Prosodic Licensing of French WH-in-situ:

An Agree-base Approach

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## **0.0 Introduction**

### **Basic properties of French WH in-situ**

French WH questions can be formed in a variety of ways. Boeckx (2000) illustrates four basic French question constructions in (1a-d) below. Note that all four constructions yield the same basic meaning and translation:

(1)	a. Fronting:	Qu' as-tu vu? what have-you seen 'What did you see?'
	b. Reinforced Fronting:	Qu' est-ce que tu as vu? what is-it that you have seen 'What did you see?'
	c. Clefting:	C'est quoi que tu as vu? it is what that you have seen 'What did you see?'
	d. In-Situ:	Tu as vu quoi? you have seen what 'What did you see?'

At first glance, this may seem like a case of optionality, which would prove a challenge for the Strong Minimalist Thesis (SMT). Fortunately for the SMT, scopal limitations on these varying constructions can easily illustrate interpretive differences between the four. This is suggestive of different structures interacting with the CI interface. In particular, the in-situ-type constructions show limitations on scope involving negation and limiting possible felicitous responses (see Section 2.1). In (2a&b), one can view the contrasting grammaticality between a question involving a fronted WH element with that of a WH-in-situ construction when negation is introduced to the equation:

- (2) a. Qui 'est-ce qu'il ne voit pas? Who is-it that.he NE saw not 'Who did he not see?'
  - b. \* Il ne voit pas qui? He NE saw not who 'Who did he not see?'

The two constructions differ in their ability to undergo negation, and it would seem that scope differences hold the key to this contrast. The WH element in (2a) is able to take higher scope than the negative element, having risen into the matrix [SPEC,CP]. In (2b) on the other hand, the WH element is not able to be interpreted as having higher scope that the negative element due to its greater distance from the root of the derivation, ruling out the above construction. This is one grammaticality contrast that seems to be agreed upon by Boeckx (1999 & 2000), Cheng and Rooryck (2000), Mathieu (2003) and Bošković (2000).

Other grammaticality judgments surrounding this type of construction in French vary along what would seem to be dialectal lines and will be discussed in Section 2. In this paper, I seek to explore the apparent inconsistencies in previous empirical data in hopes that one of the four following analyses will rise above the others, but also seek to analyze this phenomena within the context of and Agree-based system.

## **1.0 Previous analyses**

## 1.1 Bošković (2000)

Bošković's approach to WH in-situ in French involves LF insertion of a complementizer. Under his analysis, all matrix complementizers in French WH

questions possess a 'strong' interrogative feature that triggers movement of the WH element into its specifier position. Bošković suggests that the timing of the C°'s insertion is what allows for variation between fronted and in-situ WH questions. The insertion of any element with strong features into a derivation requires the immediate evaluation of such features, so that a strong C<sup>0</sup> inserted overtly into a WH question derivation would trigger overt movement of the WH element. However, the absence of such a complementizer prior to LF would not require such movement. In fact, Last Resort would prohibit such overt movement, ruling it out as not yet necessary and therefore not economical. In cases of WH in-situ, the interrogative C<sup>0</sup> is inserted at LF, after spell-out, and only covert movement of the WH element is necessary for feature evaluation.

Bošković's late insertion approach keeps closely aligned with the minimalist spirit, curbing the proposal of additional rules, elements, or operations and taking advantage of the possibility of covert movement. While this is admirable, the notion of covert movement is difficult to conceive of when approaching derivations from an Agree-based standpoint. The incompatibility lies with the notion that spell-out is a cyclically repeating process throughout any given derivation. The incompatibility is also with the fact that movement, also taking place successive cyclically, does not take place after the transfer of a given derivation's highest phase.

### 1.2 Boeckx (1999 & 2000)

Boeckx's work with French WH-in-situ began before his 2000 response to

Bošković's 2000 analysis. His work in 1999 illustrates his initial interest in a prosodic approach to the phenomenon. He cites Zubizarreta's 1998 analysis of in-situ WH elements as necessarily focused and prominent, always receiving the nuclear stress of such a phrase. In addition to inspiring a prosodic approach to the licensing of WH in-situ, his 1999 discussion of her work may also have lent itself to his later analysis of WH in-situ as closely related to cleft constructions. Specifically, his analysis of these elements as focused and definite contributed to his 2000 'Empty D' proposal.

His 2000 analysis suggests that while in-situ and cleft constructions cannot be analyzed in a completely uniform matter, the appearance of clitic pronouns and possible felicitous answers seem to pattern similarly between the two. The examples in (1), repeated here as (3), serve to illustrate a contrast in possible pronoun strength between the four constructions:

(3)	a. Fronting:	Qu' as-tu vu? what have-you seen 'What did you see?'
	b. Reinforced Fronting:	Qu' est-ce que tu as vu? what is-it that you have seen 'What did you see?'
	c. Clefting:	C'est quoi que tu as vu? it is what that you have seen 'What did you see?'
	d. In-Situ:	Tu as vu quoi? you have seen what 'What did you see?'

Following Cardinaletti & Starke (1999), WH words in French can be analyzed as having both strong and weak (clitic-like) forms. The WH word *que* translating to

'what,' can also surface as *qu'* or *quoi*, the first of which is a phonologically elided form of the strong form, *que*, the second of which can be analyzed as a weak, clitic-like form. Note above in (3a&b) that the elided version of the strong form surfaces and in (3c&d), the weak version of the pronoun surfaces, suggesting that the in-situ and cleft constructions form a group contrastive to the two fronted constructions. Boeckx also notes a correlation between possible felicitous responses to clefted and in-situ WH questions. Specifically, he suggests that a presupposed context limits possible felicitous responses, excluding negative responses such a 'nothing' or 'nobody.' This quality of presupposition will be further discussed in Section 2.1.

The focused and definite nature of these WH elements as noted by Boeckx contributes to his 'empty' determiner analysis of the in-situ construction. The proposal suggests that a phonologically empty determiner heads the WH element, as below pictured in (4):

(4)  $[_{DP} D [wh-phrase]]$ 

This determiner is only posited to be present when the WH element remains insitu, and is not projected those WH elements that undergo fronting. Boeckx proposes that this element detaches from the WH element after it merges with the verb in VP and moves overtly to SPEC of the matrix CP to evaluate interrogative EPP features in the C<sup>0</sup> that must otherwise be evaluated by a moved WH element. This approach is supported by previous analyses of WH insitu languages such as that by Akira Watanabe (1992 & 2001). Watanabe's 2001 analysis involves the overt invisible movement of particles such as null operators that separate from their respective WH elements and serve to evaluate EPP features in C<sup>0</sup> by moving independently of the WH word. Boeckx's phonologically null determiner serves the same purpose as Watanabe's null operator. Additionally, however, Boeckx suggests that this determiner and hence the WH phrase with which it merges into the derivation, is necessarily definite, which poses certain semantic restrictions for these constructions including incompatibility with intensional verbs and pragmatic presupposition of the WH element.

### **1.3 Cheng & Rooryck (2000)**

Cheng and Rooryck's 2000 analysis of these constructions takes a very similar approach to Boeckx in the sense that they, again in the spirit of Watanabe, propose a 'detachable' element that is merged into the derivation as part of the WH element. In this case, the particle that detaches from the WH word and moves to CP is posited to be a prosodic feature which they label as [Q:\_]. This 'intonational morpheme' triggers intonational effects in the question at spell-out and is underspecified in value, being valued by CP when it moves into its specifier. The underspecification allows this morpheme to license two kinds of non-fronted questions in French: both the WH in-situ construction and Yes/No questions that do not involve subject-auxiliary inversion. Two contrasting constructions for Yes/No question formation appear in (5) below:

(5) a. Est-ce que Jean a acheté un livre? is-it that Jean has bought a book 'Has Jean bought a book?' b. Q Jean a acheté un livre? Jean has bought a book
'Has Jean bought a book?'
\* 'Jean has bought a book.'

Note that although the word order for the interrogative and declarative reading are identical for (5b), the declarative interpretation of the construction would not be grammatical with a rising intonation. This intonational difference is indicated by *Q*, holding the place for the proposed intonational morpheme. Cheng and Rooryck also note the strong parallel between the function of the interrogative word/morpheme *est-ce que* to that of the intonational morpheme. Arguably, the two are in complementary distribution and perform very similar if not identical functions.

While the unvalued nature of the [Q:] morpheme allows it versatility, it also places certain requirements on its movement. The Y/N or WH value of this feature is evaluated by an agree operation with  $C^0$ , which means that the morpheme must be at the *v*P phase edge when  $C^0$  is projected so as to be accessible by  $C^0$ . Otherwise, the feature will not be properly valued and the derivation will crash. The location of the morpheme at the time of  $C^0$ 's projection is not specified in Cheng and Rooryck's (2000) analysis and therefore it is uncertain whether or not they anticipated this challenge.

## 1.4 Mathieu (2003)

Mathieu's 2003 analysis of WH in-situ adopts a similar 'detachable element moves into CP' stance to Boeckx (2000) and Cheng and Roorcky (2000) in the spirit of Watanabe (2001). His approach describes the operator as separating from the WH element as parallel to a split DP configuration. He predicts that this split results in scope limitations (as shown in (6) and (7) below), a necessary lack of focus on the WH element, mandatory indefiniteness, and no presupposition constraints on possible felicitous responses. Scopal limitations on split DPs mirror those of WH in-situ elements, whose null operators Mathieu claims have split away from the WH word and moved to [SPEC, CP]:

(6) = (2)	a.	Qui 'est-ce qu'il ne voit pas?
		Who is-it that.he NE saw not
		'Who did he not see?'

- b. \* Il ne voit pas qui? He NE saw not who 'Who did he not see?'
- - b. \*Combien<sub>i</sub> n' as-tu pas lu  $t_i$  de livres? [how many]<sub>i</sub> NE have-you not read  $t_i$  of books 'How many books haven't you read?'

Note the patterning between (6a) and (7a), in which both the moved WH element and the unsplit DP are able to take scope over the negation. Mathieu (2003) proposes an analysis involving semantic incorporation for the WH in-situ construction shown in (6b) that extends to the split DP construction in (7b). He suggests that after the null operator separates from the WH element, that the WH word left in-situ semantically incorporates with the verb, which limits its possible scope to within VP. Similarly, the stranded nominal in (7b)'s scope is frozen when *combien* splits away from it and moves to the SPEC of the matrix CP. Mathieu also attributes the contrastive verbal morphology between (7a) and (7b) to properties of semantic incorporation, citing examples of West Greenlandic incorporating verbs that also lack overt object agreement morphology.

Mathieu's 2003 analysis raises some interesting and pertinent questions of empirical coverage which will be further addressed in the following sections. His approach may be attractive in its unification of multiple phenomena, but the semantic incorporation approach is difficult to translate into an Agree-based system. As further discussed later, the concept of a stranded nominal staying in VP with the incorporating verb is not compatible with notions of feature evaluation from an Agree-based perspective. The appropriate Agree operations are impossible for the verb if it is to remain in its base-generated position throughout the entire derivation and if the object is incorporated into said verb, it is equally impossible for the verb to undergo necessary movement without the stranded nominal object in tow.

## 2.0 New empirical considerations

## 2.1 Evidence from presupposition

Mathieu's 2003 analysis is nonstandard for an additional, more empirically based reasons as well. His judgments regarding presupposition and WH in-situ vary greatly from his contemporaries Cheng and Rooryck (2000), Boeckx (2000), and Chang (1997) (as cited in Mathieu (2003)). These linguists all assert that French WH in-situ questions are not neutral and entail a degree of contextual presupposition that deems negative or 'nothing' type answers as infelicitous or at least quite unexpected. As shown in (8) and (9) below, Mathieu's 2003

	Mat.	B/C&R	NS		
(8)				Q: Jean a acheté quoi? Jean has bought what 'What has Jean bought?'	
(a)	$\checkmark$	$\checkmark$	$\checkmark$	A: Une voiture.	(A car.)
(b)	$\checkmark$	*!/??	$\checkmark$	A: Rien.	(Nothing.)
(9)				Q: Tu fait quoi dans la vie? you do what in the life 'What is your occupation?'	
	$\checkmark$		$\checkmark$	A: Rein. Je suis au chômage.	(Nothing. I am unemployed.)

predictions contrast with those of Boeckx (2000) and Cheng & Rooryck (2000):

The sentences in (8) an (9) are taken from Mathieu's 2003 article in which he explains his disagreement with previous judgments, suggesting that a presupposed context is not necessary for WH in-situ constructions.

In order to better understand the degree of acceptability of such answers, two native speakers of French were consulted for the purposes of this paper. Both work as instructors of French: one coming from Nantes and the other growing up between Paris and the South of France. Their judgments regarding items (8) and (9) are shown above under the category labeled "NS." Although unexpected, it would seem that their judgments regarding the felicity of 'nothing' type answers are more closely aligned with those of Mathieu and his 2003 study. *Rien* as a response to both questions seemed perfectly acceptable to both consultants. My best analysis of this conflict is that pragmatic properties of phenomena like WH in-situ vary on what appear to be dialectal lines. This is of course speculation and warrants future research. The apparent conflict in felicity judgments still exists, but this small investigation adds merit to Mathieu's (2003) claims that not only are the WH in-situ items not d-linked, but that no contextual presupposition is necessary to dictate possible felicitous answers.

## **2.2 Evidence from existential constructions**

Additionally conflicting with Boeckx's analysis is Mathieu's (2003) suggestion that all WH in-situ items are necessary indefinite. This is incongruent with Boeckx's (2000) analysis of each WH in-situ item being headed by a null definite determiner. He explains that not only does this determiner render the WH elements necessarily definite, but that their definiteness contributes to the infelicity of the previously discussed *rien*-type answers. Another challenge to Boeckx's definiteness analysis is Mathieu's citation of several grammatical French examples of WH in-situ appearing in existential contexts, such as the following:

- (10) Q: Il y a quoi à la teloché? He there has what on the television (There is )
  'What is there on TV?'
  - A: Rien. / Un film / ? Le film / Le film que tu veux regarder nothing / a film / the film / the film that you want to watch
- (11) Q: Il y a quoi dans tes cartons? He there has what in your boxes
  ( There is )
  'What is there in your boxes?'

In addition to verifying the grammaticality of these questions with the above mentioned consultants, I devised multiple responses to the first item and asked the consultants to rate their acceptability. Mathieu's 2003 data alone provides evidence for the indefiniteness of the WH in-situ elements in both (10) and (11), considering the fact that it is generally unacceptable to use definite DPs in existential constructions. The judgments given by my consultants regarding possible responses only further supports his argument. It is evident from their choices in (10) that a definite response is only possible if a relative clause specifying its pragmatic context accompanies it.

Items (8) through (11) pose a serious challenge to Boeckx's 'Empty D' analysis of WH in-situ. The definite nature of his proposed determiner does not seem to account for the lack of presupposition evidenced in (8) and (9), because a definite determiner would require a definite item of which it is the specifier. Additionally, items (10) and (11) pose a challenge to the definiteness of the WH in-situ element, allowing it in existential contexts and illustrating a preference for indefinite referents/responses by both consultants. It would seem that the only way to affirm a definite determiner-type analysis in the face of such data would be to propose that the WH element left in-situ may somehow 'lose' its definite quality when the null determiner breaks away and moves into [SPEC, CP]. Even this approach, however, seems highly nonstandard and unlikely to be the case. It would seem that necessary definiteness does not play a part in licensing French WH in-situ.

# 2.3 Evidence from embedded clauses

An additional challenge to Boeckx's (2000) analysis lies with his discussion of Bošković's (2000) account of the phenomenon. In consideration of his  $C^{0}$ insertion approach, Bošković asserts that the late (LF) insertion of a complementizer at the root of an embedded clause would violate the Extension Condition. Derivation by phase also rules this option out because of the altered notion of when and how spell-out takes place. Even if LF were a possible later level in an Agree-based system, insertion of an embedded  $C^0$  would also seem to violate the Phase Impenetrability Condition because the lower CP would no longer be active or available for Merge. For these reasons, it seems reasonable that Bošković rules out WH in-situ in embedded clauses because of the impossibility of late  $C^0$  insertion at the embedded CP level. As shown below in (12), he predicts that a fronted WH element in an embedded clause is grammatical, but WH in-situ in the same environment is not, as shown in (14):

	Bošković (2000)	Boeckx (2000)	NS	
(12)	$\checkmark$	$\checkmark$	V	Pierre a demandé qui tu as vu? Pierre has asked who you have seen 'Who did Pierre ask whether you saw?'
(13)	*	*	*/?1	Pierre a demandé tu as vu qui?
(14)		$\checkmark$	*	Pierre a demandé <b>si</b> tu as vu qui? Pierre has asked <b>whether</b> you have seen who

Boeckx addresses this contrast in his 2000 article, suggesting that Bošković's (2000) analysis of the contrast is flawed because of a misunderstanding of French complementizers. It is true that embedded clauses in French require an overt complementizer, which would additionally rule out (13). Boeckx can be quoted as explaining that 'Once we plug in a complementizer, [12] becomes good, which is shown in [14]' (2000, p. 60). Bošković's late C<sup>0</sup> insertion would

not work in this case because only phonologically null elements can be inserted at LF under his analysis.

Note however that overt complementizer insertion does not seem to 'save' the grammaticality of the sentence in (14), which is cited as grammatical by Boeckx, but was found unacceptable by both of the previously mentioned native consultants. This would suggest that while Bošković's analysis of LF insertion may be impossible in a phase-oriented approach, that his arguments regarding the significant C<sup>0</sup> insertion must occur at the root of the derivation and nowhere else.

## 2.4 Evidence from sentential force

Cheng and Rooryck (2000) discuss an additional noteworthy shortcoming of Bošković's (2000) analysis that can be extended to both Boeckx (2000) and Mathieu's (2003) later analyses. Although seemingly simple, their critique entails a lack of account of the intonationally significant differences between movement and non-movement questions. Rising intonation triggered by their proposed intonational morpheme is represented by *Q* in the following:

(15)	a.	Jean a-t-il acheté un livre? Jean has-P²-he bought a book 'Has Jean bought a book?
	b.=(5b)	<i>Q</i> Jean a acheté un livre? Jean has bought a book 'Has Jean bought a book?' * 'Jean has bought a book.'

In (15a), there is no ambiguity as to whether or not a question is being asked

16

regardless of intonation because the auxiliary verb *a* is inverted with the subject pronoun *il*. In (15b), however, the surface word order for the interrogative and declarative forces of the sentence are identical and can be distinguished only by punctuation when written and intonation when spoken. Similarly, for WH questions in (1), repeated here as (16), only the declarative or echo-question interpretation of (16b) is possible without distinct rising intonation. Again, such prosodic qualities of (16a) are not necessary due to the uniquely interrogative surface word order:

- (16)=(1) a. Qu' as-tu vu? what have-you seen 'What have you seen?'
  - b. Q Tu as vu quoi? you have seen what 'What have you seen?' \* 'You have seen what.'

Confirmation of this necessary distinction by both native consultants suggests a strong need for prosodic considerations when approaching an analysis of WH insitu. The challenge that remains is effectively expressing this prosodic quality in a syntactic derivation.

### **3.0** C<sub>NSQ</sub>: An Agree-based proposal

### **3.1 Proposing C<sub>NSQ</sub>**

Little inquiry has been made into the syntax-prosody interface, although a call to action was first issued by Selkirk as far back as 1984. From the sentential force distinctions discussed above, it would seem that intonational properties certainly play an important role in the licensing of French WH in-situ. For these reasons, I align my analysis of French WH in-situ with that of Cheng and Rooryck (2000) in the sense that intonation seems to be the licensing element for these constructions.

In an Agree-based system, however, certain differences are necessary. First, as has been noted by various authors and outlined by Hornstein *et al* (2005), an agree-based approach to feature analysis seems more empirically fit than a Move-F approach to feature evaluation. If feature movement independent of lexical items/words is prohibited, then an alternate analysis must be posited for the movement of the intonational morpheme, carrying only a prosodic feature, which is said to split off from the WH element and move to [SPEC, CP].

As noted by Zubizarreta (1998) below, the WH in-situ element obligatorily carries nuclear stress in a question. For this reason, I propose that the WH feature, located on the WH element, which is checked via Agree in CP, does not break apart from the WH element at any point in the derivation. This is made possible by a proposed complementizer,  $C_{NSQ}$ , which has a Nuclear Stress feature that signals prosodic licensing of the derivation.

This complementizer differs from other French interrogative complementizers in the sense that it lacks an EPP feature. It therefore does not require movement into [SPEC, CP] by the WH word or any element for evaluation of such features. Similarly to Cheng and Rooryck's 2000 approach, this prosodically driven system is an effective analysis of both WH and Yes/No type questions without apparent movement in French. Both question constructions involve a  $C_{NSQ}$  complementizer that disallows movement of either the T<sup>0</sup> (in the case of subject-auxiliary inversion of Yes/No questions) or the WH object into CP. A sample derivation of (17) in figure 1 below illustrates how this licensing takes place in a transitive WH in-situ construction:

(17) Jean a acheté quoi? Jean has bought what 'What has Jean bought?'

## **INSERT FIGURE 1 ABOUT HERE**

Note that the EPP feature on little v drives movement of the WH element out of VP. This does not, however, affect the surface word order, because the verb must also raise out of VP in order to adjoin with T<sup>0</sup> as indicated above. The ability of the WH element to move into [SPEC, vP] allows it to remain activated even when the projection of the CP layer triggers the spell-out of VP. This step is crucial if the WH features are to be available for Agree operations with CP after it is projected. Otherwise, all WH licensing for these types of constructions is handled prosodically, as Zubizarreta theorizes below.

### 3.2 Evidence from focus & prosody – Zubizarreta (1998)

A discussion of two prosodic rules, the Nuclear Stress Rule (henceforth NSR) and the Focus Prosody Rule (henceforth FPR) by Zubizarreta (1998) further support the plausibility of prosodic licensing of WH in-situ constructions in romance languages like French. Her formulation of the NSR as it applies in romance languages entails that a metrical grid, which determines sentential stress, is dependent on c-command for determination of which element in a given phrase receives nuclear stress. This generally ends up applying to the rightmost element in said phrase which, in a WH in-situ construction, would be the WH element. Her formulation of the FPR also lends itself to a prosodic approach to licensing WH in-situ. It states that any focused (marked by [+F]) constituent of a given phrase must receive the nuclear stress of that phrase.

In fronted WH question constructions, these two rules are in conflict with one another, creating a problematic situation for prosodic licensing. The NSR would regulate that the WH phrase which has moved to [SPEC, CP] is no longer heavily c-commanded by the rest of the elements in the phrase, which would indicate that it lacks nuclear stress. The FPR, however, would require that this focused element be given nuclear stress. It would seem that although this element is nonpresupposed (as claimed by Zubizarreta and shown by Mathieu (2003) above) and focused, that it does not receive nuclear sentential stress. WH in-situ elements, on the other hand, *always* receive nuclear stress. This contrast leads Zubizarreta to conclude that WH questions can be licensed in one of two ways: either syntactically (in the case of fronted WH elements) or prosodically (in the case of WH in-situ) but never by both.

In a 1999 article, Boeckx supports this analysis, suggesting his "Empty D" approach as an additional syntactic alternative for licensing WH in-situ. It would seem that by 2000, his analysis had changed to include only the determiner-based approach to the construction. While I support Zubizarreta's 'prosodic or syntactic' approach to the problem of licensing WH questions, it seems that the prosodically licensed analysis begs syntactic representation. The proposal of  $C_{NSQ}$  allows for an Agree-based syntactic representation of her theory of prosodic

licensing.

### **4.0 Conclusion**

Though relatively overlooked, the interface between syntax and prosody begs further inquiry and examination. The proposal presented in this paper has yet to undergo experimental testing but shows promise in an Agree-based system and is congruent with the empirical findings reported in section 2 of this paper. Specifically, I suggest that a prosodically licensed WH in-situ construction is evaluated via an Agree operation with a newly proposed complementizer head,  $C_{NSQ}$ . The lack of EPP feature on  $C_{NSQ}$  prohibits movement of the WH element or any feature thereof into CP, thus ending a need for movement out of the outer specifier of *v*P by the WH element object. I extend this prosodic approach to both WH and Yes/No questions. Future study will better illuminate the significance of the interface and illustrate necessity for consideration and exploration. As for the empirical conflicts between previous authors, further research into dialectal variation with respect to in-situ constructions is necessary for proper resolution.

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## Notes:

1. This sentence was judged as grammatical by one consultant if and only if the the embedded question was being referenced as a quote uttered by the subject of the matrix clause. Contextually, its English equivalent would be something like: *Pierre asked, "Who did you see?"* 

2. The consonantal insertion of *t* between the auxiliary *a* and the subject pronoun *il* is analyzed as a purely prosodic process in French used to articulate between adjacent vowels. It carries no lexical or syntactic information.

# **Special Matter:**

Figure 1:

