

A Generative Model of the Formula in the *Chanson de Roland*

UNTIL RECENTLY there has been little divergence from Milman Parry's definition of the epic formula: "a group of words which is regularly employed under the same metrical conditions to express a given essential idea."¹ In fact most previous studies have led to the compilation of dictionaries of formulas belonging to a particular epic poem or group of epic poems such as the chansons de geste. A generative model of formulaic language is one way to avoid the impasse created by quantitative studies.²

Critics Patrick Conner, Michael Nagler, and Edward A. Heinemann have already suggested various generative approaches to the formula. Conner, whose model of a poetic grammar of Old English poetry is based upon Noam Chomsky's grammar of a natural language, defines the formula as "the product—one half-line in length—of a grammar of poetic diction superimposed upon the grammar of the spoken language."³ Unlike Conner, Nagler does not construct a generative model of the formula. However, in his research on the Homeric formula, Nagler

¹"Studies in the Epic Technique of Oral Verse-Making. I: Homer and Homeric Style," *Hazard Studies in Classical Philology*, 41 (1930), 80.

²In his book, *The Song of Roland: Formulaic Style and Poetic Craft*, Center for Medieval and Renaissance Studies, UCLA (Berkeley: The University of California Press, 1973), Joseph J. Duggan attempts to demonstrate quantitatively that certain poems, particularly the *Roland*, are the result of oral composition while others are literary productions. As Edward A. Heinemann points out ("Composition stylisée et technique littéraire dans la *Chanson de Roland*" *Romania*, 94 [1973], 6), Duggan's computer-aided method of formula identification depends upon the exact repetition of words.

³"Schematization of Oral-Formulaic Processes in Old English Poetry," *Language and Style*, 5 (1972), 206. The Chomskyan model used by Conner contains three components (semantic, syntactic, and phonological) and two structural levels (deep and surface), "Oral-Formulaic Processes," p. 207. In his *Aspects of the Theory of Syntax*, 8th ed. (Cambridge: The M.I.T. Press, 1972), p. 8. Chomsky defines a generative grammar as "a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences."

distinguishes two levels: a pre-verbal Gestalt or generative (traditional) level and an allomorph or performance (original) level.⁴

Contrary to many scholars, Heinemann tries neither to prove the existence of the formula ("Composition stylisée," p. 9) nor to determine the origin of the formula or the epic poem (p. 8). He assumes all chansons de geste to be completely formulaic but not all verses of these poems to be clichés (p. 9).⁵ His view of formula production in terms of a code or language learned by the poet is related to the Chomskyan theory that "every speaker of a language has mastered and internalized a generative grammar that expresses his knowledge of his language" (*Aspects*, p. 8).⁶ Heinemann's definition of the formula, "l'unité minimum de l'expression stylisée, longue d'un ou deux hémistiches selon la syntaxe, et résultat de la rencontre du mètre et de la syntaxe" (p. 11) is similar to Conner's and the one most suited to the model described in this paper.⁷

⁴"Towards a Generative View of the Oral Formula," *Transactions and Proceedings of the American Philological Association*, 98 (1967), 281 and 291.

⁵Of course many formulas did become clichés. In his *Essais de stylistique structurale* (Paris: Flammarion, 1971), p. 162, Michael Riffaterre defines the cliché as a linguistic unit, analogous to a compound word, "Elle est d'ordre structural, et non sémantique, puisqu'une substitution synonymique efface le cliché. Elle n'admet pas de variantes. Elle a la même facilité de substitution et de distribution qu'un mot."

⁶Heinemann finds Albert Lord's analogy (in *The Singer of Tales*, Harvard Studies in Comparative Literature, 24 [Cambridge: Harvard University Press, 1960]), between a child learning the words and phrases of his language and a poet learning the formulas of his poetic language (p. 22) through "habitual usage" (p. 56) unsatisfactory, because it perpetuates the idea of a poet's memorizing set phrases: "L'idée d'un chanteur ayant appris par coeur un grand nombre de clichés qui lui permettent d'agencer toute une histoire répugne au critique littéraire. Mais ce n'est pas un enfant en train d'apprendre des mots. Cet enfant apprend une langue. La langue n'est pas simplement un agencement de mots mais un agencement de mots selon des règles nommées 'grammaire,' un code systématique, et Lord ne semble pas considérer cette différence comme significative. Le stock de mots qu'emploie un homme est assez restreint, mais son 'stock' de phrases est quasi infini; le système fournit les combinaisons possibles," "Composition stylisée," p. 7.

⁷Heinemann prefers the term "stylized" rather than the term "formulaic," because the characteristics of stylized art are found at all structural levels of the chanson de geste and not merely at the level of the formula ("Composition stylisée," p. 8). I use the term "formulaic" in expressions such as "formulaic complex" and "formulaic system."

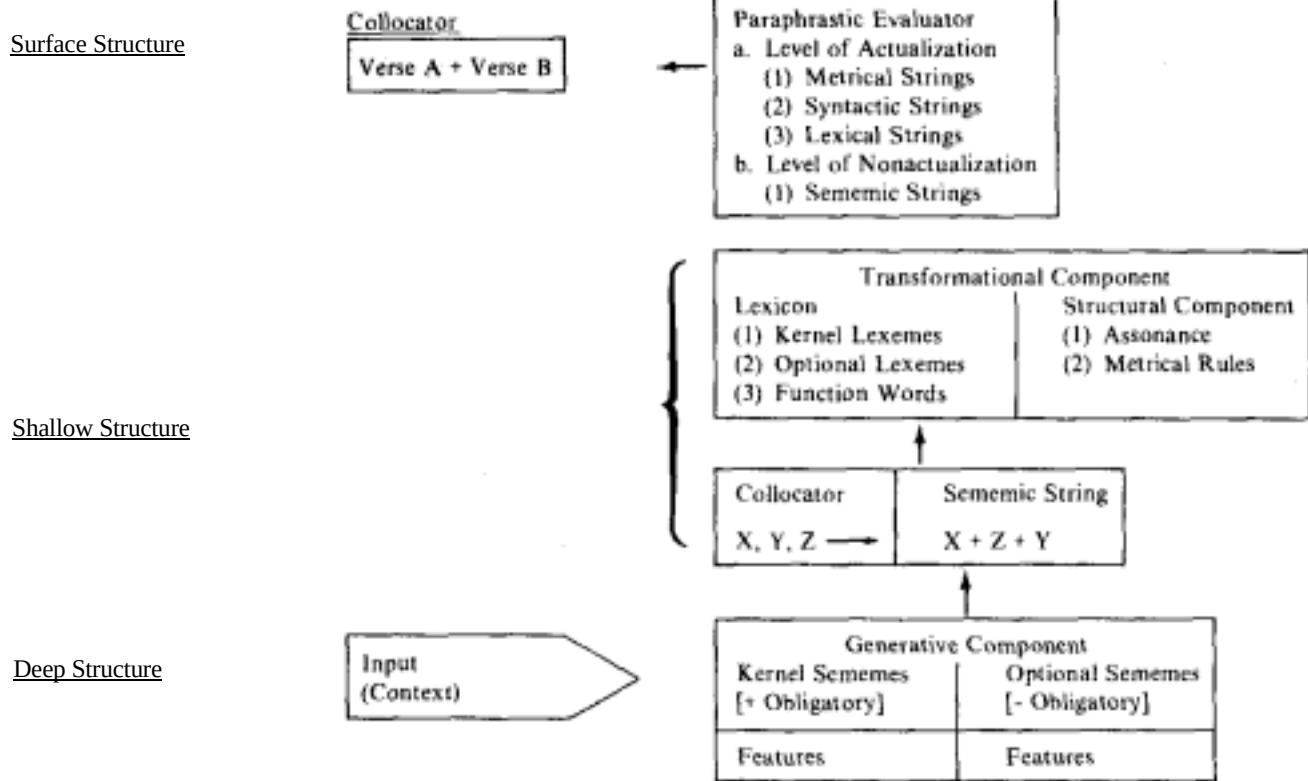
X', 'X is Mounted on a Horse', and 'Identification of Horse Y' precede and induce¹⁴ the appearance of underlying formula 'Horse X is Swifter than Bird(s) Y'. Formulas derived from the latter preformula induce the preformula 'X Spurs his Horse'. This particular formulaic complex, which we might term the equestrian complex, often precedes the formulaic complex of the lance attack.

The influence exerted by semantic context is really quite subtle, for it not only induces the occurrence of a certain formula but it also affects lexical choice. For example, the lexeme *cheval* is not actualized in the A-verse of formulas #2-6 since it has already appeared in the input:

2.	Un Sarrazin i out de Sarraguce,	1526
	Siet et ceval <i>qu'il</i> cleimet Barbamusche,	
	Plus est isnels que esprever ne arunde.	1535
	Brochet le bien, le frein li abandunet,	(O)
3.	D'altre part est un païen, Valdabrun:	1562
	...	
	Siet et cheval qu'il cleimet Gramimund,	1571
	Plus <i>est</i> isnels que nen est uns falcuns.	
	Brochet le bien des aguz esperuns,	(O)
4.	E vos Marsilie a guisa de baron.	2005
	Seit in civals como apella Gascon,	
	Plus est isnel che <i>non</i> est un falchon.	
	Broçal li ben, si vait a ferir Begon:	(V ₄)
5.	De l'altre part est un païen, Grandonies,	1613
	...	
	Siet el cheval que il cleimet Marmorie,	1615
	Plus est isnels que n'est oisel ki volet;	
	Laschet la resne, des esperuns le brochet,	(O)
6.	Un Saracin li est de Sarogoçe:	1498
	...	
	Seit <i>in</i> un cival c'om clāma Barbanoselle,	1505
	El est plus isnel che oxel chi vole.	
	Broçal ben, a François lasa corere,	(V ₄)

¹⁴The process of inducement is opposed to that of generation. The input, consisting of a preceding formula or formulas, may be said to induce or trigger the appearance of a new formula.

Figure 1
Generative Model of the Formulaic Unit



$$\text{'Siet } \left\{ \begin{array}{l} \text{el} \\ \text{in} \end{array} \right\} \text{un } \left\{ \begin{array}{l} \text{c(h)eval} \\ \text{cival(s)} \end{array} \right\} \left\{ \begin{array}{l} \text{qu'il cleimet} \\ \text{que il cleimet} \\ \text{como apella} \\ \text{c'om clama} \end{array} \right\} + \text{Id. of Horse'}$$

(The brackets indicate that one of the enclosed lexemes must be chosen.) In fact example #6 does contain *cheval* in pronoun form, *el*. Although *el* is an unnecessary addition from the standpoint of meter or syntax, it fulfills a useful stylistic function, emphasis. Despite the appearance of *cheval* in the input formula 'Identification of Battle Steed', "Sur son cheval qui est grant de valour" (1069, T), synonym *destrier* is actualized in example #1: "Le destrier vait plus tost que nul ostour" (1072, T). There is semantic justification for the insertion of *destrier* in verse 1072 since an expansion intervenes between verses 1069 and 1072: "En Danemarche le conquist par vigour / Envers Blasaire, le riche empereour" (vv. 1070-71).

The context also determines the structural constraints, both assonance and meter, of a new formula. It establishes assonance unless the new formula itself, as the first formula in the *laisse*, determines the assonance of the *laisse*.¹⁵ The context affects meter in the following manner. If a preceding formula fills a whole verse (a decasyllabic, for example), then the new formula may fill an A-verse (tetrasyllable or hexasyllable) or a whole verse. If, however, the preceding formula already occupies an A-verse (tetrasyllable or hexasyllable), the new formula may occupy a B-verse only (tetrasyllable or hexasyllable depending on the number of syllables contained in A).

¹⁵The classic definition of assonance, which I adopt in the model, is the homophony of the final stressed vowel in the verse. Although Joseph Bédier (in *La Chanson de Roland commentée* (1927; Paris: Piazza, 1968), pp. 270-279) does not diverge from this definition, he points out a certain flexibility in assonance found in the *Chanson de Roland* and other chansons de geste. For example, one can find cases of oral *a* in assonance with nasal *a* as well as quite a few other examples of irregular assonance. Therefore the assonances indicated in the model are approximate; they are usually based on the final stressed vowel of the first line of the *laisse*. In Figures #2 and #3, A- signifies that assonance does not affect lexical insertions in the first hemistich; B+ signifies that assonance does affect lexical insertions in the second hemistich.

The metrical structure of the actualized formulas appears in the diagram below.

Decasyllable

	A-verse	B-verse	
(1)	Le destrier vait plus tost 1 2 1 1 1	que nul ostour 1 1 2	(1072, T)
(2)	Plus est isnels 1 1 2	que esprever ne arunde 1 1 1 1 2	(1535, O)
(3)	Plus est isnels	que nen est uns falcuns 1 1 1 1 2	(1572, O)
(4)	Plus est isnel	che <i>non</i> est un falchon 1 1 1 1 2	(2007, V ₄)
(5)	Plus est isnels	que n'est oisel ki volet 1 1 2 1 1	(1616, O)
(6)	El est plus isnel 1 1 1 2	che oxel chi vole 1 2 1 1	(1506, V ₄)

Formulas #2-5 have the same metrical mold: a 4-unit A and a 6-unit B. Formula #1, "Le destrier vait plus tost que nul ostour" (1072, T), has a divergent metrical structure consisting of a 6-unit A and a 4-unit B.¹⁶ Formula #6, "El est plus isnel che oxel chi vole" (1056, V₄), has an irregular metrical structure composed of a 5-unit A and a 5-unit B. Final mute *e* would have to be counted to provide the second hemistich with six syllables. Thus in example #1 the comparative unit "Le destrier vait plus tost" fills a 6-unit A, while in examples #2-6 the comparative unit

{ "Plus est isnel(s)"
"El est plus isnel" } occupies a 4-(5)-unit A. The basis of comparison, bird(s), occupies a 4-unit B in #1 ("que nul ostour") and a 6-(5)-unit B in #2-6.

The syntactic structure of the six formulas is mapped out below.

	A-Verse	B-Verse
(1)	Le destrier vait plus tost [+Def. Art.] [+Subst.] [+Verb] [+Comp. Adv.]	que nul ostour [+Conj.] [+Indef. Adj.] [+Subst.]
(2)	Plus est isnels [+Comp. Adj.] [+Copula]	que esprever ne arunde [+Subst.] [+Conj.] [+Subst.]

¹⁶Actually formula #1 can be divided either 4 + 6 or 6 + 4, but the latter structure is more convenient for the purposes of the model.

(3)	Plus <i>est</i> isnels	que	nen [+Neg. Part.]	est [+Copula]	uns [+Indef. Art.]	falcuns [+Subst.]
(4)	Plus <i>est</i> isnel	che	non	est	un	falchon
(5)	Plus <i>est</i> isnels	que	n' est [+Subst.]	oisel [+Rel. Pron.]	ki	volet [+Verb]
(6)	El <i>est</i> plus isnel [+Pron.]	che		oxel		chi vole

The following observations can be made concerning the syntactic structure of the six formulas. Conjunction *que* may introduce a subordinate substantive phrase ("que nul ostour," 1072-B, T, or "que esprever ne arunde," 1535-B, O), a subordinate clause ("que nen est uns falcuns," 1572-B, O), or a subordinate clause with an embedded sentence ("que n'est oisel ki volet," 1616-B, O).

The most important aspect of the six formulas, aside from their related contexts, is their high degree of synonymy. In the present model, generation of the formula will result in the establishment of a system of paraphrases. The model not only creates paraphrases which meet the poetic requirements of meter and assonance, but it also evaluates the extent to which paraphrasing is complete. Formulas, "Plus *est* isnels que nen est uns falcuns" (1572, O) and "Plus *est* isnel che non est un falchon" (2007, V₄), are composed of identical lexemes, as are "Plus *est* isnels que n'est oisel ki volet" (1616, O) and "El *est* plus isnel che oxel chi vole" (1506, V₄) except for the addition of *el* and the deletion of *n'est* in verse 1506. Each group of formulas constitutes a complete paraphrasing system; that is, the formulas within each set signify the same thing. All six formulas are at least partial paraphrases of one another in that all express the following comparison of inequality: a particular battle steed (*cheval*, *destrier*) is swifter than a particular type of bird [bird of prey (*falcuns*, *esprever*, or *ostour*), bird of passage (*arunde*), or bird in general (*oisel*)].

Before demonstrating the actual generation of the formulas, we must introduce a few more terms. We have seen that the context (i.e., the preceding formula or formulas) triggers the base component to generate a

new formula. The base component (deep structure) lays down a semantic string which is composed of sememes.¹⁷ The term sememe, which in its classic definition indicates the entire semantic content of a word, is composed of smaller units of content called semes. The more semes two expressions have in common, the more completely they paraphrase each other. Contrary to the standard definition of the sememe, neither the sememe nor the sememic string implies a fixed base of content or total meaning in this model. Although the sememe may be a complete English paraphrase of the lexeme (word) which it generates in surface structure, it may also be a more inclusive term than the individual lexemes which it generates. For example, sememe /Bird/ is a complete paraphrase of *oisel*; however, /Bird/ is an incomplete paraphrase of *esprever*, *arunde*, *falcuns*, and *ostour*.

The basic symbols used in the grammar appear below.

X = substantive sememe, subject

Y = substantive sememe, object

Z = function (action or state)

Z₁ = subclass of Z

// = enclose a sememe: /Bird/

() = enclose an optional sememic category: (X)

→ = unit to left of ---> is rewritten as symbol to right

-> = unit to left of --> is not rewritten as symbol to right

{ } = one of the enclosed must be chosen: { a/b }

[] = enclose one or more features: [+Noun]

" " = enclose a complete formula: "Plus est isnels"

' ' = enclose an incomplete formula 'vait plus' or a preformula

/ = in the context of: ne/vowel → n'

: = induce: destrier $\left[\begin{array}{l} +\text{Def.} \\ +\text{Masc.} \end{array} \right] : \text{le}$

The base component contains both kernel (obligatory) sememes and secondary (optional) sememes. The former are always actualized in

¹⁷A.J. Greimas, *Sémantique structurale* (Paris: Larousse, 1966), pp. 44-45. The sememe is composed of a semic kernel (Ns) and contextual semes called classemes (Cs).

surface structure as kernel lexemes while the latter may or may not be actualized in surface structure. We shall examine the formulas themselves to determine the kernel and the optional lexemes. From the lexemes we shall work backwards to the sememes. The kernel lexemes are underlined in the list below; the secondary lexemes are in parentheses.

- (1) (Le destrier) vait plus tost que nul ostour
- (2) Plus est isnels que esprever ne arunde
- (3) Plus est isnels que nen (est) uns falcuns
- (4) Plus est isnel che non (est) un falchon
- (5) Plus est isnels que n' (est) oisei (ki) (volet)
- (6) (El) est plus isnel che oxel (chi) (vole)

We may simplify the above list so that only the kernel lexical structure appears:

$$\left[\begin{array}{c} \text{vait} \\ \text{est} \end{array} \right] \left[\begin{array}{c} \text{plus tost} \\ \text{plus isnel(s)} \end{array} \right] + \text{que} + \text{Negative Particle} + / \text{Bird} / .$$

$$\left\{ \begin{array}{c} \text{ostour} \\ \text{esprever} \\ \text{arunde} \\ \text{falcuns} \\ \text{oisei} \end{array} \right\}$$

The kernel sememes which generate the kernel lexemes are:

$$/ \left\{ \begin{array}{c} \text{Swift} \\ \text{Swiftly} \end{array} \right\} / \rightarrow \left\{ \begin{array}{c} X_1 \\ Z_1 \end{array} \right\}^{18} ; / \left\{ \begin{array}{c} \text{To Be} \\ \text{To Go} \end{array} \right\} / \rightarrow Z; \text{ and } / \text{Bird} / \rightarrow X.$$

No sememes are necessary for *que* or the negative particle, because they are implied by the comparative adjective or adverb in A.

The optional sememes are: /Battle Steed/ → (X), /To Be/ → (Z), /Bird/ → (X₁), and /To Fly/ → (Z₁).

¹⁸/Swift/ is rewritten X₁ to show that it is a predicate adjective modifying /Bird/, X.
/Swiftly/ is rewritten Z₁ to show that it is an adverb modifying /To Go/, Z.

All sememes have a list of features attached to them such as [+Noun], [+Pronoun], [+Verb], [+Copula], [+Adjective], or [+Adverb]. For example, /Bird/ has the following features:

$$\begin{bmatrix} +\text{Noun} \\ -\text{Definite} \\ \pm\text{Masculine} \\ +\text{Singular} \end{bmatrix}$$

/ $\begin{bmatrix} \text{Swift} \\ \text{Swiftly} \end{bmatrix}$ / has the features $\begin{bmatrix} +\text{Comparative Adjective} \\ +\text{Comparative Adverb} \end{bmatrix}$ while

/ $\begin{bmatrix} \text{To Be} \\ \text{To Go} \end{bmatrix}$ / has the features $\begin{bmatrix} +\text{Copula} \\ +\text{Verb} \\ +\text{Present} \\ -\text{Transitive} \end{bmatrix}$. A complete diagram of the

generative rules for verses A and B is found in figures 2 and 3, at the end of this article.

Once the sememes have been generated by the base, the collocater in shallow structure rewrites them into a sememic string. A subject, if actualized, usually precedes a verb; however, the sememic string does not necessarily reflect lexical order in surface structure. Syntactic structure is quite flexible. The complete sememic string in this case is:

$$(X) + Z + \begin{bmatrix} X_1 \\ Z_1 \end{bmatrix} + X + (Z) + (X_1) + (Z_1).$$

The sememic string is now ready for lexical insertion which must occur according to certain structural rules, those of meter and assonance. Since either string 'Siet el ceval qu'il cleimet + Proper Name' or "Envers Blasaire, le riche empereour"(1071 ,T, #1) generates the entire preceding verse, the entire following verse (decasyllabic) is free. Lexical insertion of the kernel sememic string must occur first. The poet, as we have already seen, has one of two options. His A-verse may have either four or six

syllables. At any rate, kernel string $Z + \begin{bmatrix} X_1 \\ Z_1 \end{bmatrix}$ generates all or part of A

and kernel string X generates all or part of B.

We shall begin with the lexical insertion of A. In addition to his metrical option, the poet also has lexical options. If he inserts *estre* [+Copula] in place of Z, he must automatically insert '*plus isnels*'

[+Comp. Adj.] in place of X_1 . This is exactly what happens in formulas #2-6. In accordance with the feature rules of Z and its understood subject *ceval* [+Sing.], *estre* becomes *est*. Thus $Z + X_1 \rightarrow$ "Est plus isnel(s)," four units. Relocation of comparative particle *plus* before *est* occurs in #2-5 but not in #6. $X_1 + Z \rightarrow$ "Plus est isnel(s)," #2-5-A. The poet inserts

optionl *el* $\begin{bmatrix} +\text{Pron.} \\ +\text{Masc.} \\ +\text{Sing.} \end{bmatrix}$, (X), in example #6-A. $(X) + Z + X_1 \rightarrow$ "El est plus isnel", #6-A.

Insertion of *aler* [+Verb] in slot Z (example #1), causes insertion of *plus tost* [+Comp. Adv.] in slot Z_1 . *Aler* $\rightarrow$ *vait*. Thus $Z + Z_1 \rightarrow$ 'vait plus tost', three units. The formula is obviously incomplete. A 4-unit A would require one extra syllable, while a 6-unit A would require three extra syllables. The poet has two options. He may insert either 1-unit *el*

$\begin{bmatrix} +\text{Pronoun} \\ +\text{Masc.} \\ +\text{Sing.} \end{bmatrix}$ in place of optional category (X) or 2-unit *destrier*

$\begin{bmatrix} +\text{Noun} \\ +\text{Def.} \\ +\text{Masc.} \\ +\text{Sing.} \end{bmatrix}$ in place of (X). *Destrier* would require insertion of one-unit

le $\begin{bmatrix} +\text{Def. Art.} \\ +\text{Masc.} \end{bmatrix}$ to modify it. In this particular case he chooses *le destrier*

instead of *el* $(X) + Z + Z_1 \rightarrow$ "Le destrier vait plus tost, #1-A.

The comparative units in A, which we may consider formulas in their own right, now serve as input to B. The incomplete verses have the following form:

"Le destrier	$\begin{bmatrix} \text{vait plus tost} \\ \text{Plus est isnel(s)} \\ \text{est plus isnel} \end{bmatrix}$	$\begin{bmatrix} + \text{ que } + \text{ Negative} \\ \text{Particle} \\ \text{ne (n'; nen)} \\ \text{nul} \end{bmatrix}$	$\begin{bmatrix} + \text{ /bird/.} \\ \text{X} \end{bmatrix}$
El			

Actualization of the negative particle may be in the form of an adverb, a coordinate conjunction, or an indefinite adjective; but it is too early to know in which form. Its actualization as a negative adverb is obligatory in the context of copula (Z). Nonactualization of Z means the actualization of an elliptical sentence such as "que esprever ne arunde"

(1535-B, #2) or "que nul ostour" (1072-B, #1). In the former example, nul is an indefinite adjective. At this point we should add two morphophonological rules: ne [+Adv.] or [+Conj.] can be used to add or

subtract a syllable. Ne [+Adv.]/vowel → $\left\{ \begin{array}{l} \text{nen} \\ \text{non} \end{array} \right\}$ est

(provides an extra syllable)

→ n'est

(eliminates an extra syllable)

Ne [+Conj.]/ vowel → ne arunde

(provides an extra syllable)

→ n'escut

(eliminates an extra syllable)

After insertion of *que* and the negative particle, assonance plays an important rôle in the selection of the lexeme at the end of the verse line. This lexeme, if not a member of category X, will directly influence lexical insertion in category X as well as actualization of any optional categories and their order with respect to X.

Assonance /ò/ selects *ostour*, X, in 1072-B, #1. The form of verse 1072 is now: 'Le destrier vait plus tost que + Neg. Part. + ostour'. Since only one

6 units

1

2

syllable remains in 4-unit B, it is a matter of determining the form of the negative particle. Neither *ne* [+Adv.] nor *ne* [*Coord. Conj.] fits. *Nul* [+Indef. Adj.] is the only possibility. Thus (X) + Z + Z₁ + X "Le destrier vait plus tost que nul ostour" (1072, T).

Assonance /ó.e/ actualizes kernel X, *arunde*, in verse 1535-B,#2. The skeleton string 'que + Neg. Part + arunde' occupies three units. Mute *e* at the end of *arunde* does not count as a syllable. Additional lexical insertions are necessary to complete B. String (Z) + X might generate the structurally acceptable formula "que nen est une arunde," six units. *Estre*, rewritten *est*, replaces (Z). In the context of copula *est*, *ne* functions as an adverb denying a process. An affixal transformation converts *ne* to *nen*

before initial vowel *e* of *est*. Insertion of *une* $\left[\begin{array}{l} \text{-Def.} \\ \text{-Masc.} \end{array} \right]$ to modify *arunde*

$\left[\begin{array}{l} \text{-Def.} \\ \text{-Masc.} \end{array} \right]$ occurs last. However, actualization of this possible formula does not occur.

Sememic string $X + X$ might generate another structurally acceptable formula, "que falcuns ne arunde," six units. Reactualization of X allows the insertion of *falcuns*. Due to its location between two substantives, *falcuns* and *arunde*, *ne* functions as a coordinate conjunction. *Ne* conjoins the syntactic functions of *falcuns* and *arunde*, both substantives, while it disjoins their paradigmatic classes, bird of prey and bird of passage respectively.¹⁹ The former paradigm contains eagles, hawks, and owls; the latter one contains swallows and other migratory birds.

Instead of "que falcuns ne arunde," string $X + X$ generates "que esprever ne arunde" (1535-B, #2), six units. Elision of conjunction *que* with *esprever* eliminates an excessive metrical unit. Of course *ne* still serves as a coordinate conjunction. In addition to its rôle as conjoiner of syntactic functions, *ne* conjoins *esprever* and *arunde* (also *falcuns* and *arunde*) by virtue of their common classeme (contextual seme), rapidity. The use of two very swift birds, *esprever*, bird of prey, and *arunde*, bird of passage, as the basis of a comparison of inequality with *ceval*, intensifies the hyperbolic nature of *ceval*, the swiftest of battle steeds. *Ne* again disjoins paradigmatic classes, bird of prey (*esprever*) and bird of passage (*arunde*). *Esprever* and *arunde* are a more effective rhythmic-phonetic couple than the combination *falcuns* / *arunde*. *Esprever* and *arunde* each contain three metrical units (although the final syllable of *arunde* does not count at the end of the verse line); each begins with a vowel. *Falcuns* contains two units and begins with a consonant.

Assonance /*õ*/ actualizes kernel X as $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$, in verses 1572-B, #3, and 2007-B, #4. Skeleton string ' $\begin{Bmatrix} \text{que} \\ \text{che} \end{Bmatrix} + \text{Neg. Part.} + \begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ ' ,

occupies three units. The masculine ending of $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ means that three units remain. The same sememic string $X + X$ which worked in #2 might work in #3 and #4. In such case, either *esprever* or *arunde* replaces the first X to produce surface units "que esprever ne falcuns" and "que arunde ne falcuns" respectively. Although both formulas are structurally correct, neither one is actualized. The first unit "que esprever ne falcuns"

¹⁹A.J. Greimas, *Dictionnaire de l'ancien français jusqu'au milieu du XIV^e siècle* (Paris; Larousse, 1968), p. 433.

is ineffective on the plane of content, because conjunction *ne*, disjoiner of paradigmatic classes, is in contradiction with *esprever and falcuns*, both members of the same paradigmatic class, bird of prey. The second unit "que arunde ne falcuns" works on the plane of content, since *ne* properly disjoins paradigmatic classes, bird of passage and bird of prey. However, the unit does not work on the plane of expression for the same reasons as its mirror image "que falcuns ne arunde," proposed above. This problem applies to unit "que esprever ne falcuns" in addition to its ineffectiveness on the plane of content.

The actualized string is a variant of the first proposal for #2. Rather than (Z) + X-/->"que nen est une arunde," (Z) + X->" $\left\{ \begin{array}{l} \text{que nen} \\ \text{che non} \end{array} \right\}$ est

$\left\{ \begin{array}{l} \text{uns falcuns} \\ \text{un falchon} \end{array} \right\}$ " (1572-B, #3). The optional insertion of copula *estre*, (2007-B, #4)

rewritten *est*, actualizes *ne* as a negative particle. An affixal transformation converts adverb *ne* to $\left\{ \begin{array}{l} \text{nen} \\ \text{non} \end{array} \right\}$ before initial vowel *e* of *estre*.

Insertion of $\left\{ \begin{array}{l} \text{uns} \\ \text{un} \end{array} \right\}$ $\left\{ \begin{array}{l} \text{-Def.} \\ \text{+Masc.} \end{array} \right\}$ to modify *falcuns* occurs last. It was

neither necessary nor metrically possible to actualize the indefinite article in "que esprever ne arunde," #2.

Contrary to the governing assonances in #1-4-B, assonance /ò.e/ in #5 and #6 cannot actualize a variant of kernel category X. It actualizes,

instead, optional category (Z₁) [+Pres.], $\left\{ \begin{array}{l} \text{volet} \\ \text{vole} \end{array} \right\}$. Actualization of

optional function (Z₁), $\left\{ \begin{array}{l} \text{volet} \\ \text{vole} \end{array} \right\}$, induces actualization of corresponding

optional subject (X₁), $\left\{ \begin{array}{l} \text{ki} \\ \text{chi} \end{array} \right\}$. Nested sentence *ki volet* implies the

previous actualization of (Z), *est*, in the kernel sentence. *Ne* in the context of *est* functions as a negative adverb. Elision of *ne* and *est* produces 1-unit *n'est*. The incomplete unit now has the following appearance: 'que n'est +

X + $\left\{ \begin{array}{l} \text{ki} \\ \text{chi} \end{array} \right\}$ $\left\{ \begin{array}{l} \text{volet} \\ \text{vole} \end{array} \right\}$, four units. Two more units are necessary.

Insertion of X remains. Among the birds of passage or prey listed in the lexicon, *falcuns* and *ostour* are the only 2-unit lexemes. As a final step in the generative process, a transformation permutes the order of X + (Z) in

the sememic string to (Z) + X. Thus string (Z) + X + X₁ + Z₁ could generate

“ $\left\{ \begin{array}{c} \text{que} \\ \text{che} \end{array} \right\}$ n'est $\left\{ \begin{array}{c} \text{ostour} \\ \text{falcuns} \\ \text{falchon} \end{array} \right\}$ $\left\{ \begin{array}{c} \text{ki} \\ \text{chi} \end{array} \right\}$ $\left\{ \begin{array}{c} \text{volet} \\ \text{vole} \end{array} \right\}$,” six units. However, actualization of this unit does not occur. *Falcuns* and *ostour* are too restrictive for collocation with function $\left\{ \begin{array}{c} \text{volet} \\ \text{vole} \end{array} \right\}$ which applies to the $\left\{ \begin{array}{c} \text{ostour} \\ \text{falcuns} \\ \text{falchon} \end{array} \right\}$.

entire class of birds. *Oisel*, the general term for bird, replaces
Thus string (Z) + X + (X₁) + (Z₁) → "que n'est oisel ki volet" (1616-B, #5).
String X + (X₁) + (Z₁) → "che oxel chi vole" (1506-B, #6). Contrary to #5,
#6 deletes both (Z), *est*, and the negative particle. Thus #6 contains only
five syllables unless we count final mute *e* as a sixth syllable.

As a final formality the six B-verses (formulas) are collocated to the
corresponding A-verses (formulas) to make full-verse formulas.

All six formulas (entire verses) are now ready for comparison by the
paraphrastic evaluator in surface structure. It is the rôle of the
paraphrastic evaluator to compare the sememic strings (unactualized
strings) as well as the formulas (actualized strings) to determine their
degree of paraphrase. Formulas have three initial levels of comparison:
metrical, syntactical, and lexical strings. We shall eliminate the above
steps since we went through them at the beginning of this article. In a
sense, we have worked backwards for purposes of demonstration. Once
formulas have been compared on these three levels, we can determine
their degree of paraphrase (see also pp. 47-48).

Formulas, "Le destrier vait plus tost que nul ostour" (1072, #1), "Plus
est isnels que nen est uns falcuns" (1572, #3), and "Plus est isnel che non
est un falchon" (2007, #4) contain the least inclusive comparison of the six
formulas. All three have the underlying sentence, 'Horse X is Swifter than
One Class of Swift Birds, Birds of Prey'. Formula "Plus est isnels que
esprever ne arunde" (1535, #2) contains a more inclusive comparison than
the preceding ones. It has the underlying sentence, 'Horse X is Swifter
than Both Classes of Swift Birds, Birds of Prey and Birds of Passage'. The
more general sentence which underlies all four units is something like
'Horse X is Swifter than the Swiftest Classes of Birds', Formulas "Plus est
isnels que n'est oisel ki volet" (1616, #5) and "El est plus isnel che oxel chi

vole" (1506, #6) contain the most inclusive comparison and are consequently the most hyperbolic of all six formulas. Formulas #5 and #6 have the underlying sentence, 'Horse X is Swifter than any Bird which Flies'.

In this article I have limited myself to formulas containing a comparison of inequality between the swiftness of a particular battle steed and that of a particular type of bird, particular types of birds, or birds in general. However, the same context may induce similar formulas in a new code. The comparison is between the speed of a certain horse and that of beasts in general. For example, the *Chanson de Roland* contains the following formulas: "Bestia no e che possa corere cum lu" (1572, V₄), "Soto el cel no e bestia che contra lu vaie" (1702, V₄), "Beste nen est nule ki encontre lui alge" (1496, O), and "Beste nen est ki poisset curre a lui" (1598, O).²⁰

²⁰The beast formulas appear in the formulaic complexes below:

- | | | |
|----|--|------|
| 1. | D'Africa est un Affricant venu, | 1567 |
| | Seit <i>in</i> un cival c'um clama Sal Perdu: | |
| | Bestia no e che possa corere cum lu. | |
| | Broçal ben du speron agu, (V ₄) | 1573 |
| 2. | Li Arcivesque comença la bataie. | 1691 |
| | Seit <i>in</i> un cival ke el tolse <i>in</i> Prosaie, | |
| | Da un dele ciçe sel conquis <i>in</i> Danesmarce. | |
| | Li destrer e molt corant <i>et de bon</i> aire, | |
| | Soto et cel no e bestia che contra lu vaie. | 1702 |
| | Laisse 131 | |
| | L'Arcivesque el broçá per son bernaje: (V ₄) | 1703 |
| 3. | Li arcevesque cumencet la bataille. | 1487 |
| | Siet et cheval qu'il tolit a Grossaille, | |
| | Ço ert uns reis qu'il ocist en Denemarche. | |
| | Li destrers est e curanz e aates, | |
| | Beste nen est nule ki encontre lui alge. | 1496 |
| | Li arcevesque brochet par tant grant vasselage: (O) | |
| 4. | D'Affrike i ad un Affrican venut, | |
| | Ço est Malquiant, le filz al rei Malcud. | 1594 |
| | Siet el ceval qu'il cleimet Salt <i>Perdut</i> : | 1597 |
| | Beste nen est ki poisset curre a lui. (O) | |

Although bird and beast formulas are not synonymous, they have an analogous rôle with respect to *ceval* in the equestrian formulaic complex. One could easily replace the other without altering the fundamental structure of the descriptive system. Merely the code, bird or beast, would change. Each set of formulas constitutes an equivalent formulaic system.

My purpose in presenting a generative model of the epic formula in a formulaic complex was to show how context affects the final shape of a formula. Although the semantic environment of a particular formula such as 'Horse X is Swifter than Bird(s) Y' may remain relatively constant as in the equestrian complex preceding the complex of the lance attack, meter and assonance often vary. The greater the structural divergence among similar semantic contexts, the greater the structural and possibly semantic divergence among the formulas induced by that context. That identical contexts often induce synonymous or nearly synonymous formulas is not surprising. Although the model in this study does generate a system of paraphrases (that is, a formulaic system) we should not forget, as was stressed at the beginning of this article, that lexical strings need not be related semantically to be formulas. Heinemann does well to assume that "all chansons de geste are by definition formulaic" ("Composition stylisée", p. 9).

We may conclude that the formula has a highly regulated production in a poem such as the *Chanson de Roland*. No lexical insertions are gratuitous in the generation of the formula; function words never serve as mere verse-line filler.

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Figure 2

Comparative Unit-A-Verse

- I. Input: "Sur son cheval qui est grant de valour" (1069, T, #1)
'Siet el ceval qu'il cleimet + Proper Name' (#2-6)
- II. Base Component
- A. Kernel Sememic Categories Features
- | | | |
|---------------|------------------------|---|
| / { Swift } | / → { X ₁ } | +Comp. Adj. → X ₁ +Comp. Adv. → Z ₁ |
| / { Swiftly } | → { Z ₁ } | [+Masc.] |
| / { To Be } | / → Z | { +Copula } → Z |
| / { To Go } | | { +Verb } |
| | | { +Pres. } |
| | | { -Trans. } |
- B. Secondary Sememic Categories Features
- | | |
|----------------------|--------------------|
| /Battle Steed/ → (X) | { +Pronoun } → (X) |
| | { +Noun } |
| | { +Def. } |
| | { +Masc. } |
| | { +Sing. } |
- III. Collocator: (X), $\begin{Bmatrix} X_1 \\ Z_1 \end{Bmatrix}$, Z/ → Sememic String: (X) + Z + $\begin{Bmatrix} X_1 \\ Z_1 \end{Bmatrix}$
- IV. Lexicon
- A. Kernel Lexemes: X₁ → plus isnels
Z₁ → plus tost
Z → estre, aler
- B. Optional Lexemes: (X) → el, destrier
- C. Function Words: Def. Art. → le
- V. Structural Component
- A. Input — fills preceding verse
1. Verse Spaces
- A — 4 or 5 units unoccupied (6 units unoccupied; #1)
 - B — 6 units unoccupied (4 units unoccupied; #1)

2. Assonance

- a. A-
- b. B+

B. Lexical insertions in A $Z + \begin{Bmatrix} X_1 \\ Z_1 \end{Bmatrix}$

1. Obligatory

- a. $X_1 \rightarrow$ plus isnel(s) #2-6
 $Z \rightarrow$ estre $\rightarrow$ est
 $Z + X_1 \rightarrow$ 'est plus isnel' #6, 4 units
 $Z + X_1 \rightarrow X_1 + Z \rightarrow$ "Plus est isnel(s)" #2-5, 4 units
- b. $Z_1 \rightarrow$ plus tost #1
 $Z \rightarrow$ aler $\rightarrow$ vait
 $Z + Z_1 \rightarrow$ 'vait plus tost' 3 units

2. Optional

- a. $(X) \rightarrow$ el #6
 $(X) + Z + X_1 \rightarrow$ "El est plus isnel" #6 5 units
- b. $(X) \rightarrow$ destrier #1
destrier [+Def.]: le
 $(X) + Z + Z_1 \rightarrow$ "Le destrier vait plus tost" #1 6 units

VI. Paraphrastic Evaluator

A. Level of Actualization

- 1. Metrical Strings
 - a. 4 units in #2-5-A
 - b. 6 units in #1-A
 - c. 5 units in #6-A
- 2. Syntactic Strings
 - a. Exact repetition in #2-5-A Copula + Comp. Adj.
 - b. Exact repetition between #2-5-A and #6-A except for
pronoun *el* in #6-A
 - c. Divergent in #1-A Noun + Verb + Comp. Adv.
- 3. Lexical Strings
 - a. Exact repetition in #2-5-A
 - b. Exact repetition between #2-5-A and #6-A except for
addition of *el* in #6-A
 - c. Lexical string divergent in #1-A

B. Level of Nonactualization

1. Core sememic strings the same
2. Addition of optional sememe (X) in #1-A and #6-A

C. Degree of Paraphrase

Essentially complete paraphrase in #1-6-A

VII. Collocator

<u>A</u>	+	<u>B</u>
"Le destrier vait plus tost"	#1-A	
"Plus est isnel(s)"	#2-5-A	
"El est plus isnel"	#6-A	

Figure 3

Comparant /Bird(s)/-B-Verse

- I. Input: "Le destrier vait plus tost" #1-A
 "Plus est isnel(s)" #2-5-A
 "El est plus isnel" #6-A
- II. Base Component
- A. Kernel Sememic Features
Categories
 /Bird/ → X
 +Noun X
 [-Def.]
 [+Masc]
 [+Sing.]
- B. Secondary Sememic Features
Categories
 /To Be/ → (Z) +Copula (Z)
 [+Pres.]
 /Bird/ → (X₁) +Relative Pronoun (X₁)
 /To Fly/ → (Z₁) +Verb (Z₁)
 [+Pres.]
 [-Trans.]
- III. Collocator: X, (Z), (Z₁), (X₁)/ → Sememic String: X + (Z) + (X₁) + (Z₁)
- IV. Lexicon
- A. Kernel Lexemes: X → oisel, falcuns, esprever, arunde, ostour
 oxel falchon
- B. Optional Lexemes: (Z) → estre
 (X₁) → ki, chi
 (Z₁) → voler
- C. Function Words: Indef. Art. → uns
 Subord. Conj. → que
 Coord. Conj. → ne
 Neg. Adv. → ne
 Indef. Adj. → nul

A. "Le destrier vait plus tost" in #1-A

- B. "Plus est isnel(s)" in #2-5-A

1. Verse Spaces
 - a. A — 4 units occupied #2-5-A; 5 units occupied #6-A
 - b. B — 6 units unoccupied #2-5-B; #6-B

2. Assonance
 - a. A-
 - b. B + 2/ó.e; 3,4/õ; 5,6/ò.e
3. Lexical insertions in B
 - a. Obligatory
Subord. Conj. → que 1 unit
Neg. Part. → ? units?
 - b. Optional Final lexeme/assonance
(1) #2 X/ó.e → arunde 2 units
Skeleton: 'que + Neg. Part. + arunde'

12

- (a) (Z) + X $\rightarrow$ "que nen est une arunde" 6 units

(Z) $\rightarrow$ estre [+Pres.] $\rightarrow$ est

ne/est : ne, Neg. Adv.

ne/vowel $\rightarrow$ nen

arunde [-Def.] : une

-Masc.

- (b) X + X $\rightarrow$ "que falcuns ne arunde" 6 units

X $\rightarrow$ falcuns 2 units

ne/substantives : ne [+Coord. Conj.]

- (c) X + X $\rightarrow$ "que esprever ne arunde" 6 units

X $\rightarrow$ esprever 3 units

ne/substantives : ne [+Coord. Conj.]

- (2) #3, #4 X/ $\tilde{o}$ $\rightarrow$ $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ 2 units

Skeleton: ' $\begin{Bmatrix} \text{que} \\ \text{che} \end{Bmatrix}$ + Neg. Part + $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ '

1

2

- (a) X + X $\rightarrow$ "que esprever ne falcuns" 6 units

- (b) X + X $\rightarrow$ "que arunde ne falcuns" 6 units

- (c) X + (Z) $\rightarrow$ (Z) + X $\rightarrow$ "que nen est uns falcuns" #3

"che *non* est un falchon" #4

- (1) (Z) $\rightarrow$ estre $\rightarrow$ est

- (2) ne/est : ne [+Neg. Adv.]

- (3) ne/vowel $\rightarrow$ $\begin{Bmatrix} \text{nen} \\ \text{non} \end{Bmatrix}$

- (4) $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ $\begin{Bmatrix} \text{-Def.} \\ \text{+Masc.} \end{Bmatrix}$: $\begin{Bmatrix} \text{uns} \\ \text{un} \end{Bmatrix}$

- (3) #5, #6 (Z)₁/ð.e $\rightarrow$ voler $\begin{Bmatrix} \text{+Pres.} \\ \text{+3rd Pers. Sing} \end{Bmatrix}$ $\rightarrow$ volet #5, 1 unit
vole #6

Skeleton: ' $\begin{Bmatrix} \text{que} \\ \text{che} \end{Bmatrix}$ + Neg. Part. + $\begin{Bmatrix} \text{volet} \\ \text{vole} \end{Bmatrix}$ '

- (a) X + (Z) + (X)₁ + (Z)₁ $\rightarrow$ (Z) + X + (X)₁ + (Z)₁

" $\begin{Bmatrix} \text{que} \\ \text{che} \end{Bmatrix}$ n'est $\begin{Bmatrix} \text{falcuns} \\ \text{falchon} \end{Bmatrix}$ $\begin{Bmatrix} \text{ki} \\ \text{chi} \end{Bmatrix}$ $\begin{Bmatrix} \text{volet} \\ \text{vole} \end{Bmatrix}$ " 6 units
ostour 5 units

(falcuns too
restrictive)

- (b) (Z) + X + (X₁) + (Z₁) → "que n'est oisel ki volet" 6 units
 X + (X₁) + (Z₁) → "che oxel chi vole" 5units
- (1) (Z) → est #5-B
 - (2) ne/est: ne [+Neg. Adv.]
 - (3) ne/vowel → n'est #5-B
 - (4) X → oisel
 oxel
 - (5) $\left[\begin{array}{c} \text{volet} \\ \text{vole} \end{array} \right] : (X_1) \rightarrow \left[\begin{array}{c} \text{ki} \\ \text{chi} \end{array} \right]$

VI. Paraphrastic Evaluator

A. Level of Actualization

1. Metrical Strings
 - a. 4 units in #1-B
 - b. 6 units in #2-5
 - c. 5 units in #6
2. Syntactical Strings
 - a. Exact repetition in #3-4-B Conj. + Neg. Part + Copula + Noun
 - b. No other cases of exact repetition
Close repetition in #5-6-B except for deletion of neg. part, and copula in #6-B Conj. + (Neg. Part. + Copula) + Rel. Pron. + Verb
 - c. Conj. + Indef. Adj. + Noun in #1-B
 - d. Conj. + Noun + Neg. Coord. Conj. + Noun in #2-B
3. Lexical Strings
 - a. Exact repetition in #3-4-B
 - b. Close repetition in #5-6-B except for deletion of *n'est* in #6-B
 - c. No other cases of exact repetition

B. Level of Nonactualization

1. Kernel sememic strings the same
2. Addition of optional sememe (Z) in #3-4-B
3. Addition of optional sememes (Z), (X₁), & (Z₁) in #5-B
Addition of optional sememes (X₁) & (Z₁) in #6-B

C. Degree of Paraphrase

1. Complete paraphrase between #3-B & #4-B
2. Nearly complete paraphrase between #5-B & #6-B
3. Incomplete paraphrase among #1-B, #2-B, #3-4-B, & #5-6-B

VII. Collocator

<u>A</u>	+	<u>B</u>	
"Le destrier vait plus tost		que nul ostour"	#1
"Plus est isnels		que esprever ne arunde"	#2
"Plus <i>est</i> isnels		que nen est uns falcuns"	#3
"Plus est isnel		che <i>non</i> est un falchon"	#4
"Plus est isnels		que n'est oisel ki volet"	#5
"El est plus isnel		che oxel chi vole"	#6