Competing Models of Linguistic Analysis: French Adjective Inflection

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0. INTRODUCTION

IN THE COURSE of the last decade several generations of foreign language teachers have been initiated to structural linguistics at NDEA summer institutes. In the majority of cases introduction to structural linguistics included systematic debunking of traditional attitudes about language and refutation of traditional facts about the structure of the particular language.

Recently, there has developed a new school of linguistics, (generative-) transformational grammar, whose adherents violently denounce the inadequacy of the structuralist view of language and of grammar descriptions based on that approach. Indeed, Noam Chomsky, that school's brilliant chief theoretician, has on numerous occasions pointed out transformational grammar's deep roots in traditional grammar and classical linguistic theories (Chomsky 1964). More sweeping and less guarded pronouncements about the inadequacy of structural linguistics and the ties between transformational and traditional grammar made by popularizers and bandwagon-jumpers have very understandingly led many foreign language teachers who have undergone structuralist brain-washing to wonder whether they have not been "sold a bale of goods." The belief, very widespread but (as I shall attempt to show) unwarranted, that transformational grammar represents in a very substantive way a return to traditional attitudes toward language and a total rejection of the contribution of structural linguistics, has no doubt contributed significantly to the reaction we are witnessing against the so-called audiolingual method. In linguistics, as in all other human endeavors, "revolutions may be followed by counter-revolutions but there can be no simple restoration of the past" (Lyons 1968: 481), and careful reading will show that transformational grammar has been characterized by its principal spokesman as a return to some of the concerns of traditional grammarians such as higher-level syntactic processes, universal features of language, the relation between semantic and syntactic structure, etc., but with the use of the explicit formulations and rigorous procedures characteristic of the best structural descriptions.

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The relative lack of interest structuralists showed toward syntax was due to their rejection of any data not directly observable in outward linguistic behavior. Any attempt to interrelate the sentences of a language with each other and to investigate the relations between linguistic form and cognitive structure entails necessarily some assumption about the nature of perception and knowledge and the establishment of some model of the functioning of human thought processes. Since they denied the value of *a priori* logical models for language and appeal to introspection, structuralists had to opt for a type of scientific analysis anchored in external facts and in which only a limited sort of abstraction was permitted. The outward manifestation of language is sound, and it is not surprising that the structuralists' more lasting contributions were in the area of "patterned" sound behavior, phonology.

In the area of phonology the first task of the linguist is the determination of the stock of distinctive sound groupings (PHONEMES) and the constitution of meaningful elements (MORPHEMES) in terms of phonemes. The latter task, which constitutes a sub-area of phonology structural linguists label MORPHOPHONEMICS, requires at first a straightforward classification of the outward manifestation of morphemes. The second step is the interrelation of the phonemic representation of morphemes to discover the underlying "phonetic basis" of the language and the listing of the morphemes in the lexicon in as economical a form as possible.

To associate structural linguistics with myopic collection and classification of facts would be to seriously misinterpret it and to do great injustice to the descriptive work of the leading structuralists. Nonetheless, the tendency to slip toward the "blinkered myopia of empiricism" and to fail to attempt any sort of analysis of observed data does characterize the work of lesser structuralists and those that claim to transmit and "apply" its findings to the uninitiated. There exists a lag between research and the communication of the results of research to prospective consumers so that linguistic descriptions which are being made available to language teachers currently are chiefly of a structuralist variety. Pedagogically-oriented descriptions must not only pay careful attention to the current description of facts, but they must make some attempt to show how these facts are interrelated.

The purpose of this paper is to attempt to show that (i) the best of traditional formulations, *if properly read*, are translatable directly into transformational grammar rules and that (ii) phonic manifestations of language which structuralists, as it were, rediscovered, can be recovered from both traditional and transformational statements. In no way is this attempt to be construed as an apology for or a defense of the inaccurate renditions of

traditional statements that abound in "traditional" or "eclectic" language textbooks. When Chomsky preaches a return to the best of traditional grammar and classical linguistic theory, it is not these caricatures of it that he has in mind. To illustrate the points I wish to make, I have chosen to select an area of French grammar no doubt intimately familiar to most readers of the *French Review* and, in addition, well-plowed by traditional grammarians, structuralists and transformationalists,[1] French adjective inflection.

1. TRADITIONAL FORMULATION

In French, adjectives are words that show variation in form that correlates with that of the head-noun they modify. Since French nouns are inherently marked for gender (i.e. a noun must be masculine or feminine) and may be pluralized, adjectives are inflected for gender and number and can potentially show four variant forms: masculine, masculine + plural, feminine, feminine + plural. The following "rule" is characteristic of the traditional grammar formulation for adjective inflection (Hoffman 1964: 86–8): (i) "*Le féminin de l'adjectif se forme en ajoutant un* e *muet à la forme masculine*"; (ii) "*le pluriel . . . se forme généralement en ajoutant un* s *au singulier (masculin ou féminin).*"

It must be remembered that, unlike structuralist or transformational formulations, traditional rules rely on the intelligence of the reader. Furthermore, the reader is assumed to be a native speaker of the language being described, and he is expected to interpret formally stated rules in terms of a larger set of rules considered so much a part of his behavior as not to deserve explicit statement. As will be shown in the latter part of this article, the traditional rule is perfectly accurate and adequately characterizes the spoken behavior of French speakers *if* it is interpreted as follows: (i) to derive the feminine form of adjectives add the abstract symbol mute *e* to an abstract base form (BASE) equivalent to the masculine written form; (ii) to derive the plural, add the abstract symbol *s* to the respective masculine and feminine form. The following information must be supplied by the "intelligence" of the reader: (iii) the masculine form is composed of the bare base and does not contain any inflectional affixes; (iv) inasmuch as French spelling provides only an indirect representation of phonic form, in order to correctly derive all spoken forms of adjectives, it is necessary to apply a general set of LIAISON and ELISION rules; (v) all adjectives whose spoken (and, in some instances, written) form are not derivable from the adjunction of the inflectional suffixes -*e* (feminine) and -*s* (plural) and the associated set of LIAISON and ELISION rules are irregular and special statements must be

made for them. The traditional analysis of French adjective inflection is summarized in Table 1.

Clearly, where textbooks following the traditional analysis have gone astray is in their failure to properly interpret French spelling, which is, as I have pointed out in this journal (Valdman 1963), a coded notation whose key every literate speaker of French is assumed to hold. The spelling represents the phonological properties of French morphemes in terms of an abstract UNDERLYING REPRESENTATION which subsumes variation in sound that may be predicted from the constituent elements of the underlying representation and the phonological and syntactic environment in which the morpheme occurs. In the determination of the pronunciation of a morpheme in a particular environment, the critical element of the underlying form is the last SEGMENT which may be STABLE (e.g. *poli* or *seul*) or LATENT (e.g. *utile* or *petit*). Many of the inflectional endings of French consist of the latent vowel mute *e* and latent consonants. Traditional grammars are destined to serve as references for mature literate speakers of French and to teach children to write correctly forms they control orally; very seldom do French children need to be taught forms absent from their spoken inventory by means of the spelling. When traditional grammars were adapted for the teaching of written *and* spoken French to foreign learners, sight was lost of the fact that these learners do not possess the key that unlocks the code of French spelling nor automaticity in the application of the set of general liaison and elision rules which relate latent segments to sounds.

The traditional formulation achieves great economy and efficiency in reducing adjective inflection to a very simple and widely applicable general rule and a list of exceptions. From the point of view of a very literal—hence incorrect—interpretation of French spelling, irregularities in adjective inflection fall into six main types: (i) replacement of the final consonant letter, e.g. *vif/vive*, *heureux/heureuse*; (ii) addition of the grave accent to the vowel preceding the final consonant letter of the stem, e.g. *cher/chère*, *complet/complète*; (iii) doubling of the final consonant letter of the stem,

TABLE 1

Traditional Formula for French Adjective Inflection

	Masculine	Feminine
Singular	Base	Base + *e*
Plural	Base + *s*	Base + *e* + *s*

e.g. *gros/grosse, bon/bonne, cruel/cruelle*; (iv) various consonant and vowel changes, e.g. *blanc/blanche, frais/fraîche, favori/favorite*; (v) special masculine pre-vowel forms, e.g. *fou/fol/folle, vieux/vieil/vieille*; (vi) special masculine and feminine derivational suffixes added to the base form, e.g., *créateur/créatrice, moqueur/moqueuse, enchanteur/enchanteresse*. But from the point of view of spoken form, each of these types is heterogenous, except for the last three. For instance, Type (iii) contains adjectives such as *cruel/cruelle* whose masculine and feminine form are identical for all intents and purposes as well as some whose masculine and feminine differ in a variety of ways: (a) absence versus presence of final consonant only, e.g. *muet* /myɛ/ versus *muette* /myɛt/; (b) vowel alternation and absence versus presence of final consonant, e.g. *bon* /bõ/ versus *bonne* /bɔn/.

2. STRUCTURALIST FORMULATION

The founder of American structuralism, Leonard Bloomfield (1933) was particularly taken with the problem of French adjective inflection. With regard to adjectives whose masculine and feminine forms differ in some environments, Bloomfield admitted two possible analyses (1933:217):

We could take the masculine form as a basis and tell what consonant is added in each case in the feminine form, and this would, of course, result in a fairly complicated statement. On the other hand, if we take the feminine form as our basis, we can describe it by the simple statement that the masculine form is derived from the feminine by means of a minus-feature, loss of final consonant.

Most pedagogically-oriented descriptions of French generally available to American teachers of French (Politzer 1960, Valdman 1961) have adapted the solution Bloomfield preferred. Politzer even goes so far as to pattern an orthographic statement on the spoken one: "This difference between presence versus absence of the final consonant is normally presented by the masculine dropping the final *e* of the feminine form (1960: 106.)" A pedagogically-oriented description must at least accurately state the variation in form exhibited by various types of adjectives, and its first step is the classification of adjectives on the basis of their spoken form.

Such a classification will first identify adjectives whose masculine and feminine forms are generally identical, both in post-nominal or predicative position (e.g. *il est rouge, elle est rouge; le chapeau est rouge, la casquette est rouge*). These may be subdivided, provisorily, into two classes depending on whether their last segment is a vowel or a consonant: *carré, joli* versus *unique, propre, seul, pareil* (we shall see later that the last set needs to be further subclassified). Contrasting with the above adjectives, which I

label Class I, are adjectives whose masculine and feminine form always dif-
fer in pronunciation; these I term Class II. The simplest of these adjectives
are those whose masculine form may be derived from the feminine by the
deletion of the final consonant; below some illustrative members of this
class are listed in the feminine form on the basis of their final (pronounced)
consonant:

   (i) Final /z/—grise, malheureuse, anglaise
  (ii) Final /t/—petite, savante, étroite
 (iii) Final /d/—grande, allemande, froide
  (iv) Final /s/—grasse, grosse, fausse, douce
   (v) Final /g/—longue
  (vi) Final /k/—franque
 (vii) Final /j/—gentille
(viii) Final /l/—saoûle
  (ix) Final /ʃ/—blanche, franche, fraîche

In order to use these adjectives correctly the learner needs to store three
pieces of information, as it were: first, that they have different masculine
and feminine forms; second, the simple rule that derives the masculine
from the feminine; and third, the pronunciation of the feminine form.
Note that were one to choose the alternate derivation (starting with the
masculine and adding a consonant), then for each adjective one would
need to commit to memory, in addition to the class membership (Class I
or Class II), the masculine form and the particular consonant that is added
to it. In fact, this is tantamount to requiring that the learner simply
memorize both the masculine and the feminine forms for each adjective.
Since the number of Class II adjectives is very large, this alternative
can easily be rejected on the basis of economy.

In his analysis Bloomfield labelled class I adjectives "regular" and all
others "irregular". If we define regularity as involving the application in
a straightforward way of a rule which applied to a large number of forms,
then it is difficult to understand the motivation of Bloomfield's choice,
particularly in view of his genial insight on the general nature of various
vowel alternations found in other Class II adjectives: ". . . all the other
differences between the two forms, feminine and masculine, as to vowel
quality and nasalization [Bloomfield cites the pair *plein* /plɛ̃/, *pleine*
/plɛn/] reappear in other phases of French morphology and can in large
part be attributed to the *phonetic pattern* (italics mine)" (1933: 217).

Class II adjectives whose feminine and masculine forms differ by the
presence and absence respectively of the final consonant and certain types

of vowel alternations are regular, since these alternations are quite general and may be found, for instance, in verb forms, pronouns, etc., and since, furthermore, they are predictable from phonological composition of words. These adjectives comprise two subtypes: (i) adjectives whose feminine ends in /n/, in which, accompanying the loss of /n/, there is nasalization of the preceding vowel, e.g. *bonne* /bɔn/ versus *bon* /bɔ̃/; *saine* /sɛn/ versus *sain* /sɛ̃/; *divine* /divin/ versus *divin* /divɛ̃/ (the last example shows additional NASAL VOWEL ADJUSTMENT which is required because there is no nasal vowel equivalent for /i/ and there must be adjustment to the nasal vowel which most nearly matches the phonological features of that vowel; (ii) adjectives whose feminine form contains a low-mid vowel in its last syllable and where accompanying loss of the final consonant there is replacement of the low-mid vowel by its high-mid correlate, e.g. *sotte* /sɔt/ versus *sot* /so/; *légère* /leʒɛr/ versus *léger* /leʒe/.

There are, however, some truly "irregular" Class II adjectives. One group, which correspond to Class (v) in Section 1 show, in addition to the loss of the final consonant, a vowel alternation which is not predictable in terms of the general rules that apply to the phonological structure of the particular adjective, e.g. *veille* /vjɛj/ versus *vieux* /vjø/, *belle* /bɛl/ versus *beau* /bo/, *folle* /fɔl/ versus *fou* /fu/. A second group show replacement of the consonant of the feminine form, e.g. *vive* /viv/ versus *vif* /vif/, *sèche* /sɛʃ/ versus *sec* /sɛk/. The last group of adjectives that would need to be termed irregular within the frame of reference of the structuralist approach are those contained in Group (vi) of Section 1 (*menteuse* versus *menteur*, etc.).

The structuralist analysis of French adjectives is satisfactory so far as it goes, but it doesn't go far enough to take into account pre-nominal forms of French adjectives. In that position, the neat distinction between masculine and feminine form breaks down; in addition, there occur specially marked plural forms. The attested forms of *petite* (excluding the form occurring before feminine nouns beginning with aspirate *h*) are displayed in Table 2 to indicate the various problems involved (for the sake of simplicity we assume a style in which the first mute *e* is deleted). It will be noted that, although *petite* shows four different spoken forms, these forms do not pattern as symmetrically with regard to the intersecting categories of number and gender as do the written forms: /ptit/ is singular as well as plural, masculine as well as feminine; /pti/ is masculine but both singular and plural; and thus the only forms unambiguously marked for gender and number are /ptiz/, masculine plural pre-vowel, and /ptitz/, feminine plural pre-vowel.

Structural linguists are obliged to provide for each adjective that may

TABLE 2
Spoken Forms of petite/petit

Post-Nominal Position		Pre-Nominal Position		
		Singular		Plural
		Before V(owel)	Before C(onsonant)	Before V
/pti/	Masc	/ptit/	/pti/	/ptiz/
/ptit/	Fem			/ptitz/

occur in pre-nominal position the variant masculine and feminine forms and the environment in which each occurs. For example, for the paradigm of *petit* the following statement would need to be made: (i) /ptit/ occurs in the feminine singular and in the feminine plural before a vowel as well as in the masculine singular before a vowel; (ii) /pti/ occurs in the masculine singular and plural before a consonant; (iii) /ptiz/ occurs in the masculine plural before a vowel; (iv) /ptitz/ occurs in the feminine plural before a vowel. Some textbooks attempt to simplify by stating that, except for a few irregular adjectives, the feminine form is used in the masculine before words beginning with a vowel. But that statement would lead one to suppose that the "feminine" form provides the base for masculine plural form before words beginning with a vowel, whereas in fact one needs to go back to the masculine pre-consonant form. Assume a learner who wishes to work out a set of formation rules that might help him provide the correct form of a French adjective occurring in pre-nominal position. This set of rules would be something like this: (i) start with feminine form, e.g. /ptit/; (ii) in the singular in all environments the feminine form remains unchanged; (iii) in the masculine singular before a vowel, use the feminine form; (iv) in the masculine singular before a consonant delete the final consonant from the feminine form (/ptit/ → /pti/); (v) in the plural before a consonant, use the respective singular pre-consonant forms (/ptit/ and /pti/); (vi) in the plural before a vowel, add /z/ to the respective singular forms occurring before a consonant or in post-nominal position (/ptit/ + /z/ → /ptitz/ and /pti/ + /z/ → /ptiz/). While it may have some pedagogical usefulness, this set of rules is completely *ad hoc* and fails to explain in any way why in a given environment the adjective should have a particular form. Another thing which the structuralist approach fails to explain, and which it must simply list as irregular, is the replacement of the final consonant of the "feminine" form by another phonologically related consonant in the masculine singular pre-vowel form: /lõg/ by

/lõk/, /grãd/ by /grãt/ and /gros/ by /groz/ as in *une longue histoire* versus *un long instant*; *une grande auberge* versus *un grand hôtel*; *une grosse aubergine* versus *un gros avocat*.

3. TRANSFORMATIONAL FORMULATION

Although it accounts accurately for all the forms of French adjectives—a not insignificant accomplishment—the structuralist approach is inadequate because it fails to *interrelate* in any significant way the various forms of any particular adjective and the various types of form variation which French adjectives as a whole display. Stated differently, the structuralist approach meets the requirements of OBSERVATIONAL ADEQUACY but not those of EXPLANATORY ADEQUACY (Chomsky and Halle, 1968). This failure to meet the highest valued desideratum of linguistic analysis is a result of the structuralists' overemphasis of phonic form, itself a healthy reaction against the excessive rationalism of seventeenth and eighteenth century grammarians. In the case at hand it is also due to their erroneous view of the nature of French spelling; they construed it as a type of phonological transcription whereas it is, as we have seen in Section 1, a higher-level type of notation which is better able to note the extensive language-wide alternations in form (liaison and elision) which constitute one of the most characteristic features of that language. The transformational analysis I offer below rests on this more correct view of French spelling.[2]

In Section 1 it was pointed out that the traditional rule for adjective inflection is essentially correct, *if* correctly interpreted. The correct interpretation entails the following formula for the constitution of French adjectives:

Base Form + Feminine + Plural

where Feminine is the suffix **-E** (Henceforth, underlying representation of French words will be presented in bold face type; capital letters represent latent segments to which liaison and elision rules need to be applied.) and Plural is the suffix-**Z**, and where Masculine and Singular are zero (see Table 1). Thus the base of a French adjective is neither masculine nor feminine, although its representation in the spelling is equivalent to the representation of the masculine singular inasmuch as the latter consists of the base + zero. French adjective bases fall into two main classes depending on whether they end with **E-** (mute e) or a "stable" vowel or consonant, on the one hand, or a latent (liaison) consonant on the other:

Adjective Class	Example
Class I	
a—final **E-**	utile, jeune, propre, stable

      b—final stable vowel   carré, joli, hindou, battu
      c—final stable consonant   seul, pareil, turc
   Class II
      final latent consonant   petit, gros, gris, grand, plein

The general rule applies to all French adjectives, i.e., all French adjectives are inflected for gender and for number. The number of forms a particular adjective shows is a function of the PHONOLOGICAL CONSTITUTION of its base, and more specifically, of whether its base ends with a vowel or stable consonant or a latent consonant. With regard to adjectives that end in the latter way (Class II), the number of forms and the phonological relationships between the forms depends on the particular latent consonant.

By definition, as it were, regular adjectives are those to which the inflection rule and general elision and liaison rules apply. Since the number of spoken forms and the relationship among them depend on the nature of the final segment of the base, regular adjectives will vary greatly with regard to the number of phonically manifest forms and there will be several types of variation patterns. Classified as irregular are only those adjectives whose various forms are (i) not derived by the inflection formula or (ii) whose variant forms are determined by the application of special rules which either replace or follow the general elision and liaison rules. For instance, *sec* sɛk(/sɛk/ versus /seʃ/) is irregular, for the replacement of /k/ by /ʃ/ is IDIOSYNCRATIC: it cannot be accounted for in terms of phonological rules which affect other French words that end in the same way, e.g. *turc* tyrk /tyrk/ or *grec* grɛk /grɛk/.

Consider first adjectives that illustrate each of the three subclasses of Class I: *jeune*, *joli* and *seul*. The underlying form of their base—derived by simply transliterating French spelling— is ʒœnE, ʒɔli and sœl respectively. The application of the general inflection rule yields the following possibilities (dots indicate morpheme boundaries):

Masc. Sg.		Fem. Sg.		Masc. Pl.		Fem. Pl.	
jeune	ʒœnE	jeune	ʒœnE·E	jeunes	ʒœnE·Z	jeunes	ʒœnE·E·Z
joli	ʒɔli	jolie	ʒɔli·E	jolis	ʒɔli·Z	jolies	ʒɔli·E·Z
seul	sœl	seule	sœl·E	seuls	sœl·Z	seules	sœl·E·Z

To the underlying representation of each of the four inflectional possibilities of any given adjective, ELISION and LIAISON need to be applied. These rules are applied to each latent segment—mute *e* or liaison consonant—starting with the innermost one and proceeding outward. ELISION specifies that E's are deleted when they follow a vowel or a consonant within the same word.[3] For example, applied to the various underlying representations of *jeune*, the rule yields:

(1) ʒœnE → /ʒœn/; ʒœnE·E → ʒœn·E;
    ʒœnE·Z → ʒœn·Z; ʒœnE·E·Z → ʒœn·E·Z

A second application is necessary for the feminine form:

(2) ʒœn·E → /ʒœn/; ʒœn·E·Z → ʒœn·Z

At this stage the liaison rule is applied to the plural forms. It specifies that -Z is deleted before a consonant (latent or stable) within a word or phrase and before a phrase boundary (#); elsewhere it appears as the corresponding consonant /z/. Assuming that the elision rule has been applied as in (1) and (2) above, masculine and feminine *jeunes* have underlying representations ʒœn·Z. The following spoken forms are generated:

(3) *les jeunes* ʒœn·Z → /ʒœn/
(4) *les jeunes garçons, les jeunes filles* ʒœn·Z → /ʒœn/
(5) *les jeunes éléphants, les jeunes autruches* ʒœn·Z → /ʒœnz/

At most, Class I adjectives, because of the fact that the last segment of their base is a vowel (including **E**) or a stable consonant, have two spoken forms. It is interesting to note that in pre-nominal position the distribution of the two spoken forms with respect to masculine and feminine nouns beginning with vowel and consonants is quite skewed; see Table 3.

TABLE 3

Distribution of Underlying Representation and Spoken Forms of Class I Adjectives

Spelling			Pronunciation		
Sg	Pl		Sg		Pl
			−V	−C	−V
joli ʒɔli	*jolis* ʒɔli·Z	Masc	/ʒɔli/		/ʒɔliz/
jolie ʒɔli·E	*jolies* ʒɔli·E·Z	Fem			

The derivation of the spoken forms of Class II adjectives is more complex, for LIAISON must be applied to the latent consonant of the base as well as to the inflectional endings -**E** and -**Z**. The application of LIAISON to the underlying form of adjectives whose base ends in a latent consonant is illustrated with the adjective *petit*.

In the masculine singular, LIAISON is applied directly to the base, and the latent consonant is transformed to zero or a stable consonant:

(6) *petit* **pEtiT** + Consonant (C) or # → /pti/
        pEtiT + Vowel (V) → /ptit/

In the feminine singular, the -**E** of the feminine ending "protects" the latent consonant from deletion in all environments:

(7) *petite* **pEtiT·E** → **pEtit·E** → /ptit/

In the masculine plural, the underlying representation ends with two latent consonants:

(8) *petits* **pEtiT·Z**

LIAISON must be applied twice, starting inside the word and proceeding outward. On the first application of the rule, the latent consonant of the base is deleted since it is followed by -**Z**:

(9) **pEti·Z** + C or # → /pti/; **pEti·Z** + V → /ptiz/

The underlying representation (6) yields /pti/ or /ptit/ depending on whether it precedes a word beginning with a consonant (or a syntactic boundary) or a vowel, e.g. *un petit poisson* or *un petit* versus *un petit oiseau*. The makeup of underlying form (8) explains why in the masculine plural pre-vowel form the /t/ is not pronounced: whereas in the corresponding singular form the latent **T** is protected from deletion by the following vowel, in the plural it is followed immediately by -**Z** and is deleted. The underlying representation of the feminine plural form is

(10) *petites* **pEtiT·E·Z**

which becomes

(11) **pEtiT·E·Z** → **pEtiT·Z** → **pEtit·Z**

upon the application of ELISION and the first application of LIAISON. A second application of LIAISON yields /ptit/ or /ptitz/ depending on whether the following environment is a consonant or # or a vowel, e.g. *les petites filles* and *elles sont petites* versus *les petites orphelines*. The relationship between the pronunciation and underlying representation (spelling) of the simplest type of Class II adjectives is summarized in Table 4.

    The derivation procedure outlined above is applicable to Class II adjectives whose base ends in one of the following latent consonants (Class labels correspond to those of Section 2, pp. 9–10): (i) -**Z**, e.g. *gris, mauvais, français*; (ii) -**T**, e.g. *petit, parfait, complet*; (vi) -**K**, e.g. *franque/franc*; (vii) -**J**, e.g. *gentille*; (viii) -**L**, e.g. *saoûl*. Additional rules need to be applied to adjectives of that class that end with other latent consonants. These

TABLE 4

Distribution of Underlying Representation and Spoken Forms of Class II Adjectives

Spelling			Pronunciation		
Sg	Pl		Sg		Pl
			V	C	V
petit pEtiT	*petits* pEtiT·Z	Masc	/ptit/	/pti/	/ptiz/
petite pEtiT·E	*petites* pEtiT·E·Z	Fem			/ptitz/

are VOICING SHIFT which applies to adjectives whose base ends in -S, -D and -G; NASALIZATION and NASAL VOWEL ADJUSTMENT applicable to adjectives whose base ends in -N; MID VOWEL ADJUSTMENT applicable to adjectives whose base ends in any latent consonant preceded by a low-mid vowel (ε œ ɔ).

Adjectives to which NASALIZATION, NASAL VOWEL ADJUSTMENT and MID VOWEL ADJUSTMENT apply differ only from simple Class II adjectives in that the masculine pre-consonant forms and the masculine plural pre-vowel form will have a vowel that differs from that of the feminine forms and the masculine singular pre-vowel form. The last underlying vowel of a base that ends in -N undergoes nasalization when -N is deleted. Since French has at least eleven oral vowels but only four nasal vowels, there will not always be one-to-one correspondence between a vowel nasalized by NASALIZATION and one of the four nasal vowels. For nasalized oral vowels that have no direct nasal vowel counterpart, some "adjustment" needs to be made. NASAL VOWEL ADJUSTMENT applies only to adjectives whose base ends in -iN or -yN. Application of NASALIZATION and concomitant NASAL VOWEL ADJUSTMENT results in the following correspondences:

Underlying Representation of Base		Fem. Form	Masc. Pre-V Form	Masc. Pre-C Form
bon	bɔN	/bɔn/	/bɔn/	/bõ/
paysan	peizaN	/peizan/	—	/peizã/
vain	vɛN	/vɛn/	/vɛn/	/vɛ̃/
fin	fiN (fĩN)	/fin/	/fin/	/fɛ̃/
brun	bryN (brỹN)	/bryn/	—	/brœ̃/

MID VOWEL ADJUSTMENT is related to the fact that in French the low-mid

vowels /œ/ and /ɔ/ do not occur in free syllables and that in that position
/ɛ/ is replaced by /e/ by many speakers. When they occur as the last
vowel of a morpheme before a latent consonant, these vowels will find them-
selves in a word-final free syllable in environments where the latent con-
sonant is deleted, and it is necessary to replace them by corresponding
high-mid vowels:

	Base	Feminine	Masc. Pre-V	Masc. Pre-C and Pre-⚹
sot	sɔT	/sɔt/	—	/so/
dernier	dɛrnjɛR	/dɛrnjɛr/	/dɛrnjɛr/	/dɛrnje/

Note that MID VOWEL ADJUSTMENT accounts for the behavior of some
nouns with special plural forms such as *oeuf* and *os*. At the underlying
level, these nouns (as well as nouns characterized by the alternation
-al/-aux) differ from "regular" nouns in that their singular and plural
contain stable versus latent corresponding consonants respectively:
oeuf œf versus œF·Z; *os* ɔs versus ɔS·Z.

VOICING SHIFT accounts for the presence in the masculine singular pre-
vowel form of a consonant which differs from that of the feminine forms
with regard to voicing. The latent consonants affected by VOICING SHIFT
have three instead of two pronunciations:

	Base	Feminine	Masc. Pre-V	Masc. Pre-C and Pre-⚹
grand	grãD	grãd	grãt	grã
long	lõG	lõg	lõk	lõ
gros	groS	gros	groz	gro

Grand and *long* are the only adjectives with base endings in -D and -G
but the number of adjectives whose base ends in -S is quite large, e.g.
doux, bas, gras, faux, etc.; in fact, one might wish to interpret the plural
ending *-s* as -S since its realization as /z/ within phrases is accounted for
by VOICING SHIFT. The relationship between the underlying representation
and the pronunciation of adjectives subject to Voicing Shift is summarized
in Table 5.

Within the transformation formulation the number of irregular adjectives
is greatly reduced. Furthermore, it can be shown that except for adjectives
such as *menteur/menteuse* that are composed of a base and special masculine
and feminine suffixes, irregularity involves idiosyncratic modifications of
vowels and consonants of the base. One group of irregular Class II adjec-
tives show a non-predictable vowel that appears in the masculine in en-
vironments where the latent consonant of the base is deleted:

	Base	Feminine	Masc. Pre-V	Masc. Pre-C and Pre-⚹
bel	b**ɛL**	/bɛl/	/bɛl/	/bo/
fɔl	f**ɔL**	/fɔl/	/fɔl/	/fu/
vieil	v**jɛJ**	/vjej/	/vjej/	/vjø/

Like *bel* are *nouvel* and *jumelle*; like *fol* is *mol*. The other group of irregular adjectives show a replacive consonant in all masculine forms: *blanch-/blanc* (i.e. **blãŠ** → **blãK** → /blã/, /blãʃ/), *franch-/franc*; *fraîch-/frais* (**frɛZ**). That the latent consonant is **S** rather than **K** or **Z** is demonstrated by derivatives such as *blancheur*, *franchise* and *fraîcheur*. *Blanc* and *franc* do not normally occur in pre-nominal position and the correctness of the assumption that their base ends in **K** cannot be proven; however, the **Z** of

TABLE 5

Distribution of Class II Adjectives Showing VOICING SHIFT

Spelling			Pronunciation		
Sg	Pl		Sg		Pl
			−V	−C	−V
gros **groS**	*gros* **groS·Z**	Masc	/groz/	/gro/	/groz/
grosse **groS·E**	*grosses* **groS·E·Z**	Fem	/gros/		/grosz/

frais occurs, for example, in the locution *frais et pimpant* /frɛzepẽpã/. Other irregular adjectives belong to Class I and are characterized by a replacive stable consonant. They include the single adjective *sèche/sec* (/sɛʃ/ versus /sɛk/) and a large list of adjectives in which the base-final consonant **v** is replaced by **f** in the masculine, e.g. *vive/vif*, *active/actif*, etc. *Favorite/favori* may be classified as a member of Class I or Class II depending on whether its irregularity is considered to consist of the loss of a base-final stable **t** or latent **T** respectively in the masculine.

4. PEDAGOGICAL IMPLICATIONS

It is extremely hazardous to claim that one type of linguistic description is more readily applicable to pedagogical endeavors than any other. One test that all descriptive analyses must pass, however, is that linguistic facts—and in particular, facts about the spoken language—be easily recoverable. Both the structuralist and the transformational formulation, but not the traditional formulation as interpreted by so-called traditional

or eclectic-traditional textbooks and grammars, pass this test. But in learning a language of "culture" like French, the student is expected to do much more than only understand and speak: he must, among other things, learn to transform letters into sounds. In addition, in learning French within the formal setting of the school or college classroom, the learner probably acquires most of his vocabulary—active as well as passive—by means of written text. Therefore, for a linguistic analysis to be fully applicable to the teaching of French, it must deal with the relationship between letters and sounds, and make it possible for the learner to derive spoken forms from the orthography. Neither traditional (as interpreted above) nor structuralist analyses meet this requirement, and as a result they fail to reveal the set of language-wide rules which interrelate forms with varying pronunciation but belonging to the same morpheme.

The structuralist and the transformational analyses are not antithetical but complementary. The latter cannot be carried out unless sufficient data have been gathered by the use of discovery procedures devised by the former; but unless the search for wide generalities and patterning and the interrelation of superficially diverse forms which constitute the basis of the transformational approach are attempted, linguistic analysis cannot be said to have been completed. In the case of French the existence of a means of representing the significant phonological features of words devised over a long period of time enables the analyst to take many shortcuts. But that one can extrapolate facts about the spoken language from the spelling does not mean that the latter is primary and speech secondary; it is due simply to the fact that, without their being aware of it, generations of French "scriptors" have evolved a way of writing their language which enables the perceptive investigator to discover its fundamental phonological processes.

While the simplicity of the relatively small number of rules that account for the patterns of form variation of French adjectives cannot be revealed unless one treats together pre- and post-nominal adjectives, there is no reason why the teacher or the materials developer could not choose to present them separately and with the aid of different descriptive models. Nor should the order of presentation of adjectives in a particular French course necessarily reflect their characterization in terms of linguistic rules. For example, it has been shown that such adjectives whose base ends in -*n* as *fin/fine* are, in a transformational formulation, described in terms of the application of (i) the general adjective inflection rule, (ii) LIAISON, (iii) NASALIZATION, and (iv) NASAL VOWEL ADJUSTMENT. On the other hand, such an adjective as *seul/seule* is described in terms of the application of the general adjective inflectional rule only. But it would be misguided

indeed to claim that in a French course *seul* be presented before *fin*. All
that the applied linguist can reasonably claim is that, among other peda-
gogically relevant factors such as frequency, interest level, etc., the phono-
logical relationships among adjectives may serve as input to decisions
about their selection and ordering in pedagogical materials. Also, in view
of the fact that the acquisition of a foreign language is one of the major
components of a liberal education, one might advance the opinion that
discussion of the structure of the foreign language has intrinsic value
and that it has its proper place in the foreign language classroom even if
it cannot be demonstrated that it leads to more rapid or more efficient
acquisition of proficiency in the use of the language.

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NOTES

[1] See especially, for traditional analyses, Byrne and Churchill (1950), Fraser,
Squair and Parker (1942) and Grevisse (1955); for structural analyses, Bloomfield
(1933), Hall (1948), Politzer (1960) and Valdman (1961); for transformational analyses
see De Felice (1950), Sholes (1959) and, particularly, Schane (1968).

[2] In fact there are two transformational approaches to French adjective inflec-
tion. The approach presented in this article is based on the older of these developed
especially in Sholes (1959), and independently and in a suggestive way only in Vald-
man (1961, 1963); the other approach is exemplified in Schane (1968). Both approaches
account for spoken forms of French adjectives in terms of a single abstract under-
lying representation to which are applied a set of language-wide phonological rules
which operate on the last segment of adjective bases and on inflectional endings. In
the approach chosen here, the *latent segment* approach, underlying representations
are composed of two types of segments, stable versus latent. These differ in that stable
segments correspond one-to-one to phonemes and that latent segments correspond
to one or more phonemes and zero. For example, the underlying representation of
faux is foS. The two stable segments f and o correspond to /f/ and /o/ respectively,
but by application of LIAISON S is deleted before a consonant within the same word
or phrase or # and appears as /s/ before a vowel within the same word
(*fausse, faussaire*) or /z/ before a vowel within the same phrase (*un faux ami*). Schane's
underlying representations consist of segments which always correspond one-to-one
to phonemes, and no distinction is made between stable and latent underlying con-
sonants. All final consonants of a base are deleted before a consonant within the same
word or phrase and before #, so that *faux* is represented as fos. By not establishing
two types of underlying consonants, Schane is forced to indicate for each French
word ending with an underlying consonant whether it is or is not subject to deletion
by LIAISON; for example *seul, oeuf, sept, bac*, etc. are not subject to LIAISON but *saoûl,
petit, blanc*, etc. are. In addition, he must divide LIAISON into two rules to account
for the fact that the final underlying consonant is not deleted in *oeuf* but it is in
oeufs. A discussion of relative merits of the two transformational approaches is
beyond the scope of this article. The conclusions reached here would in no way
de affected by the choice of one or the other of the two approaches. In the final analy-
sis, both require that a distinction be made between two types of consonant seg-

ments that occur at the end of French words: in the latent consonant approach, the distinction is considered to reside in the consonant itself; for Schane, the distinction is considered to reside in the class affiliation of the word.

³ In fact ELISION subsumes an extensive and complex series of rules which need to take into consideration the following segments as well. These are beyond the scope of this article. For various discussions of ELISION, cf. in particular Delattre (1951).

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