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Fourth Predicate Formation Rules in Universal Grammar

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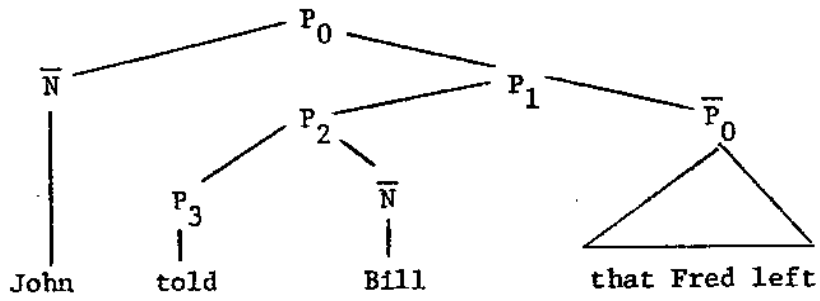
Introduction

We present a conception of Predicate Formation Rule (PFR) which we believe provides a general and reasonably elegant account of a variety of syntactic phenomena that are largely underrepresented on other approaches (RG, GPSG, LFG, and GB).

Central to the notion of a PFR is the notion of an n-place predicate (Pn). We identify P0 with S(entence), and for n > 0, a Pn is a function mapping an expression of an appropriate argument category to a Pn-1. Thus in (1) we think of tell as a (syntactically simple) P3 which maps Bill of category $\overline{N}$ to the (syntactically complex) P2 tell Bill, which maps that Fred left of the category $\overline{P0}$ to the (syntactically complex) P1 tell Bill that Fred left, which in turn maps the NP John to the P0 illustrated.

(1)



For a given n > 0, Pn's may differ among themselves with respect to the categories of their argument expressions and the cases and theta roles they assign them. Thus a given Pn will have a category of the form in (2), where the Ai, ci, and θi range over the (universally defined) sets of possible argument categories, case markings, and theta roles respectively.

(2)

S

A1 A2 ....An-1 An
c1 c2 ....cn-1 cn
θ1 θ2 ....θn-1 θn

We allow as possible argument categories not only $\overline{N}$ (= NP) and $\overline{P0}$ but also nominalized Pn's, noted $\overline{Pn}$. Specifically, P1 infinitives such as to sleep, to sleep and to dream, to sleep soundly are $\overline{P1}$'s and P2 infinitives such as to hug, to hug and to kiss, to kiss loudly are $\overline{P2}$'s.

Predicate Formation Rules are ways of deriving Pn's. We distinguish four such ways here:

(3) a. Basic rules: Pn+1(A) = Pn

b. Modifier rules: MOD(Pn) = Pn

c. Boolean rules: AND(Pn,Pn,...,Pn) = Pn

d. Valency Affecting rules: F(Pm) = Pn

In (3a) we intend that an expression of a Pn+1 category maps an expression of category An+1 to a Pn of the appropriate category. Specifically, an expression of the category given in (2) will map an expression of category An to a Pn-1 whose category is like that in (2) less the last column.

Regarding (3b), MODifiers map Pn's to Pn's preserving (in general) subcategorization. We treat as MOD's adverbs, gerunds, PP's and optional oblique NP's, including agent phrases. Thus in the park will map the P1 sleep to a P1, and the P2 find to a P2.

The major concern of this paper is (3d), Valency Affecting rules (VARs). They directly derive Pn's from Pm's and may be classed as valency increasing, decreasing, or preserving according as n is greater than, less than, or equal to m. For example, Causatives are formed by valency increasing rules (VIRs) and Passives by valency decreasing rules (VDRs). Below we give some examples of VARs. We note that, despite certain appearances, our notation is essentially a categorial one and thus builds on earlier treatments in Bach (1980), Dowty (1978), Keenan (1979), and Thomason (1976).

Valency Affecting Rules

A simple illustration of VIRs is given by Latin, where a Pn may be prefixed by any of several locative 'prepositions' to form a Pn+1, the case and theta role assigned to the new argument category being determined by the 'preposition'. Thus from P1's such as ire 'to go' we may form ad(ire) = adire 'to go towards', ex(ire) = exire 'to go from', and from P2's such as ferre 'to carry, bear' we may form ad(ferre) = affere 'to carry to', ex(ferre) = efferre, in(ferre) = inferre 'to carry into', etc.

More productive use of VIRs is given by Bantu languages. Thus Kinyarwanda (Kimenyi, 1978) may derive Pn+1's from Pn's by affixing IR (in various shapes), the new argument category being assigned the unmarked (= accusative) case and a Benefactive/Recipient theta role. The rule is given in (4) below:

(4)

IR(	S	) =	S	
	A1...An		A1...An	An+1
	c1...cn		c1...cn	acc
	θ1...θn		θ1...θn	ben

For example, from the P1 -byin- 'dance' we may derive the P2 IR(-byin-) = byin-i- 'dance-for'. (5a,b) illustrate the use of these two predicates.

(5) a. Maria y- a- byin- ye
Mary she-pst-dance-asp
'Mary danced'

b. Maria y- a- byin i- ye umugabo
Mary she-pst-dance-IR-asp man
'Mary danced for the man'

Equally from the P2 -oher- 'send' we may derive the P3 IR(-oher-) 'send to/for', and from the P3 -he- 'give' we derive IR(-he-) = -he-er-, as in (6a,b) below:

(6) a. Umugore $[_{P1}[_{P2}[_{P3}$ a- ra- he- a] imbwa] ibiryo
woman she-pres-give-asp dog food
'The woman gave the dog the food'

b. Umugore $[_{P1}[_{P2}[_{P3}[_{P4}$ a- ra- he- er-a] umugabo]imbwa]ibiryo
woman she-pres-give-IR-asp man dog food
'The woman gives+on+behalf+of the man the dog the food'

Note that there is no sense in which the b-sentences above are derived from the a-sentences. The only derivational relation that exists is between their respective predicates. In fact, in Kinyarwanda, as in many other Bantu languages, it is not possible to present benefactive NP's as obliques governed by a preposition. It is thus prima facie implausible to derive the b-sentences by a BEN→DO advancement rule (a point made by Hodges (1977) for Kimeru and by Gary (1977) for Mashi). The simplest account is clearly that given by the IR rule in (4). Moreover, PFRs like (4) are very much part of the 'core' syntax of Bantu languages. Thus Kinyarwanda possesses rules like (4) which introduce instrumental, manner, and various types of locative arguments. More than one such rule may apply in deriving e.g. a P3 from a P1. See Kimenyi (op cit) for a thorough discussion.

Lastly we consider Valency Decreasing Rules (VDRs) such as Passive, Middle, Antipassive, Reflexive, etc. It is specifically with Passive that we will be concerned in this paper:

(7) PASSIVE_{UG}

a. syntax:

PASS(	S	)	=	S	
	A1...An+1			An+1	A2...An
	c1...cn+1			d	c2...cn
	θ1...θn+1			θn+1	θ2...θn

b. semantics: $[pass(p_{n+1})](x_n)\ldots(x_1)=(\exists y)[p_{n+1}(x_1)(x_n)\ldots(x_2)(y)]$

c. parameter conditions: if Pn's with property X $\in$ $\text{Domain}(\text{PASS}_L)$, then Pm's with property Y $\in$ $\text{Domain}(\text{PASS}_L)$

Regarding (7a), Passive derives Pn's from Pn+1's in such a way that the subject category and theta role of the derived Pn is the same as that of the rightmost category of the Pn+1 it is derived

from. Its case may however be different (subject to parameter conditions). The subject argument and theta role of the Pn+1 are lost entirely. For the other argument categories the association between case and theta role is preserved.

(7b) states how the derived Pn is interpreted relative to the Pn+1 it was derived from.

(7c) gives the form of conditions on the choice of passive rules in an arbitrary possible language. Our intent here is to suggest that any choice of rules conforming to (7a,b) which satisfies the parameter conditions (PCs) is a possible set of passive rules for a language. Examples of PCs will be given later.

We note further that since Pn+1's which undergo Passive may be syntactically complex, we must state how passive morphology is assigned to complex Pn+1's as a function of how they are built up. We sketch this in (8), where pass is the Passive Morphology Assignment function.

(8) a. $pass(p_{n+1}, AND, p_{n+1}) = (pass(p_{n+1}), AND, pass(p_{n+1}))$

b. $pass(p_{n+1}, mod) = (pass(p_{n+1}), mod)$

c. $pass(p_{n+2}, arg) = (pass(p_{n+2}), arg)$

Thus, in the unmarked case, passive morphology distributes across coordinate predicates and skips modifiers and arguments. The value of pass at a lexical predicate is provided by the proper morphological analysis of the language in question.

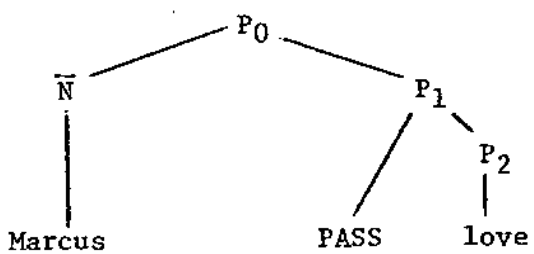
Finally we note that agent phrases are generated independently of Passive as oblique NP's (modifiers). (They are normally constructed with an adposition which occurs in non-passives, and even when interpreted as 'agents' they are not limited to passives, as in The University forbids talking by students during exams.) Semantically agent phrases are interpreted as per (9):

(9) $(BY\ y)(p_n)(x_n)\ldots(x_1) = p_n(x_n)\ldots(x_2)(y)$

This semantics, together with (7b), is sufficient to guarantee that John was kissed by Mary is logically equivalent to Mary kissed John. See Keenan (1979) for details.

To illustrate our conception of Passive, consider that in Latin Marcus amatur 'Marcus is loved' has the structure in (10).

(10)



Note here that the P2 'love' has never taken an object argument in the derivation of 'Marcus is loved'.

Advantages of this approach

We show below that a PFR approach to Passive enables us to represent in a natural way many attested constructions which are not naturally representable on other approaches. The greater expressive power of our approach is largely due to the fact that the Pn+1's which undergo Passive may be syntactically complex.

Case 1: PASS(P1) = P0

The most widespread Passives are those illustrated in (11):

(11) PASS($\underline{\overline{N}}$ S $\underline{\overline{N}}$) = $\underline{\overline{S}}$ [English, Latin, Lithuanian]

$\overline{N}$	$\overline{N}$	$\overline{S}$
c1	c2	c
agt	pat	pat

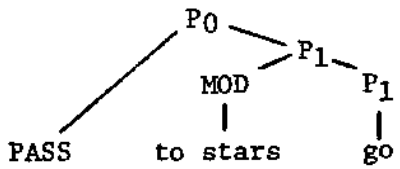
Equally passives of the sort in (12) are well attested:

(12) PASS($\underline{\overline{S}}$) = S [Latin, Lithuanian]

$\overline{N}$
c
agt

A typical example (Virgil) is: (Sic) itur ad astra '(Thus) is gone to the stars'. (13) gives the structure of this example.

(13)



Note that the P1 passivized is syntactically complex, containing the goal locative modifier 'to the stars' in the same way as in 'Marcus went to the stars'. If we analyzed (13) in such a way that 'to the stars' combined with P0's outside the scope of PASS, then it would freely combine with any predicate, thus incorrectly enabling us to generate *Marcus stayed to the stars.

Less widely appreciated are Passives of the form:

(14) PASS($\underline{\overline{S}}$) = S [Lithuanian]

$\overline{N}$
c
pat

In fact, Lithuanian (Timberlake, 1982) allows Passives of virtually all types of P1's: life cycle (15a), inchoative (15b), phenomenological (15c), existential (15d), copular (15e), and P1's derived from Subject-to-Subject Raising (15f).

(15) a. Kur mūs gimta , kur augta?
where by-us bear(nt.sg.PASS) where grow(nt.sg.PASS)
'Where by us was getting born, where getting grown up?'

b. Ko čia degta / plysta?
what here burn(nt.sg.PASS)/ burst
'By what was (it) burned/burst here?'

c. Naktį gerokai palyta
night goodly rain(nt.sg.PASS)
'Last night (it) got rained a goodly amount'

d. Ar būta tenai langinių?
and be(nt.sg.PASS) there windows(gen.m.pl.)
'And had there really been any existing going on by windows there?'

e. Jo būta didelio
gen.m.sg.3 be(nt.sg.nom.PASS) tall(gen.m.sg)
'By him there had been being tall'

f. Jo pasirodyta esant didvyrio
gen.m.sg.3 seem(nt.sg.nom.PASS) being hero
'By him (it) was seemed to be a hero'

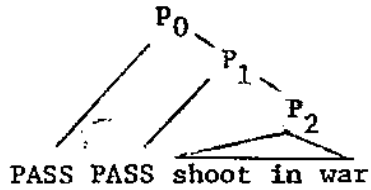
As with passives of P2's in Lithuanian, the lexical predicate appears in participial form (in fact, in either of two aspectually differentiated forms), and the agent is optionally expressed in the genitive. But unlike passives of P2's, the passive predicates in (15) appear in the non-agreeing nominative neuter singular, in honor of the absence of any subject.

Comparable examples of (14) can be found in Turkish (Özkaragöz, 1982) and N. Russian (Kuz'mina and Nemčenko, 1971). We note that such passives violate explicit predictions of RG (Perlmutter and Postal, 1983) and are not generable on current versions of GB.

Case 2: PASS(PASS(P2)) = P0

Since P2's passivize to P1's, and P1's passivize to P0's, our approach, unless constrained, admits the existence of iterated Passive by the equation above. And in fact, Özkaragöz (op cit) cites numerous examples for Turkish:

(16) Harp-te vur- ul- un- ur
war-in shoot-PASS-PASS-aor
'In war one is shot (by one)'



Lithuanian likewise allows iterated Passives, with both agent phrases expressed:

(17) Lapelio būta vẽjo nupūsto
leaf(gen.m.sg) be(nom.nt.sg.PASS) wind blow(gen.m.sg.PASS)
'By the leaf there was getting blown down by the wind'

The semantics in (7b) applies straightforwardly to iterated Passives: PASS(PASS(shoot)) is true iff (∃y)[PASS(shoot)](y) iff (∃y)[(∃x)(shoot(y)(x)]. That is, PASS(PASS(shoot)) is true iff someone shoots someone. Although there remains much to be said about the pragmatics of iterated passives, we may note that in Lithuanian, at least, it involves the notion of evidentiality, broadly construed.

Cases 1 and 2 combine, to the best of our knowledge, to yield the following PC: If L has iterated passives, Case 2, then L has passives of unaccusatives, (14), which in turn entails that L has passives of unergatives, (12), and that entails that L has 'canonical' passives, (11).

Case 3: PASS(P1) = P0, where P1 = P2(A)

Here we consider Passives of P1's which themselves consist of a P2 and an argument expression. Observe first from Latin:

(18) a. $[_{P0}$ Marcus $[_{P1}$ mihi $[_{P2}$ invidet]]]
nom dat envy(3.sg)
'Marcus envies (to) me'

b. $[_{P0}$ mihi invidetur] = 'to me is envied'
dat envy(3.sg.PASS)

c. $[_{P0}$ (ego) invideor]
nom envy(1.sg.PASS)
'I am envied'

(18b) is the straightforward passive of the P1 in (18a), the verb being 3sg since it has no subject to agree with. Mihi is dative for the same reason as in (18a); it has combined with the P2 'envy', which assigns its argument dative in forming the P1 'envies me'. Of more interest here is the more literary (18c), used e.g. by Horace Cur invideor? 'Why am I envied?'. Here we passivize the P2 'envy' to form the P1 'be envied', which, like other P1's in Latin, puts its argument in the nominative and agrees with it. Thus our approach, in distinction to others, naturally generates both passives (18b,c) above. More generally, most approaches to generative grammar are simply not equipped to generate what on their view would be two passives 'off the same source'. In what follows we shall see several other examples of 'dual passives'.

A particularly troublesome case in this regard is illustrated by Polish (19a,b), in which the dual passives are formed from P2's which take their argument in the accusative. (Latin by and large does not permit dual passives in such cases.)

(19) a. [$_{P0}$ Lipa [$_{P1}$ PASS [$_{P2}$ ścięta]]]
linden(nom.fem.sg.) cut(nom.fem.sg.Pass)
'The linden was cut down'

b. [$_{P0}$ PASS [$_{P1}$ [$_{P2}$ Ścięto] lipę]]
cut(nt.nom.sg.PASS) linden(fem.acc.sg.)

In (19a) we see the passive of the P2 'cut down', which is a P1, taking its argument in the nominative and agreeing with it in gender, number, and case. In (19b) we see the P0 formed as the Passive of the complex P1 'cut down the linden'. 'Linden', as it has combined with the P2 'cut down' to form a P1 (just as it would in an active), occurs postverbally in the accusative and does not trigger verb agreement. The verb itself is in the non-agreement form: neuter, nominative, singular. Similar dual passives are cited for Hindi (20) (see Sinha, 1978) and N. Russian (Kuz'mina and Nemčenko, op cit) in (21).

(20) a. Siksək ne lərki ko klas se nikal diya [active]
teacher erg girl DO class from drive out
'The teacher drove the girl out of the class'

b. Lərki-Ø klas se nikal di gəyi [PASS(P2)=P1]
girl-abs class from drive out PASS
'The girl was driven out from the class'

c. Lərki ko klas se nikal diya gəya [PASS(P1)=P0]
girl DO class from drive out PASS
'(It) was driven out the girl from the class'

(21) a. Ja zarezal talenka [active]
1.nom. slaughter calf(acc.sg.)
'I slaughtered a calf'

b. (U menja) telenok zarezan [PASS(P2)=P1]
by me calf(m.nom.sg.) slaughter(PASS.m.nom.sg.)
'(By me) a calf was slaughtered'

c. (U menja) zarezano telenka [PASS(P1)=P0]
nt.nom.sg.PASS acc.sg.
'(By me) there occurred slaughtering a calf'

Lest one be tempted to suggest that passives of complex P1's with accusatives are not 'real' passives, we may note that in N. Russian, for example, the passive participle is morphologically the same for passives of P2's and complex P1's, and the behavior of agent phrases is likewise identical (see Timberlake 1975). We note that these passives are a direct counterexample to Burzio's generalization within GB theory.

We may note as well the following parameter condition: If P1's formed from accusative-taking P2's are in the domain of $PASS_L$, then this guarantees that lexical unergative P1's are in Domain($PASS_L$).

c. Ibiryo bi-ra- he- er- w- a umugabo imbwa
food it-pres-give-IR-PASS-asp man dog
'The food is given (to) the dog on behalf of the man'

Let us stress here that all these delightful passives are but special cases of $PASS_{UG}$ as defined in (7). We turn now to some rather more complicated examples.

Case 5: PASS(Pn+1) = Pn, where An+1 ≠ NP.

Passives such as those in (27) are straightforwardly generated from P2's which take $\overline{P0}$ second arguments:

(27) a. That the Earth is flat is widely believed
b. That arithmetic is incomplete was proved by Godel

More interesting cases here are given by subject control predicates (e.g. begin, want, intend) which we treat (in the first instance) as P2's taking P1 infinitives ($\overline{P1}$'s) as argument and yielding P1's whose subject category is the same as that of the P1 infinitive. Thus we may analyze (28a) below (Kinyarwanda) as having the gross structure given in (28b).

(28) a. Abaana ba- taangi-ye gu-soma igitabo
children they-start- asp to-read books
'The children are starting to read books'

b. $[_{P0}$ children $[_{P1}$ $[_{P2}$ start$][_{\overline{P1}}$ to read books$]]]$

And the passive of the P2 'start' is a P1 which takes a P1 infinitive as a subject argument, as illustrated in (the well-formed) (29).

(29) a. Gu-soma igitabo bi-taangi-w- e (na-aabaana)
to-read books it-start- PASS-asp (by-children)
'Reading books is begun (by the children)'.

b. $[_{P0}$ $[_{\overline{P1}}$ to read books$][_{P1}$ PASS P2$]]$

Of interest here is that our semantics for agent phrases allows us to represent the control of to read by the agent children in the passive just as in the active (assuming the nominalizing operation itself is transparent to control). Replacing children by John for simplicity and mixing levels, our semantics tells us:

(30) $[\text{pass}((\text{BY John})(\text{start}))](\overline{P}_1) = (\exists\, y)(((\text{BY John})(\text{start}))(\overline{P}_1)(y)$

$= (\exists\, y)((\text{start})(\overline{P}_1))(\text{John})$

$= ((\text{start})(\overline{P}_1))(\text{John})$

Thus 'to read books was started by John' has the same truth conditions as 'John started to read books' (always assuming that the nominalization of 'read books' is transparent).

The analysis in (28) and (29) generalizes along two dimensions of interest here. First we consider object control predicates such as allow, order, and forbid. We may treat them as P3's taking an NP argument to yield P2's of the same category as start. Thus (31) below would have the gross structure as indicated:

(31) $[_{P0}$Umugabo $[_{P1}[_{P2}[_{P3}$ y- akuumdi-ye]abaana] gu-soma igitabo]]
man he-allow- asp children to-read.books
'The man allowed the children to read books'

(We note that 'allow'above is itself the IR form of the P2 'like').

Now, since we already know that Kinyarwanda can passivize P3's as well as P2's taking infinitival arguments, we correctly predict the existence of two passives from the predicates in (31). (32a) illustrates the case where we have passivized the P3 allow making the Benefactee the subject, and (32b) the case where we have passivized the complex P2 allow the children creating a P1 infinitive taking predicate.

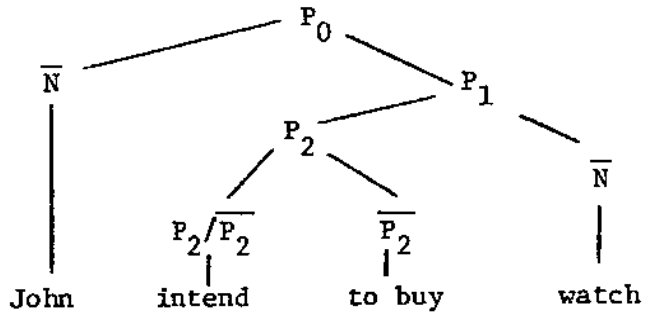
(32) a. Abaana y- akuunki-w- e gu-soma igitabo
children they-allow- PASS-asp to-read books
'The children were allowed to read books'

b. Gu-soma igitabo bi-akuunki-w- e abaana
to-read books it-allow- PASS-asp children
'To read books was allowed the children'

As before, other approaches will fail to get both these passives.

The second direction of generalization concerns the proper categorization for subject control predicates (begin, intend, etc.). We treated them above as functions deriving P1's from P1 infinitives preserving subcategorization. But just as we treat MODifiers as functions mapping Pn's to Pn's, all n, so here the natural analysis treats begin, intend, etc. as functions taking Pn infinitives, $\overline{Pn}$'s, to Pn's, preserving subcategorization. Thus UG in principle allows two analyses for John intended to buy a watch. On the first intend combines with the P1 infinitive to buy a watch to form the infinito buy forming the P2 intend to buy whose (object) argument is of the same category and theta role as that of buy. (33) below illustrates this structure from Lithuanian.

(33) Jonas numatytė pirkti laikrodi iš honoraro
John intend buy watch from salary
'John intended to buy a watch from (his) salary'



Now, since intend to buy in (33) is a P2 taking watch as argument, we may hope to passivize deriving a complex P1. (34) shows that our hope was not in vain:

(34) Laikrodis numatytas pirkti iš honoraro
watch(nom.m.sg.) intend(nom.m.sg.pass) buy from salary
'A watch was intended to be bought from (his) salary'

Similar passives are noted for Malagasy in Keenan (1975) and for Turkish in descriptive grammars (Lewis, 1967) as well as in more recent generative treatments (George and Kornfilt, 1977):

(35) a. Ahmet kitab-i oku-maya başla-di
Ahmet book-DO read-inf begin-pst
'Ahmet began to read the book'

b. Kitap (Ahmet tarafindan) oku- n- maya başla-n- di
book Ahmet by read-PASS-inf begin-PASS-pst
'The book was begun to be read (by Ahmet)'

We note that passive morphology applies to both the 'matrix' and the infinitival predicates in Malagasy and Turkish but only to the matrix predicate in Lithuanian. Keenan (op cit) and George and Kornfilt (op cit) argue for Malagasy and Turkish respectively that the double passive morphology cannot be due to the independent application of Passive. (We treat it as a language particular fact concerning the passive morphology assignment rule.) But if Passive hasn't applied twice, current views other than ours provide no way to get two passive morphologies.

We turn now to our last case, which concerns scope ambiguities between Modifier functions and the Passive function.

Case 6: $PASS(MOD(Pn)) \stackrel{?}{=} MOD(PASS(Pn+1))$

We have been treating MODs as maps from Pn's to Pn's preserving subcategorization, where n may take on both 1 and 2 as values. (Here we have only used this for the special case of agent phrases, but see Keenan (1979) for justification from other types of PP modifiers.) This means that in principle we allow two structures for (36), given in (37a,b).

(36) John arrested Mary willingly

(37) a. [willingly(arrest(Mary))](John)

b. [willingly(arrest)](Mary)(John)

In fact (36) is not ambiguous; 'subject-oriented' adverbials like willingly determine a property, call it AW 'act willingly' for the nonce, which holds for the subject argument regardless of the valency of the Pn they combine with. A sufficient approximation to the semantics of willingly is given below:

(38) $[W(p_n)](x_n)\ldots(x_1) = p_n(x_n)\ldots(x_1) \wedge AW(x_1)$

In fact (38) guarantees the logical equivalence of (37a,b) since each is true iff John arrested Mary and John acted willingly. The Passive in (39), however, also has two structures, (40a,b), which differ according as willingly is inside or outside the scope of PASS. And these structures are not logically equivalent. In (40a) it is Mary who acted willingly, whereas in (40b) it is the agent of arrest who so acted.

(39) Mary was arrested willingly

(40) a. [willingly(PASS(arrest))](Mary)

= (PASS(arrest))(Mary) ∧ AW(Mary) [by (38)]

b. [PASS(willingly(arrest))](Mary)

= (∃y)[willingly(arrest)](Mary)(y) [by (7b)]

= (∃y)[willingly(arrest))(Mary)(y) ∧ AW(y) [by (38)]

Our approach, then, correctly predicts the unambiguity of the active (36) and the ambiguity of the Passive (39). This is in principle impossible for analyses which 'reduce' the semantics of Passives to that of the corresponding actives.

We note further that comparably treated ambiguities of the same sort are more productive in Russian, where sentences like Priexav na front, vojska byli vstrečeny generalom 'Having arrived at the front, the troops were greeted by the general' allow either the passive subject or the passive agent to be interpreted as the subject of the adverbial participle 'having arrived' (see Rappaport 1984).

Finally, consider 'argument-oriented' MODifiers such as in shorts, naked, etc. (41) gives a sufficient (for our purposes here) semantics for such MODs. (41) states that they map Pn denotations to Pn denotations in such a way as to predicate of the argument of the Pn they derive.

(41) $[\text{naked}(p_n)](x_n)\ldots(x_1) = p_n(x_n)\ldots(x_1) \wedge (\text{naked})(x_n)$

Given (41), a sentence such as We baptized Bill naked is correctly predicted to be semantically ambiguous. Combining the MOD naked with the complex P1 baptize Bill we have the reading on which we are naked. Combining it with the simplex P2 baptize we get the reading on which Bill is naked.

But next observe that while we have two structures for the Passive Bill was baptized naked, they are logically equivalent:

(42) a. [naked(PASS(baptize))](Bill)

= (PASS(baptize))(Bill) ∧ (naked)(Bill) [by (41)]

= (∃y)(baptize)(Bill))(y) ∧ (naked)(Bill) [by (7b)]

b. [PASS(naked(baptize))](Bill)

= (∃ y)[(naked(baptize))(Bill)](y) [by (7b)]

= (∃ y)[(baptize(Bill))(y) ∧ (naked)(Bill) [by (41)]

= (∃ y)(baptize(Bill))(y) ∧ (naked)(Bill)

Thus both (42a,b) entail that it was Bill who was naked, not the agent of baptize. So here we correctly predict the ambiguity in the active but not in the passive. And again approaches which reduce the interpretation of Passives to the corresponding active will wrongly predict an ambiguity in the Passive.

Conclusion

We have been able here to present only a small part of the potential of predicate formation rules and the notion of n-place predicate on which they are based. We have concentrated on Passive, and even here have not been able to discuss the many other PFRs which interact in substantive ways with Passive: Raising-to-Object, Tough Movement, Extraposition, Causatives, and Small Clause Structures. Even so, we have been able to characterize a range of structures not naturally representable on other approaches.

We should like to conclude with one methodological observation: As we pursue our work on PFRs it becomes increasingly clear that the structures instantiated in any given language are but a small portion of those which must be made available at a level of UG. In line with our statement of Passive at UG given above, we conceive here of UG as specifying, directly or indirectly, the entire set of structures from which we may draw in constructing a particular language. The choice from among these structures will be subject to parameter conditions, of which we have tentatively suggested a few of an implicational nature.

As the characterization of possible structures at UG must generalize over the various language-particular instantiations, it is reasonable to believe that an explicit characterization of UG will be conceptually simple and elegant, as we would like to think that our statement of Passive at UG is. By contrast, the complete specification of any particular language, or even of the valency affecting rules of that language, may exhibit unsystematic and even random shortfalls from what is universally possible. We are left, then, in the possibly unsurprising position that it will be easier to define the class of possible human languages than it will be to define any particular member of that class.

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