Voice assimilation in Hungarian: the hitches

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Voice assimilation is a much discussed issue recently. The topics involved are whether the feature voiced is privative or equipollent and whether the process can be described by making reference to prosodic structure or by specifying the environment linearly. By analysing voice assimilation in Hungarian, I attempt to show that a privative feature is capable of doing the job—though not unproblematically—and that the environment is much more easy to describe simply by making reference to the next segment(s) than by identifying the position of the target and the trigger by traditional syllabic constituents, like onset and coda. The last section of the paper treats three segments, [v h j], the ambivalent behaviour of which raises a number of problems to be solved. The aim is not so much to provide solutions to each problematic detail, but to gather the points that have to be sorted out.

1 The phenomenon

Voice assimilation in Hungarian is similar to that in Polish and Russian, to mention two copiously documented languages (e.g. Gussmann 1992 and Rubach 1996 on Polish, Hayes 1984 on Russian). However, unlike those this language lacks word-final devoicing, like Yiddish, Rumanian and Serbo-Croatian (Lombardi 1995a : 67). Voice assimilation is not optional at all contrary to what Vago (1980) suggests: two obstruents with different voicing can only follow one another at a phrase or clause boundary, flanking a relatively long pause and in a special case to be discussed below. Lists with examples for each consonant are given in Siptár 1996; also cf. the alternative analysis in Siptár & Törkenczy 1997.

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Voice assimilation in Hungarian means the following: adjacent obstruents must agree in voicing and it is the last one of a sequence of obstruents that determines the voicing of the whole cluster. Here are some examples: *afgán* [-vg-] 'Afghan(istani)', *Macbeth* [-gb-] id., *Stuttgart* [-dg-] id., *Agfa* [-kf-] id., *Leeds* [-ts] id.;[1] *háztól* [-st-] 'house-abl', *hatból* [-db-] 'six-elat', *polgazdként* [-stk-] 'as political economy', *smaragdféle* [-ktf-] 'emerald like', *lisztből* [-zdb-] 'flour-elat', *receptbe* [-bdb-] 'recipe-illat'; *kék bélyeg* [-gb-]'blue stamp', *zöld kutya* [-ltk-] 'green dog'.

What usually cause the problem are two segments that exhibit an indecent behaviour: [v], which becomes voiceless when the target (e.g. *elvtárs* [-lft-] 'comerade'), but fails to voice the preceding obstruent as the trigger (e.g. *ásvány* [-ʃv-] 'mineral') and [h], which fails to get voiced (e.g. *céhbeli* [-xb-] 'guildsman'), but makes a preceding obstruent voiceless (e.g. *egyház*[2] [-ch-] 'church'). Thus target [v] behaves as an obstruent, trigger [v] as a sonorant, while target [h] is not like an obstruent, but trigger [h] is. The intriguing fact is that in non-prevocalic position [h] is represented by the variant [x], which is undoubtedly an obstruent, yet it is exactly this position where [h] refuses to suffer the fate of obstruents. A devoiceable (i.e. obstruent-type) [v], on the other hand, does still not behave like a true obstruent: although if devoiced it makes the preceding obstruent voiceless (e.g. *kedv* [-dv] 'mood' vs. *kedvtelen* [-tft-] *depressed*), when it remains voiced it does not voice a preceding obstruent. Examples for the latter case are not easy to come by, some can nevertheless be construed, e.g. *két Wrangler* [-tvr-] 'two pairs of Wrangler jeans' (Siptár 1996 : 92). It must be noted that there exist dialects in which [v] does voice a preceding obstruent thus it behaves like any other obstruent. In another dialect [h] fails to devoice a preceding obstruent and so is a normal sonorant. Intervocalically [h] usually gets voiced (e.g. *noha* [-ɦ-] 'although') and with the increase of tempo this may even happen before a voiced obstruent (e.g. *céhbeli* [-ɣb-] 'guildsman'), but not before a sonorant (e.g. *céhmester* [-xm-] 'guild master'). Such instances of voicing are purely phonetical (similarly to the full voicing of obstruents in English, which at word edges are devoiced) and need not concern us.

There is a third segment that is involved in this process despite the fact that it is never classified as an obstruent, [j]. This segment, however,

[1] These examples are listed to show that the rule applies lexically. Probably such words have uniformly voiced or voiceless clusters underlyingly, although their learnedness may argue for an underlying representation according to the spelling.

[2] The grapheme *gy* represents [ɟ].

participates only if it is postconsonantal. Besides *bojt* [-jt] 'tassel' and *rój te* [-jt-] 'notch-imp you',[3] where the behaviour of [j] is like that of a normal sonorant, we also find *férjtől* [-rçt-] 'husband-abl', *szomjtól* [-mçt-] 'thirst-abl', *lopj* [-pç] 'steal-imp' and *dobj te* [-pçt-] 'throw-imp you'. Besides the usual regressive assimilation, here we encouter an instance of what can be described as progressive voice assimilation. What distinguishes the non-assimilating [j] from the one that does so is that the latter undergoes obstruentization after a consonant and before a non-vowel: *férj* [-rʝ] 'husband', *szomj* [-mʝ] 'thirst', *dobj* [-bʝ] 'throw-imp'. In pre- and postvocalic contexts it is always the approximant variant that surfaces.

The data do not show clearly whether [v] and [j] behave differently when sandwiched between two obstruents or an obstruent and a pause: there are no words ending in a voiceless obstruent+[v] cluster, where we would expect progressive devoicing as in *lopj,* and there is no word beginning in a [j]+consonant cluster where we would not expect the voicing of a preceding obstruent as in *két Wrangler.* In V__[−voice] position the two segments, nevertheless, do contrast: [v] obstruentizes and becomes voiceless, whereas [j] remains unaffected.

Finally, in certain cases voice assimilation fails to take place. Zsigri (1996 : 282) notes that *Szverdlovszkban* 'in Sverdlovsk' may be pronounced [-fskb-] and *Bathban* 'in Bath' as [-θb-] because of the foreignness of the word endings: the cluster [fsk] is unprecedented in the native vocabulary, as is the segment [θ]. This faithfullness manoeuvre he claims to be a case of estrangement, putting the unnatural string between phonological quotes.

2 Attempts at a formalizaion

Easy as it may seem in everyday words, the process successfully resists attempts at formalizing it in contemporary frameworks. Disregarding the problem children, [v], [j] and [h], whose odd behaviour will be elaborated on below, the rule could be stated as in (1):

$$\text{(1)}\quad [-\text{son}] \rightarrow [\alpha\text{voice}]\ /\ \underline{\quad}\ (\#) \begin{bmatrix} -\text{son} \\ \alpha\text{voice} \end{bmatrix}$$

Few phonologists would think of the above statement as more than a mere description of what is going on. The rule involves the variable α, which if changed to $-\alpha$ would create utter nonsense: a rule whereby two strictly adjacent obstruents *must* disagree in voicing. Such a language is not only

[3] This and all the following verbs are imperative 2nd person singular forms.

unknown, but also very unlikely ever to be found. The rule also fails to make explicit reference to the identity of the output feature and the one in the environment, although it is intuitively obvious that it is not by accident that the voicing properties of the first obstruent comes to be the same as that of the second.

Taking features to be autosegments that are capable of anchoring to more than one points on the skeleton, voicing assimilation can be conceived of as the spreading of the [voice] feature from the second skeletal point and linking to the first, whose original [voice] feature has to delink in turn, and eventually wither away. Such a formalization fares better in explaining why voicing assimilation occurs between adjacent obstruents, whereas dissimilation is unattested: the latter process could be expressed very difficultly, if at all, by the tools available.[4]

2.1 Unary features

Another criticism that has been levelled against the classical framework is that its use of equipollent features predicts the possibility of twice as many processes as a theory applying privative features would allow. The crucial difference between these two types of features is that equipollent features assume phonological properties to have two symmetrical values and predict that both values are phonologically significant.[5] Privative features on the other hand encode phonological properties in such a way that the absence of a property A is not distinct from the absence of a property B. Voicelessness, say, is represented by the absence of the feature [voiced], which is identical to the representation of unroundedness or nonlabiality: the absence of the feature [round] (or [labial]). It is true, as Pulleyblank (1995 : 16ff) argues, that the number of objects binary and unary features can distinguish is equal (2^n, where n is the number of features), yet whereas a segment that is [−voiced] can be treated differently in a process than another which is [−round], the same does not hold in a unary framework. Feature theory

[4] There do exist cases of voicing dissimilation, e.g. Lyman's Law blocking Rendaku in Japanese (Itô & Mester 1986), but these always involve obstruents flanking a pronounced vowel.

[5] At least there is a level, perhaps only the surface, where this is so. Underspecification theories claim that in "deeper" layers of phonology there does exist an asymmetry between the the values of a feature, one is marked therefore present, the other unmarked therefore absent from the representation. Still, in principle there is a possibility of manipulating both values.

has developed towards privativeness through various stages of underspecification (Steriade 1995). The theoretical superiority of privative features should be obvious, the choice is whether to set out to narrow the framework by finding which features are possibly unary or assume that all are and give up on this assumption only when forced to. I am going to adopt the latter strategy in this paper.

Privative features inherently contain markedness statements, making independent statements of the type

$$[u\ \text{voice}] \ \rightarrow\ [-\text{voice}] \Big/ \begin{bmatrix} \underline{\quad} \\ -\text{son} \end{bmatrix}$$

(Chomsky & Halle 1968 : 406) dispensable. In a unary framework some property of a segment is marked if it is marked by a feature and it is unmarked if there is no feature marking it, in fact, markedness plays such a pivotal role that such rather tautologous statements can be made about it.

Theoretically there are two options for converting a binary into a unary feature. Using the above example, one could either say [+voice] $\rightarrow$ [voiced] and [−voice] $\rightarrow \emptyset$ or [+voice] $\rightarrow \emptyset$ and [−voice] $\rightarrow$ [voiceless]. The SPE marking convention displayed above suggests that [voiced] ought to be selected as a privative feature, since voicelessness is the unmarked property. There are several criteria on which to base the decision on whether it should be [voiced] or [voiceless] that expresses the opposition in this dimension. If we examine the distribution of obstruents across languages we find that every language has voiceless obstruents and there are languages which have only this type of obstruents (Maddieson 1984 : 26ff). Another, perhaps even more decisive criterion for treating voicelessness as the unmarked option is the fact that in environments where laryngeal distinctions neutralize (for example, word-finally) it is always the voiceless member of the pair that survives, provided that there is no external source of voicing like, for example, in voice assimilation. Both these considerations support the markedness convention proposed by Chomsky & Halle.

Before we could lean back contentedly assuming [voiced] to be responsible for voicing and its absence for voicelessness, there is yet another issue to tackle: the [−son] specification in the SPE markedness convention quoted above. It is meant to say that voicelessness is only unmarked for obstruents—true consonants, as Chomsky & Halle put it. For most nonobstruents the situation is just the reverse: they are voiced in the unmarked case. We should recall that privative features inherently contain markedness relations, that is, the marked value of a feature cannot be made dependent on other features of the segment.[6] Therefore the SPE statement cannot be directly translated to a unary framework, which should now include both the feature [voiced] in marked obstruents and [voiceless] in marked sonorants. The question is: how to make sure that sonorants are unmarkedly voiced without including the feature [voiced] in them. There are a number of facts that point towards sonorants not being voiced phonologically. They do not pattern with voiced obstruents at all: sonorants do not devoice word-finally, they do not voice the preceding or following obstruent[7] and are transparent in voicing assimilations (e.g. Russian *iz Mcenska* [ismt͡s-] 'from Mcensk', *ot mzdy* [odmz-] 'from the bribe' (Hayes 1984 : 320)). It has been known for quite some time that sonorants are voiced differently than obstruents. While for the former the vibration of the vocal folds is spontaneous, in the articulation of an obstruent an effort has to be made to get the vocal folds to vibrate (cf. e.g. Chomsky & Halle 1968 : 300f). The meaning of the feature [voiced] is thus not that the sound it forms part of is voiced phonetically, that is, that the vocal folds are vibrating, but that it is markedly voiced: some effort must be made to have voicing. This explains why, although vowels and sonorants are typically voiced, the feature [voiced] is included in the make-up only of voiced obstruents[8] (Hayes 1984). There is no need for any phonetic implementation module

[6] It is an interesting question to ask whether markedness can depend on the segment's prosodic position. The answer seems to be yes: consonants are marked in the nucleus of the syllable, vowels (called glides in this case) are marked in the onset. I will briefly return to this issue below.

[7] In some languages, e.g. English, Yakut, Greek and Latin (Steriade 1995 : 168), voicing is claimed to spread from sonorants. The case of English plural [s]∼[z] can easily be explained away by supposing that the suffix is voiced underlyingly and that it is [aspiration] distinguishing the two sets of obstruents in this language (cf. Harris 1994, Iverson & Salmons 1995), which is spreading onto it from the preceding voiceless obstruent making it voiceless. The Yakut data Steriade refers to do not exclude such an interpretation either. In Greek (and historically in Hungarian) too, nasals, but not other sonorants, voice an adjacent obstruent. I will return to this phenomenon in the next footnote.

[8] At this point [voiced] can be excluded from the representation of nonobstruents only by a stipulation. Alternatively, it may be given some other interpretation when not in obstruents. For this purpose nasality may be a candidate: obstruents are typically nonnasal and nasality may cause obstruent voicing. But there are also problems: nasals are thus expected to denasalize where obstruents devoice, something they do not typically do, and it is not the default case either that they spread voicing on the preceding obstruent, which suggests some intimate connection between [voiced] and obstruency.

to determine that obstruents without any voicing specification are to be pronounced voiceless, while sonorants and vowels voiced: the vibration of the vocal folds or its absence follows spontaneously from other properties of the segment and the anatomy of the human articulators, in much the same way as the fact that a glottal stop cannot be nasal(ized).

2.2 The scope of spreading

A standard way of formally limiting the feature [voiced] to obstruents is by postulating that it is only this class of sounds that have a laryngeal node (Lar) in their representation, whose task is to accumulate features controlling laryngeal activity. Feature trees lacking such a node, that is, the bundles representing nonobstruents, are incapable of hosting the feature [voiced], and as a result will not manifest a voicing opposition.[9] This means the following representations:

(2)	a. voiced obstruent	b. voiceless obstruent	c. sonorant
	×	×	×
	Lar	Lar	
	[voiced]		

Lombardi claims that "there is no such thing as a representation with a bare Laryngeal node" (1995 : 41). In her framework obstruents and sonorants are not distinguished by the presence and absence of the laryngeal node, but by the feature [±sonorant]. Sonorants also possess Lar, which in their case may host [aspiration]. As a result, she cannot account for why sonorants cannot be specified by [voiced], even in languages that allow them to have a Lar, because laryngeally marked sonorants occur.

Representations like in (2), however, will contain an unnecessary redundancy: obstruents and sonorants are now distinguished not only by the usual feature [±sonorant], or in our case its privative equivalent, but also by the presence or absence of the laryngeal node. Since the two appear to be either both present or both absent they could be merged. Instead of the feature [voiced] anchoring to Lar, I claim that it can link to the skeleton only by the mediation of the unary feature equivalent of [−sonorant], which

[9] It must be noted that there exist languages with pairs of sonorants that show contrastive voicing. Voiceless sonorants in these languages can be proved to be aspirated (Lombardi 1995b : 51 and referenes there).

I call [noisy].[10] Dispensing with the laryngeal node and employing [noisy] to assume its role is felicitous because it explains why it is only obstruents that are able to contrast voicing. The representations I posit are displayed in (3):

(3)

a. voiced obstruent	b. voiceless obstruent	c. sonorant
×	×	×
[noisy]	[noisy]	
[voiced]		

Having decided upon the relevant portion of the segments involved, we may now proceed with attempting to explain why voice assimilation occurs. Let us begin with voicing spreading backwards. All that need be said is: the feature [voiced] spreads backwards. It clearly cannot be the case that it spreads together with its host [noisy] since that would create obstruents in pre-obstruent position, which does not happen. The question is what stops [voiced] in spreading backwards. Apparently, in Hungarian at least, this feature may spread as long as it finds a [noisy] feature to host it. During this [voiced] cannot skip segments that lack such a feature, the target of spreading must be superficially adjacent to the source. This may appear to be different from what happens in Russian and Polish, where sonorant (consonant)s are transgressed by regressive voicing assimilation (cf. *i*[s] *Mcenska, o*[d] *mzdy*). Note, however, that there is no data to certify whether the two types of languages are indeed different, since Hungarian lacks obstruent+sonorant+obstruent clusters, or when they could come about the middle sonorant turns into an obstruent (*kedvtől, dobj ki,* more on which below).

2.3 The "spreading" of voicelessness

The more intriguing task is to formalize the "spreading" of voicelessness. With our general preference for privative features, becoming voiceless can only mean the loss of [voiced]. The difficulty lies in the fact that it is only before a voiceless obstruent that [voiced] is lost, disregarding the syllabic

[10] This feature will be familiar to connoisseurs of Government Phonology. This is no accident, [noisy] is the same as GP's **h** element. There is, however, some uncertainty here whether obstruents are more or less marked than sonorants. I am, nevertheless, going to follow Harris (1990 : 263) in assuming this privative feature equivalent of [−sonorant].

position the segments participating in the process occupy. Lombardi claims that universally the position the segment occupies in the syllable is crucial: [voiced] (and other laryngeal features) can be licensed only in the head (i.e. first/strongest member) of the onset. She posits the following positive constraint (1995a : 42):

(4) σ

[Root] [+son]

· Laryngeal node

The constraint itself is theory-specific, as there exists no consensus view on the prosodic whereabouts of certain segments in a syllable. If a theory allows resyllabification, for example, the stage of the derivation where the constraint holds must be fixed, since a coda can easily end up as an onset or vice versa. Another sensitive issue is whether we believe that prosodic positions can fail to become manifest on the surface and, as a result, an onset is not necessarily prevocalic or we maintain the orthodox view that syllable structure can trivially be read off the string of sounds uttered. Assuming the second option, which is what Lombardi does, renders all word-final consonants into the coda position. Hungarian, however, does maintain the voicing opposition of obstruents word-finally. To account for such languages Lombardi posits that this position is special — which, of course, is very true—by invoking the idea of final exceptionality: Lar]$_W$. The facts of Hungarian again evade the attempt at describing them: as Lombardi notes "[Hung.] has medial voiced stop-nasal clusters, but I have found no evidence to suggest that these are onsets" (1995a : 67). So much so, that evidence suggests that there are no onsets larger than one segment in this language (cf. Törkenczy & Siptár 1997, Polgárdi 1997). What actually matters here is not simply the existence of voiced stop–nasal clusters but that voicing is contrastive in this environment, e.g. *hagyma* 'onion', *fityma* 'prepuce'. The other problem is that word-final obstruents are exceptional as far as they do not neutralize laryngeally when they are utterance-final or followed by a nonobstruent, but they behave like any word-internal obstruent if followed in the next word by another obstruent. Lombardi's suggestion, that both values of [voiced] are spreading, because being an optional rule voice assimilation comes very late in Hungarian is not viable for two reasons: it is empirically false that the rule should be optional, as has been pointed out above, and in addition, we would be sneaking back a binary feature if we allowed its "negative" value to spread.

If a positive constraint — telling where voicing can occur — is unable to capture the relevant environments properly, we must have recourse to a negative constraint, which filters out those environments where we do not expect the feature [voiced] to turn up. As we have seen this is only the pre-voiceless-obstruent position, therefore the constraint may look like (5):

(5)

$$\begin{array}{cc} {}^{*}\times & \times \\ | & | \\ [\text{noisy}] & [\text{noisy}] \\ | & \\ [\text{voiced}] & \end{array}$$

Crucially, the formulation above does not make reference to syllable structure, the two skeletal slots in (5) are adjacent in pronunciation, but may constitute a coda–onset cluster or two onsets with an intervening empty nuclear position or even word boundary. It is something of a problem how this configuration should be represented formally. One approach would be to say that the constraint applies to cases where two [noisy] features are adjacent on their tier. This would mean that voicelessness (and also voicing) spreads across nonobstruents, which lack the [noisy] feature, similarly to Russian. The problem is that the two types of nonobstruents, sonorant consonants and vowels, must somehow be distinguished, since obviously neither laryngeal quality skips vowels, whereas sonorant consonants do not block voice assimilation in Russian and — vacuously — in Hungarian. In many contemporary frameworks this means that syllable structure does have to be involved, since nothing but a link to a nuclear or a non-nuclear skeletal position decides whether a segment is vocalic or consonantal. The problem may thus be reduced to stating that the feature [voiced] spreads across empty V positions and [noisy]-less C positions. The question how V and C positions are distinguished I leave unresolved.

A further difficulty that arises with respect to (5) is that it makes an implicit reference to the absence of the feature [voiced]. One could say that since the first position is "weak" it cannot license [voiced] in itself, it must share this feature with the following position. If this were so we would expect obstruents to suspend laryngeal oppositions before any consonant that is not both an obstruent and voiced. (Recall that sonorants are phonologically voiceless: they do not contain the feature [voiced].) That is, the existence of pairs like *ablak* 'window' and *paplan* 'quilt' would be unexpected. Instead we are forced to say that the first position is unable to license [voiced] alone only in case the second contains [noisy] (and lacks [voiced]),[11] which is what (5) does.

3 Nonobstruents in voice assimilation

Having discussed the general formalization of the voice assimilation process of Hungarian, I will now proceed to treating the three consonants, [v], [h] and [j], which display a peculiar behaviour in this process.

What usually baffles phonologists concerned with voice assimilation in these segments is that they participate in the process only partially: [v] does not trigger it, but becomes voiceless, [h] triggers it and does not become voiced, while [j] remains unaffected unless preceded by a consonant and followed by a non-vowel. The root of the problem is that these three segments have both obstruent and sonorant variants and as we have seen it is exactly this difference that the process of voice assimilation is sensitive to. Furthermore phonologists often try to give a phonetic description of contrastive sound units — phonemes, as they were traditionally called —, although these are abstractions based on the variants they are realized by in various phonetic contexts.

Taking [v] for example, if it is specified as an obstruent, as is traditionally the case, it remains mysterious why it stays inert in Cv clusters. One then has to look for alternative solutions like Zsigri (1996), who introduces the feature [±transient] to distinguish [v] and all the sonorants from all other nonsonorants, or Kornai (1994 : 25f), who claims that the voicing of [v] is not specified on the laryngeal but on the manner tier, therefore it cannot spread. If [v] were specified as a sonorant, like in Vago 1980, then an ad hoc rule has to be introduced that devoices it before a voiceless obstruent, or another rule that obstruentizes it in the relevant positions (in non-prevocalic position) thus making it a suitable input for the assimilation rule (Olsson 1992).[12]

Thus what we have are two variants of [v], an approximant (hence sonorant) [ʋ] and a fricative (hence obstruent) [v]. Their distribution is by and large that the first appears in prevocalic position, the second elsewhere. The question emerges whether these two variants should be represented differently — one lacking the [noisy] feature, the other having it — or their

[11] The anonymous reviewer rightly points out that this is an implicit reference to the absence of a feature, which is why it is mentioned as a difficulty here.

[12] Olsson claims that this obstruentization is only virtual, the [v] behaves *as if it were* an obstruent, but it is not at all clear what this is supposed mean.

prosodic position is enough to have them interpreted appropriately. If voice assimilation is to happen between segments having the [noisy] feature (or Lar node), as has been proposed, then we are forced to select the first option. The next question to ask is whether the two types of [v]'s are derived from each other or we are faced with a static distributional fact about this segment. Again we have to follow the first path, since the choice between [ʋ] and [v] is not predetermined lexically: there exist cases of postlexical alternations, like *tá*[ʋ]*úszó* 'long-distance swimmer' vs. *tá*[v]*beszélő* 'telephone'. In such a case the generative approach forces us to derive either [ʋ] from [v] or [v] from [ʋ]. A further point to make a decision on is which of the two variants are to be taken as underlying. We have seen that there are precedents for both approaches.

The two sounds, [ʋ] and [v] apparently only differ in the absence and presence of the [noisy] feature, which means [v] → [ʋ] is a case of lenition. The problem is that this lenition would occur in, for example, word-initial prevocalic position — which undoubtedly is an onset — , an unexpected lenition site. Assuming [ʋ] → [v] is not much of a help: fortition would here take place in coda, or before an empty onset, neither of which is a typical place for fortition to happen. What is more: the [noisy] feature appearing in the coda would have no source to come from. Faced with a similar problem Cyran (1997 : 198ff) proposes that the [ʋ] (or [w] as he puts it) → [v] fortition does not involve addition of any new material, simply a change in the dependency relations of the features. He claims, together with Government Phonology and Dependency Phonology, that one of the features in a segment may be special in being the head, typically carrying the most prominent characteristics of the segment. Cyran's innovation is saying that the feature [labial] (which he refers to as the element **U**) adds friction to the segment when it is its head. Thus a non-head **U** is [w] (or [ʋ] if we like), while a head **U** is [v]. The fortition process thus involves only the promotion of a feature into head position without the need for any extra material.[13] How [v], which still does not have a [noisy] feature, can become voiceless, is not yet obvious. Cyran assumes that head **U**, that is [v], is reinterpreted as a proper obstruent, {**LhU**}—[voiced, noisy, labial]—, which may devoice. This mechanism cleverly overcomes the difficulty left unmentioned above, namely that an obstruentized sonorant ought to be voiceless since it has no laryngeal feature in the default case. However,

[13] The head–non-head status of a feature represents the same kind of strong–weak relationship in vowels: the element **I** is [i] as a head and the lenited reflex [ɪ] as non-head in a segment.

the idea of reinterpretation is acceptable as a diachronic process, but if implemented to our case it would mean a constant reinterpretation in pairs like *távúszó*~*távbeszélő*. In addition, the problem remains that the fortition process takes place in typical lenition sites.

The two variants of [h], prevocalic [h] and non-prevocalic [x], pattern in exactly the same way: the [h] → [x] fortition is encountered in the typically weak coda or pre-empty-nuclear position. Furthermore it is exactly the obstruent [x] that resists voice assimilation and the sonorant [h] that triggers it. The case of [h] appears to be special. I argue in Szigetvári 1996 that [h] is but one feature, [aspirated] — GP's element **H** — and blame the failure of [x] voicing in pre-voiced-obstruent position on the incompatibility of [aspirated] and [voiced] in Hungarian in Szigetvári 1997. Although the details are not all clear, it seems quite evident (to me at least) that the speciality of [x] is its connection to aspiratedness, [h], which is further corroborated by the fact that Russian [x], which is not a variant of [h], becomes voiced in the relevant environment like a normal obstruent.

Turning to [j] finally, we find that it does not obstruentize in postvocalic position like [v] and [h], and as a result, is usually exempt from voice assimilation. The only place where it does turn into an obstruent is word finally if preceded by a consonant and not followed in a suffix or the next word by a vowel. The problem of the [j] → [ʝ] change is the apparent lack of a source for voicing in the latter (as an obstruent it is marked if voiced). Furthermore, this is the only instance where we apparently have voicing (or rather its absence) propagating rightwards (*szom*[ʝ], *dob*[ʝ] vs. *lop*[ç]).

4 Epilogue

It is with this somewhat pessimistic note that the present sketch ends. While voice assimilation proper appears to be describable in terms of a representation involving privative features, the difficulties raised by [v], [h] and [j], the three segments that have both obstruent variants which are affected by the process and sonorant variants which are immune to it, could not be solved satisfyingly. If the reader was made doubt that voice assimilation is a straightforward issue then this paper has reached its goal.

REFERENCES

Chomsky, Noam and Morris Halle. 1968. The Sound Pattern of English. New York: Harper & Row.

Cyran, Eugeniusz. 1997. Resonance Elements in Phonology: A Study in Muster Irish. PASE Studies & Monographs 3. Lublin: Folium.

Gussmann, Edmund. 1992. Resyllabification and delinking: The case of Polish voicing. Linguistic Inquiry 23.1 : 29–56.

Harris, John. 1990. Segmental complexity and phonological government. Phonology 7.2 : 255-300.

Harris, John. 1994. English Sound Structure. Oxford: Blackwell.

Hayes, Bruce. 1984. The phonetics and phonology of Russian voicing assimilation. In: Mark Aronoff and Richard T. Oehrle (eds.) Language Sound Structure. Studies in phonology presented to Morris Halle by his teacher and students. Cambridge, Mass.: The MIT Press. 318–328.

Itô, Junko and R. Armin Mester. 1986. The phonology of voicing in Japanese: Theoretical consequences for morphological accessibility. Linguistic Inquiry 17 : 49–73.

Iverson, Gregory K. and Joseph C. Salmons. 1995. Aspiration and laryngeal representation in Germanic. Phonology 12.3 : 369–396.

Lombardi, Linda. 1995a. Laryngeal neutralization and syllable wellformedness. Natural Language and Linguistic Theory 13 : 39–74.

Lombardi, Linda. 1995b. Laryngeal features and privativity. The Linguistic Review 12 : 35–59.

Maddieson, Ian. 1984. Patterns of Sounds. Cambridge: Cambridge University Press.

Polgárdi, Krisztina. 1997. Hungarian is strict CV. Paper presented at the CV Workshop, Leiden, 10 June 1997.

Rubach, Jerzy. 1996. Nonsyllabic analysis of voice assimilation in Polish. Linguistic Inquiry 27.1 : 69–110.

Siptár, Péter. 1996. A Janus-faced Hungarian consonant. The Even Yearbook 2 : 83–96.

Siptár, Péter and Miklós Törkenczy. 1997. The phonology of Hungarian. Ms to appear in Jacques Durand (ed.) The Phonology of the World's Languages. Oxford: Oxford University Press.

Steriade, Donca. 1995. Underspecification and markedness. In: John A. Goldsmith (ed.) The Handbook of Phonological Theory. Cambridge, Mass.: Blackwell. 114–174.

Szigetvári, Péter. 1996. Laryngeal contrasts and problematic representations. The Even Yearbook 2 : 97–110.

Szigetvári, Péter. 1997. Why [h] does not get voiced. Ms., Eötvös Loránd University.

Törkenczy, Miklós and Péter Siptár. 1997. Hungarian syllable structure. Working Papers in the Theory of Grammar 4/1. Budapest: Research Institute for Linguistics, Hungarian Academy of Sciences (MTA).

Vago, Robert M. 1980. The Sound Pattern of Hungarian. Washington, D.C.: Georgetown University Press.