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A TRANSFORMATIONAL SKETCH OF OLD FRENCH[1]

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In 1961, Simon Belasco published a paper entitled "The Role of Transformation Grammar and Tagmemics in the Analysis of an Old French Text". He attempts to show there that transformational analysis is "cumbersome" in the case of Old French, if not unfeasible. To alleviate this condition, he proposes to use tagmemic procedures where transformational ones have apparently "failed". The theoretical generalizations developed from his 1961 findings may be found in his 1964 paper.

The purpose of this paper is to show that Belasco's transformational sketch of Old French is called "transformational" quite erroneously and to present instead another sketch of reasonable adequacy. This paper will not attempt at all to deal with his tagmemic assumptions. On the other hand, it should not be assumed that the author of this paper wishes to be uncritical of transformational assumptions.[2]

Belasco, in trying to outline a transformational grammar of Old French, fell victim to an assumption that many transformationalists entertain. What they assume is that "taxonomic" analyses are out-of-fashion, i.e. have outlived their usefulness. Whatever the polemic merits of the argument, there should be no doubt that a good taxonomy is the necessary prerequisite to any generative analysis.[3] From Belasco's

[1] Revised and expanded version of a 1964 research report, supported by the University of Windsor and the Humanities Research Council of Canada.

[2] See Wittmann (1964, 1967).

[3] Writing a generative grammar of a language presumes that the judgements of a native speaker are already explored and have been mapped out. "Transformational theory" contributes nothing to the evaluation of these judgements; it is rather a metalanguage to abstract "taxonomic" generalizations into a formalized system, and hereby it provides a less ambiguous procedure to build from the taxonomic raw material an operational model of the speaker's langue [Wittmann (1965-66), 91-92 and fn. 31]. Chomsky (1957), 56 tells us that we "may arrive at a grammar by intuition, guess-work, all sorts of partial methodological hints, reliance on past experience, etc.", and this is a point well-taken and obviously true. However, any proposition that an individual's langue (even in the case of introspection where investigator and informant are one and

theoretical stand it would appear that he would subscribe to this latter statement. However, a quick glance at Belasco's rules and derivations for Old French shows that the underlying taxonomy is not one of Old French but one of Modern English. Some of the rules and the tree of his sample sentence *la meḍre esguardaţ la pulcele* seem to come directly out of *Syntactic Structures*.[4] Belasco makes no or little attempt to have his rules and derivations reflect the taxonomy of Old French. There is no effort to use the metalanguage potential of transformational procedures to map unambiguously such phenomena as inflection and concord (agreement) which are structurally different from English. Also not accounted for is the diachronic fact that between the grammatical categories of Classical Latin and those of Modern French (both fairly well-balanced systems in Martinet's terms), there are the grammatical categories of Old French as a gap in continuity with some of the attributes of an imbalanced system. Grammatical categories have the nasty habit of first disappearing only to reappear in later stages of development under a different disguise, but in between there is always a vacuum which is in itself partly responsible for such reappearances.[5] Thus, there is no need to assume for Old French a passive proper or a "passé composé",[6]

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the same person) can be reconstructed by by-passing a thoroughly done taxonomic account of his parole (i.e. speech manifestation, including "internal speech") is quite an unreasonable one. It is of course a truism in all the biological sciences for instance that a good taxonomy is the prerequisite to any "generative" account of the underlying "laws" involved. That such "laws" have to fulfill Chomsky's requirement of descriptive, explanatory, and predictive adequacy is another of such truisms. That we are able to formulate such "laws" using Chomsky's transformational metalanguage is certainly a big help, but not an absolute necessity; even regular "prose" could do the trick. With C. F. Hockett, I believe that mathematics is derived from ordinary language through a series of special conventions, not the reverse. See Hockett (1968) which is no doubt the most articulate critique of Chomsky's work up to date. On model building in linguistics, see Katz (1964).

[4] The underlying taxonomy of Chomsky (1957) was one of Modern English, one we assume he "knew" quite well. Of course, Chomsky does not tell us how a transformational investigator gains the explicit "knowledge" of what a "noun" or a "verb" is, except that "N → man, ball, etc." which represents a simple criterion of surface structure rather than anything else.

[5] Cf. here for example an interesting paper by A. Rosetti (1964).

[6] When inflected with *avoir*, the past participle (PP) in Old French agreed with the direct object (as in Latin). With the weakening of *avoir* to the function of a mere auxiliary, *avoir* + PP became the equivalent of a simple tense (i.e. a grammatical category), and the passive meaning of the PP became obliterated. Hence a tendency to leave the PP invariable, etc. The "rule" of Modern French requiring concord (agreement) with the direct object if the latter precedes and leaving it (the PP) invariable if the direct object follows, was adopted in the eighteenth century. — Note also that the MF *je me suis levé* has its OF counterpart in *jo m'ai levéţ*.

or even to operate with an "auxiliary" *AUX* in a way as this is necessary for English. "Articles" had not yet emerged in Old French as quite separate from the 3rd person pronouns; and it is possible to operate with a simplified paradigmatic "slot" of nominals. On the other hand, the description of the verb in terms of person, number, aspect, mood, and tense is inescapable. Lastly, there is no attempt to describe the "free word order" aspects of Old French within the transformational framework, but just Belasco's assertion that it is not possible. In all, sentences of the type *la medre esguardat la pulcele* (i.e. sentences structurally similar to English) are the only grammatical sentences his apparatus is able to generate.

If we assume a phonological, a semantic, and a syntactic component for Old French, and the syntactic component to be made up by a morpheme structure sub-component and a syntagm structure sub-component, then the output of the morpheme structure sub-component will reflect the facts of the morpheme paradigms as represented in Figure 1. These paradigms also include what might be conveniently called "pseudo-

	governed	modifying	predicative	autonomous	functional
lexical /+ ≐/	02	03	07	03-ment	
grammatical /− ≐/	01	04 05 06		08 09	10, 11 12, 13

01. "pronouns"; 02. "nouns"; 03. lexical "adjectives"; 04. grammatical "adjectives"; 05. grammatical bound morphemes modifying 01's, 02's, 03's and 04's; 06. grammatical bound morphemes modifying 07's; 07. "verbs"; 08. all "adverbs" which are not derived from 03's; 09. syntactic stress; 10. "cases", amalgamated in 05's; 11. "prepositions"; 12. "conjunctions"; 13. "relative pronouns" (syntactic features according to Martinet).

Fig. 1. Taxonomy of morpheme paradigms for Old French.

morphemes", i.e. such syntagms which are traditionally called "compounds" and "derivations" but which behave functionally like morphemes. The syntagm structure sub-component will do pretty much the work of what Chomsky calls a "syntactic component". The morpheme

selection and amalgamation rules will necessarily be part of this sub-component as well.[7]

A. OBLIGATORY RULES OF THE SYNTAGM STRUCTURE SUB-COMPONENT[8]

1-10 generate all syntagmatic kernels, 11ff. are morpheme selection and amalgamation rules.

Given: #S#

(1) $S \rightarrow SM + NP + VP$

(2) $VP \rightarrow C \left\{ \begin{matrix} Verb_i \\ Verb_t + (OM + NP) \\ av- \left\{ \begin{matrix} OblSgNeut + PP_t \\ OM + NP \end{matrix} \right\} \\ est- + PredNom \end{matrix} \right\}$

(3) $NP \rightarrow \left\{ \begin{matrix} Masc \\ Fem \end{matrix} \right\} \left[\begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right] \left\{ \begin{matrix} Pron(Noun) \\ \emptyset \\ (Pron)Noun \end{matrix} \right\}$

(4) $SM \rightarrow Nom \left\{ \begin{matrix} Sg \\ Pl \end{matrix} \right\}$

(5) $OM \rightarrow Obl \left\{ \begin{matrix} Sg \\ Pl \end{matrix} \right\}$

(6) $C \rightarrow \left[\begin{matrix} Sg \left[\begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right] \\ Pl \left[\begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right] \end{matrix} \right] \left\{ \begin{matrix} Pf + \emptyset \\ Impf \left\{ \begin{matrix} Ind \\ Subj \end{matrix} \right\} \left\{ \begin{matrix} Pres \\ Past \\ Fut \end{matrix} \right\} \end{matrix} \right\}$ IN CONTEXT $Nom \left[\begin{matrix} Sg \left[\begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right] \\ Pl \left[\begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right] \end{matrix} \right] \left\{ \begin{matrix} Masc \\ Fem \end{matrix} \right\}$

[7] Wittmann (1964b). On "word structure", see also Motsch (1962).

[8] The underlying taxonomy here is the one reflected in the *Chanson de Roland*, as edited by Jenkins (1929).

(7a) PredNom → Nom $\begin{bmatrix} \text{SgMasc} \\ \text{PlMasc} \\ \\ \text{SgFem} \\ \text{PlFem} \end{bmatrix} \left\{ \begin{matrix} \text{PP} \\ \\ \text{Adj} \end{matrix} \right\}$ IN CONTEXT Nom $\begin{bmatrix} \text{Sg} \\ \text{Pl} \\ \\ \text{Sg} \\ \text{Pl} \end{bmatrix} \left\{ \begin{matrix} 1 \\ \\ 2 \\ \\ 3 \end{matrix} \right\} \begin{bmatrix} \text{Masc} \\ \text{Masc} \\ \\ \text{Fem} \\ \text{Fem} \end{bmatrix}$

(7b) PredNom → Nom $\begin{bmatrix} \text{Sg} \\ \\ \text{Pl} \end{bmatrix}$ NP IN CONTEXT Nom $\begin{bmatrix} \text{Sg} \\ \\ \text{Pl} \end{bmatrix} \left\{ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right\} \left\{ \begin{matrix} \text{Masc} \\ \\ \text{Fem} \end{matrix} \right\}$

(8) $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}_1 \begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}_2$ Pron → $\begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}_2 \begin{bmatrix} jo \\ tu \\ il \end{bmatrix}_1$

(9) $\left\{ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \right\} \begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}$ Noun → $\begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}$ Noun

(10) $\begin{bmatrix} \text{Nom} \\ \\ \text{Obl} \end{bmatrix}_1 \begin{bmatrix} \text{Sg} \\ \\ \text{Pl} \end{bmatrix}_2 \begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}_3 \begin{bmatrix} jo \\ tu \\ il \end{bmatrix}_4$ Noun → $\begin{bmatrix} \text{Nom} \\ \\ \text{Obl} \end{bmatrix}_1 \begin{bmatrix} \text{Sg} \\ \\ \text{Pl} \end{bmatrix}_2 \begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}_3 \begin{bmatrix} jo \\ tu \\ il \end{bmatrix}_4$

$\begin{bmatrix} \text{Nom} \\ \\ \text{Obl} \end{bmatrix}_1 \begin{bmatrix} \text{Sg} \\ \\ \text{Pl} \end{bmatrix}_2 \begin{bmatrix} \text{Masc} \\ \\ \text{Fem} \end{bmatrix}_3$ Noun

If S in #S# is a dummy standing (as initial symbol) for a given deep structure assemblage (Saussure's *assemblage de valeurs*, i.e. a *signifié*) bounded by #—# and containing no inherent asemanticities, then rules 1-10 may be said to replace the dummy S with a corresponding deep structure representation of determined make-up. Morpheme selection rules may be said to replace the dummies in the terminal string and specify the corresponding surface structure make-up (*signifiant*).[9] LM

(lexical morpheme) structure rules and GM (grammatical morpheme) structure rules are differentiated.

(11) Noun → *meḍre, pulcele,* etc.

(12a) Verb_1 → *al-*, etc.

(12b) Verb_t → *esguard-, veḍ-*, etc.

(13) PP → *veḍuṭ*, etc.

(14) Adj → *gent, mal, sage*, etc.

Only a few examples of GM selection and amalgamation rules with LM's are needed to illustrate the point.

(15) NomPl + *jo* → *nos*

(16) $\text{NomSgMasc} + il \rightarrow \begin{bmatrix} li \\ il \end{bmatrix} \text{ IN CONTEXT } \begin{bmatrix} \text{NomSgMasc} + \text{Noun} \\ \emptyset \end{bmatrix}$

(17) $\begin{bmatrix} \text{Nom} \\ \text{Obl} \end{bmatrix} \text{SgMasc} + il + \begin{bmatrix} \text{Nom} \\ \text{Obl} \end{bmatrix} \text{SgMasc} + mur \rightarrow \begin{bmatrix} li\ murs \\ lo\ mur\emptyset \end{bmatrix}$

Morpheme selection rules are often quite mistakenly said to be "morphophonemic", whatever the meaning of this term.

As an example of the application of these rules, we construct a sample derivation, using Belasco's sample sentence. Applying 1, 2, 3, 3, 4, 5, 6, 8, 8, 10, 10, we obtain

(18a) #NomSgF *il* NomSgF Noun + 3SgPf V_t + OblSgF il OblSgF Noun#

[9] The internal structure of the morphemes themselves is specified by the morpheme structure sub-component. — It should be noted that the transformational terms "deep structure/surface structure" correspond to Saussure's "signifié/signifiant" and Martinet's "première articulation/deuxième articulation". The obsession that Saussure was only concerned with "words" and was not interested in deep structure is of course only Chomsky's very own. It goes without saying that a minimal linguistic sign (morpheme) as well as a maximal linguistic sign (syntagmatic chain) is a "entité psychique à deux faces" for Saussure, "doublement articulé" for Martinet. See Wittmann (1964, 1967).

Applying the LM and GM selection and amalgamation steps yields

(18b) #la meḍre esguardaṭ la pulcele#

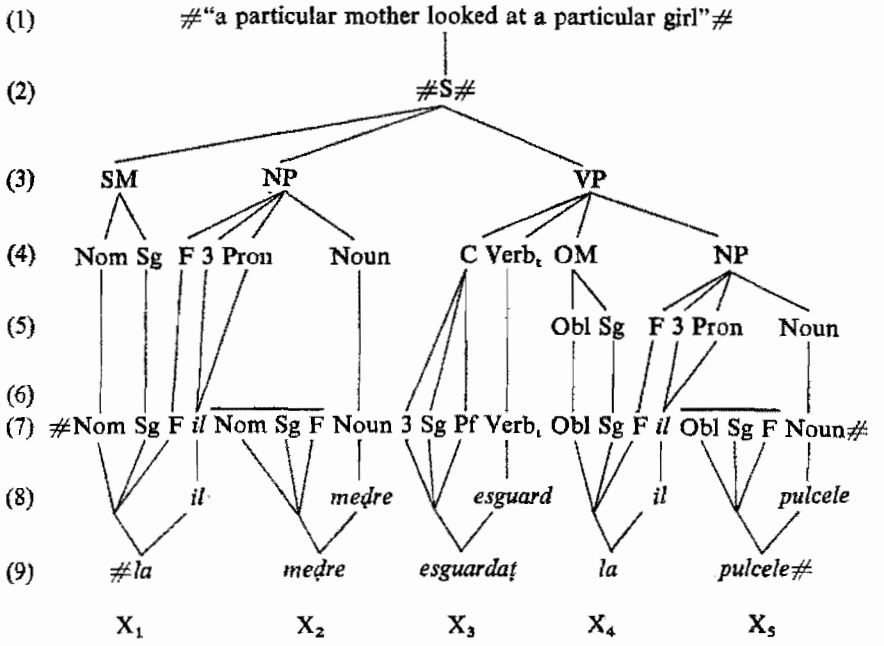

Fig. 2. Tree of sample syntagmatization. The syntagmatization tree shows the successive stages of bundling (amalgamation) of "espaces de valeurs". At (7), the deep structure of the string (i.e. its isolates with intervening lexical and grammatical agreement) is fully determined. Of course, the present tree only maps out the grammatical agreement between the grammatical isolates, since the lexemes are not broken down into their respective isolates.

The sample sentence (18b) is apparently made up of five syntagms. If all possible applications of the rules are computed, the following general sentence structure types emerge.

(19)	X_1	X_2	X_3	X_4	X_5
(a)	X	X	*alaṭ*	Ø	Ø
(b)	X	Ø	*alaṭ*	Ø	Ø
(c)	X	X	*esguardaṭ*	X	X
(d)	X	Ø	*esguardaṭ*	X	Ø
(e)	X	X	*aṭ*	X	X
(f)	X	Ø	*aṭ*	X	Ø
(g)	X	X	*aṭ*	Ø	*levéṭ*
(h)	X	Ø	*aṭ*	Ø	*levéṭ*
(i)	X	X	*est*	X	X

(j)	X	Ø	*est*	X	Ø
(k)	X	X	*est*	Ø	*levét*
(l)	X	Ø	*est*	Ø	*levét*

This list (19a-l) is not really exhaustive, since the blends (c) with (d), (e) with (f), and (i) with (j) have not been included. A more powerful structural analysis would be

$$(20)\quad \begin{Bmatrix} X_1 & X_2 \\ X_1 & Ø \end{Bmatrix} X_3 \begin{Bmatrix} Ø & Ø \\ X_4 & X_5 \\ X_4 & Ø \\ Ø & X_5 \end{Bmatrix}$$

An additional SC-rule now could easily account for all the word-order permutations, deletions, and permutation restrictions in the sense of Jenkins (1929), cxxxiiiff. and Belasco (1961), 382f. These permutations have to be mapped as being dependent on syntactic stress,[10] the place of which is determined (conditioned) by the syntactic stress of the preceding stress-unit or of an anticipated following stress-unit. In other words, these permutations are to be thought of as devices which fit a given sentence into the context of another preceding or anticipated following sentence or sentences. These permutations are therefore in no way optional in their nature, contrary to what has been implied by Belasco. What makes the writing of this rule a difficult task is the necessity for an extensive statistical analysis of syntactic stress in the *Chanson de Roland*, isolating the "poetic" idiosyncracies of the author of the *CR* in this respect. The linguistic performance (*parole*) of a literary author (as an individual) is "comportement innovateur (or improvisateur) spontané" to a larger extent than rule-governed behavior; such "improvisations du sujet parlant" constitute idiosyncratic "créations de la parole" which presumably have not or have not yet entered the "langue" of the collectivity (Saussure). A statistical analysis would provide the data for a contrastive interpretation of the author's linguistic behavior as compared to that of his speech community. But such problems of reconstruction would go far beyond the scope of this paper.

[10] Old French differentiated a syntactic stress (as a "suprasegmental" morpheme) from a morphemic stress (as a "supra-segmental" phoneme). Whereas both lexical, and to some extent grammatical morphemes, may carry a syntactic stress, only lexical morphemes contain morphemic stress as an inherent building block. For a phonological sketch of Old French, see Hall (1946).

B. OPTIONAL RULES OF THE SYNTAGM STRUCTURE SUB-COMPONENT

Optional rules operate on terminal strings derived by rules 1-10, reducing, expanding, embedding them. Rules for the mutation of kernels (center-strings) and production of adjunct-strings produce a class of phrases, such as "infinitive phrases", "complements" (e.g. of the type Prep + NP), and other reduced sentences. Most other optional rules are conditional on such rules: a reduced sentence may become a constituent sentence to be embedded into a matrix sentence. (OP-11) is such a rule.

$$\text{(OP-11) SD: Nom} \begin{bmatrix}^{1}\text{SgM}\\ \text{PlM}\\ \text{SgF}\\ \text{PlF}\end{bmatrix}^{1} \begin{bmatrix}^{2}\textit{jo}\\ \textit{tu}\\ \textit{il}\end{bmatrix}^{2} \text{— Nom} \begin{bmatrix}^{1}\text{SgM}\\ \text{PlM}\\ \text{SgF}\\ \text{PlF}\end{bmatrix}^{1} \text{Noun — C — } \textit{est-} \text{ —}$$

$$\text{Nom} \begin{bmatrix}^{1}\text{SgM}\\ \text{PlM}\\ \text{SgF}\\ \text{PlF}\end{bmatrix}^{1} \begin{bmatrix}^{3}\text{PP}\\ \text{Adj}\end{bmatrix}^{3}$$

$$\text{SC: } X_1 - X_2 - X_3 - X_4 - X_5 - X_6 - X_7 - X_8$$

$$\rightarrow \begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}_0^0 X_2 + \begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}_0^0 X_4 + \begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}_0^0 X_8$$

Examples for (OP-11):

(a) $\underset{\textit{la}}{\text{NomSgF} + \textit{il}} - \underset{\textit{reïne}}{\text{NomSgF} + \textit{reïne}} - \underset{\textit{est}}{\text{3SgIndPres} + \textit{est-}} - \underset{\textit{morte}}{\text{NomSgF} + \textit{mort}}$

$$\rightarrow \underset{\textit{la}}{\begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}\text{SgF} + \textit{il}} - \underset{\textit{reïne}}{\begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}\text{SgF} + \textit{reïne}} - \underset{\textit{morte}}{\begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}\text{SgF} + \textit{mort}}$$

(b) $\underset{\textit{il}}{\text{NomSgM} + \textit{il}} - \underset{\textit{est}}{\text{3SgIndPres} + \textit{est-}} - \underset{\textit{bons}}{\text{NomSgM} + \textit{bon}}$

$$\rightarrow \underset{\begin{bmatrix}\textit{li}\\ \textit{lo}\end{bmatrix}}{\begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}\text{SgM} + \textit{il}} - \underset{\begin{bmatrix}\textit{bons}\\ \textit{bon}\end{bmatrix}}{\begin{bmatrix}\text{Nom}\\ \text{Obl}\end{bmatrix}\text{SgM} + \textit{bon}}$$

Such reduced sentences must be regarded as independent grammatical sentences in interjections, responses, etc., unless embedded in a matrix sentence.

Embedding transformations are rules of the type described by Bach (1964), 75f. (OP-12) to (OP-14) show different ways in which the transform of (OP-11) may be embedded into a matrix sentence.[11]

(OP-12) SD: of S_1: Z — av- — OblSgNeut — PP_t — W
of S_2: same as the transform of (OP-11), with X_1, X_3, X_7 = Obl and X_8 containing a PP_t
SC: $(Y_1 — Y_2 — Y_3 — Y_4 — Y_5)\ (X_1 — X_2 — X_3 — X_4 — X_7 — X_8)$
$\rightarrow Y_1 — Y_2 — X_1 + X_2 + X_3 + X_4 + X_7 + X_8 — Y_5$

(OP-13) SD: of S_1: $Z — \begin{bmatrix} \text{av-} \\ \text{Verb}_t \end{bmatrix}_0^0 — OM — NP — W$
of S_2: same as the transform of (OP-11), with X_1, X_3, X_7 = Obl
SC: $(Y_1 — Y_2 — Y_3 — Y_4 — Y_5)\ (X_1 — X_2 — X_3 — X_4 — X_7 — X_8)$
$\rightarrow Y_1 — Y_2 — X_1 + X_2 + X_3 + X_4 + X_7 + X_8 — Y_5$

(OP-14) SD: of S_1: $Z — SM — NP — W$
of S_2: same as the transform of (OP-11), with X_1, X_3, X_7 = Nom
SC: $(Y_1 — Y_2 — Y_3 — Y_4)\ (X_1 — X_2 — X_3 — X_4 — X_7 — X_8)$
$\rightarrow Y_1 — X_1 + X_2 + X_3 + X_4 + X_7 + X_8 — Y_4$

Example for (OP-12):

(a) SD of S_1: #li chevaliers aṭ veḍuṭ#
SD of S_2: #lo cheval veḍuṭ# (transform of #li chevals est veḍuz#)
SC: $S_1(S_2)$ → #li chevaliers aṭ lo cheval veḍuṭ#

Example for (OP-13):

(b) SD of S_1: #tu veḍis lo#
SD of S_2: #lo rei mort# (transform of #li reis est morz#)
SC: $S_1(S_2)$ → #tu veḍis lo rei mort#

Embedding transformations not only include all simple addition rules but also account for all constructions of the type Bach (1964), 76.

[11] Psychologically speaking, embedding transformations represent a type of recoding which might best be characterized as "syntagmatic blending". On the rôle of blending in the child's acquisition of language, cf. Hockett (1968).

Related to these are coordination rules. A coordinating transformation coordinates two sentences or phrases which are equivalent in their SD's.

(OP-15) SD: of S_1: Z — X — W
of S_2: Z — X — W
(where X, X are equivalent minimal elements, e.g. NP, VP, S; and Z, W are segments of terminal strings)
SC: $(X_1 — X_2 — X_3)\ (X_4 — X_5 — X_6) \rightarrow X_1 — X_2 + e + X_5 — X_3$

Additional rules interprete all interrogative, imperative, and negative transformations.

Lastly, the obligatory rules of the type (11) to (20) need an obvious expansion of optional rules which will be able to operate on transforms from optional transformations of the type (OP-11) to (OP-15). Among them, morpheme selection rules will list all those morphemes from Figure 1 which have made, somewhere in an optional rule, their first appearance. Finally, hypothetical permutations of the type

(a) #li chevaliers aṭ lo cheval veḍuṭ#
(b) #li chevaliers aṭ veḍuṭ lo cheval#
(c) #li chevaliers lo cheval aṭ veḍuṭ#
(d) #lo cheval aṭ li chevaliers veḍuṭ#
(e) #veḍuṭ li chevaliers aṭ lo cheval#
etc.

will have to be dealt with in an adequate manner.

In conclusion, it should be noted that truly terminal symbols always correspond to isolates, be they semantic or phonological (e.g. OblSgNeut, three semantic isolates; *meḍre*, five phonological isolates; with redundancies on both levels). It goes without saying that converting semantic isolates into phonological ones, or vice versa, does not involve the same processes than "rewriting" NP's, VP's, etc., in terms of isolates, or vice versa (cf. references). What most transformational descriptions call a "terminal string", before it is fed into their "morphophonemic" component, contains still sets of semantic isolates and already sets of phonological isolates.

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