

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

INTERVOCALIC VOICING IS LENITION (NOT SPREADING)

1. Lenition or assimilation, not both

- (1) intervocalic voicing
 - a. is known to be an instance of lenition
==> causation: positional (syllabic)
 - b. but it is typically interpreted as an assimilation to the vocalic environment
==> causation: transmission of some voicing prime from vowels to obstruent
- (2) lenition
 - a. is positional and does not involve any transmission of primes.
 - b. this is the very definition that opposes it to assimilation
 - c. coda consonants for instance lenite no matter what the segmental environment, i.e. whether the preceding vowel is front, back, mid, high or low, and whatever the following consonant.
 - d. positionally defined lenition contrasts with assimilation, where instead some property is transmitted from a trigger to a target.
- (3) It is therefore inconsistent to say that a process is an instance of lenition but in fact involves the transmission of some melodic prime.
 - a. see Honeybone (2002: 205ff)
 - b. Scheer (2004: §560) regarding post-vocalic spirantization as found e.g. in the oft-quoted Tiberian Hebrew pattern (e.g. Kenstowicz 1994: 410ff): stops are realized as fricatives intervocalically and in codas (both internal and final), while they appear unaltered word-initially and in post-consonantal position.

2. How something can be transmitted that does not exist

- (4) there are two issues
 - a. intervocalic voicing cannot have two different causes.
 - b. there is no voice prime in vowels or sonorants that could be transmitted.
==> in this section we look at ways around b).
- (5) spontaneous vs. non-spontaneous voicing
 - a. the non-phonological character of voicing in sonorants and vowels, as opposed to phonologically controlled voicing in obstruents, sits on a solid empirical record that appears to be consensual in all phonological quarters.

- b. this record embodies as the distinction between spontaneous (sonorants and vowels) and non-spontaneous (obstruents) voicing (Chomsky & Halle 1968: 300f).
 - c. the distinction is also at the origin of the idea that the “natural state” of sonorants and vowels is to be voiced, while the archetypical obstruent is voiceless.
 - d. further evidence comes from first language acquisition: children acquire voiceless obstruents before voiced obstruents (e.g. Major & Faudree 1996: 71).
- ==> see the overview by Botma (2011)

- (6) sometimes sonorants and / or vowels do interact with the voicing of obstruents
 - a. example: external sandhi voicing
word-final voiceless obstruents are voiced when occurring before word-initial sonorants, vowels or voiced obstruents.
 - b.
 1. Catalan: Wheeler (1986), Bermúdez-Otero (2006)
 2. West Flemish: De Schutter & Tældeman (1986)
 3. Breton: Krämer (2000)
 4. Durham English: Gussenhoven & Jacobs (2011: 196)
 5. Polish: Bethin (1984, 1992), Gussmann (1992), Rubach (1996), Cyran (2014)

- (7) external sandhi in Warsaw Polish (WP) and Cracow-Poznań Polish (CPP)

			WP	CPP
a. ...T/D # T...	jak trudno	“how hard”	k-t	k-t
	wkład stały	“permanent contribution”	t-s	t-s
...T/D # D...	jak dobrze	“how well”	g-d	g-d
	wkład własny	“own contribution”	d-v	d-v
b. ...T/D # R...	jak możesz	“how can you”	k-m	g-m
	wkład mój	“my contribution”	t-m	d-m
c. ...T/D # V...	jak oni	“how they”	k-ɔ	g-ɔ
	wkład odrębny	“separate contribution”	t-ɔ	d-ɔ

- (8) accounts of the participation of spontaneously voiced sonorants and vowels in the laryngeal phonology of non-spontaneously voiced obstruents:
two solutions found in the literature:

1. representational
2. derivational

- (9) representational

an additional prime is introduced: [sonorant voice]

- a. [voice] = only in obstruents

- b. [sonorant voice]

present in sonorants and vowels as well as in certain obstruents, i.e. those which are assimilated in voicing by sonorants and vowels.

Obstruents that possess this feature are called *sonorant obstruents*

Rice & Avery (1989), Piggott (1992), Rice (1993)

- c. Element-based version:

instead of two distinct primes, the head-operator distinction is instrumental.

Botma (2004: 56f) argues that L is the head in sonorants, but only an operator in sonorant obstruents (also Botma & Smith 2006).

Honeybone (2002: 232, 2005) also uses unary primes but happily implements laryngeal specifications into sonorants (which are then spread onto obstruents).

- d. waterproof worlds?
spontaneous and non-spontaneous voicing are waterproof (they are encoded by two distinct features), unless they are not (when obstruents have the feature reserved for sonorants and vowels). The analyst puts down into phonological representation whatever the surface commands.
- (10) derivational
underspecification for [\pm voice] and late insertion of the redundant value
Itô & Mester (1986: 59f)
- a. Redundant values of this feature are absent lexically and only come into being at the end of the derivation by default-filling.
 - b. since [+voice] is redundant for sonorants, it is absent until the end of the derivation and therefore cannot be spread to obstruents.
 - c. obstruents on the other hand are unspecified for [-voice], which is only filled in by default when no voice value is present at the end of the derivation
 - d. waterproof worlds?
This makes spontaneous and non-spontaneous voicing waterproof, but modifying the stage in the derivation where default filling of redundant features occurs will allow for both worlds to interact.
- (11) surface and analysis
- a. these analyses take for granted that whatever is observable on the surface must be due to the workings of phonology: since we see that sonorants and vowels are sometimes able to assimilate obstruents in voicing, they must be specified for a voicing prime, which is spread onto obstruents by a phonological process.
 - b. alternative:
a truly waterproof world, i.e. one where vowels/sonorants are never specified for phonologically relevant voicing.
Cyran (2014), Scheer (2015, 2016)
 1. vowels and sonorants do transmit voicing to obstruents, but this has nothing to do with phonology.
 2. the voicing that is transmitted is spontaneous (rather than phonological), and it occurs post-phonologically in the phonetics.
==> It is interpretational in kind
[post-phonological spell-out (in a modular environment), or cue constraints: Boersma (2009), Hamann (2011), Scheer (2014)]
- (12) conclusion
- a. vowel/sonorant - obstruant interaction
 1. when understood as phonological activity
waters down the insight that spontaneous and non-spontaneous voicing are different in kind.
 2. when understood as phonetic (post-phonological) activity
maintains this ontological distinction.
 - b. this is all about issue (4)b: how to transmit something that does not exist.
 - c. whatever the solution to (4)b, there is still (4)a:
intervocalic voicing cannot have two different causes.

3. Intervocalic voicing is (also) lenition

(13) in order to make the argument (4)a (two different causes) effective, we need to be sure that intervocalic voicing is really lenition.

a. it is an archetypical case of lenition in the literature
See for instance Szigetvári (2008: 111ff), or any textbook.

b. positional phenomena
segmental properties do not play any role because the triggering factor is purely positional. Lenition is always positionally defined.

assimilation

lenition contrasts with assimilation which is not positionally defined, and where some property is transmitted from a trigger to a target.

b. Honeybone (2002: 205ff) puts it this way: “[a]ssimilations are a straightforward set of processes which involve the spreading of segmental material from adjacent or nearly adjacent segments, and if this is all that lenition is, then there is probably little else left to write on the topic” (p. 206).

c. intervocalic voicing is a stage in lenition trajectories

1. There are many instances of intervocalic voicing on record whose identity as instances of lenition is beyond doubt. These are cases where voicing occurs in a diachronic lenition trajectory that takes voiceless stops to fricatives or nothing in a number of steps, the first being voicing.

E.g. Lass (1984: 178), Szigetvári (2008: 101ff).

2. example: Western Romance

(e.g. Carvalho 2008)

	lat	port.		
pp	CUPPA	copa	degemination	cup
p	RIPA	riba	voicing	bank
b	CABALLU	cavalo	spirantization	horse

(14) intervocalic voicing cannot be just phonetic:

it sometimes distinguishes vowels and sonorants

a. there is no way to phonetically distinguish the voicing of sonorants and vowels, which should therefore both trigger obstruent voicing.

b. this is not the case: in Western Romance

[T= obstruents, R=sonorants]

	voicing	lat.		
V__V	yes	RIPA	port. riba	bank
V__R	yes	DUPLU	fr. double	double
R__V	no	TALPA	fr. taupe	mole
		CANTARE	fr. chanter	sing

c. typical effect of the strong position:

1. strong position: word-initial and post-consonantal

2. weak positions: intervocalic and coda

3. T in branching onsets TR (duplu > fr. double) behaves like intervocalic T
Ségéral & Scheer (2008), Brun-Trigaud & Scheer (2010)

d. ==> these positional effects can only be phonological.

(15) typological situation

- a. unclear
- b. textbooks and other data collections mention all kinds of intervocalic voicing, but do not bother being explicit about the fact that they do not occur in R__V and/or V__R.
- c. another hurdle is that not all languages provide for R__V (missing if there are no codas) and/or V__R (missing if there are no clusters).
- d. I could not identify clear cases of V__V only
what should be the most trivial pattern: intervocalic voicing that really only occurs in V__V, i.e. to the exclusion of R__V and V__R.
- e. other combinations
 1. V__V + R__V
[but not V__R], i.e. the symmetric pattern of Western Romance]
Old English fricative voicing
Honeybone (2002: 71f, 2005: 340). Lass (1994: 72) describes the pattern by the rule $f, \theta, s \rightarrow v, \delta, z / \acute{V}(R)_V$: fricatives voice when preceded by a stressed vowel (plus optionally a sonorant) and followed by another vowel.
 2. if surrounded by V or R: V__V + R__V + V__R
the four fricatives present in Common Germanic after the application of Grimm's Law f, θ, χ, s voice when surrounded by voiced items, i.e. sonorants, vowels or voiced obstruents, if the preceding vowel was unstressed in Indo-European (e.g. Collinge 1985: 203ff).

[But counting Verner's Law here turns out to be wrong if Saussure's 1916: 201 interpretation is correct: there was a general voicing process in the language that affected all fricatives independently of their neighbours, and this movement was only blocked by preceding stress or an adjacent voiceless obstruent. In this perspective, there is no contamination of fricatives by a voicing prime present in sonorants and vowels.]

(16) typology of intervocalic voicing that I could establish

	obstruents voice in		
	V__V	V__R	R__V
a. ?	yes	no	no
b. Western Romance	yes	yes	no
c. Old English	yes	no	yes
d. Verner's Law	yes	yes	yes

4. Teamwork: phonology prepares, phonetics hits

(17) causation

- a. the conundrum of (4)a (two different causes) disappears when both processes, i.e. lenition and assimilation, are distributed over distinct (computational) systems: each system has its own causation.
- b. hence
 1. lenition occurs in the phonology and manipulates primes responsible for voicing:
==> L/H is delinked (or [voice] / [spread glottis])
 2. passive (i.e. phonetic) voicing occurs in phonetic interpretation: it then targets neutral, i.e. delaryngealized consonants.

(18) laryngeal systems

according to Laryngeal Realism (Iverson & Salmons 1995, Honeybone 2002, 2005), there are

[the situation in Laryngeal Relativism (Cyran 2014) is more complicated: more systems are generated]

- a. C[◦] = neutral consonants, phonologically unspecified for laryngeal properties
- b. C^H = consonants that are phonologically specified for voicelessness
- c. C^L = consonants that are phonologically specified for voicing
- d. C[◦] is "passively" voiced by its phonetic environment

H (unary prime) is equivalent to [spread glottis] (feature)

L (unary prime) is equivalent to [voice] (feature)

This difference in primes is orthogonal to Laryngeal Realism (Relativism)

(19) two-way laryngeal systems and VOT

closure	phonology			phonetic interpretation			
	lead	release	lag	C ^L	C [◦]	C ^H	
a.		C [◦]	C ^H		[D] / [T]	[T ^h]	Germanic
b.	C ^L	C [◦]		[D]	[T]		Slavic (incl. W Polish), Romance

(20) H- vs. L-languages

- a. in H-languages (Germanic), C[◦] may be "passively" voiced.

This means that the voicing is not phonological and hence not necessarily categorical: it is phonetic in kind and comes from the environment.

type 1: C[◦] = [passively voiced]
C^H = [voiceless]

type 2: C[◦] = [voiceless] / [passively voiced]
C^H = [voiceless aspirated]

- b. in L-languages (Slavic, Romance), C[◦] must not be passively voiced, since otherwise there would be no surface distinction between C[◦] and C^L
C[◦] = [voiceless] (no passive voicing)
C^L = [voiced]

4.1. L systems (Western Romance)

(21) before the innovation

- a. C[◦] is pronounced [T]
C^L is pronounced [D]

b. hence

	C ^L	C [◦]
V__V	[D]	[T]
V__R	[D]	[T]
R__V	[D]	[T]
#__	[D]	[T]

(22) phonological process (= innovation)

C^L → C[◦] / V__V, V__R

consonants are delaryngealized in V__V, V__R.

(23) after the innovation

	C ^L	C ^o
V__V	[D]	[D]
V__R	[D]	[D]
R__V	[D]	[T]
#__	[D]	[T]

(24) consequences

phonological (positional) control over passive voicing

a. phonologically identical items, C^os, have two different pronunciations according to their position:

1. [D] in V__V and V__R
2. [T] elsewhere

b. [D] in V__V and V__R is the result of passive voicing.

c. passive voicing is under positional, i.e. phonological control.

d. there is nothing wrong with that, on the contrary this is predicted by modular interface theory, i.e. post-phonological spell-out:

1. phonetic interpretation (cue constraints) defines how phonological items are pronounced once phonological computation is completed.
2. the phonological identity of an item is not only defined by its melodic (segmental) makeup
3. items are also phonologically distinct according to the position they occur in. This also applies to C^L, C^H and C^o.

e. ==> phonetic interpretation statements may refer to phonological information such as position.

(25) side-effect

there is passive voicing also in L-systems:
positionally controlled passive voicing.

(26) hence

Western Romance intervocalic voicing

a. before the innovation

C^o is pronounced [T]

b. after the innovation

C^o in non-intervocalic position is pronounced [T]

(in terms of the Coda Mirror: ungoverned C^o is pronounced [T])

4.2. H systems

(27) Verner's Law

e.g. Collinge (1985: 203ff), Rooth (1974)

a. Common Germanic f, θ, s, h turn into voiced fricatives in intervocalic position (more precisely: when adjacent to V/R on both sides), provided that the preceding vowel did not bear stress in IE.

b. before the innovation

C^H = [voiceless]

C^o = [voiced] (passively voiced)

- c. phonological process (innovation)
F = fricatives
 $F^H > C^\circ$ except when preceded by stress
 - d. after the innovation
same as before: C° is passively voiced.
- (28) Old English fricative voicing
- a. fricatives voice when preceded by a stressed vowel (plus optionally a sonorant) and followed by another vowel.
 $f, \theta, s \rightarrow v, \delta, z / \acute{V}(R)_V$
(Lass 1994: 72)
 - b. $F^H > C^\circ$ when preceded by a stressed vowel
analysis by Honeybone (2002: 236, 2005)
 - c. C° is passively voiced.

5. Conclusion

- (29) intervocalic voicing
- a. target identification is always phonological (lenition)
 - b. phonetic interpretation may (L-systems) or may not (H-systems) be sensitive to position.
 - c. in L-systems
 - 1. phonology
 $C^L > C^\circ$
for all C^L
 - 2. phonetic interpretation
passive voicing is sensitive to position: it affects only a positionally defined subset of C° .
 - d. in H-systems
 - 1. phonology
 $C^H > C^\circ$
applies only to a positionally defined subset of C^H .
 - 2. phonetic interpretation
passive voicing applies to all C°
- (30) waterproof worlds
- a. there is no transmission of voicing from vowels/sonorants to obstruents in the phonology. Never and under no circumstances.
 - b. spontaneous and non-spontaneous voicing are two ontologically distinct things that belong to two different areas:
 - 1. phonology - non-spontaneous voicing
 - 2. phonetics - spontaneous voicing
 - c. phonology unburdened
 - 1. no extra primes
 - 2. no serial mechanics for voice

References

- Bermúdez-Otero, Ricardo 2006. Phonological domains and opacity effects: a new look at voicing and continuancy in Catalan. Paper presented at the Workshop on Approaches to phonological opacity at GLOW, Barcelona April, 5th.
- Bethin, Christina 1984. Voicing assimilation in Polish. *International Journal of Slavic Linguistics and Poetics* 29: 17-32.
- Bethin, Christina 1992. *Polish Syllables: the Role of Prosody in Phonology and Morphology*. Columbus OH: Slavica.
- Boersma, Paul 2009. Cue constraints and their interactions in phonological perception and production. *Phonology in Perception*, edited by Paul Boersma & Silke Hamann, 55-110. Berlin: Mouton de Gruyter.
- Botma, Bert 2004. *Phonological Aspects of Nasality. An Element-Based Dependency Approach*. Ph.D dissertation, University of Amsterdam.
- Botma, Bert 2011. Sonorants. *The Blackwell Companion to Phonology*, edited by Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice, 171-194. New York: Wiley-Blackwell.
- Botma, Bert & Norval Smith 2006. A dependency account of the fortis–lenis contrast in Cama. *Linguistics in the Netherlands 2006*, edited by Jeroen van de Weijer & Bettelou Los, 15-27. Amsterdam: Benjamins.
- Brun-Trigaud, Guylaine & Tobias Scheer 2010. Lenition in branching onsets in French and in ALF dialects. *Development of Language through the Lens of Formal Linguistics*, edited by Petr Karlík, 15-28. Munich: Lincom. WEB.
- Carvalho, Joaquim Brandão de 2008. Western Romance. Lenition and Fortition, edited by Joaquim Brandão de Carvalho, Tobias Scheer & Philippe Ségéral (eds.), 207-232. Berlin: Mouton de Gruyter. WEB.
- Chomsky, Noam & Morris Halle 1968. *The Sound Pattern of English*. Cambridge, Mass.: MIT Press.
- Collinge, Neville E. 1985. *The Laws of Indo-European*. Amsterdam, Philadelphia: Benjamins.
- Cyran, Eugeniusz 2014. *Between Phonology and Phonetics. Polish Voicing*. Berlin: Mouton de Gruyter.
- De Schutter, G. & J. Taeldeman 1986. Assimilatie van Stem in de Zuidelijke Nederlandse Dialecten. *Vruchten van z'n akker: opstellen van (oud-) medewerkers en oud-studenten voor Prof. V.F. Vanacker*, edited by M. Devos & J. Taeldeman, 91-133. Ghent: Seminarie voor Nederlandse Taalkunde.
- Gussenhoven, Carlos & Haike Jacobs 2011. *Understanding Phonology*. Third edition London: Hodder.
- Gussmann, Edmund 1992. Resyllabification and delinking: The case of Polish voicing. *Linguistic Inquiry* 23: 29-56.
- Hamann, Silke 2011. The Phonetics-Phonology Interface. *The Continuum Companion to Phonology*, edited by Nancy Kula, Bert Botma & Kuniya Nasukawa, 202-224. London: Continuum.
- Honeybone, Patrick 2002. *Germanic Obstruent Lenition: Some Mutual Implications of Theoretical and Historical Phonology*. Ph.D dissertation, University of Newcastle.
- Honeybone, Patrick 2005. Diachronic evidence in segmental phonology: the case of laryngeal specifications. *The internal organization of phonological segments*, edited by Marc van Oostendorp & Jeroen van de Weijer, 319-354. Berlin: de Gruyter.
- Itô, Junko & Armin Mester 1986. The Phonology of Voicing in Japanese: Theoretical Consequences for Morphological Accessibility. *Linguistic Inquiry* 17: 49-73.

- Iverson, Gregory & Joseph Salmons 1995. Aspiration and laryngeal representation in Germanic. *Phonology Yearbook* 12: 369-396.
- Kenstowicz, Michael 1994. *Phonology in Generative Grammar*. Oxford: Blackwell.
- Krämer, Martin 2000. Voicing alternations and underlying representations: the case of Breton. *Lingua* 110: 639-663.
- Lass, Roger 1984. *Phonology. An introduction to basic concepts*. Cambridge: Cambridge University Press.
- Lass, Roger 1994. *Old English*.
- Major, Roy C. & Michael C. Faudree 1996. Markedness universals and the acquisition of voicing contrasts by Korean speakers of English. *Studies in Second Language Acquisition* 18: 69-90.
- Piggott, Glyne 1992. Variability in feature dependency: the case of nasality. *Natural Language and Linguistic Theory* 10: 33-78.
- Rice, Keren 1993. A Reexamination of the Feature [Sonorant]: The Status of 'Sonorant Obstruents'. *Language* 69: 308-344.
- Rice, Keren & Peter Avery 1989. On the interaction between sonorancy and voicing. *Toronto Working Papers in Linguistics* 10: 65-82.
- Rooth, E. 1974. *Das Vernersche Gesetz in Forschung und Lehre*. Lund: Gleerup.
- Rubach, Jerzy 1996. Nonsyllabic analysis of voice assimilation in Polish. *Linguistic Inquiry* 27: 69-110.
- Saussure, Ferdinand de 1916. *Cours de linguistique générale*. Paris 1972: Payot.
- Scheer, Tobias 2004. *A Lateral Theory of Phonology. Vol.1: What is CVCV, and why should it be?* Berlin: Mouton de Gruyter.
- Scheer, Tobias 2014. Spell-Out, Post-Phonological. *Crossing Phonetics-Phonology Lines*, edited by Eugeniusz Cyran & Jolanta Szpyra-Kozłowska, 255-275. Newcastle upon Tyne: Cambridge Scholars.
- Scheer, Tobias 2015. A World without Voiced Sonorants: Reflections on Cyran 2014 (Part 1). *Studies in Polish Linguistics* 10: 125-151. Available at <http://www.ejournals.eu/SPL/2015/Issue-3/art/6440/>.
- Scheer, Tobias 2016. A World without Voiced Sonorants: Reflections on Cyran 2014 (Part 2). *Studies in Polish Linguistics* 11.
- Ségéral, Philippe & Tobias Scheer 2008. Positional factors in lenition and fortition. *Lenition and Fortition*, edited by Joaquim Brandão de Carvalho, Tobias Scheer & Philippe Ségéral, 131-172. Berlin: Mouton de Gruyter. WEB.
- Szigetvári, Péter 2008. What and where? *Lenition and Fortition*, edited by Joaquim Brandão de Carvalho, Tobias Scheer & Philippe Ségéral, 93-129. Berlin: Mouton de Gruyter.
- Wheeler, M. W. 1986. Catalan sandhi phenomena. *Sandhi phenomena in the languages of Europe*, edited by Henning Andersen, 475-488. Berlin: Mouton de Gruyter.