponding' nominals in active and passive is *exactly the same*. Basque, as described by Lafitte (1962), is of this type:

(13) a. Piarresek egin   du etchea.
         Peter-ERG make has house-ABS
         'Peter made the house.'
     b. Piarresek egina da etchea.
         Peter-ERG made is house-ABS
         'The house was made by Peter.'

In both the active and passive, *etchea* is in the absolutive case and *Piarresek* is in the ergative. Yet the two sentences differ in structure. While (13a) is transitive, (13b) is superficially intransitive, as evidenced by the auxiliary *da,* a form of *izan* 'be' used with intransitives (contrasting with the use of *ukan* 'have' in transitive clauses [see Postal 1977]), and by the fact that *Piarresek* does not trigger agreement in (13b).[7] The fact that case marking in (13a–b) is the same, however, reveals the hopeless inadequacy of a universal characterization of passivization in terms of case.

2.3   A Characterization in Terms of Verbal Morphology

In all the languages considered so far, active sentences differ from the corresponding passives in terms of verbal morphology. Typically, passive verbal morphology involves either a passive marker of some kind (prefix, suffix, or infix), or a participial or other nonfinite form of the verb plus a so-called auxiliary verb. This could suggest the possibility of characterizing passivization universally in terms of passive verbal morphology, with the differences in word order and case marking associated with passivization in some languages taken as a derivative effect.

However, such an attempt also obviously cannot get off the ground. First, there is no language-independent notion of 'passive morphology', that is, no way to independently theoretically pick out certain morphological properties in some languages as 'passive' rather than 'active'. Second, even if this fundamental problem could be overcome, there are languages in which a passive clause does not differ from the 'corresponding' active in verbal morphology..

Mandarin Chinese is such a language, as indicated by the following active-passive pair cited in Cummins 1976:

(14) a. Zhù lǎoshī   píyè-le   wǒ-de kǎoshì.
         Zhu professor mark-ASP my   test
         'Professor Zhu marked my test.'
     b. Wǒ-de kǎoshì bèi Zhù lǎoshī   píyè-le.
         my   test   by Zhu professor mark-ASP
         'My test was marked by Professor Zhu.'

While the active and the corresponding passive differ in word order and in the appearance of the preposition *bèi* in the passive, there is no

difference between active and passive verbal morphology (*píyè-le*).

Achenese, studied by Lawler (1977), is another language where actives and passives do not differ in verbal morphology:

(15) a.   Gɔpnyan ka   gi-cɔm lón.
         she   PERF kiss   I
         'She (already) kissed me.'
    b.   Lón ka   gi-cɔm lé-gɔpnyan.
         I   PERF kiss   by-she
         'I've (already) been kissed by her.'

In Achenese, actives and passives differ in word order and in the appearance of *lé* in the passive. But verbal forms are identical in 'corresponding' active and passive. Thus passivization can in no way be given a universal characterization in terms of verbal morphology.

3   Two Universals of Passivization

The fact that passivization cannot be given a universal characterization in terms of case, verbal morphology, or the linear order of elements does not mean that it cannot be characterized in language-independent terms. On the contrary, this result only shows that those notions are not the right ones for specifying grammatical rules like Passive. We claim that there are two universals of passivization underlying the data considered so far and that in order to explicate these it is necessary to appeal to, inter alia, such largely traditional (if unexplicated) relational notions as 'subject of' and 'direct object of'. This requires making a basic universal assumption about the nature of clause structure, which can be stated very informally as follows:

(16)   A clause consists of a network of grammatical relations. Among these relations are 'subject of', 'direct object of', and 'indirect object of'.

Once this assumption is made, the two universals of passivization referred to stand out rather clearly:

(17)   A direct object of an active clause is the (superficial) subject of the 'corresponding' passive.

(18)   The subject of an active clause is neither the (superficial) subject nor the (superficial) direct object of the 'corresponding' passive.[8]

Universals (17) and (18) taken together have the following consequence:[9]

(19)   In the absence of another rule permitting some further nominal to be direct object of the clause, a passive clause is a (superficially) intransitive clause.

If (17–18) are correct, then a direct object of an active clause is the subject of an *intransitive* clause in the 'corresponding' passive. We will now briefly sketch how this accounts for much of the data in §2, postponing further discussion to §6.2.

Consider first the data on case marking in passives in §2.2. The fact that the direct object of an active clause is in the nominative case in the 'corresponding' passive in Latin and Russian follows from the fact that the nominative is the case used for (superficial) subjects in those languages, i.e., subjects of active transitive and intransitive clauses. The fact that in Eskimo and Basque the direct object of an active clause is in the absolutive case in the 'corresponding' passive follows from the fact that the absolutive case is used for the subjects of *in*transitive clauses in those languages. The fact that in English, Indonesian, Mandarin Chinese, and Achenese the direct object of an active clause has no case or prepositional marking in the 'corresponding' passive follows from the fact that superficial subjects have no case or prepositional marking in those languages. Nothing has yet been said about the marking of the subject of an active clause in the 'corresponding' passive. This is dealt with in §6.2. The marking in passive clauses of the nominal that is the direct object in the 'corresponding' actives, however, has been shown to follow automatically from (17) and (18) plus the independently existing case-marking rules of the languages in question.

Now consider the data on word order in §2.1. If a direct object of an active sentence is the subject of the 'corresponding' passive, then it should stand in the same position in a passive clause as do the subjects of other superficially intransitive clauses in languages where the order of elements is not free. And this is in fact the case. Thus in English, Indonesian, Mandarin Chinese, and Achenese, where the subject is normally clause-initial, the direct object of the 'corresponding' active is normally in clause-initial position in the passive. In Malagasy, where subjects are clause-final, the direct objects of actives are likewise clause-final in the 'corresponding' passives. And in Nitinaht, where subjects immediately follow verbs, the direct object of an active immediately follows the verb in the 'corresponding' passive. All of this follows automatically from (17).

While we claim that (17–18) are universals of passivization, it does not follow that they are necessarily part of the rule Passive itself. It is necessary to sort out what in (17–18) is due to Passive itself and what to other universals of language that interact with it. We confront this problem in §6.

Our proposal that (17–18) are universals of passivization entails that (17–18) are characteristic of passivization in every language manifesting this phenomenon. This means that (17–18) must find expression internal

to the grammar of each such language. This is possible only if clause structure in human languages is characterized in terms of the notions that make it possible to state (17–18)—that is, in terms of such relations as 'subject of', and 'direct object of'. In other words, in order to state (17–18), it is necessary to make assumption (16) both in universal grammar and in the grammars of particular languages. In §4, we sketch roughly and informally the way we conceive of and represent clause structures relationally.

4   On the Representation of Clause Structure

Our basic claim is that the structure of sentences, and also of clauses, which we will focus on here, consists of an object we will call a 're-lational network' (RN). An RN is, formally, a graph-theoretic object involving as primitives three types of entities: 'nodes', which represent linguistic elements of all sorts, 'relational signs', which represent grammatical relations between elements, and 'coordinates', which represent distinct levels at which relations hold. Nodes are of two types, 'terminal' and 'nonterminal'. Terminal nodes represent substantive linguistic elements, including morphophonemic forms of morphemes. Nonterminal nodes represent more abstract elements such as clauses, phrases, and the like. Nonterminal nodes can be identified with positive integers. Relational signs can be thought of, informally, as the names of grammatical relations. Coordinates are also just numbers (distinct from nonterminal nodes). We can represent them as $c_1 \ldots c_n$. Unlike the set of nonterminal nodes, the set of coordinates is finite, in fact, quite small.

In terms of these three types of primitives, one can formally define the basic building blocks of RNs, which are called 'arcs'. Informally, an arc involves an ordered pair of nodes (a 'first' or 'dependent' node and a 'second' or 'governor' node) associated with exactly *one* relational sign and with a nonnull sequence of coordinates. Thus one particular arc might be the following, represented in two equivalent notations:

(20) a. $[1(45,666) \langle c_1 c_2 \rangle]$ b.   666
                                                                        $|$
                                                                        $1 \; | \; c_1 c_2$
                                                                        $\downarrow$
                                                                        45

If 1 is the name of the subject relation, 666 is a clause node and 45 a nominal node,[10] then the arc in (20) expresses the fact that the node 45 bears the subject relation to the clause node 666 at the c_1 and c_2

levels. Formally, a full RN is simply a set of arcs like that in (20).

Let us suppose now that we wish to represent in terms of arcs the entire linguistic structure of some clause, say that in:

(21)   Naomi gave that book to me.

We would then have to make explicit every node in such a clause and every relation between those nodes. This would involve all the nodes relevant to the syntactic, semantic, morphological, and phonological structure of the clause.

We are obviously not in a position to attempt this at this stage of our understanding. Consequently, we ignore all logical representations, and the relations of all elements to anything but clause nodes. This means, inter alia, that we artificially compress all those sub-RNs involving, for example, nominals, into single nodes. Thus, in representing (21), we would treat *that book* as a single node, ignoring for discursive purposes the obvious fact that it has internal structure. With this in mind, we can now represent the clause in (21) as follows:

(22)
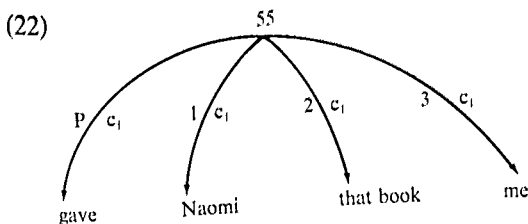
Given that 1, 2, 3, and P are the relational signs which name the respective grammatical relations 'subject', 'direct object', 'indirect object', and 'predicate', (22) indicates that (21) involves a clause with three nominal dependents and one predicate dependent, with the nominals bearing the 'subject', 'direct object', and 'indirect object' relations. Among the other simplifications in (22) is the fact that verbal tense and agreement are ignored, as is the relation of linear precedence holding between some nodes.

Before continuing, we should stress that we are not dealing here with the important question of how primitive relations like 1, 2, 3, and so on, are given an empirical interpretation. This involves, among other things, the question of the justification for asserting that in (21), for example, it is *Naomi* which bears the 1-relation, *that book,* the 2-relation, etc. Our ultimate claim is that the justification for such assignments (at the level of the c_1 coordinate) is universally determined by principles referring to the semantic role of the nominal. Thus, as traditionally recognized, agent nominals are initially 1s (although, of

course, not all 1s represent agents), patients 2s, etc. Without over-
looking the enormous difficulties in the way of making such an account
precise, there is no doubt that even the rudimentary ideas lend signif-
icant language-independent empirical content to the claim that such
and such nominal is an initial 1, 2, etc. Our claim in this study that a
universal characterization of passivization is (only) possible in rela-
tional terms is to be relativized to a view of relations as given cross-
linguistic substance (in part) by universal connections between the
relational signs 1, 2, etc., and some representation of semantic rela-
tions.

It can be seen that the clause in (21) involves four distinct arcs, all
of which share the same second node. In our representations, we have
only written this node once, as a notational convenience. The alter-
native would be to represent the clause in (21) as follows:

(23)

55	55	55	55
P c_1	1 c_1	2 c_1	3 c_1
gave	Naomi	that book	me
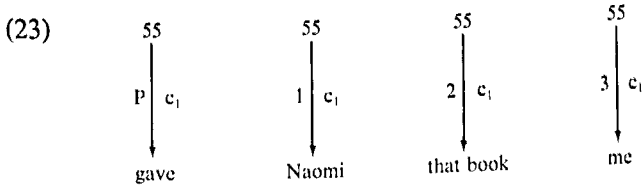
Moreover, since the particular identity of nonterminal nodes is never
relevant, that is, structures which are the same except for distinct
nonterminals are mere alphabetic variants, it is pointless to have a
notation in which nonterminals are made explicit, since the presence
of such a node is indicated by the intersection of arc lines. We will thus
systematically suppress nonterminal nodes in our representations of
clauses.

It can be seen that all of the arcs in (22) share a coordinate (c_1). This
is not a necessary feature of arcs with the same second node. It defines,
we claim, a crucial property of arcs, namely, the property of belonging
to the same *stratum*. A stratum is simply the maximal set of arcs with
the same second node sharing some coordinate. Thus any set of arcs
like those in (22) will define from 1 to *n* strata. The notion 'stratum'
can be used to reconstruct formally the notion of linguistic level.

In the example of an RN given above, each dependent node bears
only one relation to its governing node; that is, each dependent node
is the first node of only one arc. But this is by no means a necessary
condition on RNs. Switching to artificial examples, for the moment,
the following is a perfectly possible RN, where GR_x, GR_y, GR_z, GR_w,
and GR_u are arbitrary relational signs:

(24)
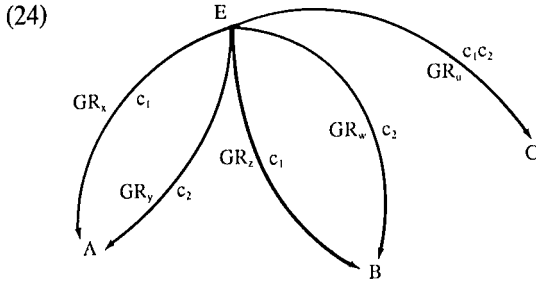
Here two of the dependent nodes, A and B, are first nodes of two different arcs. The RN in (24) has two distinct strata, one containing the arcs in (25a), the other those in (25b):

(25) a.

b.
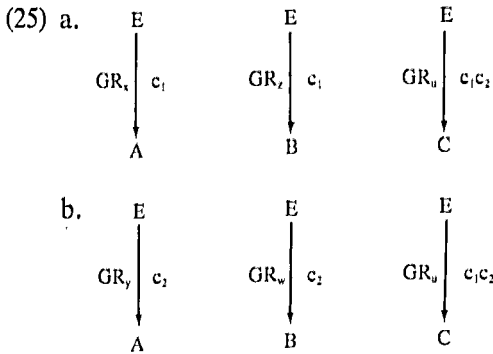
Such an RN thus indicates that the same element, e.g., A, bears one relation (named GR_x) at the c_1 level, and another (named GR_y) at the c_2 level.

Now, it is convenient for presentational purposes to modify our notation for representing sets of stratified arcs (RNs). We can do this by eliminating the coordinates in favor of a more geometric represen-tation of strata and by replacing sets of arcs which have both nodes in common by a single arc in which the relational signs are vertically ordered. If we do this, a structure like (24) is converted to the equivalent but presentationally more efficient structure:

(26)
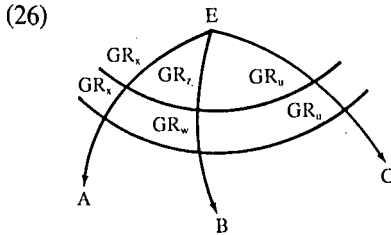
Here each stratum (set of arcs) defined by a single coordinate is represented as a single horizontal row, each set of arcs with the same nodes by a single graphic 'arc'. In what follows, we utilize exclusively notational forms like (26) as a way of representing the RNs relevant for clauses.

One of the consequences of representing clause structures by means of RNs can be seen by comparing the representation of (21) in (22) with that of the Japanese sentence:

(27)   Naomi-tyan wa watasi ni   sono hon o   kureta.
       Naomi   I   DAT that book ACC gave
     'Naomi gave that book to me.'

A simplified RN for (27), again ignoring linear precedence among the various elements in (27), verb tense, and questions of how the grammatical particles *wa, ni,* and *o* and the 'Topic' relation are to be represented, is:

(28)
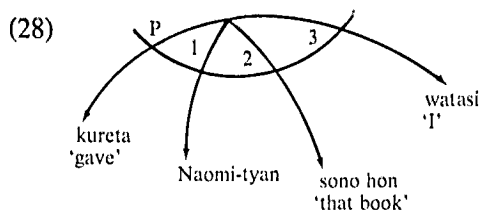
It is indicated in (28) that the verb *kureta* bears the predicate relation in the clause, *Naomi-tyan* the 1-relation, *sono hon* the 2-relation, and *watasi* the 3-relation. The basic clausal relations of the English and Japanese sentences represented here are the same, although the morphemes and linear order of elements in the two languages are different.

For an example that includes an oblique grammatical relation, consider the Malagasy sentence:

(29)   Nividy ny vary ho an'ny ankizy   ny vehivavy.
       bought the rice for the   children the woman
     'The woman bought the rice for the children.'

A simplified RN for (29), ignoring verb tense, the preposition *ho,* and linear precedence relations among elements, is:

(30)
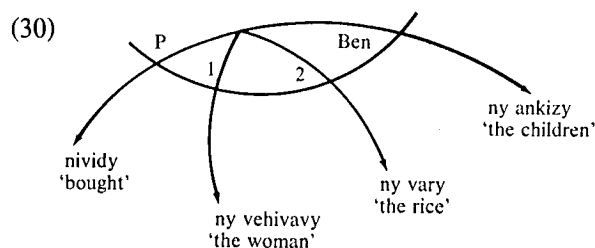
Example (30) represents the fact that in (29) *nividy* bears the predicate relation, *ny vehivavy* the 1-relation, *ny vary* the 2-relation, and *ny ankizy* the benefactive relation.

A primary goal of linguistic theory is to characterize the ways that human languages differ from each other and the ways that they are alike—that is, to distinguish what in language is universal from what is language-particular. The representation of sentence structure in terms of RNs is a significant step toward accomplishing this goal because it makes it possible to characterize what is universal in the clause structure of different languages despite such differences among languages as those involving linear order of elements.[11]

5   A Universal Characterization of Passivization

In §5 we argue that the representation of clause structures in terms of RNs makes possible a universal characterization of passivization. Once clause structure is conceived of in relational terms, it is possible to state the rule Passive in the same way (ignoring note 1) for every language manifesting passivization.

5.1   The Representation of Passive Clauses in RNs

Consider the English active-passive pair:

(31) a.   Louise reviewed that book.
     b.   That book was reviewed by Louise.

The simplified RN for (31a) is:

(32)
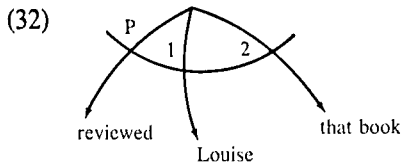
We propose that an *in*complete RN for (31b) is:

(33)
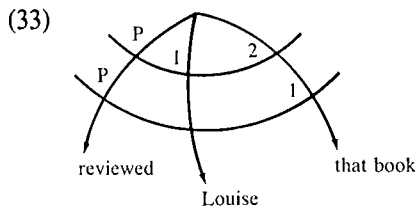
In addition to tense and linear order of elements, we also ignore here the question of how the auxiliary verb *was,* the participial form *re-*

*viewed,* and the preposition *by* are to be represented. The key element of our proposal is this:

(34) a.   The RN of a passive clause such as (31b) consists of (at least) two strata.
  b.   In the RN of a passive clause, a nominal (in this case, *that book*) that bears the 2-relation in one stratum bears the 1-relation in the immediately following stratum.

We postpone until §6 the question of what relation *Louise* bears in the second stratum of (33). The important point is that *that book* bears the 2-relation in the first stratum and the 1-relation in the second.

Our claim is that the RN of every passive clause in any human language has a nominal bearing the 2-relation and the 1-relation in successive strata. This holds regardless of the linear order of elements or the morphological concomitants of passivization. To cite just one example, an oversimplified RN for the Malagasy passive sentence:

(35)   Novidin'   ny vehivavy ho an'ny ankizy   ny vary.
    was-bought the woman   for the   children the rice
    'The rice was bought for the children by the woman.'

is:

(36)
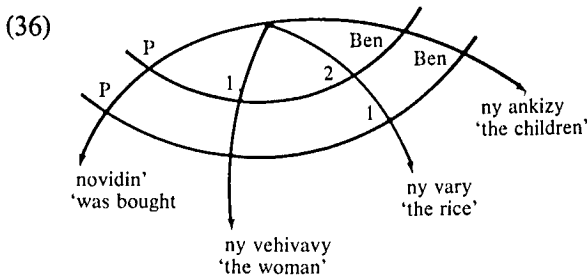
For an active clause such as (31a), one can ask which nominal is the 1 and which is the 2, and answer that *Louise* is the 1 and *that book* the 2. But with respect to a passive clause such as (31b) represented in (33), the answer to a parallel question is not so simple. Both *that book* and *Louise* are 1s in (33). While *that book* is the 2 in (33), it is also a 1. However, it bears the 1- and 2-relations *in distinct strata.* Similarly, *Louise* is a 1 in the initial stratum of (33), but it bears a different relation (specified in §6) in the second stratum. For passive clauses, one cannot simply say which nominal bears any given grammatical relation without specifying the relevant strata. This accounts for the sterility of much traditional argument about the 'real' subject of constructions like passives.

5.2 A Language-Independent Characterization of Passivization

We have taken sentences to be formally reconstructed by RNs, that is, by sets of arcs in the sense of §4. The crucial problem for a grammar (G) of a language is to divide the set of all arbitrary RNs into two sets, well-formed and ill-formed. We cannot here consider this problem seriously. But, informally, the basic relational grammar approach to characterizing well-formedness is as follows. We will specify a definition of RN well-formedness with respect to a fixed grammar G, this definition providing necessary and sufficient conditions for an arbitrary RN to be well-formed with respect to G. The underlying idea is that the rules of grammar are of two types, those which *positively sanction* the presence of arcs in RNs (say that such presence is 'legal') and those which *negatively sanction* the occurrence of arcs (say that the presence of such and such arcs is incompatible with well-formedness). The definition of well-formedness is then, very roughly, that an arbitrary RN is well-formed with respect to G if every arc in it is positively sanctioned by any rule in G. Intuitively, all of the rules are thus thought of as well-formedness conditions on RNs formed arbitrarily and 'presented' to the rules for evaluation.

In these terms, we can initially characterize Passive by saying that it is this rule that sanctions the existence of the 1-arc for, e.g., the nominal *that book* in (33). More generally, we suggest an informal characterization of Passive as follows:

(37)   Passive is the rule (more accurately, given note 1, any of the set of rules) that sanctions the existence of a 1-arc for a nominal N_a in stratum c_{k+1} of a clause node C, where N_a heads a 2-arc in stratum c_k of C, and where there is some nominal, N_b, which heads a 1-arc in stratum c_k.

Thus Passive is a rule which sanctions 1-hood in an immediately successive stratum for a nominal which is a 2 of a clause at a stratum in which some nominal is a 1. The reasons for the latter condition, restricting Passive to cases where the 'promoted' 2 cooccurs with some 1, can only be clarified in a more detailed study. For the present, however, it should be stressed that this clause does *not* imply that the other nominal bearing the 1-relation must show up on the surface. In many cases, this nominal is 'Unspecified' and silent, as in examples like *Mary was criticized.* In other terms, (37) informally characterizes Passive as a rule which sanctions the 1-relation for the nominal bearing the 2-relation in RN parts of the form:

(38)
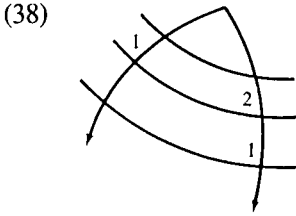
This account simultaneously states what Passive is and provides the following characterization of passive clauses in all languages:

(39)   If (i) the RN for a clause Q has a nominal N_a that bears the 2-relation in a stratum in which some nominal N_b bears the 1-relation, and (ii) if N_a bears the 1-relation in the following stratum, then Q is a passive clause. Thus, any clause in any language whose relational network contains a subpart of the form (38) is a passive clause.

6   Linguistic Universals That Interact with Passive

In proposing (17–18) as universals of passivization in §3, we noted that from the universality of (17–18) it does not follow that (17–18) are necessarily part of passivization itself. They could be due, at least in part, to other universals of language that interact with passivization. The universal characterization of passivization proposed in §5 makes more precise what we meant by (17). But it does not have (18) or (19) as consequences. We now turn to two hypothesized universals of language that interact with the universal characterization of passivization in §5 to give rise to the universals of passivization noted in (18) and (19).

6.1   The Stratal Uniqueness Law

Under our analysis of (1b), the nominal *that book* bears two distinct grammatical relations in the clause in two different strata. The question arises as to how many different nominals can bear a given grammatical relation in a single stratum. Consider the class of *term grammatical relations* (1, 2, 3). We claim that only one nominal can bear a given term relation *in a given stratum*. We propose this as the following universal law of grammar:[12]

(40)   The Stratal Uniqueness Law
       Let n be a variable ranging over the set of relational signs for term relations, let c_k be a single arbitrary coordinate, let c_x, c_y, etc., be variables over sequences of coordinates (which may be null) and let a, b, d be variables over nodes. Then, if, following

the notation in (20a), $[n(a,b)\langle c_x c_k c_y\rangle]$ and $[n(d,b)\langle c_w c_k c_z\rangle]$ are both arcs in some RN, a = d.

The Stratal Uniqueness Law thus says that only one dependent of a clause can bear a given term relation in a given stratum.
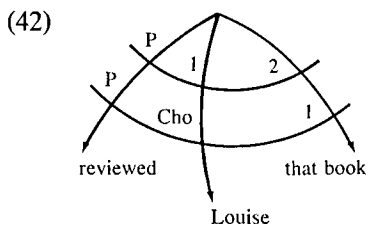
6.2   The Chômeur Condition

We now turn to the question of what relation *Louise* bears in the second stratum of (33). Since *that book* bears the 1-relation in this stratum, it follows from the Stratal Uniqueness Law that *Louise* can *not* bear the 1-relation in the second stratum. The relation borne by *Louise* in the second stratum of (33) is, we claim, an additional primitive relation we refer to as the chômeur relation. Nominals that bear this relation do so by virtue of a hypothesized universal condition of which the following is a highly oversimplified approximation:
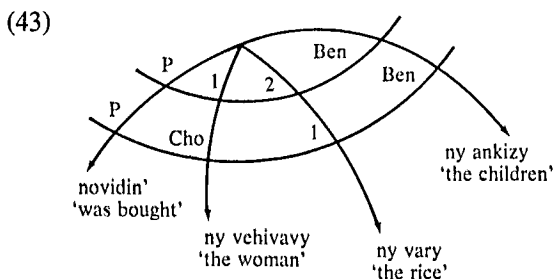
(41)   The Chômeur Condition
Assume the same notational conventions as for (40). Then, if an RN, Q, contains the distinct arcs $[n(a,b)\langle c_x c_i c_y\rangle]$ $[n(d,b)\langle c_{i+1} c_v\rangle]$, where $d \neq a$, then Q contains the arc $[Cho\ (a,b)\langle c_{i+1} c_z\rangle]$.

The Chômeur Condition says that if some nominal, N_a, bears a given term relation in a given stratum, S_i, and some other nominal, N_b, bears the same term relation in the following stratum, S_{i+1}, then N_a bears the chômeur relation in S_{i+1}. Thus, since *Louise* in (33) bears the 1-relation in the first stratum and *that book* bears the 1-relation in the second, the Chômeur Condition stipulates that *Louise* bears the chômeur relation in the second stratum.

A nominal that bears the 1-relation in the last stratum before it bears the chômeur relation can be called a '1-chômeur', one that bears the 2-relation in the last stratum before it assumes the chômeur relation can be called a '2-chômeur', and likewise for 3-chômeurs. This terminology is convenient but cumbersome to write. Following a suggestion by Eugene Loos, we will write '1-chômeur' as '$\hat{1}$', '2-chômeur' as '$\hat{2}$', and '3-chômeur' as '$\hat{3}$'. For presentational purposes it does not matter whether one enters the value 'chômeur' or one of the values '$\hat{1}$', '$\hat{2}$', or '$\hat{3}$', since all are predictable from the information in RNs, given the Chômeur Condition. Thus, we can now give the simplified representation for (1b):

(42)

reviewed   that book

Louise

Similarly, the simplified RN for Malagasy (35) is:

(43)

novidin'
'was bought'

ny ankizy
'the children'

ny vehivavy
'the woman'

ny vary
'the rice'

It should be stressed that the chômeur relation is in no way confined to passive clauses. Any rule that sanctions a term relation for some nominal bearing a distinct relation or no relation at all in an earlier stratum may produce an RN meeting the 'two arc' conditions referred to in (41). As a result, the earlier term must head a chômeur arc with the relevant coordinate. In future publications, we will introduce a typology of grammatical rules, including 'revaluation rules' (which include as a subclass the class of 'advancement rules'), 'ascension rules', and 'dummy rules'. This determines another classification of chômeurs, as 'revaluation chômeurs' (and, in some cases, as 'advancement chômeurs' as well), as 'ascension chômeurs', or as 'dummy chômeurs', depending on the type of rule determining that a given nominal bears the chômeur relation. Since Passive is both a revaluation rule and an advancement rule, *Louise* in (1b) and (42) and *ny vehivavy* in (35) and (43) are 'revaluation chômeurs' or 'advancement chômeurs', or more narrowly 'Passive chômeurs'.

The term 'chômeur' is a French word meaning 'unemployed' or 'idle'. A nominal that bears the chômeur relation in a given stratum is said to be 'en chômage' in that stratum. The choice of terminology is meant to reflect the idea that a nominal that is en chômage in a given stratum does not bear the term relation in that stratum that it bears in a higher stratum.[13]

Given the Chômeur Condition and the universal characterization of passivization in §5, the universals of passivization in (17–18) follow

automatically. Example (17) is a consequence of the rule Passive itself, and (18), a consequence of the Chômeur Condition, can now be stated more precisely:

(44)   The subject of a monostratal active sentence is a chômeur in the second stratum of the corresponding bistratal passive.[14]

Some of the consequences of (44) are universal and some are language-particular. A universal consequence of (44), taken together with (17), is the intransitivity of passive clauses in the absence of another rule sanctioning the 2-relation for some other nominal. In individual languages, (44) will have various indirect consequences. Thus, one of the ways that passives obviously differ from language to language is in the marking of the Passive chômeur. Thus, one finds it marked with prepositions (*by* in English, *oleh* in Indonesian, *lé* in Achenese, *bèi* in Mandarin, *ʔoxwit* in Nitinaht, *ā* in Latin), sometimes with postpositions (*tarafindan* in Turkish, the instrumental postposition in Eskimo), sometimes with case (instrumental in Russian, ergative in Basque) and sometimes not at all (Malagasy).

Basque is particularly interesting in this respect. Superficially, actives and passives in Basque differ very little, since the nominal that is 1 of an active is in the ergative case in both the active and the 'corresponding' passive, and the nominal that is 2 of the active is in the absolutive case in both the active and the 'corresponding' passive. We have already seen that the 2 of the active is absolutive in the two sentences for different reasons. It is absolutive in the active because it is the 2 of a transitive clause, while it is absolutive in the passive because it is the 1 of an intransitive. We are now in a position to see that the 1 of the active is in the ergative case in the two sentences also for different reasons. It is ergative in the active because it is the 1 of a transitive clause, while it is ergative in the 'corresponding' passive because the ergative is the case used to mark passive chômeurs in Basque.[15] The claim that the relational status of the nominal is different in actives and passives receives support from the fact that in Basque, a language in which the (final) 1 triggers agreement on the verb, the ergative-marked nominal triggers agreement in the active but not in the passive (see note 7).

6.3   The Motivated Chômage Law

The Chômeur Condition stipulates the conditions under which a nominal bears the chômeur relation. We now make explicit an additional claim:

(45)   The Motivated Chômage Law
Only the Chômeur Condition can sanction the chômeur relation.

The empirical import of (45) is an exclusion from the class of possible grammatical rules and conditions any statment which sanctions the chômeur relation under conditions *distinct from* those specified in the Chômeur Condition. This law is stated quite informally here. Its content can ultimately be built into linguistic theory in a quite formal way which makes it redundant to have a separate statement like (45). This can be done simply by strengthening the Chômeur Condition to a biconditional (if and only if) statement.[16]

7   A Concluding Note

We have argued that passivization cannot be given a universal characterization in terms of word order, case, or verbal morphology. We have proposed a universal characterization of passivization that makes it necessary to conceive of clause structure in terms of grammatical relations (formally, in terms of arcs), and we have proposed that clause structure be represented in those terms. We have stated the Stratal Uniqueness Law and the Chômeur Condition and shown that, together with the universal relational characterization of passivization proposed, they account for the range of data concerning passives in various languages considered here.

But it should go without saying that at best this paper offers only the barest beginning of an account of passivization. There are many additional problems that must be faced and additional types of data that must be accounted for. We cite only a few examples:

(46) a.   The four-way contrast between passive types alluded to in note 1 must be elucidated. In particular, impersonal passives (particularly, those without surface dummy superficial subjects) have been cited by Keenan (1975), Comrie (1977), and Jain (1977) in support of the claim that there is 'spontaneous demotion' in natural languages, where this refers, in our terms, to nominals bearing the chômeur relation *without* the preconditions of the Chômeur Condition being met. Thus impersonal passives are an apparent counterexample both to the universal characterization of passivization offered here and to what we have called the Motivated Chômage Law.

   b.   Passive clauses in which a 3 (or some nominal bearing an oblique relation like benefactive, locative, instrumental, etc.) is superficial 1, such as English *Sue was given a watch*.

c. So-called pseudo-passives such as *That bed has been slept in* in English and *Le capitaine a été obéi,* 'the captain has been obeyed' in French. In these, apparently intransitive clauses (*obéir* does not permit a direct object in French active clauses) have passive correspondents in apparent conflict with our characterization.

Limitations of space preclude discussion of these and other such theoretically important phenomena here.

We began this paper by considering the possibility of a universal characterization of passivization in terms of such notions as word order, preposing, and postposing. We conclude by pointing out that not only do such notions fail to provide a universal characterization of passivization, they are inadequate even for the grossest statement of passivization internal to the grammars of particular languages. A theory that formulates passivization in terms of preposing and postposing, on the one hand, would be hard pressed to state passivization in any language where actives and passives have the same characteristic word order. Such a theory, if it makes any serious claims at all, predicts that such languages fall outside the class of possible human languages. A theory that states passivization in terms of grammatical relations, on the other hand, predicts that there can be languages in which the order of nominal elements in an active sentence and the 'corresponding passive' are the same.

Bell (1976) shows that Cebuano is such a language. In Cebuano, the predicate is normally clause-initial. It is followed by an advancement 1-chômeur (if there is one), the 1, a 2 (if present), and other nominals (if present), in that order. These facts can be given in tabular form as follows:

(47)   P (Adv-Î) 1 (2) . . .

Since the 2 of an active is final 1 of the 'corresponding' passive, and the 1 of an active is final Î of the 'corresponding' passive, the linear order of elements is the same in actives and passives, although the superficial grammatical relations are different.

(48) a. Magluto' ang babaye ug bugas.
          cook-ACT NOM woman   rice
          'The woman will cook rice.'
     b. Luto'on   sa   babaye ang bugas.
          cook-PASS GEN woman NOM rice
          'The rice will be cooked by the woman.'

The nominals *babaye* and *bugas* are in the same relative order in (48a–b), although their grammatical relations differ in the two sentences. The difference in superficial grammatical relations is manifested in several ways. First, the final 1 (*babaye* in (48a) and *bugas* in (48b)) has the nominative marker *ang*. Second, as Bell (1976) shows, in Cebuano only final 1s can be relativized. As a result, *babaye* can be relativized in (48a) but not in (48b), while *bugas* can be relativized in (48b) but not in (48a). Third, Bell shows that only final 1s can launch floating quantifiers in Cebuano. A plural nominal in place of *babaye* could launch floating quantifiers in (48a) but not (48b) while a plural substituted for *bugas* could launch floating quantifiers in (48b) but not in (48a).

Tzotzil is another language where element order is the same in 'corresponding' active and passive clauses. Like Cebuano, Tzotzil has verb-initial order. In Tzotzil, however, a final 2 precedes the final 1, which in turn precedes a passive chômeur. Since the 2 of an active is final 1 of the 'corresponding' passive and the 1 of an active is chômeur of the 'corresponding' passive, the relative order of elements is the same in 'corresponding' actives and passives as seen in the following examples from Cowan 1969 (p. 9):

(49) a. Lá snákan ti   vīnike ti   xpétule.
         seated   the man   the Peter
         'Peter seated the man.'
     b. Inákanat ti   vīnike yú?un ti   xpétule.
         seat-PASS the man   by   the Peter
         'The man was seated by Peter.'

The existence of languages whose active clause element order is the same as that of the 'corresponding' passive shows that notions of word order, preposing, etc., are not only inadequate as the basis for a universal characterization of passivization, but that they are hopeless for stating passivization internal to the grammars of particular languages such as Cebuano and Tzotzil. A conception of grammatical structure based on RNs, however, provides a means of stating passivization in the same way for all languages, regardless of such inessential and variable features as word order.

Notes

1. One of the major oversimplifications of this work is our failure to distinguish what are in fact four distinct though related types of passivization, for which we will use the terms in (i). These four types can be illustrated by the

corresponding sentences in (ii) from German, which is unusual in that it has all four:

(i) a. Plain Personal Passives
   b. Reflexive Personal Passives
   c. Plain Impersonal Passives
   d. Reflexive Impersonal Passives

(ii) a. Solche Sachen werden nicht oft gesagt
     'Such things aren't often said'
   b. Solche Sachen sagen sich nicht oft
     'Such things aren't often said'
   c. Es wird hier getanzt
     'Dancing takes place here'
   d. Es tanzt sich gut hier
     'One dances well here'

We claim that the characterization of passivization offered in this study holds for all four types (though this is far from obvious in the case of the impersonals). Thus what is most lacking is a universal specification of the differences between the four types, a specification which would involve stating just what it means to be a personal, impersonal, plain, or reflexive passive. We will show in future publications that such characterizations are also well within the bounds of a relational account of passivization.

2. This characterizes passivization even in those transformational treatments (such as that in Chomsky 1970) which claim that one or both of the operations (preposing and postposing) is accomplished by a rule also responsible for phenomena other than passivization.

3. *Hasan tarafından* is parenthesized because most Turkish speakers prefer so-called agentless passives in which the agent is 'Unspecified' and does not appear in the surface string. For those speakers who allow agents other than 'Unspecified' in passive sentences, (4a) has the corresponding passive (4b) with *Hasan tarafından*.

4. To state the facts of passivization in Turkish by means of a transformation it is necessary to posit some fixed word order so that the structural description of a Passive transformation can pick out the NPs that are to undergo Passive. It is unclear to what extent this imposes otherwise unmotivated complications on the grammar of Turkish.

5. To handle Passive in English and Turkish by means of the same transformation, one could, of course, propose a level of structure at which the two languages have the same relative order of constituents. But to do this would impose otherwise unmotivated complications on the grammar of at least one of the two languages.

6. There is also a problem of properly constraining the variable in (6), since Passive cannot apply to any two NPs in the string.

7. It is the auxiliary in such cases which expresses the agreement and (13b) has the intransitive auxiliary *da* which can manifest only a single agreement, that with an absolutive-marked nominal. In (13b), this is the superficial subject, *etchea*. The transitive auxiliary *du* in the active (13a), in contrast, manifests two agreements, with the ergative-marked subject and absolutive-marked direct object.

8. This is only an interim statement of the universal in question. It is given a more accurate formulation in §6.2.

9. This follows as a consequence of (17) and (18) only if we make the additional assumption that, at a given 'level' of structure (a notion to be made more precise in what follows), a clause can have only one direct object. We assume this and state it as a law of grammar in §6.1.

10. We have, of course, not characterized notions like 'nominal node' or 'clause node'. The obvious way to do this in terms of RNs is simply to recognize various terminal nodes Nom, C, etc., and to allow these to bear a fixed relation, that called 'Labels', to those terminal nodes to be characterized. Thus to say that some node, 55, is a nominal would be to specify:

$$
\begin{array}{c}
55 \\
\diagup \\
\text{Labels} \diagup c_1 \\
\diagup \\
\text{Nom}
\end{array}
$$
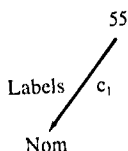
The more interesting question is to determine what general conditions govern the distribution of such arcs. It may be, for instance, that they are predictable from the arcs having nodes like 55 as first node (so, for instance, all nodes which bear the subject, direct object, and indirect object relations are surely Nom, etc.).

11. 'Standard' transformational grammar assumes that there is such a thing as 'underlying' linear order distinct from that in actual strings of words. It is thus led to posit 'movement transformations' and suggests the possibility, discussed earlier, of a postposing or preposing theory of passivization, which faces the difficulties already considered. However, Sanders (1967, 1972, 1974, 1975a, 1975b) has developed a conception of transformational grammar which rejects in principle any linear order distinct from that actually observed in word sequences. If we understand his proposals properly, this leads to a conception of passivization in which differences in bracketing play a role analogous to differences of linear order in 'standard' transformational treatments. While such an account is not subject to exactly the criticisms we have leveled at linear order approaches, it is nonetheless vulnerable on many counts. In particular, it offers no account of passivization in those many cases (like those where active and passive word orders are identical [see the discussion of Cebuano and Tzotzil in §7]) where any constituency difference between active and passive would be perfectly arbitrary. We thus see no hope of a reconstruction of the essence of passivization in terms of bracketing. However, we strongly agree with Sanders's criticisms of 'standard' transformational grammar with respect to the role of linear order. That is, we agree with him that 'underlying order' is by and large an artifact. We disagree, however, with his view that the role of 'underlying order' is properly assigned simply to bracketing.

12. A similar principle, the Functional Uniqueness Principle, has been proposed independently by Harada (1975). Harada's principle is not stated with respect to strata, though presumably it would be if incorporated in a framework like ours. A number of researchers, including Comrie (1976), Gary and Keenan (1977), Kuno (1973), and Steele (1977), have claimed that a given sentence can have 'two subjects,' 'two direct objects,' etc. But most such claims have not been formulated precisely enough to determine whether they would be incompatible with the Stratal Uniqueness Law. For example, we ourselves claim that

all passive sentences have (at least) two subjects. But (in conformity with the Stratal Uniqueness Law) they can have at most one subject *in any given stratum*.

13. In earlier versions of relational grammar, such as that in Perlmutter and Postal 1974, we referred to the Chômeur Condition as the 'Relational Annihilation Law'. This name is used in some of the literature on relational grammar that is embedded in that earlier theoretical framework (e.g., chap. 6). Some of this literature refers to chômeurs as nominals that do not bear any grammatical relation whatsoever. This phrase is misleading in two respects: first, chômeurs *do* bear a grammatical relation, namely, the chômeur relation; second, the statement does not specify the stratum in which the chômeur nominal does not bear any other grammatical relation. All chômeurs bear some term relation in an earlier stratum.

14. We limit (44) to monostratal actives and bistratal passives to avoid discussing additional possibilities that arise in RNs having additional strata.

15. There are (at least) two possible analyses of this phenomenon within the framework we are proposing. Under one, Basque would simply have a rule marking passive chômeurs with the ergative case. Under the other, Basque grammar would contain a rule marking an initial ergative (1 of a transitive clause) that is a final nonterm with the ergative case. Harris (1976, 1977) argues for a rule of the latter kind for Georgian. The choice between these two alternatives for Basque would have to be made on the basis of additional data that we are not considering here. The question of which alternative is adopted does not affect the point at issue here.

16. The Motivated Chômage Law has, in effect, been challenged by various linguists including Keenan (1975), Comrie (1977), and Jain (1977). We intend to deal with this issue in a future publication.

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