28. Current Issues in French Phonology: Liaison and Position Theories

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0 Introduction

Since the inception of generative phonology some thirty years ago, the treatment of liaison has been a dominant issue in French phonological studies and a standard testing ground for theoretical proposals. The topic was initially placed on the generative agenda in the late 1960s in one of the first extensive accounts of a single language's phonology within the framework of the new theory (Schane 1968, chap. 1). In *SPE*, French liaison was singled out to motivate, in conjuction with vowel elision, the introduction of the feature [syllabic] and the use of the alpha notation (Chomsky and Halle 1968, pp. 353–355). In the 1970s, French liaison became linked to central theoretical concerns such as (local) rule ordering (e.g., Dell 1973), natural rules and exception theory (e.g., Schane 1973), the abstractness issue (e.g., Selkirk and Vergnaud 1973; Klausenburger 1974, 1978; Tranel 1974, 1981a, 1981b), and the syntax/phonology interface (e.g., Selkirk 1972, 1974; Rotenberg 1978; with subsequent work in the 1980s, e.g., Morin and Kaye 1982; Kaisse 1985; Selkirk 1986; De Jong 1988, 1990b). Throughout the 1980s and continuing into the 1990s, French liaison has found a relevant niche in discussions surrounding the development of nonlinear phonology, particularly with respect to the mediating structures assumed between phonemic melodies and syllable nodes (position theories). The focus of this chapter is on this most recent interaction between phonological theory and French liaison.

1 Background

As illustrated by the examples in (1), French words may end in two types of consonants: (a) consonants that are always pronounced *(fixed consonants)*, and (b) consonants that are pronounced only under certain circumstances, such as liaison contexts (*latent consonants*). (In the examples in (1), a word-final consonant is underlined if pronounced and crossed out if silent.)

(1) Types of final consonants in French

(a) Fixed consonants	(b) Latent consonants	Contexts	Gloss
net avantage	petit avantage	prevocalic	"clear/small advantage"
net défaut	petif défaut	preconsonantal	"clear/small defect"
net	petif	prepausal	"clear/small"

The pronunciation of *petit's* final consonant in *petit avantage*, as opposed to its absence in *petit défaut* and *petit*, illustrates the phenomenon of liaison.

In the earliest generative studies on French liaison (e.g., Dell 1970; Schane 1968; Selkirk 1972), the pronunciation of latent consonants was somewhat awkwardly viewed as a phonological nonevent, namely the consequence of the prevocalic *non*-application of an otherwise general process of final consonant deletion (Final Consonant Deletion). Fixed consonants received immunity from the effects of Final Consonant Deletion through a complex parasitic apparatus involving final protective schwas, rule ordering, and exception features.[1] Couched as they were in a linear framework, these deletion analyses of C–Ø alternations were inherently unable to encode in the representations of the two types of final consonants any *intrinsic* formal property that could explain their different behaviors with respect to Final Consonant Deletion.[2] Within the same linear framework, subsequent accounts sought to remedy this fundamental inadequacy by attributing a distinct morphological status to fixed consonants and latent consonants. For instance, while fixed consonants continued to be regarded as part of the regular phonological representations of morphemes in the lexicon, just like any other consonant, it was proposed that in the case of liaison, latent consonants ought to be viewed as connective elements *inserted* between words under certain conditions (Tranel 1981a, 1981b; see also Klausenburger 1978 and Morin and Kaye 1982 for related proposals).

An important contribution of nonlinear phonology has been to offer an approach transcending the deletion/insertion debate. The leading idea for distinguishing between fixed consonants and latent consonants in nonlinear phonology is that with respect to some higher level of prosodic structure, latent consonants are floating, whereas fixed consonants are anchored. Because fixed consonants are anchored, they are prosodically licensed, and thus phonetically realized. By contrast, as floating elements, latent consonants are not prosodically licensed, and thus not phonetically realized (the deletion effect), unless they become anchored in some fashion under certain conditions (the insertion effect). Thus, while maintaining the view of the deletion treatment that both fixed consonants and latent consonants are final consonants in the phonological representations of words, the new approach also borrows from the insertion analysis by considering liaison as a process *integrating* a consonant into a pronounced phonological string. The floating characterization of liaison consonants in nonlinear phonology has been regarded as an apt formal translation of their traditional description as latent consonants (Clements and Keyser 1983, p. 101) and as an appropriate mark of lexical structural instability leading to phonetic variability (Encrevé 1988, pp. 239–241). This case has also been cited as a paradigm example where a theoretical advance allows the resolution of a controversy within a superseded model (Clements 1983; Encrevé 1988, p. 127).

In the course of the last ten years or so, this general outlook on fixed consonants and latent consonants has received an impressive array of competing implementations, raising in the process stimulating new questions as well as reviving old issues. This chapter seeks to sort out the various proposals in terms of their theoretical and descriptive claims, focussing first on the deletion effect (section 2) and then on the insertion effect (section 3). Section 4 reviews the case of the famous *h*-aspiré words, whose failure to allow liaison despite being vowel-initial has also led to a variety of formal proposals within nonlinear phonology.

2 The Deletion Effect

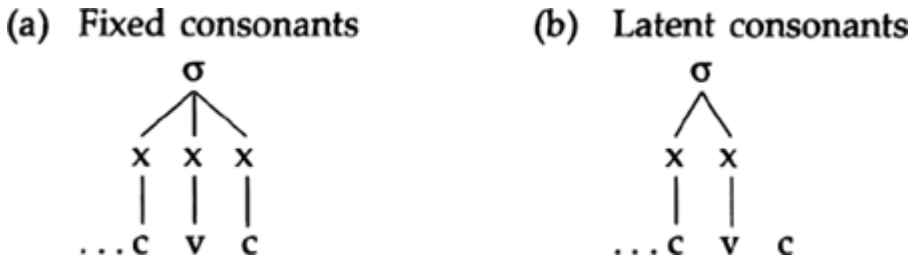
The deletion effect on latent consonants is generally attributed to a lack of prosodic licensing. The basic assumption is that latent consonants, unlike fixed consonants, can be unrealized phonetically because they are floating with respect to the syllable. The issue is to identify what distinguishes latent consonants from fixed consonants to make them floating with respect to the syllable. Two conceptions of latent consonants's status have been proposed, which I will refer to as “skeletal floation” and “syllabic flotation,” indicating the level of prosodic structure with respect to which latent consonants are fundamentally floating. In sections 2.1–2, I outline the basic characteristics of these two approaches within the skeletal framework of nonlinear phonology in which they were originally elaborated, and in section 2.3, I examine how they fare within the more recent moraic framework.

2.1 Skeletal Flotation

Under the skeletal flotation approach, fixed consonants are anchored to skeletal slots, whereas latent

consonants have no skeletal slot. The diagram in (2) depicts this view, together with the relevant predictable syllabification (σ represents whatever syllable structure is assumed above the skeleton, c and v refer to consonants and vowels).

(2)



In this system of representation, latent consonants are primarily floating with respect to the skeleton. They are also floating with respect to the syllable, but derivatively. That is, as a consequence of having no skeletal slot, latent consonants cannot be syllabified, since syllable structure is built on skeletal slots. By contrast, fixed consonants, being anchored to the skeleton, are syllabified and occupy the coda position. Under this approach, then, latent consonants are not inherent exceptions to syllabification; the reason they do not undergo coda formation is that they are skeletally slotless.

This type of structural distinction between fixed consonants and latent consonants has been independently proposed or adopted by numerous authors within otherwise distinguishable theoretical frameworks or analyses of French phonology, in particular Hyman (1985) in the context of a skeletal tier composed of moras; Durand(1986) in the context of dependency phonology; Charette (1988) and Kaye (1988) in the context of government phonology; and De Jong (1990a), Paradis and El Fenne (1992), Prunet (1986), Tranel (1990), Vergnaud (1982), and Wetzels (1987) within the context of a discussion of the skeletal tier.[3]

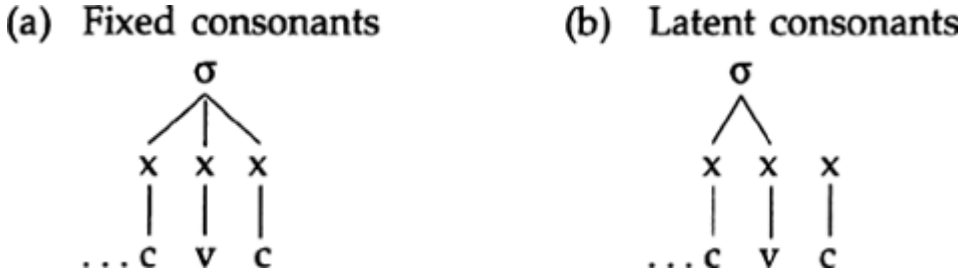
In general, the literature has at least implied that the structural distinction between fixed consonants and latent consonants depicted in (2) is truly basic. That is, it is typically assumed that */exically*, fixed consonants are anchored to a skeletal slot, whereas latent consonants are skeletally slotless. But the case might be made that aside from latent consonants, skeletal slots are predictable in French, thus that melodies in this language can be assumed to project their own skeletal slot, except for latent consonants.[4] If latent consonants are viewed as melodies lexically marked as unable to project their own skeletal slot, then the ultimate difference between fixed consonants and latent consonants is diacritic rather than structural, but the diacritic marking has immediate structural consequences.

To summarize, whether a diacritic or a structural version of skeletal flotation is adopted, the essential claim of this approach is that the special behavior of latent consonants with respect to syllabification is not primary, but derives from their lack of inherent timing.

2.2 Syllabic Flotation

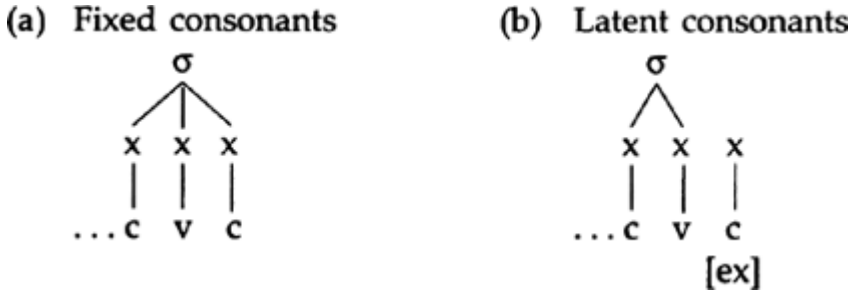
In a different conception of the distinction between fixed consonants and latent consonants, syllable nodes, rather than skeletal slots, are viewed as the primary elements with respect to which latent consonants are floating. By contrast with skeletal flotation, syllabic flotation thus holds that the skeleton is irrelevant to the lexical distinction between latent and fixed consonants. Indeed, proponents of this view have both types of consonants anchored to the skeleton, and as shown by the desired outcome in (3), they assume that while fixed consonants straightforwardly syllabify into coda position, latent consonants fail to do so directly.

(3)



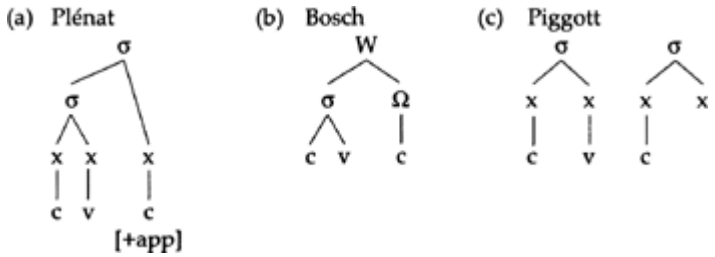
The extrasyllabicity of latent consonants displayed in (3b) has been achieved in two basic ways. The first consists in directly marking latent consonants as exceptions to syllabification (e.g., Clements and Keyser 1983; Booij 1983; De Jong 1988). See (4), where I have replaced Clements and Keyser's CV slots with x's, and where [ex] stands for their [extrasyllabic] marking.

(4)



The other type of approach also invokes extrasyllabicity to characterize latent consonants, but attempts to derive the effect from special syllable-templatic restrictions on word-final rhymes, instead of imposing it lexically (e.g., Bosch 1991; Levin 1987; Piggott 1991; Plénat 1987). The basic claim here is that coda consonants are not allowed word-finally;[5] latent consonants therefore remain floating with respect to the syllable, as desired (see 3b above). The challenge for this approach shifts to the representation of fixed consonants, which must be prosodically licensed, despite the ban on word-final coda consonants. Various brute force solutions have been proposed to ensure the prosodic safety of fixed consonants. Plénat (1987) provides fixed consonants with a lexical marking (labeled [+app] in 5a below) allowing them to occupy a special appendix Chomsky-adjoined to the syllable. In a related proposal, Bosch 1991 assumes that words in French are marked for whether or not they license final consonants; latent consonants are found in words that do not and fixed consonants in words that do (see 5b, where Ω denotes the special word-final appendix licensing fixed consonants). In fashion reminiscent of linear phonology's protective schwas, Piggott (1991) posits that fixed consonants are onsets of empty-headed syllables (see 5c).[6]

(5)



Regardless of the specific implementation, the central characteristic of the syllabic flotation approach is its *direct* identification of the distinction between fixed consonants and latent consonants to different syllabification properties. By contrast, as we saw in section 2.1, the skeletal flotation approach views the different syllabification properties of fixed consonants and latent consonants as a *consequence* of a more fundamental difference, namely the presence versus the absence of inherent timing.

2.3 Moraic Theory and the Representation of Latent Consonants

The proposals considered so far for the representation of latent consonants were basically couched within a vocabulary using segmental skeletal positions, rather than moraic positions (see chapter 5). But with its own various implementations, the use of a mora-based skeletal tier allows the reenactment of the skeletal and syllabic flotation approaches to latent consonants described above.

For our purposes, extant moraic models can be divided into two main categories: those that are analogous to skeletal theories and those that are not. Thus, Hyman's moraic model (1985) is not really different from a skeletal model when it comes to being able to provide a lexical structural distinction between fixed consonants and latent consonants: segments in Hyman's theory are normally expected to carry an inherent weight unit, but they may also be characterized as weightless (Hyman 1985, chap. 5). However, in other moraic models (e.g., Hayes 1989; McCarthy and Prince 1986, 1988; Zec 1988), consonants carry no inherent weight (unless they are syllabic or geminate), and the concept of skeletal flotation is therefore intrinsically ruled out, leaving only the possibility of syllabic flotation to distinguish between fixed consonants and latent consonants. In sum, the skeletal and syllabic flotation approaches discussed earlier are also relevant for the representation of fixed consonants and latent consonants in a framework using moras instead of segmental skeletal positions, although for a group of moraic models, syllabic flotation is the only available approach.

In the remainder of this section, I explore briefly the possibility of using ingredients specific to Hayes's moraic model (1989) to build a syllabic flotation treatment of latent consonants. For languages where closed syllables count as heavy, Hayes proposed that consonants acquire a mora when they syllabify into coda position (cf. his rule of *Weight by Position* [WBP]). If French coda consonants are moraic, i.e., if French has Weight by Position, then latent consonants can be viewed as exceptions to Weight by Position ([-WBP]).[7] Assuming that in languages with Weight by position, a coda position occupied by a consonant without a mora is ill-formed, latent consonants will remain floating with respect to the syllable. This approach resembles Clements and Keyser's syllabic flotation analysis in directly preventing the syllabification of latent consonants, but it is also close to skeletal flotation in making latent consonants exceptional to moraification.

An interesting characteristic of the [-WBP] approach is that the potential for a consonant to be latent is linked to its ability to be moraic. Nonmoraic consonants could not be latent, since they are able to syllabify into well-formed nonmoraic codas. However, this interesting characteristic may be a liability rather than an asset. As Zec (1988) has shown, if a language makes a distinction between moraic and nonmoraic consonants, the moraic consonants will be more sonorous than the nonmoraic ones; for example, moraic consonants will be sonorant while nonmoraic consonants will be obstruents (as in Kwakwala). But studies by Schane (1973) and Plénat (1987) indicate that the prevailing tendency in French regarding the potential for latency in consonants is the exact reverse of Zec's universal for potential moraicity. Thus, in contrast to obstruents (the least likely consonants to be moraic), liquids (the most likely consonants to be moraic) tend to be fixed.

2.4 The Deletion Effect: Summary

Nonlinear phonology derives the deletion effect on latent consonants from lack of prosodic licensing. Lack of prosodic licensing can be obtained through skeletal flotation or syllabic flotation. Skeletal flotation provides a structural explanation for the phenomenon: latent consonants lack inherent timing, hence fail to be syllabified. Syllabic flotation encodes the extrasyllabicity of latent consonants directly, either through stipulated extrasyllabicity, or by prohibiting coda consonants word-finally and placing the burden of representation on fixed consonants.[8]

3 The Insertion Effect

This section examines the explanations that have been proposed for the integration of floating latent consonants into prosodic structure, particulary in liaison. Beside the question of latent consonant's representation, other issues intertwined here include the representation of vowel-initial words and the types of phonological principles assumed to regulate the syllabic meshing of consonant-final words with vowel-initial words. I consider the issues first within the skeletal flotation paradigm (section 3.1) and then within the syllabic flotation paradigm (section 3.2).

3.1 The Insertion Effect under Skeletal Flotation

Within a framework employing segmental skeletal position, the syllabification of any melody demands the existence of an intermediate skeletal slot. Under skeletal flotation of latent consonants, the question is, Where does the required skeletal slot come from that will allow the insertion effect observed in liaison? Three different sources have been proposed: (1) insertion by universal convention, (2) the following vowel-initial word, and (3) insertion by language-specific rule.

The first proposal (e.g., Kaye 1988; Paradis and El Fenne 1992; Vergnaud 1982) assumes that the floating consonant anchors into the following available onset by virtue of general autosegmental principles of association, and that by universal convention, a skeletal slot is automatically inserted between the consonantal melody and the onset node. This approach to the prosodic licensing of latent consonants threatens the theoretical integrity of the segmental skeletal tier, since a skeletally slotless melody is linked directly to an onset node (the required mediating skeletal slot is added after the fact in purely cosmetic fashion). If allowed to stand, this move could be taken as an argument for Moraic Theory, which does not attribute weight to onset consonants.

The second proposal supplies the needed skeletal slot from an existing source in the phonological string, namely the following vowel-initial word. De Jong (1990a) and Prunet (1986) assume that vowel-initial words begin with an empty skeletal slot in onset position.[9] In liaison, the floating consonant will now automatically associate to this empty skeletal slot and thus be ensured of phonetic realization through prosodic licensing. Although convenient in the case of liaison, this initial empty skeletal slot gets in the way in other situations: when (already slotted) fixed consonants resyllabify into onset position in enchaînement, an extra skeletal slot must somehow be eliminated (Paradis and El Fenne 1992).[10]

These two proposals share the perspective that the phonetic realization of latent consonants in liaison directly results from the application of *universal* principles of association. They also share the view that liaison *is* syllabification, more specifically syllabification into onset position. There may be problems with both claims. In order to be valid, the first claim needs to be reconciled with the fact that liaison is subject to a number of apparent idiosyncrasies (see Tranel 1981a, 1981b) which speak against the automatic realization of prevocalic floating consonants. For example, the plural latent consonant /z/ participates in liaison in contexts where other latent consonants are basically barred from doing so (compare *un court entracte* "a short intermission" [ɛ̃kurãrakt], *l'étudiant entra* "the student came in" [letüdyããtra] with no liaison, with their plural counterparts *de courts entractes* [dœkurzãtrakt], *les éudiants entrèrent* [lezetüdyã(z)ãtrɛr] with liaison).[11] Similarly, different latent consonants in otherwise identical contexts link with different degrees of frequency (compare *très attentif* "very attentive" [trɛzatãtif] with relatively frequent liaison, with *trop attentif* "too attentive" [tro (p)atãtif] with relatively rare liaison).

With respect to the second claim, that liaison is syllabification into onset position, the problem lies in the existence of liaison without enchaînement, that is, cases where latent consonants may appear in coda position as well as onset position (Encrevé 1988). The two possibilities are illustrated in (6b-c) (the periods indicate syllable divisions).

(6)

J'avais un rêve. "I had a dream".
(a) [.ža.vɛ.ɛ̃.rɛv] (no liaison)
(b) [.ža.vɛ.zɛ̃.rɛv] (liaison with enchaînement)
(c) [ža.vɛz.ɛ̃.rɛv] (liaison without enchaînement)

If the phonetic realization of latent consonants in liaison depends on their direct placement into onset position, then the existence of liaison without enchaînement is rather mysterious. It requires an unlikely and awkward process of backward *res*yllabification undoing forward syllabification (see De Jong 1990a for such a proposal).

A different, language-specific, approach to the generation of a skeletal slot for latent consonants in liaison has been proposed by Wetzels (1987) (see also Tranel 1990). The basic idea is that in French, a floating consonant followed by a vowel is typically assigned a timing unit, thereby becoming phonetically available in the string for prosodic processing. This analysis borrows from Encrevé the important claim that two separate steps preside over the phonetic realization of latent consonants: (1) skeletal anchoring and (2) syllabification.

One advantage of this approach is that because liaison is kept distinct from syllabification, a straightforward explanation for the existence of liaison with and without enchaînement becomes possible. A floating consonant is made available for prosodic processing by first being attributed a skeletal slot. Syllabification applies next: forward syllabification into onset position (the unmarked case) will yield the more standard liaison with enchaînement seen in (6b), while backward syllabification into coda position (the marked case) will yield the more unusual liaison without enchaînement seen in (6c).

If the process of skeletal slot insertion in liaison is language-particular, it can also rather naturally be subject to specific conditions having to do with the morphological or phonetic nature of the linking consonants, thereby accounting for the idiosyncratic cases mentioned earlier (see Tranel 1981a and 1981b for transposable accounts of such data).

This language-specific approach may furthermore explain differences observed across languages. For instance, according to Archangeli (1988), in Tiwi (Australia), regular vowel-initial words do not trigger the phonetic realization of latent consonants. It may be that what separates Tiwi from French is that Tiwi lacks French's language-specific rule of skeletal slot insertion (Tranel 1988b). If the realization of latent consonants was ruled entirely by universal principles, then one would expect no divergence between French and Tiwi.[12]

One apparent drawback of the language-specific approach to skeletal slot insertion in liaison is that it does not explain why a floating consonant is realized before a vowel, but not before another consonant or at the pause. The other approaches do provide a natural phonological explanation for this fact, through the notions of available onset and automatic association. This debit on the language-specific approach ledger is the price paid for keeping liaison and syllabification distinct. It is actually not implausible to think that the prevocalic context for the realization of floating consonants is merely a historical relic that must be synchronically stipulated. It is interesting to note in this respect that, as illustrated in (7), floating consonants do get phonetically realized under conditions where no vowel follows.

(7)

(a)	Masculine [pœti] vs. feminine [pœtit]	(petit/petite "small")
(b)	Indicative [sɔr] vs. subjunctive [sɔrt]	(sort/sorte "go out")
(c)	[ɥit] amis, [ɥi] cours vs. ils sont [ɥit]	(huit "eight": "eight friends", "eight courses" / "they are eight")

Such cases indicate that the surface emergence of latent consonants is not necessarily syllabically motivated. Thus, it may have a purely morphological raison d'être, as in (7a–b), where skeletal slots for the relevant latent consonants can be said to be generated by the feminine and subjunctive morphology, respectively (see Bosch 1991 for a similar proposal).[13] This view leaves open the possibility that the prevocalic context for the phonetic realization of latent consonants in liaison is interpreted by native speakers as a phonological stipulation, rather than a fall-out from universal grammar.

To summarize, in accounting for the insertion effect, the challenge for the skeletal flotation approach is to provide latent consonants with skeletal slots. One appears to be forced into a language-particular analysis that keeps skeletal anchoring and syllabification separate, and for which supporting evidence can be adduced from liaison without enchaînement, idiosyncratic aspects of liaison, and cross-linguistic differences in the behavior of latent consonants.

3.2 The Insertion Effect under Syllabic Flotation

Syllabic flotation analyses have no alternative but to conceive of the insertion effect as direct syllabification of latent consonants. This requirement creates a serious dilemma. If latent consonants's syllabification is derived from universal principles, then the approach faces the same descriptive problems affecting the skeletal flotation analyses that resort to automatic onset formation to derive the insertion effect (see section 3.1 above). If latent consonants' syllabification is derived from French-specific general principles, then it becomes difficult to explain why liaison with a floating latent consonant such as /t/ does not occur, at least as an option, before /r/ -initial words (*petit rot* "small burp" [poe.ti.ro]/*[poe.ti.tro]; cf. *petit trot* "easy trot" [poe.ti.tro]), since /tr/ syllable onsets are otherwise created in French, obligatorily word-internally (*métro* [me.tro]/*[met.ro]) and optionally across words (*petite roue* "small wheel" [pœ.tit.ru] / [pœ.ti.tru], the latter homophonous with *petit trou* "small hole"). Clearly, liaison does not reduce to syllabification. It therefore looks as if latent consonants' syllabification should be achieved in construction-specific fashion, for example by saying, as Booij (1983) does, that in liaison, latent consonants are syllabified into onset position before vowel-initial words. But then an important generalization is missed, since when latent consonants are phonetically relized, their syllabification does not fall outside the norms of syllable formation in French. The syllabification of latent consonants should not be derived independently of the notion of possible syllable in French, which construction-specific rules of syllabification in effect do.

Syllabic flotation's basic premise – that latent consonants are exceptions to syllabification into coda position (either directly or because of a constraint on word-final rhymes) – also creates difficulties.[14] Even if one grants backward resyllabification in order to account for liaison without enchaînement, the landing site (a coda) turns out to be an unauthorized position for the consonant. Phonetically realized latent consonants in feminine and subjunctive forms (see 7a–b above) face the same problem.[15] If the restriction on the appearance of latent consonants in coda position is somehow relaxed, perhaps in the postlexical phonology, then liaison without enchaînement, and feminine and subjunctive forms will be derivable, but at the same time the deletion effect will be incorrectly negated, since nothing will prevent floating latent consonants from generally incorporating into coda position whenever they cannot find an available onset.

To summarize, direct syllabification of latent consonants is the only option available under syllabic flotation to explain the insertion effect. The challenge for this approach is twofold: (1) to separate effectively what pertains to syllabification from what pertains to other phenomena in the realization of latent consonants and (2) to capture the permissible syllabifications for latent consonants without

letting in the impermissible ones.

3.3 The Insertion Effect: Summary

Under a floating analysis of latent consonants, nonlinear phonology must derive the insertion effect through prosodic licensing. The skeletal flotation approach can provide this effect through skeletal anchoring, which involves the insertion of a skeletal slot under a variety of specifiable conditions (miscellaneous factors in the case of liaison, purely morphological factors for feminine and subjunctive formation); skeletal anchoring makes latent consonants available for syllabification. The syllabic flotation approach must resort to the direct syllabification of latent consonants and seems inherently less able to handle the range of facts explained under skeletal flotation.

4 The Case of h-aspiré Words

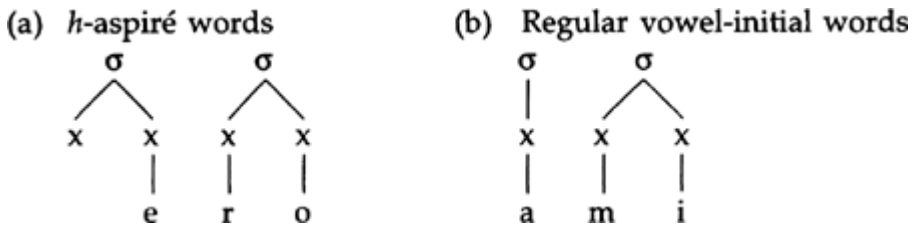
This final section is devoted to *h*-aspiré words, which are traditionally described as vowel-initial words that act as if they were consonant-initial (for example, they do not allow liaison: *petit héros* "little hero" [pœtiero]/*[pœtitero]). This small class of words has special significance in the context of the debate over the existence and formal representation of so-called ghost segments. The goal of this section is to review the types of representation that have been proposed for *h*-aspiré words (section 4.1), and in this theoretical context to give some attention to two empirical questions (section 4.2): (1) Do *h*-aspiré words behave exactly like consonant-initial words? and (2) Are they uniformly deviant with respect to a given range of phonological phenomena?

4.1 The Representation of h-aspiré Words

In keeping with the traditional description of *h*-aspiré words, generative approaches have posited in the lexical representation of these words some initial *structural* element rendering them analogous to consonant-initial words. In many linear accounts (e.g., Dell 1970; Schane 1968; Selkirk 1972; Selkirk and Vergnaud 1973), this special element was an abstract consonant requiring deletion following the performance of its function (e.g., the triggering of latent consonant deletion).

This type of representation for *h*-aspiré words was adopted in some nonlinear studies. Thus, Hyman (1985) and Prunet (1986) viewed *h*-aspiré words as beginning in some minimal consonantal material on the melodic tier.[16] By contrast, several other authors exploited the skeletal tier's resources to the fullest by resorting to empty skeletal slots to distinguish *h*-aspiré words from regular vowel-initial words. As shown in (8a), Clements and Keyser (1983), Encrevé (1988), and Piggott (1991) essentially made *h*-aspiré words consonantinitial on the skeletal tier and vowel-initial on the melodic tier (8b gives the contrastive representation assumed for regular vowel-initial words, here *ami* "friend").

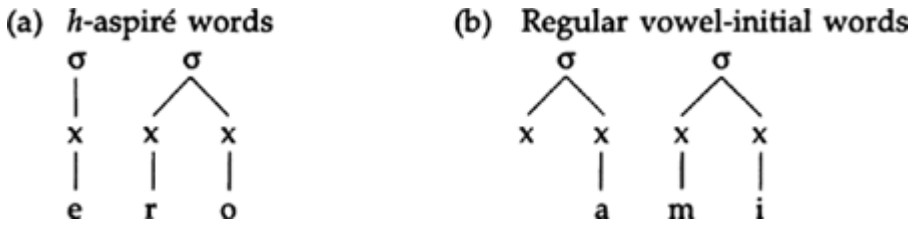
(8)



The paradox in representation (8a) is that it actually provides a free onset slot when its very purpose is to block a consonant from coming into onset position. (8a) was specifically designed for the mechanics of liaison analyses with skeletally slotted latent consonants: the initial empty skeletal slot prevents the latent consonant's skeletal slot from associating into the onset. It is not obvious what prevents the latent consonant from leaving its syllabically floating skeletal slot to anchor into the available onset slot.

Reversing representations to suit his skeletally slotless latent consonants, De Jong (1990a) proposed (9a) for *h*-aspiré words and (9b) for regular vowel-initial words (see section 3.1 above).

(9)



Given (9a), a preceding (skeletally slotless) latent consonant will correctly fail to syllabify into onset position because there is no skeletal slot available.

While use of a skeletal tier offers the alternative of relying on empty skeletal slots or on abstract consonantal melodies to separate *h*-aspiré words from regular vowel-initial words, moraic models where onset positions do not exist at any level (e.g., Hayes 1989) have no structural option but a melodic distinction mirroring Hyman's approach.

In an altogether different type of approach, the difference between *h*-aspiré words and regular vowel-initial words has been assumed to be *diacritic* in nature rather than structural (e.g., Gaatone 1978; Kaye and Lowenstamm 1984; Klausenburger 1977; Tranel 1981a, 1987a, 1987b; Wetzels 1987). At one extreme of the diacritic spectrum, *h*-aspiré words could be lexically marked with as many exceptions features as there are rules from which they deviate. As opposed to structural approaches, such rule-feature analyses are unable to provide a unified explanation for the behavior of *h*-aspiré words. But this inability is not a necessary characteristic of diacritic approaches, for at the other extreme is the possibility of isolating a single diacritic feature that will explain all the special properties of *h*-aspiré words. One such proposal, discussed in section 4.2 below, has been to view *h*-aspiré words as some sort of syllable island, that is, to consider that the initial vowels of *h*-aspiré words are resistant to onset formation (Tranel 1987a, 1987b, 1992; Wetzels 1987. See also Cornulier 1981; Kaye and Lowenstamm 1984; Kiparsky 1973; Morin 1974; Schane 1978a, 1978b, for related ideas).

A diacritic approach holds a number of advantages over a structural approach: (1) It clearly encodes that *h*-aspiré words are exceptional vowel-initial words, thus explaining why they tend to regularize, as evidenced by so-called errors in child language, popular speech, and spontaneous speech. (2) It does not make *h*-aspiré words consonant-initial in any way; as a consequence, it does not have to face the thorny issue of the surface fate of the abstract element posited in the structural analyses.[17] (3) It can help isolate a relatively independent characterization of *h*-aspiré words, and thus clarify the debate by disengaging it somewhat from the issues surrounding the representation of regular vowel-initial words and final consonants.

4.2 Empirical Issues Regarding h-aspiré Words

Structural approaches to the distinction between regular vowel-initial words and *h*-aspiré words are typically motivated by the belief that *h*-aspiré words, although phonetically vowel-initial, otherwise behave exactly like consonant-initial words and should therefore include in their lexical representation some sort of initial abstract consonant. However, the fact is that *h*-aspiré words do not behave exactly like consonant-initial words. As observed for instance by Cornulier (1981), Dell (1970), Tranel (1981a), Wetzels (1987), and Withgott (1982), they exhibit properties characteristic of regular vowel-initial words and they also behave like words with properties of their own.

As shown in (10), *h*-aspiré words indeed act like consonant-initial words with respect to liaison (10a) and elision (10b): neither liaison nor elision occurs before *h*-aspiré words and consonant-initial words, whereas both phenomena occur before regular vowel-initial words (e.g., *le gros étau* "the big vise" [lœgrozeto]; *l'étau* "the vise" [leto]).

(10)

	h-aspiré words			True consonant-initial words		
(a)	gros héros	"big hero"	[groero]	gros terreau	"big compost"	[grotero]
(b)	le héros	"the hero"	[lœero]	le terreau	"the compost"	[lœtero]

But, as shown in (11), *h*-aspiré words are in other respects like regular vowel-initial words: (1) they phonetically begin in a vowel (11a), (2) they always ignore their initial syllable in reduplication (11b), and (3) they cannot contain a schwa in their initial syllable (11c).

(11)

	h-aspiré words	Regular vowel-initial words	
(a)	héros [ero]	étau [eto]	(cf. terreau [tero])
(b)	Henri [riri]	Eric [riri]	(cf. Robert [roro])
(c)	no initial schwa	no initial schwa	(cf. chemise "shirt" [š(œ

In yet other respects, illustrated in (12), *h*-aspiré words behave unlike either consonant-initial or vowel-initial words: (1) Their consonant-like behaviors are actually unstable (12a). (2) Contrary to consonant-initial words, they do not allow schwa deletion (12b). (3) They allow a preceding fixed consonant to be followed by a schwa (12c). And (4) most of them (optionally) allow a preceding fixed consonant to syllabify into their onset (enchaînement), but a few do not (12d).

(12)

(a)	le haricot	"the bean"	[lœariko]/[lariko]
	les haricots	"the beans"	[leariko]/[lezariko]
(b)	dans le haut	"at the top"	[dālœo]/*[dālo]
	(cf. dans le bas	"at the bottom"	[dāl(œ)ba])
(c)	une hausse	"an increase"	[ünœos]
	(cf. une fosse	"a pit"	[ünfos])
(d)	quel hasard	[kɛl.a.zar]/[kɛ.la.zar]	(most *h*-aspiré words)
	quel héros	[kɛl.e.ro]/*[kɛ.le.ro]	(a few *h*-aspiré words)
	"what coincidence"/"what hero"		

Consider these properties in the framework of the syllable-island hypothesis. The properties that *h*-aspiré words share with consonant-initial words and regular vowel-initial words can be explained fairly straightforwardly. Basically, liaison and elision are blocked (see 10) because both processes normally force a consonant into onset position (cf. *gros étau* [gro.ze.to]; *sous l'étau* "under the vise" [su.le.to]). *h*-aspiré words are otherwise like regular vowel-initial words and thus behave like them (see 11). Property (12a) follows from the very fact that *h*-aspiré words are lexically marked and thus naturally tend to regularize. Property (12b) can be explained away if the rule of schwa deletion is formalized as applying interconsonantally; it will not apply before *h*-aspiré words because these words are vowel-initial (Tranel 1981a; see Tranel 1987a, 1987b for an alternative account relying on the view that *h*-aspiré words are syllable islands). Property (12c) can be interpreted as a possible strategy for resolving the conflict caused on the one hand by the phonological pressure exerted by forward syllabification in VCV sequences and on the other hand by the syllable-island constraint characteristic of *h*-aspiré words.

A number of difficulties nevertheless remain. The data in (12d) constitute a serious problem, since

they indicate that most *h*-aspiré words actually allow the syllabification of a consonant into their initial onset. The question is why fixed consonants, but not latent consonants, are allowed this apparent transgression. It would seem that the initial vowels of *h*-aspiré words must be exceptions to liaison, but not necessarily to onset formation. A rule-feature analysis may therefore be necessary after all.

Additional evidence for this possibility comes from other observations indicating that at least for some *h*-aspiré words, the three phenomena of liaison, elision, and enchaînement are apparently treated independently by certain speakers.

1 First, as illustrated in (13), Cohen (1963) observed that in his own speech, elision but not liaison took place with the word *hameçon* "fishing hook". For him, then, *hameçon* behaved like a regular vowel-initial word with respect to elision, but exceptionally with respect to liaison.

(13)

(a)	l'hameçon	"the hook"	[lamsõ]	regular elision
(b)	mon hameçon	"my hook"	[mõamsõ]	[–liaison]

2 Conversely, as shown in (14), Durand (1986) observed that in the speech of four subjects, the word *hongrois* "Hungarian" behaved like a regular vowel-initial word with respect to liaison, but exceptionally with respect to elision.

(14)

(a)	le hongrois	"Hungarian"	[lœõgrwa]	[–elision]
(b)	en hongrois	"in Hungarian"	[ãnõgrwa]	regular liaison

3 Similarly, as shown in (15), Durand also observed that in the speech of his parents, the word *hollandais* "Dutch" can behave like a regular vowel-initial word with respect to liaison (although not always), whereas it consistently behaves exceptionally with respect to elision.

(15)

(a)	le Hollandais	(def. sg.)	[lœɔlãdɛ]	[–elision]
(b)	les Hollandais	(def. pl.)	[le(z)ɔlãdɛ]	([–liaison])

4 Finally, I return to the data in (12d), repeated in (16) below. Cornulier (1981) observed that in the speech of some speakers, *h*-aspiré words could be divided into two categories with respect to enchaînement. A few words never allow such resyllabification (e.g., in his own speech *héros* "hero", *haïr* "to hate", *hideux* "hideous", *honte* "shame"), while the others do (e.g., *hasard* "chance"). This dichotomy indicates that one cannot in a blanket manner assume that *h*-aspiré words are syllable islands. What must be recognized is that a majority are optional exceptions to enchaînement, while a few are obligatory exceptions.

(16)

(a)	quel hasard	[kɛl.a.zar]/[kɛ.la.zar]	([–enchaînement])
(b)	quel héros	[kɛl.e.ro]/*[kɛ.le.ro]	[–enchaînement]

4.3 h-aspiré Words: Summary

The syllable-island hypothesis goes a long way toward providing a unified account for the behavior of *h*-aspiré words, but some data remain outside its scope. Unexplained are why most *h*-aspiré words allow syllabification with fixed consonants (but not with latent consonants), and why for at least some speakers, *h*-aspiré words do not necessarily behave uniformly with respect to the expected range of phenomena. A rule-feature analysis is able to handle these facts, but essentially by brute force. At any rate, *h*-aspiré words do not make a case for the existence of empty skeletal slots or abstract consonantal melodies.

5 Conclusion

The concept of floating consonant available in nonlinear phonology provides an attractive formal representation for French latent consonants. Deletion and insertion effects on latent consonants boil down to conditions on prosodic licensing. The efforts at implementing this basic idea have raised and revived stimulating questions about the precise nature of the phenomena (e.g., liaison) where latent consonants are phonetically realized, and they can also constructively inform the current debate on the development of theories regarding skeletal and moraic positions in nonlinear phonology.

Contrary to common claims, *h*-aspiré words do not provide evidence for the concept of empty skeletal slots or for abstract consonantal melodies. Rather, the special behavior of these vowel-initial words suggests the necessity of a diacritic account. The notion of syllable island comes tantalizingly close to yielding a unified explanation for *h*-aspiré words, but the brute force of rule features may ultimately have to be invoked.

1 For example, *honnête* "honest", pronounced [ɔnɛt], was underlyingly /ɔnɛtə/, the fixed consonant /t/ being protected from the application of Final Consonant Deletion by the Presence of the final schwa and the extrinsic ordering of final schwa deletion after Final Consonant Deletion. Lexical exceptions to Final Consonant Deletion were also posited, for instance for words such as *net*, underlyingly /nɛt/ and pronounced [nɛt], which do not end in orthographic e.

2 A number of other phenomena went unexplained as well, e.g., the divergent effects of fixed consonants and latent consonants on word internal processes affecting immediately preceding vowels, e.g., Quebec French High Vowel Laxing and standard French Closed Syllable Adjustment, which are triggered by fixed consonants but not by latent consonants (see Tranel 1981a, 1981b, 1986, 1988a).

3 Proponents of government phonology depart slightly from the other authors in viewing fixed consonants as onsets of empty-headed syllables, rather than as coda consonants (see Tranel 1993 for discussion). This difference is due to government phonology's universal Coda Licensing Principle (Kaye 1990).

4 If one follows Hyman (1985) and Tranel (1987a), schwa would also behave exceptionally in this respect.

5 This statement actually simplifies Plénat's elaborate proposal. See Tranel (1993) for a more accurate description and discussion.

6 Piggott's representation for fixed consonants is identical to government phonology's (see note 3), but on language-specific rather than universal grounds, namely the need to distinguish fixed consonants from latent consonants. See Tranel (1993) for further discussion of Piggott's approach.

7 It is actually difficult to establish positively that coda consonants in French are moraic. At least fixed consonants can perhaps be argued to carry weight. The slim evidence comes from allowed patterns for abbreviated words. Typically, words may reduce to one or two syllables. There are no special constraints on the shape of the syllables in bisyllabic abbreviations (CVCV: *laboratoire* → *labo*; CVCVC: *bénéfice* → *bénef*; CVCCV: *calvados* → *calva*; CVCCVC: *formidable* → *formid*), but monosyllabic ones must normally end in at least one consonant (e.g., *mathématiques* → *mat, permission* → *perm*). The generalization I would tentatively propose is that these abbreviations must in some sense be heavy: a branching foot (two syllables) will naturally do, but if a single syllable is kept (forming a nonbranching – presumably light – foot), then the syllable itself must count as heavy, i.e., have a branching rhyme with at least one coda consonant. This account is only valid if coda consonants carry weight, at least word-finally.

8 Encrevé (1988) combines both skeletal and syllabic flotation for latent consonants. See Tranel (1993) for

discussion.

9 This type of representation has actually been often proposed for *h*-aspiré words, the vowel-initial words that precisely do not allow liaison (see section 4.1 below).

10 In Hyman's framework (1985), a vowel-initial word also provides a weight unit for the preceding latent consonants to link to, but this weight unit is the one carried by the vowel itself, not a separate onset slot as in De Jong's (1990a) and Prunet's (1986) proposals.

11 *Court* and *étudiant* are assumed to have a final latent /t/ because of the feminine forms *courte* [kurt] and *étudiante* [etüdyāt]. For a recent challenge to this commonly held assumption, see Morin (1992).

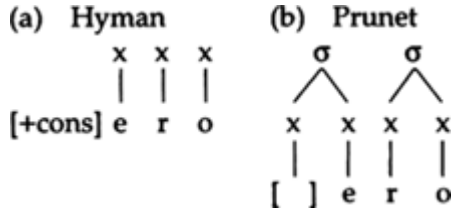
12 See Piggott (1991) for a different analysis of both Tiwi and French, and Tranel (1993) for further discussion on the issue.

13 Note that the required presence of skeletal slots for phonetically realized latent consonants does not contradict latent consonants' skeletal diacritic marking suggested earlier in section 2.1, since these skeletal slots are generated by outside information, not projected by the consonants themselves.

14 In this respect, see Tranel (1991) for a discussion of the meaning of Clements and Keyser's (1983) [extrasyllabic] feature.

15 The [-WBP] approach suggested earlier in section 2.3 actually escapes the problem posed by feminine and subjunctive forms, inasmuch as one could claim that in these cases the morphology supplies a host mora (see end of section 3.1 for a similar proposal involving skeletal positions).

16 For Hyman, this minimal consonantal material is simply the floating feature [+consonantal], as shown in (a) below. For Prunet, who follows Piggott and Singh (1985), it is an empty segment dominated by a skeletal slot and an onset node, as sketched in (b).



17 For example, given underspecification theory (chapter 4), what sort of surface realization will an empty slot on the skeletal tier or a minimal consonantal specification on the melodic tier yield? The fact is that nothing should surface that is not also found before a regular vowel-initial word.

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