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13èmes Rencontres du
 Réseau Français de Phonologie
 Bordeaux
 29 June - 2 July 2015

this handout and some of the references quoted at
www.unice.fr/scheer/

AUTOSEGMENTAL NEWS FROM H ASPIRÉ AND LIAISON WITHOUT ENCHAÎNEMENT

1. The issue

- (1) four questions
- is liaison a uniform phenomenon?
 - is there anything lexicalized at the end of word 1?
 - is liaison managed by autosegmental representations including floating Cs?
 - is liaison without enchaînement (LWE) phonologically relevant?
- (2) answers
- 4 times NO
 PFC-based work in general and in particular Côté (2008)
 [there is also PFC-based work that answers NO only 3,5 or 2,5 times.¹]
 - 4 times YES
 classical generative and autosegmental analysis: Encrevé (1988)
 ==> what we set out to show is correct

2. Côté's analysis

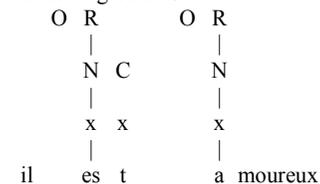
- (3) Côté (2008: 82): liaison consonants may be
- epenthetic
 default case as in *petit [t] animal* "little animal",
 - a prefix of word 2
 when it plays a morphological role as e.g. the plural marker *z* in *des petits [iza] animaux* "little animals"
 - suppletive
 when the preceding vowel is distinct in liaison and non-liaison forms, as in *bon [...ɔna...] ami* "good friend" vs. *bon [...ʒk...] café* "good coffee", in which case there are two allomorphs stored, /bɔ̃/ and /bɔn/.

¹ See Boyé *et al.* (2005) and Eychenne (2011) where liaison consonants are approached in an HPSG perspective: they belong to word 1, but do not float. Rather, the lexical entries of all French words is split into two sub-entries, the root and an "appendix" where the latter contains eventual liaison consonants and may be independently accessed by phonological computation.

- (4) thus
- non-uniformity
 liaison is a cover term for a number of distinct phonological processes
 - there is nothing at the end of word 1
 the option that is excluded is the lexical recording of the liaison consonant at the end of word 1
 - no autosegmentalism needed
 Côté's (2008: 61) explicit goal is to show that "syllable structure and well-formedness, which are crucial elements of the defective segment analysis, play no role."
 Her target is the "holy trinity" of French phonology (her term) schwa, liaison and h aspiré, and the instrument of her endeavour regarding the latter two items is the idea that liaison consonants never belong to word 1.
 - anti- and pre-autosegmental analysis
 h aspiré
 is encoded by a diacritic (something like [+h aspiré]), which is then accessed by lexically-specific constraints and/or rankings (co-phonologies or indexed constraints).

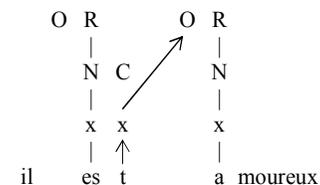
3. Recap: the classical autosegmental analysis of liaison

- (5) optional liaison according to Encrevé (1988)
- lexical ingredients

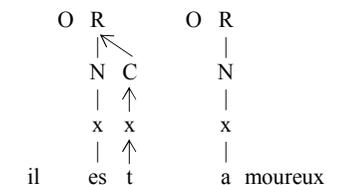


phonological computation

- b. with enchaînement



- c. without enchaînement



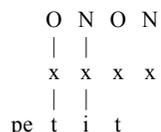
- (6) h aspiré according to Encrevé (1988) and Clements & Keyser (1983)
 a. *petit être*: obligatory enchainé liaison b. *petit hêtre*: liaison impossible



4. Liaison without enchaînement (LWE)

- (7) recap: liaison without enchaînement
 a. c'est [...et | ?a...] absolument vrai
 Passy (1899: 51 note 1)
 b. j'avais [...ez | ?ɛ...] un rêve
 V. Giscard d'Estaing, 19-5-1981
 c. j'ai beaucoup [...up | ?e...] écouté les uns [...ez ɛz|?e...] et les [...ezo...] autres
 F. Mitterrand 10-3-1988
 d. il est [...et | ?ɛ...] indispensable...
 J. Chirac 1-04-2004
 e. beaucoup d'autres seront [...ɔ̃t | ?a...] avec nous
 L. Fabius 22-05-2005

- (8) lexical representation of liaison consonants



- (9) consonantal position at the end of word 1
 a. liaison consonants
 1. are stored at the end of word 1
 2. there is a consonantal position at the end of word 1
 3. the liaison consonant is lexically unassociated to this position: it floats
 b. LWE
 1. when LWE occurs, the floating C attaches to this empty C slot at the end of w1
 2. under liaison with enchaînement, it attaches to the onset of the following word.
 c. there is also a vocalic position at the end of word 1
 ==> on which more below.

- (10) what is at stake
 a. if LWE is phonologically relevant,
 there must be a floating consonantal position at the end of word 1
 There
 1. since the liaison consonant (of whatever lexical origin) is pronounced at the end of word 1,
 2. and only liaison-inducing words allow for it to be pronounced:
 beaucoup d'autres seront [...ɔ̃t | ?a...] avec nous
 vs.
 quelqu'un sera * [...at | ?a...] avec nous
 b. LWE stands in the way of a major analytical result regarding liaison that comes from PFC: the idea that nothing is stored at the end of word 1.
 Côté (2008: 89f) explicitly acknowledges this fact.
 c. ==>
 if nothing ought to be stored at the end of word 1, LWE must not be phonologically relevant.
- (11) anti-LWE arguments from the PFC literature
 a. "the PFC corpus does not corroborate the phonological status that Encrevé attributes to LWE"
 ("[I]examen du corpus PFC ne corrobore pas le statut phonologique accordé à la liaison non-enchaînée par P. Encrevé").
 Durand *et al.* (2011: 114)
 b. argument #1
 LWE is numerically marginal (rare)
 c. argument #2
 LWE reduces to a spelling effect.
- (12) rarity of LWE
 a. Mallet (2008: 179ff)
 130 cases of LWE in the complete PFC corpus (only mainland)
 = 0,35% of all liaisons realized (totalling obligatory and optional liaisons)
 b. Laks (2009)
 explores two corpora regarding low ranking socio-professional groups:
 1. workers born in the 19th century whose pronunciation was studied by Ferdinand Brunot in 1912/13 (Veken 1984)
 2. suburban teenagers interviewed by Laks (1983) in 1975.
 3. Laks (2009: 248) reports that LWE is completely absent in these data
 4. and concludes that "LWE is not a property of ordinary speech"
 ("le non-enchaînement n'est pas une propriété de la parole ordinaire").
 c. That much we knew from the pre-PFC literature including Encrevé.

- (13) LWE is a spelling effect
- a. obvious relationship with orthography and extensive training of children in school. Laks (2005a: 117ff), Durand *et al.* (2011: 114f), Durand & Lyche (2008: 50),

"The crucial role of spelling in the acquisition and use of optional liaison [...] accounts simultaneously for the existence of liaison without *enchaînement*, its restriction to optional liaison, and its occurrence in very formal types of speech, read speech in large part."
Côté (2008: 90, emphasis in original).
 - b. that much we knew,
but this does not mean that LWE reduces to spelling.
- (14) arguments by Encrevé (1988)
production: LWE is part of the competence of those who produce it
- a. LWE is regular is equally distributed over speech acts
 - b. never followed by any self-correction
 - c. only occurs in phonologically (before V-initial words) and syntactically (identifying optional liaisons) specified contexts. Hence grammar opens a window for LWE, and this window is never violated.
==> LWE is not a performance error - it is part of the grammar of the speakers.
- (15) arguments by Encrevé (1988)
perception: LWE is part of the competence of those who perceive it
- a. since audio-visual media have developed, all natives constantly bathe in an LWE-rich environment.
 - b. speakers who produce LWE are perceived as especially
 - noteworthy
 - legitimate/ important
 - socially high-ranking
 - c. no native of whatever social level has trouble understanding an arbitrary mix of
 - liaison with enchaînement
 - liaison without enchaînement
 - no liaison
 in the same context (=optional liaison) coming from the same speaker in the same pragmatic context.
 ==> LWE is part of the passive competence of all natives.
- (16) the occurrence of LWE is not random
- a. LWE scales along
 1. socio-professional categories and
 2. type of production
 as expected: there is more LWE
 1. in higher socio-professional groups
 2. when reading aloud than in free oral production

(17) PFC data²
liaisons realized (PFC corpus, mainland France, August 12th, 2013)

	liaisons realized (obligatory and optional)	LWE %	
a. total (all types of production and social categories)	14290	119	0,8
b. by socio-professional category			
liberal professionals	694	13	1,9
teachers, medical professions, state employees	1513	14	0,9
civil service senior executives (including University professors and researchers)	628	4	0,6
peasants	655	5	0,8
workers (qualified or unqualified)	390	2	0,5
c. by type of production			
text read aloud	4116	50	1,2
directed discussion	5700	50	0,9
spontaneous speech	4460	19	0,4

5. Children produce things that are absent from the stimulus

- (18) LWE: a theatre for the age-old confrontation with empiricist thinking
- a. usage-based approach
(Bybee 2005), applied to liaison by, among others, Chevrot *et al.* (2013)
 1. children only reproduce what they hear
 2. there is no autonomous phonological activity based on lexical items: all that children do is to store, to concatenate and to repeat (cut and paste) pieces of speech.
 3. constructions resulting from surface-based parsing are stored
 4. this is an instantiation of the regular empiricist philosophy
nothing can exist in the mind/brain that did not exist in the senses before
 5. prediction
nothing in the production of children can be absent from the stimulus.
 - b. rationalist alternative
the production of children is based on
 1. the environmental input
 2. a language faculty that is partly independent of any stimulus
 prediction:
 items that are absent from the stimulus may well be present in the production of children: they are the result of computation carried out by grammar.

² Based on an access of the online PFC corpus (<http://www.projet-pfc.net/moteur.html>) on August 12th, 2013, which at that point contained 20 data spots over mainland France representing 209 interviews (hence an average of about 10 speakers per spot). The PFC corpus is coded for liaison and distinguishes liaison with and without enchaînement. However, it does not code the eventual occurrence of schwa or glottal stop with the latter. The PFC corpus distinguishes 18 socio-professional categories, of which five were chosen which presumably include the two end points of the scale.

5.1. LWE ex nihilo

- (19) acquisition of LWE: currently entertained scenario:
LWE absent from the input, therefore absent in children
- a. LWE is restricted to specific (high, journalistic, official) style,
 - b. illiterate pre-school children have no chance to come across it at all.
 - c. LWE thus arises only as a side-effect of children's access to literacy after age six,
 - d. and is concomitant with the acquisition of optional liaison (which appears at this developmental stage).
 - e. Hence there is no ground for children to produce LWE before age six, and they only sporadically recur to LWE later on under the influence of instruction and literacy (Dugua 2006: 328).
- (20) acquisition of LWE: evidence available to date
- a. conforming to this scenario, the empirical record thus far has not identified any LWE before age six.
 - b. this is true for longitudinal studies
 1. the *Sophie* corpus, cited in Chevrot *et al.* (2005, 2009)
 2. cross-sectional studies (e.g. Wauquier-Gravelines & Braud 2005) as well as for
 3. behavioral psycholinguistic tests (Dugua 2006, Nardy 2008, Chevrot *et al.* 2009).
 - c. LWE is observed in L2 literate learners
Mastromonaco (1999) and Thomas (2004).
 1. Thomas (2004)
production 48 English natives in their third year of French at University.
 2. all cases of LWE observed have a strong likelihood to originate in spelling. This is rather unsurprising for adult L2 learners and extends to liaison beyond LWE.
 3. example
pronunciation of *grand ami* "great friend" as [grãdami] instead of [grãtami]:
underlying /d/ (established by *grande* [grãd] "great, fem.") appears as [t] in liaison, but is always spelt <d>.
The L2 speakers in question have never heard a single instance of [grãdami] from any French native, but still produce [d], which is the item they see in orthography.
- (21) perception of LWE
- a. no data available to date.
 - b. Focusing on sociolinguistic variation in the acquisition of liaison, Nardy (2008) for example probes grammaticality judgements by children. She contrasts cases where the liaison consonant is realized on word 2 with instances where it is absent. However, the perception of a realized liaison consonant on word 1, i.e. LWE, is not tested.

- (22) LWE ex nihilo
- a. Splendido (2014) documents the existence of LWE before age six and in absence of a graphic input.
 - b. longitudinal study (3,5 to 6 years)
conducted with 8 illiterate pre-school children
 1. two French L1,
 2. three bilingual Swedish-French (BSF)
 3. three Swedish early L2 French (EFL2)
 - c. none of the 8 children was systematically exposed to written representations of French words or explicitly taught either French or Swedish spelling.
 - d. picture-naming task
 - e. results
 1. one BSF and one EFL2 child produce respectively 8% and 13% of LWE which most of the time is followed by a glottal stop.
 2. productions with LWE occur towards the end of the longitudinal study, i.e. around age six.
 3. these LWE are always produced with the correct consonant, i.e. children never make substitution errors (which are otherwise well documented).
Splendido (2014: 249)
- (23) discussion
- a. the evidence documented by Splendido suggests that LWE may emerge in absence of any LWE in the input, and independently of spelling.
 - b. unexpected by the empiricist / usage-based approach
 - c. in line with the rationalist approach.
LWE emerging in children may be the result of a developmental path whereby learners try to make sense of these consonants that are sometimes present, but absent at other times.
- ### 5.2. LWE betrays an intermediate developmental stage
- (24) interpretation of LWE ex nihilo
- a. following Splendido (2014: 248), we believe that the presence of LWE in illiterate pre-school children makes sense as an intermediate step in the developmental path that infants follow when moving towards the adult system.
 - b. recall that the LWE documented in her data were observed on the last recording sessions, i.e. at a stage where the acquisition of liaison was about to be completed (while omissions continued to be produced but substitution errors faded).
- (25) developmental path
- a. stage 1
common to the constructionist and autosegmental scenario
Surface-based parsing that identifies the DP as a single unit, i.e. without individualizing the words it contains.

- (25) developmental path
- b. stage 2
 common to the constructionist and autosegmental scenario
- Children analyze the internal structure of the DP and make parsing hypotheses.
 - This produces errors: the main pattern found (see Dugua 2006, Nardy 2008, Wauquier 2009) is an interpretation of liaison consonants as being regular (stable) word-initial consonants of word 2.
 - Hence the storage of
 /ours/ *ours* "bear" (on the basis of *un ours* [ɛnuʁs] "a bear") yields
 **le nous* *[lənʁs] "the bear" (instead of *l'ours* [luʁs]),
 **les nous* *[lenuʁs] (for *les ours* [lezʁs] "the bears"),
 **petit nous* *[pətinuʁs] (against adult *petit ours* [pətituʁs] "little bear")
 and so forth.
- c. step 3
 constructionist scenario
- infants lexicalize structures such as
 /un + nX/,
 /des + zX/,
 /un petit + tX/
 and the like
 - where the liaison consonant -n-, -z-, -t- etc. is stored twice: once at the end of word 1, another time at the outset of word 2.
 - As was mentioned, the status of stable and liaison consonants in this approach is identical.
- d. step 3
 autosegmental scenario
- children understand that liaison and stable consonants have different phonological status and hence emancipate their segmental content from their syllabic support, thereby creating floating pieces of melody and empty constituents.
 - They also understand that the segment belongs to word 1, while the constituent in which it is realized is a piece of word 2.
 - That is, Wauquier (2009) argues that on the third developmental stage children arrive at the adult system.

- (26) LWE = intermediate developmental stage
- after the individuation of words within the DP (stage 2)
 - before reaching adult competence (stage 4)

- (26) LWE = intermediate developmental stage

stage 1	stage 2	stage 3	stage 4
one single item stored	two items stored	separation of segmental and syllabic information	competence regarding association
O N O N O N	O N O N	O N O N O N	O N O N O N
x x x x x x	x x x x	x x x x	x x x x x
l e z a m i	l e z a m i	l e z a m i	l e z a m i
	n	t	
	t		
	etc.		

- (27) stage 3
- the advance of stage 3 is the understanding that melodic and syllabic information is distinct, both regarding its
 - (autosegmental) representation and
 - affiliation to lexical items.
 - the child has now understood that sounds present in the signal are the result of the association of a piece of melody with a piece of syllabic structure,
 - and that the ingredients of some of these associations may (stable segments) or may not (liaison consonants) belong to the same lexical entry.
- (28) consequence of the dissociation of melody and its syllabic support
- presence of two floating x-slots and a floating onset-nucleus pair that serve as potential support units for the floating liaison consonant.
 - rationale followed by the child:
 floating segments may be floating, but cannot occur without syllabic support in their own lexical unit.
 - the lexicalization of this syllabic support then is the source of LWE: it offers the possibility to realize the liaison consonant in the word that it lexically belongs to.

- (29) stage 3 > stage 4
- when reaching stage 3 the child is in possession of the fully fledged lexical and representational system of adults.
 - what still removes it from adult competence is the usage of that system:
 it must learn under which circumstances exactly the floating consonant attaches to the syllabic support in word 1 or word 2 (under (26) this choice is depicted by arrows).
 - this involves the understanding of
 - phonological
 word 2 must begin with a vowel
 - syntactic
 some syntactic configurations of word 1 and word 2 do, others do not allow for liaison
 - pragmatic and socio-linguistic factors
 - namely the latter govern the usage of LWE.

6. H aspiré-triggered glottal stop after unpronounced liaison consonants

6.1. Recap: h aspiré

(30) properties of h aspiré words, part I
diagnostics for h aspiré

	h-aspiré	C-initial	ordinary V-initial
a. liaison	NO les *[z] housses	NO les *[z] portes	YES les [z] hommes
b. élision	NO la / *l' housse	NO la / *l' porte	YES *le / l'homme
c. suppletion	NO ma / *mon housse	NO ma / *mon porte	YES mon / *ma armoire
d. enchaînement	NO quelle haine, *quelle_haine YES par_hasard, *par hasard	NO quel tableau * quel_tableau	YES quel_homme, quel_* homme

(31) properties of h aspiré words, part II

after C-final words, h aspiré may generate a schwa

Grammont (1914: 124), Schane (1967: 46, 1968: 162), Selkirk (1972: 329f), Dell (1973: 186, 262), Tranel (1981: 286f, 306ff)

	h-aspiré + schwa	ordinary V-initial + schwa
a. after C-final words	YES fem. quelle [ə] housse masc. quel [ə] hêtre	NO fem. quelle *[ə] armoire masc. quel *[ə] homme
b. after V-final words	NO fem. une jolie *[ə] housse la *[ə] housse masc. un joli *[ə] hêtre le *[ə] hêtre	NO fem. une jolie *[ə] armoire la *[ə] armoire masc. un joli *[ə] homme le *[ə] homme

(32) properties of h aspiré words, part III

after C-final words, h aspiré may generate a glottal stop

Dell (1973: 186, 262 note 85), Tranel (1981: 310f), Encrevé (1988: 198ff)

	h-aspiré + [ʔ]	ordinary V-initial + [ʔ]
a. after C-final words	YES fem. quelle [ʔ] housse masc. quel [ʔ] hêtre	NO fem. quelle *[ʔ] armoire masc. quel *[ʔ] homme
b. after V-final words	NO fem. une jolie *[ʔ] housse la *[ʔ] housse masc. un joli *[ʔ] hêtre le *[ʔ] hêtre	NO fem. une jolie *[ʔ] armoire masc. un joli *[ʔ] homme

(33) either a glottal stop or a schwa – not both

(33) either a glottal stop or a schwa – not both

a. the generation of either schwa or a glottal stop is obligatory when h aspiré occurs in post-consonantal position.

The literature quoted is explicit on this.

b. glottal stop and schwa cannot co-occur

une grosse [...əu...] housse

une grosse [...ʔu...]housse

but

une grosse [...əʔu...] housse

Pagliano (2003: 634ff), Côté (2008: 66)

(34) disclaimer: emphasis

a. we are not talking about emphasis.

All data presented only concern non-emphatic contexts.

b. the glottal stop is a regular exponent of emphasis in French:

if emphasis is put on a noun, a glottal stop may appear with *any* V-initial word, not just with h aspiré words.

Freeman (1975), Tranel (1981: 310f), Pagliano (2003: 640ff)

c. Grammont (1914: 144):

"insistence can apply to an initial syllable beginning with a vowel. Even in this case its major specific characteristic, consonantal strengthening [elsewhere Grammont shows that gemination is also an exponent of emphasis], is observed since the initial vowel is preceded by a glottal stop" (translation ours).

d. Malécot (1975: 52)

Based on sound recordings of 50 Parisian speakers, Malécot writes that the glottal stop occurs "exclusively before vowels [...], it serves as a stress marker to emphasize a word, phrase or sentence, that is, to call attention (1) to a qualification or distinction that the speaker wishes to make, (2) to a cited word, proper noun or initials, or (3) to a correction made to something he has just said."

Glottal stops of emphatic origin are also distinct from h aspiré-generated items by the fact that they may occur after vowels: Malécot (1975: 53) quotes for example *de façon à [ʔ] arriver* with emphasis on *arriver*.

e. Hence pronunciations marked as ungrammatical under (32) are only ill-formed in non-emphatic contexts. They are possible in case emphasis lies on the noun.

This is shown under (35) below (where emphasis is indicated by upper case characters).

(35) glottal stop is an exponent of emphasis

	h-aspiré emphatic	ordinary V-initial emphatic
a. after C-final words	YES fem quelle [ʔ] HOUSSE masc quel [ʔ] HEROS	YES fem quelle [ʔ] ARMOIRE masc quel [ʔ] HOMME
b. after V-final words	YES une jolie [ʔ] HOUSSE un joli [ʔ] HEROS	YES fem une jolie [ʔ] ARMOIRE masc un joli [ʔ] HOMME

(36) take-home message

After consonants, h aspiré obligatorily generates a schwa or a glottal stop.

But not both: schwa and glottal stop cannot co-occur.

Only h aspiré words can do that, and they can do it only after consonants.

(37) analysis

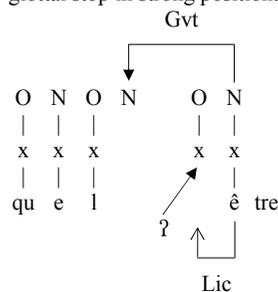
Pagliano (2003)

- the glottal stop is generated (via epenthesis) in the initial empty onset of word 2 because this onset is in strong position (post-consonantal) => glottal stop epenthesis is strengthening
- the schwa is generated in the final empty nucleus of word 1 (if available). In this case, the initial onset of word 2 is not in strong position anymore and hence no strengthening can occur.
- locus of variation: Government
the schwa / glottal stop variation is due to the target that speakers "choose" Government from the first vowel of word 2 to apply to:
 - target = initial onset of w2 => schwa epenthesis
 - target = FEN of w1 => glottal stop epenthesis

(38) glottal stop generation is strengthening

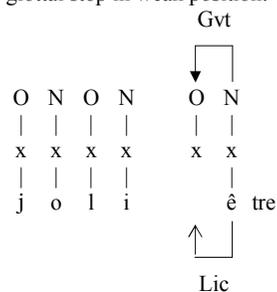
a. quel [ʔ] hêtre

glottal stop in strong position: C__V



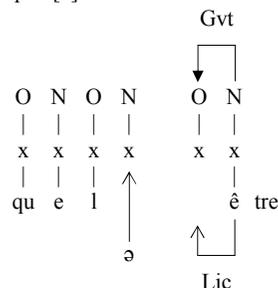
b. joli *[ʔ] hêtre

glottal stop in weak position: V__V



(39) schwa insertion

quel [ə] hêtre



6.2. "Glottal stop only after consonants" is not quite true

(40) the triggering C may or may not be pronounced

- a new piece of empirical evidence exposed in Encrevé & Scheer (2005) but which otherwise went unnoticed
- it is not quite true that h aspiré generates a glottal stop only after consonants.
- the glottal stop also appears after vowel-final words in case they bear a liaison consonant.
- before h aspiré this liaison consonant is not pronounced – but the appearance of the glottal stop shows it is there.
- the existence of a glottal stop after (unpronounced) floating consonants was also evidenced experimentally by Gabriel & Meisenburg (2005):
 - on a double-blind reading task effected by eight native subjects, "tout Hongrois" was pronounced five times with a glottal stop, three times without.
 - variation between the presence and the absence of the glottal stop is expected, as it is also found in regular post-consonantal contexts as under (32) (*quel [ʔ]/ø hêtre*): glottal stop generation in this context is optional.
 - Gabriel & Meisenburg (2005) did not work on the contrast "after floating consonants vs. after real V-final words", hence have not controlled for the contrast with real V-final words.

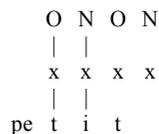
(41) a glottal stop is generated by h aspiré in phonetically post-vocalic position iff the preceding word ends in a liaison consonant

- fake V-final word + h aspiré
 - tout [...uʔʒ...] hongre
 - un petit [...iʔe...] héros
 - un gros [...oʔʒ...] honteux
 - un gros [...oʔi...] hideux
 - c'est trop [...oʔo...] haut
 - un grand [...ãʔe...] hêtre
- true V-final word + h aspiré
 - un joli * [...iʔʒ...] hongre
 - un honoré * [...eʔe...] héros
 - un foutu * [...yʔʒ...] honteux
 - un gai * [...eʔi...] hideux
 - une menuë * [...yʔo...] hauteur
 - un joli * [...iʔe...] hêtre

(42) take-home message

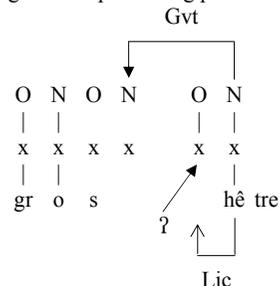
- what is intervocalic and what is post-consonantal is *not* defined by phonetics and *cannot* be read off the surface.
- phonetically intervocalic consonants are in fact post-consonantal if they follow a floating consonant.
=> **there must be something consonantal at the end of word 1**
- existence of a consonantal constituent at the end of word 1
 - we know independently that syllabic positions are defined by syllable structure, that is by x-slots and syllabic constituents.
 - therefore fake intervocalic h aspiré – the one after unpronounced liaison consonants as in *un gros [...oʔe...] hêtre* – must occur after a consonantal constituent.

- (43) recall the lexical representation of liaison consonants

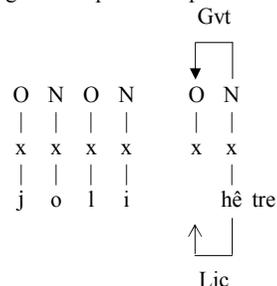


- (44) *gros hêtre* vs. *joli hêtre*

a. *gros* [...oʔε...] hêtre
glottal stop in strong position: C__V



b. *joli* * [...iʔε...] hêtre
glottal stop in weak position: V__V



- (45) converging evidence

- a. LWE
=> there is a consonantal position at the end of word 1
- b. h aspiré
=> there is a consonantal position at the end of word 1

7. H aspiré and domains of phonological computation

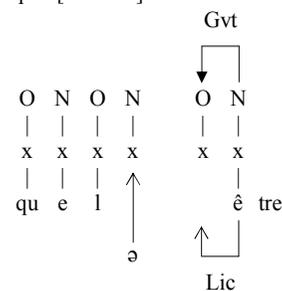
7.1. Why there is no *gros* * [o ə ε] *hêtre*: hiatus avoidance

- (46) no schwa after pronounced liaison consonants

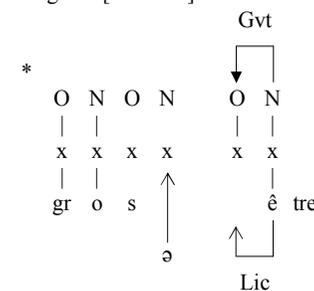
- a. after pronounced consonants, schwa and glottal stop are in free variation
grosse housse can come out as
grosse [...sʔu...] *housse* or
grosse [...səu...] *housse*.
- b. we expect the same free variation after unpronounced liaison consonants
 1. a glottal stop may be generated
 2. but no schwa:
un gros * [...oəε...] *hêtre*
is not even remotely possible.
 3. Why?

- (47) *quel hêtre* vs. *gros hêtre*

a. *quel* [...ləε...] hêtre



b. *gros* * [...oəε...] hêtre



- (48) only difference

associated vs. floating status of the last consonant of word 1

- (49) consider another question

- a. that arises if, as we contend, floating consonants indeed possess their own onset lexically at the end of word 1:
- b. why is there no LWE before consonant-initial words?
 1. speakers may decide
under sociological motivation to associate the floating consonant to the empty onset at the end of word 1: this is LWE.
il est [t] *amoureux*
 2. why are they not free to decide
to do so when the following word is C-initial?
il est *[t] *grand*?

- (50) why is there no LWE before consonants?

a. *il est* [t] *amoureux*

b. *il est* *[t] *grand*



- (51) proposal

both questions have the same answer:

hiatus avoidance

- a. Hiatus avoidance has always played a role in the analysis of liaison.
- b. This is true for pre-20th century approaches (Morin 2005: 8 provides an overview),
- c. for the classical linear and autosegmental literature (see the survey in Encrevé 1988: 79ff), his own OCP-based analysis 167f)
- d. and for OT-based analyses (e.g. Perlmutter 1996, Steriade 1999, Tranel 1998, 2000: 45ff).³

³ Hiatus-driven analyses diverge in their workings, though: while Steriade (1999) argues for hiatus repairs through the insertion of individual consonants of feminine forms (rather than of the entire feminine lexeme),

- (52) no LWE before consonants
- il est [t] amoureux (50)a
hiatus avoidance is the motor for attaching the liaison consonant.
 - il est *[t] grand (50)b
this motivation is lacking, which is why there is no liaison in this context.
- (53) no schwa after unpronounced Cs
- *gr[**oə**] **hêtre**
schwa insertion creates a hiatus
gros [...oəε...] hêtre
 - quel [ə]** **hêtre**
no hiatus is produced after pronounced final Cs

7.2. H aspiré may set itself off

- (54) interesting observation
- hiatus ≠ hiatus
 - *gr[oə] hêtre vs. grosse [...səu...] housse
*[oə ε] [ə u]
*VV # hV V # V
 - generalization
surface hiatus across the h aspiré word boundary is no hiatus for phonology.
 - phonology is sensitive
to word 1-internal hiatus: *gr[oə]
 - phonology is insensitive
to hiatus whose first vowel belongs to word 1 and whose second vowel belongs to the h aspiré-initial word 2
 - *gr[oə] hêtre
o "sees" schwa
but
schwa does not "see" ε
 - *grosse [əu] housse
schwa does not "see" u
- (55) h aspiré sets itself off
- ==> **h aspiré blocks intervocalic communication**
over a word boundary that is otherwise permeable.
 - Morin (1974: 87f) and Schane (1978a,b) propose that h aspiré words are vowel-initial and bear a syllable boundary to the left of h aspiré in the lexicon. This syllable boundary is hard wired, i.e. cannot be altered during phonological computation, so that the initial vowel of h aspiré words will always be syllable-initial (see also Tranel 1979 on this analysis).
 - Cornulier (1978) argues that h aspiré induces a "separation" and is marked for this property in the lexicon.

Bermúdez-Otero (Ms) upholds the traditional perspective on suppletion where only entire lexemes can be involved (otherwise forms like *nouvol ami (for intended *nouvel ami*) are produced).

- (55) h aspiré sets itself off
- Côté (2008: 91) discusses the autonomy of h aspiré with respect to the preceding word.
- (56) take-home message
- h aspiré introduces a domain boundary**
 - in the sense of
cycles, phases etc.
 - interesting pattern
since domain boundaries are usually an exponent of morpho-syntactic structure.
Here it comes as an idiosyncratic property of lexical items.
==> piece-driven vs. node-drive chunking (Scheer 2011: §765)

8. Cases where h aspiré does not behave like a consonant

- (57) h aspiré
- classical description
h aspiré-initial words are phonetically vowel-initial, but behave as if they were consonant-initial.
 - There are two phenomena that do not follow this pattern, though
Dell (1973: 262), Cornulier (1981: 206ff), Tranel (1981: 297ff)
 - Côté (2008: 66f) insists on the importance of this asymmetry for the analysis of h aspiré.

- (58) when h aspiré does not behave like a consonant

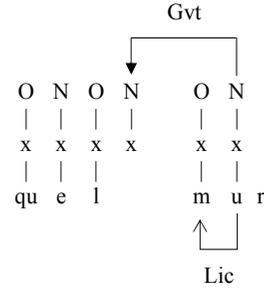
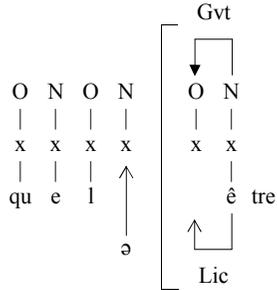
	h-aspiré	C-initial
a. word-final schwa drop	NO c[ə] / *c' hêtre	YES c[ə] / c' gâteau
b. post-C schwa epenthesis	YES quel [...ləε...] hêtre	NO quel [...ləm...] mur ⁴

8.1. Post-C schwa epenthesis

- (59) post-C schwa epenthesis
- schwa epenthesis is a consequence of the domain boundary introduced by h aspiré:
the FEN of word 1 under (60)a is ungoverned and therefore subject to epenthesis.
 - the absence of the domain boundary under (60)b enforces regular communication between the two words. Since empty nuclei call for government and nothing prevents the first vowel of the second word to reach that nucleus, government is established and there is no reason for epenthesis.

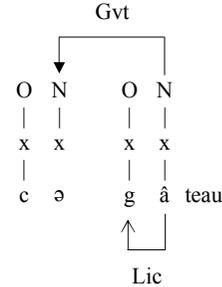
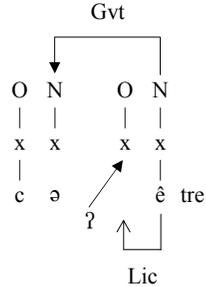
⁴ A number of Southern dialects may generate a schwa in this position, see Durand *et al.* (1987). The pattern thus only holds for other varieties.

- (60) why there is no schwa epenthesis after regular consonants
 a. h aspiré: extra domain creates schwa
 quel [...ləɛ...] hêtre
 b. regular consonant: no extra domain
 quel [...ləm...] mur



8.2. Word-final schwa drop

- (61) word-final schwa before h aspiré
 a. h aspiré: creation of a hiatus
 ce / *c' hêtre
 b. regular consonant: no hiatus created
 ce / c' gâteau



- (62) observation
 a. before h aspiré
 when schwa is dropped, a hiatus is created
 b. before regular consonants
 when schwa is dropped, no hiatus is created

- (63) prediction
 *əV
 in French

- (64) schwa in hiatus
 a. how does schwa behave in this position?
 b. lack of evidence:
 schwa never occurs in hiatus in monomorphemic strings

- (64) schwa in hiatus
 c. one single exception:
dehors [dəɔʁ] "outside", which is discounted in the literature as *de-hors* (Dell 1973: 262, Cornulier 1981: 214). *Hors* is an autonomous word meaning "outside, except", and it bears an h aspiré. This is then the reason why, on this analysis, schwa cannot drop: [dəɔʁ] is not a possible pronunciation for *dehors*, its only reading is *(il) dort* "(he) sleeps".
 d. in external sandhi (i.e. across word boundaries), schwa-vowel sequences arise underlyingly, but are systematically eliminated by elision (/le ami/ → /l'ami/, /je aime/ → /j'aime) and suppletion (/ce ami/ → /cet ami).
 e. schwa before h aspiré
 is the only case in French where a word-final schwa is followed by a vowel, and there seems to be no means to inspect its behaviour independently of this pattern.
 f. ==>
 except for a situation in internal sandhi (i.e. across a morpheme boundary):
 the prefix *re-* with iterative meaning "do X again" productively attaches to verbs of whatever kind.

(65) re-V

re-a	re-allumer	re-e	re-écouter	re-i	re-inviter	re-o	re-offenser
	re-appeler		re-éditer		re-importer		re-organiser
	re-arbitrer		re-effacer		re-inculper		re-ouvrir
	re-abandonner		re-embêter		re-imiter		re-orienter
re-u	re-urbaniser	re-ou	re-outrir	re-eu	re-euphoriser		
	re-unifier		re-ouvrir		re-oeuvrer		
	re-uniformiser						

- (66) prediction appears to be correct
 a. schwa happily drops before C-initial stems
r(e)-manger, r(e)-faire, r(e)-bouger
 b. but is agrammatical before V-initial stems
 in both enchainé (*r_carbitrer*) and non-enchainé versions (*r^l-arbitrer*)

9. Conclusion

- (67) liaison-inducing words bear a consonantal constituent after the last stable vowel arguments
 a. LWE
 which needs to be taken seriously because of
 1. recent acquisition data
 2. classical arguments
 b. h aspiré
 presence of a glottal stop after unpronounced liaison consonants
- (68) liaison-inducing words bear a vocalic position after the last stable vowel h aspiré
 the schwa generated by h aspiré is hosted by this position

(69) lexical representation of liaison-inducing words

O	N	O	N
x	x	x	x
pe	t	i	t

(70) unpronounced liaison consonant:

invariable behaviour of liaison-inducing words before h aspiré

- a. prenominal adjectives un petit [...i?ε...] hêtre
- b. plural marker des petits [...i?o...] hêtres
- c. items with variable vowels un bon [...ɔ?ε...] hêtre

(71) trouble

- a. for analyses where liaison consonants have an origin different from the lexical recording
- b. if Côté's analysis is correct, the liaison consonant is necessarily absent from word 1 when unpronounced
- c. but (70) shows that it is present

(72) or rather...

- a. what (70) shows is that the *constituent* in which the liaison consonant is realized in case of LWE is present at the end of word 1
- b. our results do not speak to the lexical origin of the melody of the liaison consonant.

(73) four answers

- | | | | |
|---|---|---------------------------------|-----|
| a. is liaison a uniform phenomenon? | } | yes: consonantal position in w1 | |
| b. is there anything lexicalized at the end of word 1? | | | |
| c. is liaison managed by autosegmental representations including floating Cs? | | | yes |
| d. is liaison without enchaînement (LWE) phonologically relevant? | | | yes |

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