THE DENTAL SUFFIX IN MODERN ICELANDIC: PHONOLOGY, MORPHO(PHONO)LOGY, AND THE LEXICON[1]

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ABSTRACT

The Germanic dental suffix has three surface variants in Modern Icelandic. The distribution of the variants and their interaction with the consonants of the verbal base are analysed against the background of the phonology of the language. The theoretical model is that of Government Phonology. Particular attention is paid to the structure of the rhyme, and coda-onset contacts. It is argued that with the exception of lexically marked items the selection of the dental suffix variant is determined by the presence of occlusion and tone in the final consonants of the base. Most of the segmental changes found in the base are motivated by the need to comply with conditions on coda-onset contacts which prevail in the language at large.

In Modern Icelandic, just like in other Germanic languages, a dental suffix marks the category of weak verbs. Present-day English realises the dental suffix *-ed* by three phonetic variants: [t] *walked*, [d] *robbed*, and [ɪd] *waited*, their distribution being controlled in a straightforward way by the nature of the final segment of the base. Apart from the fully productive pattern where the addition of the suffix is conditioned by the base but the base itself is left intact, there is a number of verbs with morphophonemic alternations involving both vowels and consonants, such as e.g.: *keep-kept, leave-left, sell-sold, seek-sought.* These are

predominantly, or perhaps completely, a matter for the lexicon. The non-phono-logical nature of the alternations follows from their idiosyncratic and non-neces-sary character as, obviously, verbal forms without such alternations are com-mon, e.g.: *seep-seeped, heave-heaved, fell-felled, leak-leaked*. The situation in Modern Icelandic initially appears to be similar in that there are also three dental variants traditionally transcribed as [t d̦ ð], the difference being that their distri-bution is quite complex; additionally, the attachment of the dental suffix causes considerable modifications in the verbal base, most of which are quite general in the language and hence, presumably, of a phonological nature. As we will see below, the addition of the suffix is conditioned by the nature of the base but it also modifies the base in an intricate fashion. Of the four classes of weak verbs usually identified in Icelandic (Thráinsson 1994: 158-160) we will only be con-cerned with consonantal bases since the vocalic ones invariably select the spirantal variant [ð], e.g.: *kalla* [kʰatla] 'call' – *kallaði* [kʰatlaðɪ], *ná* [nau:] 'reach' – *náði* [nau:ðɪ].[2] Before we proceed with a more detailed presentation of the data several preliminary remarks are in order.

The claim found in all synchronic descriptions of Modern Icelandic which we repeated above, i.e. the fact that there are three variants of the dental suffix, requires a comment. It can be maintained only as a historical and orthographic statement or as a result of phonological analysis, since phonetically speaking there are just two variants: the voiceless dental plosive [t] and the voiced interdental spirant [ð]. This follows from the well-known fact that plosives in Icelandic are uniformly voiceless. Phonetic descriptions (e.g., Kress 1982: 24; Gíslason and Þráinsson 1993: 70-71) uniformly agree that what distinguishes pairs of plosives such as those spelt *p-b* is the presence of aspiration in the first member and its absence in the second. Traditional phonetic transcription was re-luctant to draw the obvious conclusion and identify the two segments; instead the *p-b* difference was transcribed as [pʰ-b̦] with an obvious redundancy, since a voiceless [b̦] is nothing other than an unaspirated [p]. A phonetically consistent and redundancy-free transcription of pairs such as *panna* 'pan' – *banna* 'ban' is [pʰan:a] – [pan:a]; this way of transcribing Icelandic plosives is adopted in some works (Kristinsson 1988; Thráinsson 1994; Gussmann 2002) and we will follow it here. In phonetic terms the dental suffix variants spelt *-d* in *reyndi* 'try' and *-t* in *keypti* 'buy' are uniformly pronounced as [t] (*-i* is the marker of the 1st and 3rd person singular). Having made this phonetic observation we would like to argue now that the traditional historical recognition of three variants continues to be

synchronically valid, but it should be stressed that the evidence or motivation is phonological rather than phonetic.

A fundamental question connected with the distinction between the tradi-tional voiced-voiceless plosives, even if approached phonetically as non-aspi-rated – aspirated in the present-day language, is the nature of the phonological contrast in focus. Most current descriptions assume that what is distinctive pho-netically automatically constitutes the phonological contrast. This, however, is a very hasty conclusion, one which follows from a mechanistic, downright physi-cal view of phonological units and relations. As is well-known, the aspiration found with voiceless plosives is closely bound up with other larynx effects such as voicing, partial and complete, breathy voice and tone (tonogenesis or the emergence of tonal distinctions in vowels following the loss of voice in neigh-bouring consonants). Numerous attempts have been made to come to terms with the laryngeal complex: distinctions between fortis and lenis, tense and lax, slack and stiff vocal cords readily come to mind. Within Government Phonology it has been claimed that the elements responsible for source distinctions are H (high tone) and L (low tone), where individual languages select a specific ele-ment or element combination (Harris 1994: 133 ff); additionally, the way an ele-ment is phonetically implemented, camouflaged or packaged is to a certain ex-tent a language-specific device, or due to its phonetic effects (Gussmann 2002: 64). Thus while both English and Icelandic are assumed to operate just with H as their laryngeal elements, it goes without saying that H-less plosive expres-sions, for example, admit or require a degree of (phonetic) voicing in English, at least in some contexts, which is absent in Icelandic. At the other extreme, it is normally recognised that phonologically distinct units can be phonetically iden-tical as a result of neutralisation and other forms of phonological processing. Thus any direct reading off of phonological properties from the phonetic surface is particularly dicey and likely to be futile. The same reasoning leads us to ques-tion the central role of the segment adopted by some theoretical models, no mat-ter whether it is an individual segment (underlying phoneme) or a segment in-ventory that constitutes the centre of interest. The aspiration distinction in Modern Icelandic is particularly instructive in this respect as it brings into focus the syntagmatic nature of phonological regularities, two of which are reviewed below, and the secondary role of paradigmatically determined segments.

The well-known phenomenon of preaspiration in Modern Icelandic places what is normally regarded as the segment [h] before specified consonant combi-nations. Leaving aside details and alternative analyses in different frameworks (Árnason 1977; Thráinsson 1978; Liberman 1982: 90-110; Gussmann 1998, 2000), a significant regularity connected with preaspiration calls for a uniform account, namely the fact that preaspiration is never found before aspirated plosives, i.e. the two types of aspiration are mutually exclusive. In *jökul*

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[2] In our transcriptions of Modern Icelandic words we follow the ISP system. Stress, which is initial, is left unmarked.

[jœ:kʰγl] 'glacier, Àsg' the plosive is aspirated (or can be aspirated, depending upon the dialect) while in *jökla* [jœhkla] 'glacier, Apl' it is unaspirated but the preaspiration segment precedes it. Given the plausible assumption that pre- and post-aspiration are merely realisations of the same element H when placed in different contexts, the presence of the phonetic [kl] without preaspiration simply shows that the plosive does not contain the element H. Thus in *þöglar* [θœklar] 'silent, Npl masc.' the sequence [kl] is phonologically different from the otherwise phonetically identical sequence in *jökla* [jœhkla] above. In this particular case, though not in many others, we find a morphological alternant *þögull* [θœ:γʏtl] 'silent, Nsg masc.' with a voiced velar fricative corresponding to the plosive. If the element H can be realised as a separate segment [h] representing preaspiration, then one needs to take the phonology into account in deciding what a given token of, say, [k] stands for, i.e. whether it phonologically contains H or not. Any attempt to decide the segment's identity in isolation, or on the basis of its phonetics, can be misleading or futile.

A very similar argument can be made using the phenomenon of sonorant devoicing (Benediktsson 1961-1962: 83 ff.; Thráinsson 1980: 355 ff.; Kress 1982: 27). In brief, sonorants are devoiced before some plosives, although all of the plosives themselves are obviously voiceless. This produces classical minimal pairs such as *henta* [hɛṇta] 'suit, vb' – *henda* [hɛnta] 'throw', *orka* [ɔr̥ka] 'energy' – *orga* [ɔrka] 'scream, vb'. More importantly, however, there is a significant restriction to the effect that voiceless sonorants can never be followed by aspirated plosives, which once again points to the complementarity of the two phonetic effects. As with preaspiration above we would claim that the source element H in specific conditions is realised not on the plosive, but on the preceding sonorant which is rendered voiceless. There are two further facts which support this interpretation; one is the existence of direct alternations and the other is the presence of dialect variation.

For the former, consider the marker of the neuter singular of adjectives [tʰ]: when attached to stems ending in a sonorant what emerges is a voiceless sonorant followed by an unaspirated plosive, e.g.: *fagur* [fa:γʏr] 'beautiful, masc.' – *fagurt* [fa:γʏr̥t] 'id. neut.', *græn* [krain] 'green, fem.' – *grænt* [krain̥t] 'green, neut'. The examples are self-explanatory: the addition of an aspirated plosive results in the devoicing of a preceding spirant and the loss of aspiration on the plosive itself. In our terms this means that H is attached to the sonorant only.

A more direct illustration of the connection between the devoicing of sonorants and the loss of aspiration comes from the fact that sonorant devoicing is subject to considerable variation in Icelandic (Thráinsson 1980). Characteristically, the failure of devoicing leads to the presence of aspiration, hence words such as *hempa* 'cassock', *menntun* 'education', *stelpa* 'girl' can be pronounced with voiceless sonorants and unaspirated plosives [hɛm̥pa mɛṇtʏn stɛl̥pa] or

with voiced sonorants and aspirated plosives [hɛmpʰa mɛntʰʏn stɛlpʰa] (Gíslason and Þráinsson 1993: 76). In any event, post-aspiration, pre-aspiration and sonorant devoicing are different manifestations of the same presence of the element H; in other words what appears phonetically as an unaspirated plosive may just be a contextual realisation of an aspirated one.

Given these observations we are led to conclude that the dental suffix we started off with does appear in three phonological shapes, although phonetically we find only two: [ð] and [t]. The latter reflects two types of phonological behaviour, one with preaspiration and sonorant devoicing and one with neither. Consider the examples:

1)   mæta [mai:tʰa] 'meet'   mætti [maihtɪ] 'pret.'
        nenna [nɛn:a] 'feel like doing sth'   nennti [nɛṇtɪ] 'pret.'
        villa [vɪtla] 'err'   villti [vɪl̥tɪ] 'pret.'
                                    vs.
        kenna [cɛn:a] 'teach'   kenndi [cɛntɪ] 'pret.'
        dimma [tɪm:a] 'darken'   dimmdi [tɪmtɪ] 'pret.'
        fella [fɛtla] 'fell'   felldi [fɛltɪ] 'pret.'

A particularly impressive example is a pair of verbs which are homophonous in the infinitve, namely *mæla* [mai:la]: on the reading 'measure' its preterite is *mældi* [mailtɪ], whereas with the reading 'speak' it is *mælti* [mail̥tɪ]. In line with what we understand about the working of the phonology of Icelandic, we will claim that [t] is either phonological [t] or phonological [tʰ]. In phonological terms, the aspirated plosive will be assumed to contain the element H, while the unaspirated one will be toneless. These two variants together with the spirantal [ð] constitute the dental suffix in Icelandic, whose distribution will be our concern in the following pages.

Using the two homophonous verbs *mæla* we may draw one obvious, if uninteresting conclusion: the distribution of the variants must, in some cases at least, be idiosyncratic. There is no conceivable phonological basis for distinguishing the two verbs. Needless to say, historical arguments which derive the [n:] in *nenna* from earlier [nθ] (cf. Goth. *nanþjan*) (Halldórsson 1950: 63) have no place in or relevance to an analysis of the present-day system. Verbs like *mæla* are not unlike the English *cost-cost* or *cost-costed,* where the different forms cannot be traced to any phonological or grammatical distinction.

Traditional grammatical descriptions supply long lists of rules distributing the three variants in excruciating detail and noting irregularities and inconsistencies (Guðmundsson 1922: 129-132; Einarsson 1967: 82-83; Kress 1982: 48-51). We shall forego here the largely futile exercise of lambasting such descriptions for their didactic uselessness or their theoretical insignificance. As examples like *mæla* above show, no purely phonological account of the variants is possi-

ble, hence we have to accept the conclusion that a certain degree of listing is inevitable. As always, listed forms override the non-listed ones, which constitute the elsewhere case. The questions we want to address are the general tendencies that determine the selection of the particular variants, and also the equally intriguing problem of way the selected variant affects or modifies the final consonant of the base.

We will start our survey of the dental suffix variants and our attempt to capture several generalisations with the interdental spirant [ð]. Below we supply the form of the infinitive with the 1st/3rd sg preterite indicative. It should be kept in mind that both forms are to a degree independent in that specific morphological processes are involved in their formation. It is emphatically not the case that, say, the preterite is derived from the infinitive, or vice versa for that matter. Rather they can be derived by means of suffixes and endings from a hypothetical base or lexical look-up form (Thráinsson 1994: 160), or, alternatively, the appropriate allomorphs must be listed individually. The infinitive is provided in this paper as an indicator and not as a base or underlying form. Since we are primarily interested in the verbal base-dental suffix juncture, other modifications of either the infinitive or the preterite forms are glossed over as tangential to the main issue.

Consider several examples of the spirantal dental suffix.

2) a. ná [nau:] 'reach'   náði [nau:ðɪ]
   b. spá [spau:] 'prophesy'   spáði [spau:ðɪ]
   c. heyra [hei:ra] 'hear'   heyrði [heirðɪ]
   d. læra [lai:ra] 'learn'   lærði [lairðɪ]
   e. leyfa [lei:va] 'allow'   leyfði [leivðɪ]
   f. horfa [hɔrva] 'look'   horfði [hɔr(v)ðɪ]
   g. erfa [ɛrva] 'inherit'   erfði [ɛr(v)ðɪ]
   h. segja [sei:ja] 'say'   sagði [sayðɪ]
   i. byggja [pɪɟ:a] 'build'   byggði [pɪɣðɪ]
   j. byrgja [pɪrɟa] 'cover'   byrgði [pɪr(ɣ)ðɪ]

Looking at the preterite forms we can easily identify three classes of segments which precede the spirantal dental suffix – these are vowels (2a-b), the lingual trill (2c-d), and voiced non-coronal fricatives (2e-j); the last two groups involve additional modifications of the stem. Leaving aside the modifications for the moment, we would like to be able to make some sense of the segments after which [ð] appears: at first blush they form no 'natural phonological class' in the traditional sense of the word. Note that we cannot even speak about voiced fricatives but have to restrict them to non-coronals, which effectively means just two consonants, i.e. [v ɣ] – in the case of the coronal voiced [ð], as we will see later on, the preterite involves the stop suffix which additionally

converts the stem-final [ð] into a plosive, e.g. *eyða* [ei:ða] 'destroy' – *eyddi* [eit:ɪ]. In other words, the spirant appears after vowels and after [r v ɣ] only. The fact that these segments calls condition the dental suffix variant calls for an account as otherwise we would have to admit that the group as a whole is nothing but an accident, a conclusion no phonological account should be prepared to countenance. We return to this issue below.

Turning now to the additional stem modifications noted above, a few properties strike the eye. In some cases (2c-e, h) the stem vowel is shortened. In fact whenever the verbal base ends in a consonant, the vowel is invariably short in the preterite. Secondly, if the verbal bases ends in two consonants (2f-g, j), the second of them is normally suppressed before the preterite suffix or it may be pronounced in monitored, somewhat overstudied styles of speech. The degemination found in (2i) might be seen as part of the same regularity, namely the dental suffix can be preceded by one consonant only. Combining the observations about vowel length and the number of consonants, we see that the base preceding the dental suffix consists of a short vowel and a single consonant. Since a short vowel followed by a single consonant typically constitutes a well-formed branching rhyme, the restrictions on the shape of the base preceding the dental spirant suggest that it is the structure of the syllable that plays a role in stem modifications and hence, possibly, also in the selection of the dental variant itself.

We cannot in this paper go into any discussion of the role and structure of the syllable in phonological description: there are models galore which differ in fundamental and frequently irreconcilable ways (see Rennison and Kühnhammer 1999; van der Hulst and Ritter 2000; Ewen and van der Hulst 2001; Gussmann 2002 for recent surveys). In what follows we adopt the model of Government Phonology (GP) which, somewhat paradoxically, denies the existence and phonological relevance of the syllable while affirming the reality of constituents such as the onset and the rhyme and also interconstituent relations, in particular the coda-onset domain (see Kaye, Lowenstamm and Vergnaud 1990; Harris 1994, 1997; Cyran 1998). Within this model a maximally binary branching onset is followed (and licensed) by a rhyme which is also maximally binary branching; the rhyme dominates two skeletal positions with either both of them subsumed under the nuclear node thus yielding a long vowel (or a long diphthong), or one of them is subsumed under the nuclear node and the other is the rhymal complement, or coda. In exceptional cases the rhymal complement can dominate two skeletal positions and together with the nuclear position they make up a superheavy rhyme; the existence of such rhymes is a matter of controversy and need not concern us here. What is crucial to our discussion is the principle of coda licensing (Kaye 1990) whereby a coda consonant must be licensed by a following onset consonant; one of the consequences of this view is

the claim that word-final consonants cannot be codas since there are no onsets to license them and hence they must be onsets (Kaye 1990; Harris and Gussmann 1998, 2002). The simple structure of an onset-rhyme sequence can be represented as (3a) while the structure of the rhyme can assume either of the two shapes in (3b-c).

3)

a.

b.

c.
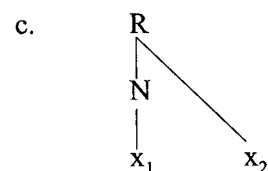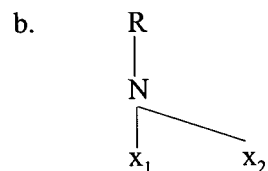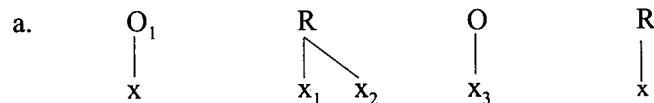
(3a) shows a branching rhyme without specifying whether x_1 and x_2 are members of the same nucleus, as in (3b), or whether x_2 is a rhymal complement (a coda), as in (3c). If it is a rhymal complement, it needs to be licensed by the following onset x_3. In either case, however, the rhyme dominates just two skeletal positions.

Returning now to the infinitive-preterite alternations in (2) above we note that in some examples the long vowel of the infinitive is shortened before the dental suffix. This happens in (2c-e, h); in fact, the only examples of a long nucleus in the preterite are (2a-b) where the verbal bases end in a vowel. In such cases the spirant of the dental suffix invariably occupies the onset position, or x_3 of our representation in (3a), while the rhyme illustrates the structure (3b). This is in agreement with the analysis of Icelandic quantity in Gussmann (2002: Chapter 7) where it is claimed that the basic pattern is extremely simple and boils down to open syllable lengthening; in brief, a vowel (or diphthong) which is not followed by a rhymal complement (a coda) occupies two skeletal positions and thus exhausts the domain of the rhyme. Conversely, the presence of a rhymal complement leaves only one skeletal position for the nucleus, which is consequently short. The constituent model adopted above offers a straightforward match for the observed facts. Note that the dental spirant of the suffix [ð]

will always occupy the onset position as it is licensed by the final nucleus. For this reason the consonant preceding the spirant of the suffix, i.e. the final consonant of the verbal base will fill the coda position, thus leaving a single slot for the nucleus. Consider the representations of *heyra* 'hear' – *heyrði*. Note also that Icelandic distinguishes between long and short diphthongs (Einarsson 1967: 10), which pattern with long and short monophthongs respectively.

4)

a.

b.
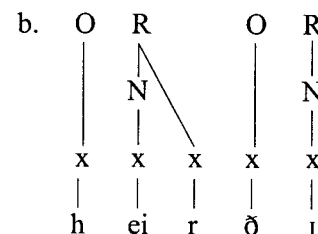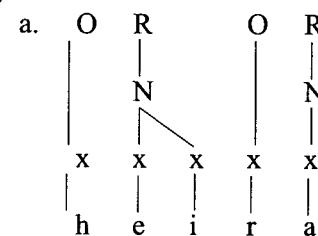
One point should be made clear: the fact that there is a long diphthong in the infinitive and a short one in the preterite is not the result of any vowel shortening (or vowel lengthening). In fact, the impression of phonological shortening (or lengthening) emerges as a result of juxtaposing the two morphologically related forms (the infinitive and the preterite), each of which is phonologically handled by the same principles. In particular, the intervocalic consonant [r] in *heyra* is assigned to the onset position because, in our model, it is directly licensed by the following nucleus [ɪ]. The melodic diphthong [ei] is attached to two skeletal positions, hence phonetically perceived as long, because the phonology of Icelandic requires that a stressed rhyme must branch. In *heyrði* on the other hand the same consonant [r] cannot be assigned to the onset position because [rð] is not a well-formed branching onset in Icelandic nor, presumably, in any other language. For this reason [r] occupies the coda position of the preceding rhyme leaving only a single slot for the nuclear melody, which is consequently perceived as short. There is no shortening or lengthening just as there is no resyllabification: what looks like resyllabification – [r] appearing in the onset in the infinitive and the coda in the preterite – follows from the trivial fact that

different morphemes (may) contain different melodic units (the infinitive has [a], while the preterite singular has [ðɪ]), hence the same principles of syllabification operating on them may assign a given melodic segment (in our case [r]) to different syllabic constituents. What this example shows then is that the units of the melody (segments) constitute the irreducible minimum of representations which syllabification principles try to assign to syllabic constituents. Melodic units tend to be preserved even at the expense of disrupting unity of quantity within paradigms. In other words, syllabic affiliation is subordinated to considerations of melody preservation, a principle we might call 'melodic integrity'.

Some of the examples in (3) also show what happens when syllabification cannot cope with the available melodic material. Consider (2f-g, j) where the final fricative of the base is normally suppressed and is present only in (over)careful styles of speech. In syllabic terms this means that the fricative is unaffiliated since it cannot become part of the onset – *[vð] and *[ɣð] are not well-formed onsets. Likewise, it cannot occupy the coda position which is already taken by [r]. As it is syllabically unlicensed, it remains inaudible apart from artificial or perhaps spelling-based pronunciations.

The instance of degemination in (2i) is another clear exemplification of the role of the skeleton in the interpretation of the dental suffix attachment: since the nucleus, the coda and the following onset can occupy at most three skeletal slots, to accommodate the three different melodies they have to be each associated with a single slot. This squeezing-in of melodies results in the shortening of the consonant, which is long in the infinitive as it straddles the coda-onset position. The representations below make clear the different phonetic effects. (We leave aside as irrelevant to the present discussion the phonetic alternation between the palatal stop [ɟ] of the infinitive and the velar spirant [ɣ] of the preterite).

5)

a.

5)

b.
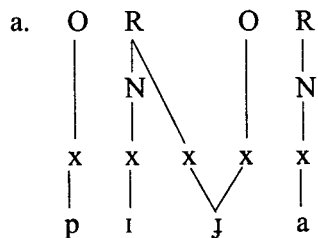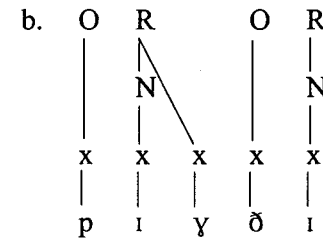
An inspection of the spirantal dental suffix leads us to the conclusion that the spirant occupies the onset position while the rhyme of the verbal base can dominate two positions. These will be divided between a short vocalic nucleus and a single consonantal coda or, in the absence of the latter, a long nucleus will emerge. Segments which cannot be incorporated either in the coda or the onset remain inaudible. In this way we bring together vowel length alternations, obstruent suppression and degemination. One problem which has not been tackled yet is the motivation for the spirant shape of the dental suffix. For the moment we note that the spirant appears syllabically as the onset; if it follows a branching nucleus e.g. náði, spáði, it has no licensing duties to discharge; if it follows the class of consonants embracing [r v ɣ], then it must be assumed to govern them in accordance with the coda-licensing principle.

Let us turn now to the other variant, namely the [t] which is spelt -d. This is a toneless dental plosive, as can be seen in the fact that the sonorant preceding it is fully voiced (cf. our discussion above). Below we offer several examples where the stop is attached to stems endings in a single or geminate nasal or in a single lateral. Before the dental suffix the sonorant occupies the coda position, so that the nucleus has only a single slot at its disposal; furthermore, if the verbal base ends in a geminate nasal, it is shortened. The phonological regularities affecting the verbal base are no different from what we saw above with the spirantal variant of the suffix.

6)   reyna [rei:na] 'try'   reyndi [reintɪ]
       kenna [cɛn:a] 'teach   kenndi [cɛntɪ]
       dæma [tai:ma] 'judge   dæmdi [taimtɪ]
       dimma [tɪma:] 'darken   dimmdi [tɪmtɪ]
       hvíla [kʰvi:la] 'rest'   hvíldi [kʰviltɪ]

These examples introduce no new mechanisms apart of course from the suffix itself. Recall that when the sonorant is a continuant, i.e. [r], the suffix was also a continuant, i.e. [ð]. In (6) we have verbal bases ending in a sonorant stop and the suffix is also a stop. This brings us to the tentative observation that the

selection of the suffix is determined by the need of the suffixal onset to license a preceding rhymal complement. Within GP the coda must be governed by the following onset which consequently is required to conform to the Complexity Condition (Harris 1990: 274, 1994: 167-170). In brief, the condition says that the governor, in this case the onset, must be equally or more complex than the governee (the coda), where complexity is measured by the number of primes (elements) making up an expression. Complexity is similar to but not identical with the traditional notion of consonantal strength, where a plosive is more complex, or stronger, than a sonorant and a spirant is less complex, or weaker, than a plosive. In the case at hand, a continuant sonorant such as [r] can be governed by the continuant obstruent [ð], while the sonorant stops [n m l] cannot be governed by a continuant obstruent but can be governed by a plosive. In this sense then the dental suffix must be strong enough to govern a preceding coda consonant. This leads to a couple of implications, one of which has already been mentioned, namely that sonorant stops are more complex than the continuant sonorant [r]. More importantly, however, the voiced spirants [v ɣ] seem to be comparable to the continuant sonorant [r] in terms of complexity, as they are all governed by the voiced dental spirant [ð]. The voiced spirants are clearly less complex than the sonorant stops despite the fact that the former are obstruents and hence normally regarded as stronger than nasals and liquids. In GP terms, nasals can be seen as consisting of an element for nasality, for place of articulation and for stopness, thus [m] is {N•U•ʔ} while [v] is just {U•h} with voicing a mere phonetic effect.[3] On a more general level, it would seem that segmental complexity or strength cannot be determined on a purely phonetic basis in isolation from phonological patterning, a conclusion which is not entirely in agreement with classical GP and goes against the grain of the phonological tradition.

The other tentative conclusion concerns the selection of the variant, i.e. the choice between the weaker or spirantal and the stronger or plosive suffix. It is clear that the suffixal onset must be able to govern the final consonant of the base, so in every case the onset must be equally or more complex than the preceding coda. Thus the sonorant [r] is governed by the voiced dental fricative [ð], which is equally or more complex, but the voiceless plosive [t] is obviously also more complex, hence it, too, could govern [r]. In fact words like *barðúsa* [partusa] 'be occupied with something' indicate that this is not just a theoretical possibility but something that actually happens in the language. The fact that the weaker suffix appears after [r] indicates that what is selected is the weakest variant compatible with the governing obligations. Put plainly, if the spirant suffix suffices to govern

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[3] Similar statements as to the general weakness of voiced fricatives have been made in the literature, although consonantal strength is expressed in very impressionistic terms: "The voiced fricatives are in general very 'weak' and hence probably better classified as approximants" (Thráinsson 1994: 147).

the coda, it will be called upon to perform this duty, while the stronger variant will be reserved for more demanding tasks. Consequently, when there is no coda consonant to be governed (2a-b), the weakest variant will be selected.

Before preceding to consider what happens when the variant in question is attached to bases ending in consonant combinations, we need to complete the sonorant picture. Above we were concerned with the situation when the base ends in a single sonorant, in which case it occupies the coda position, and its nucleus has only a single slot at its disposal; if the verbal base ends in a geminate nasal, it is shortened or degeminated. An obvious question which suggests itself is why we restricted ourselves just to geminate nasals. In other words, what happens to the geminate lateral [l:]?

Phonetic descriptions (Kress 1982: 36; Gíslason and Þráinsson 1993: 120) make it clear that long [l:] has a restricted distribution in Modern Icelandic. It appears in recent borrowings, e.g.: *ball* [pal:] 'ball', *galla(buxur)* [kal:a] 'blue jeans', or in hypocoristics, e.g.: *Palli* [pʰal:ɪ], Valla [val:a]. One might also add here morphological derivatives such as *tillit* [tʰɪl:ɪt] 'respect', (from *lita* 'look' + *til*), *sællegur* [sail:ɛɣʏr] 'happy-looking' (*sæl* + *legur*), although here the geminate is spurious in the sense that what is perceived as a long consonant is a sequence of two separate slots with associated identical melodies. In situations where for morphological reasons one expects an alternation between a long and a short lateral, one finds the cluster [tl] alternating with [l]. Examples follow.

7)   jökull [jœ:kʰʏtl] 'glacier'   jökul [jœ:kʰʏl] 'glacier Asg'
       tröll [tʰrœtl] 'troll'   trölls [tʰrœls] 'troll Gsg'
       aðall [a:ðatl] 'nobility'   aðli [aðlɪ] 'nobility Dsg'
       allur [atlʏr] 'complete'   allt [alt] 'complete neut.'
       heill [heitl] 'whole'   heil [hei:l] 'whole fem.'

The alternation [tl ~ l] may look peculiar at sight glance but is quite unremarkable within a model like GP which operates with privative elements. A lateral is regarded as a combination of occlusion and coronality, i.e. {ʔ•A} where occlusion is the head of the expression and coronality the dependent. A long lateral means that a combination of this sort is attached to two skeletal positions – this is the representation for the phonetically long lateral in loans and hypocoristics. A reversal of the head-dependent relation between the two elements yields an unreleased [t] followed by [l], i.e. a consonant combination which, in examples such as those in (7), is a geminate congener of the single (short) lateral. Thus what evidently happens in Icelandic that the melody {ʔ•A} is fissured in such a way that each of the elements acquires a different status in their association with the skeletal position. Although details of the mechanism are not directly relevant here, the following seems to capture the essential mechanism (the head of the expression is underlined):

8)
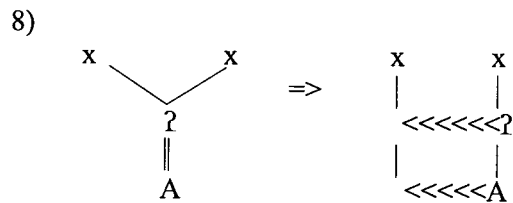
The fissure consists in the fact that the double attachment of the elements is broken up and their functions reversed: what is an operator in one is a head in the other. There is no change of melodic substance, merely a role switch, with the phonetic consequences we have mentioned. Degemination is a process that affects the skeletal structure, which loses one position, while the melody is unaffected; given the representation of the fissured Icelandic geminate above, the loss of one skeletal position means that the melodic elements must be attached to just one position, which results in a replacement of [tl] by [l], as illustrated in the examples in (7). The same effects can be found with the dental suffix:

9)   fella [fɛtla] 'fell'   felldi [fɛltɪ]
       tolla [tʰɔtla] 'stay put'   tolldi [tʰɔltɪ]

When a geminate lateral comes to stand before the dental suffix, it has to be degeminated since there is only one skeletal position in the coda. This entails the phonetic replacement described above. Our interpretation of the long lateral allows us to bring the particular segment into line with the other sonorants: the only thing which is specific about the geminate lateral is the fissure of its elemental make-up.[4]

Concluding so far: the Icelandic dental suffix occupies the onset position and, as any onset, must govern the preceding rhymal complement (coda). Since there is only a single coda slot, the attachment of the dental suffix forces a shortening of the preceding nucleus so that a coda consonant can be accommodated in the rhyme, and also causes a shortening of a geminate for the same reason. When a base does not contain a final consonant, the vowel remains long both in the infinitive and the preterite.

We will now consider cases when the verbal base ends in a consonantal cluster of a non-geminate type. Our prediction is that since the cluster cannot be accommodated in the coda position, it should undergo some sort of modification. As the following examples show, this is by and large true.

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[4] The fissure is not restricted to the lateral only. A more comprehensive account of Modern Icelandic phonology would show that the geminate dental nasal also undergoes a similar break-up in specific contexts; this results in alternations between [tn] and [n], e.g. *brúnn* [prutn] 'brown, masc.' – *brún* [pru:n] 'brown, fem.'.

10) a. nefna [nɛpna] 'name'   nefndi [nɛmtɪ]
     b. demba [tɛmpa] 'pour out'   dembdi [tɛmtɪ]
     c. rigna [rɪkna] 'rain'   rigndi [rɪŋtɪ]
     d. hringja [r̥iŋça] 'ring'   hringdi [r̥iŋtɪ]
     e. sigla [sɪkla] 'sail'   sigldi [sɪɬtɪ]
     f. fylgja [fɪlça] 'follow'   fylgdi [fɪɬtɪ]
     g. skelfa [scɛlva] 'frighten'   skelfdi [scɛl(v)tɪ]

If we consider the examples from the point of view of their syllable structure it has to be concluded that both the infinitives and the preterites are well-formed. The stressed nucleus is short as it is followed by a consonantal coda which is governed by the following onset. The coda-onset contacts conform to the Icelandic requirements on this type of domain (Gussmann 2002: 178-181); predominantly, these are sequences of a sonorant followed by an obstruent, or an unaspirated plosive followed by a sonorant. The preterites, although well-formed as coda-onset governing domains, are not simple concatenations of the verbal base with the dental suffix; such concatenations would result in sequences of three consonants, a situation which is not readily tolerated. We come close to it in the last example where *skelfti* [scɛlvtɪ] – just like *horfði* [hɔrvðɪ] above – with a three consonant cluster constitutes an artificial or self-conscious pronunciation variant; in unguarded speech the middle consonant is silenced. Leaving this one example aside, we note that normally something happens to the final consonant of the verbal base before the dental suffix. It would be downright wrong to claim that the consonant is suppressed, or deleted, if only because in most cases the preceding consonant is also modified. Thus one could talk of the merger, where a plosive plus a sonorant *or* a sonorant plus a plosive are realised as a sonorant with the plosive's place of articulation, hence:

11)   [pn] [mp]   >   [m]
      [gn] [ŋɟ]   >   [ŋ]
      [kl] [lɟ]   >   [ɬ]

The phonological mechanisms appear clear enough. Note that syllabically a combination of two consonants of the base with the dental consonant of the suffix yields an unacceptable sequence. To rectify the syllabic configuration the skeletal position for the plosive is removed. The floating melody which arises as a result of the removal of the position is accommodated into the associated sonorant, yielding the melodies as in (11).[5] This is the compromise between the

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[5] The velarisation of the lateral is not normally reflected in Icelandic phonetic transcriptions although its phonetic reality cannot be denied. The same probably holds for the segment [r] in *syrgði* [sɪrðɪ], the preterite of *syrga* [sɪrɟa] 'mourn'. For explicit marking of velarisation see Halle and Clements (1983: 163).

stringent syllabic requirements and the tendency to preserve the melody. We might speculate that the merger takes place wherever it is possible, thus a nasal merging with a velar plosive yields a velar nasal, while a lateral merging with it yields a velarised lateral. The question suggests itself of what happens when no obvious merger candidate is at hand. Consider the following examples:

12)   a.   verma [vɛrma] 'warm up'   vermdi [vɛrmtɪ]
       b.   hylma [hɪlma] 'cover up'   hylmdi [hɪlmtɪ]

In the infinitive the coda-onset contact is well-formed for Icelandic as it involves two sonorants. The past tense suffix should force a merger of the two sonorants in order to induce conformity with the syllable template. No compromise candidate seems available: no nasalised [r] or [l] exist in Icelandic; what is selected is a violation of the template, or a superheavy rhyme in the preterite. This is the same pattern that we noted above with the careful pronunciations of forms like *horfði, skelfði*. We conclude that violations of the predominant pattern may be admitted when the system does not provide an interpretation that would conform to its phonological regularities.[6]

We need also to address the question of the context which selects the toneless or unaspirated plosive [t] as the dental suffix. An inspection of the examples in (6, 9-10, 12) shows that the base ends either in a single sonorant stop or cluster consisting of a sonorant stop and a toneless plosive; what is striking is that in the latter situation the plosive may either precede or follow the sonorant, hence we have both [kl] of *sigla* [sɪkla] 'sail' or [lç] of *fylgja* [fɪlça] 'follow'. Similarly we have [kn] - [ŋç] and [pn] - [mp], i.e. the order of the two consonants seems irrelevant to the selection of the variant. If we were to describe the final consonants of the verbal base in articulatory terms, we would have to place sonorant stops and unaspirated plosives in one group, thus forming a singularly unattractive-looking natural class. Looking at the relevant consonants in terms of elements we can identify a class characterised by the presence of occlusion [?] unaccompanied by tone (H) – in other words, toneless stops; whether the stops are obstruents or sonorants is immaterial. Thus the toneless stop variant [t] of the dental suffix is required when the verbal base ends in a toneless stop, which in terms of our framework means that the toneless dental plosive can govern both sonorant stops and toneless plosives. The one complication of this picture is the case when the base itself ends in a dental obstruent, i.e. when we get a potential sequence of very similar or identical obstruents. This special situation requires

further treatment and we return to it below after considering the final variant of the suffix, namely [tʰ] which in many way has the most complex phonology and distribution.

The first somewhat paradoxical property of the toned or aspirated suffix is that it never emerges as aspirated phonetically. As noted at the outset, an analysis in purely paradigmatic terms where individual units (phonemes, underlying segments or what have you) are the focus of attention would bring us to the conclusion that there are just two dental suffix variants, namely [ð] and [t]. The paradigmatic tilt in phonology resulting from the taxonomic procedures of segmentation and classification is generally regarded as simplistic and blamed for a distorted picture of phonological regularities. To see the problem in a nutshell, consider again the pair of examples mentioned earlier:

13)   mæla [mai:la] 'measure'   mældi [mailtɪ]
       mæla [mai:la] 'speak'   mælti [mai̥ltɪ]

The two homophonous verbs *mæla* [mai:la] have phonetically exactly the same dental suffix [t] hence, paradigmatically speaking, there is the same consonant in both cases. However the identity is spurious, as can be seen in the fact that the final lateral of the base is voiced in one case and voiceless in the other. Since it is the toned or aspirated plosive that devoices the preceding sonorant, we conclude that the suffix in *mælti* [mai̥ltɪ] is in fact [tʰ] with aspiration realised as the devoicing of the preceding sonorant. In *mældi* [mailtɪ] on the other hand the suffix is the toneless plosive [t]. Thus, despite the phonetic identity, the phonological evidence forces us to distinguish two variants of the plosive suffix.

The other piece of evidence pointing in the same direction concerns the phenomenon of preaspiration discussed briefly above. Preaspiration effectively eliminates aspirated geminates, while non-aspirated geminates are commonplace (Jóhannesson 1932), e.g.: *ybba* [ɪp:a] 'show hostility', *ydda* [ɪt:a] 'sharpen', *vagga* [vak:a] 'cradle'. Against this background consider the verbs in (14).

14)   mæta [mai:tʰa] 'meet'   mætti [maihtɪ]
       breyta [prei:tʰa] 'break'   breytti [preihtɪ]

The emergence of preaspiration when the dental suffix is attached to an aspirated dental plosive clearly indicates that the suffix itself must be aspirated or, in our terms, toned. The phonological evidence is unambiguous: the dental plosive functioning as the preterite suffix is either aspirated or non-aspirated.

The argument about the double nature of the phonetic [t] suffix allows us to draw two conclusions of a more general applicability for Icelandic. The example of the homophonous verb *mæla* shows that phonology cannot be the only factor

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6 One could, of course, envisage segment removal a means of rectifying the offending structure. For reasons which are not clear, Icelandic chooses a different strategy. It seems that the structure of superheavy rhymes in Icelandic requires a closer scrutiny.

determining the selection of the variant. Here the sonorant stop [l] can be governed either by the toneless plosive in the onset or the toned one (with concomitant devoicing of the sonorant). The phonology is involved negatively in the selection process in the sense that the spirantal variant is excluded here: the spirant [ð] is not complex or strong enough to govern the stop sonorant [l] in the present-day language.[7] This consonant must be governed by another stop. In the discussion of the toneless (unaspirated) variant above we concluded that it is selected when the base ends in a toneless stop; if this conclusion is valid, then the form *mældi* [mailtɪ] is due to the regular phonology of the language, while the verb *mælti* [mailtɪ] must have its preterite entered lexically. In phonological terms this means merely that the governor may be more but not less complex than is essential.

The toned variant shows is attached to stems ending in a toned obstruent. In the case of the toned dental plosive illustrated above by verbs such as *mæta*, *breyta* preaspiration emerges in the preterite. Now consider the other effects that the suffix evinces in the consonant of the base.

15) a.   fylkja [fɪlca] 'dress up'   fylkti [fɪ̥tɪ]
     b.   skenkja [sceiŋca] 'pour out'   skenkti [sceiŋtɪ]
     c.   gapa [ka:pʰa] 'gape'   gapti [kaftɪ]
     d.   vaka [va:kʰa] 'be vigil'   vakti [vaxtɪ]
     e.   reisa [rei:sa] 'raise'   reisti [reistɪ]
     f.   sleppa [slɛhpa] 'release'   sleppti [slɛftɪ]
     g.   þekkja [θɛhca] 'know'   þekkti [θɛxtɪ]

In (15a-b) we encounter a familiar situation when a verbal base ends in two consonants. Syllabically the first of them occupies the coda position while the second consonant must be the onset which governs the coda; as far as complexity goes, the onset must be strong enough to govern the coda, a condition that is met by our examples since an onset plosive governs a sonorant coda. The onset plosive is palatal but its palatality is due here, as in other places above, to the phono-morphological structure of the infinitive, which we disregard as irrelevant to our concerns.[8] In conformity with the phonology of the language we assume that the final segment of the verbal base is an aspirated or toned velar plo-

sive (which transfers its H onto the preceding sonorant thus devoicing it). If it is the final consonant of the base which determines the nature of the dental suffix, then the toned velar plosive must be governed by an onset which is of the same or greater complexity. In other words the suffix must be the toned dental plosive, i.e. [tʰ]. We are now faced with the possibility of having three consonants, one of which could not be accommodated by the available syllabic constituents. What we find is a repetition of a pattern we encountered before (cf. the discussion of the examples in (10) above, in particular *fylgja* in (10f)): the skeletal position for the velar plosives is suppressed while part of its melody is transferred onto the neighbouring segment, which emerges as velarised. In this way the syllabic requirements are observed at the expense of one slot being removed but the slot's melody leaves its trace on the preceding melody. In (15b) we can only observe suppression of the slot since the melodic merger produces no visible results: obviously, a velar nasal cannot be velarised, hence it remains unaltered.

Consider now (15c-e). In the infinitive the stem-final single consonant occupies the onset position, and the preceding nucleus must branch yielding a long vowel (or diphthong). The intervocalic plosives are aspirated while the spirant obviously is not.[9] An argument can be made (see Gussmann 2002: 187-193) for assigning double status of this segment: depending on its syllabic position the segment [s] can be toned or toneless. By adopting this approach, we can unify the properties of single final obstruents (15c-e).[10] What seems to happen when we compare the final consonant of the base in the infinitive and in the preterite is that the plosive is replaced by its spirantal congener. The spirant appears in the coda position, as seen by the fact that the preceding nucleus is short and the dental of the preterite, as elsewhere, takes the onset position. Motivation for the spirantisation is not difficult to find and in fact reflects a very general property of Icelandic, i.e. the strict avoidance of domain-internal sequences of plosives. The restriction to domain-internal positioning is crucial since plosive sequences do arise at morphological boundaries, in particular in compounds, e.g.: *andköf* [antkʰœv] 'shortness of breath', *sjúkdómur* [sju:k(ʰ)toumʏr] 'illness', *útkoma* [u:t(ʰ)k(ʰ)ɔma] 'outcome', etc. As the last two examples clearly show, the first plosive must be in the onset since the preceding nucleus is branching. On the basis of such evidence we draw the conclusion that in Icelandic toned plosives oc-

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[7] However the situation was different in Old Icelandic where the equivalent, or predecessor, of the modern *taldi* [tʰaltɪ], preterite of *telja* 'tell', had the spirantal suffix – *talða*. The mechanisms of the change are worth pondering but could only be investigated within a thorough study of the phonological properties of sonorants and their development in the history of the language.

[8] The infinitive in one group of weak verbs is formed by the addition of the augment [j] to the root with morphophonological consequences. The augment itself merges with a velar, hence we have [c] in (15 a-b), but is preserved elsewhere, eg.: *krefja* [krɛvja] 'demand', *spyrja* [spɪrja] 'ask', *gleðja* [klɛðja] 'rejoice', etc.

[9] Strictly speaking this holds for the northern dialect. In the south aspiration is lost in non-initial positions although its phonological relevance cannot be doubted. Thus all dialects of Icelandic distinguish between *sagna* [sakna] 'story, Gpl' where the plosive evidently occupies the coda position, and *sakna* [sahkna] 'miss, vb.', where it is in the onset and hence preaspiration appears in the coda. Not to confuse the discussion we adhere to the northern variant with aspiration present phonetically in intervocalic positions.

[10] For more discussion of such phonologically ambiguous segments, see Gussmann (2001).

cur only as onsets. What happens in the preterite when a potential sequence of two plosives could arise is that another repair strategy is activated. In a sequence of heteroganic plosives, the first of them is lenited to a weaker consonant, i.e. a plosive loses its occlusion element [ʔ] and emerges as its homorganic fricative. Since fricatives are less complex than plosives, they can occupy the coda position and be governed by a following onset plosive. Similarly, if we recognise both a toned and a toneless dental fricative [s], it is natural to claim that their syllabic affiliation is the same as that of plosives.

Summarising the phonetic effects so far, we view vowel shortening, consonant merger, consonant suppression and spirantisation as following primarily from the fact that the verbal base and the past tense suffix form a single phonological domain. The dental suffix invariably occupies the onset position hence the consonant(s) of the base must be adjusted in such a way as to become governable by the dental in the following onset. The different phonetic effects follow from the nature (and number) of consonants ending the verbal base since these have to contract a governing relation with the following onset. For a relation to be established adjustments have to be occasionally made in accordance with the general phonological regularities of Icelandic.

The two remaining examples (15f-g) appear to present a novel situation, since we seem to be dealing with the peculiar looking alternation [h ~ f] in one case and [h ~ x] in the other. On closer scrutiny these alternations turn out to be quite regular and consistent with our previous observations. First of all we need to correct the description of the alternations, since once the paradigmatic bias is abandoned we see that these are [hp ~ f] and [hk ~ x], i.e. alternations between a preaspirated plosive and a fricative. Preaspiration is a mode of realising geminate aspirated plosives which occupy a coda-onset domain. Once such geminates are followed by a plosive in the onset, they are simplified to a single segment (cf. the discussion of the examples in (14) above). A single plosive is lenited to a spirant before a plosive in the onset, as we have just seen. A combination of the two principles yields the alternations illustrated by examples (15f-g) without involving anything new.

The final set of data we will consider consists of verb bases ending in a dental. Above we have had one such case (in (14)) where the base ends in an aspirated dental plosive and the addition of the preterite suffix results in preaspiration. The examples below exhaust attested combinations of dentals.

16)   a.   skemmta [scɛm̥ta] 'amuse'   skemmti [scɛm̥tɪ]
        b.   birta [pɪr̥ta] 'publish'   birti [pɪr̥tɪ]
        c.   vænta [vmain̥ta] 'expect'   vænti [vain̥tɪ]
        d.   hætta [haihta] 'stop'   hætti [haihtɪ]
        e.   gifta [cɪfta] 'marry'   gifti [cɪftɪ]
        f.   lenda [lɛnta] 'land'   lenti [lɛn̥tɪ]

        g.   eyða [ei:ða] 'destroy'   eyddi [eit:ɪ]
        h.   myrða [mɪrða] 'murder'   myrti [mɪr̥tɪ]

Interpreting the structure of the verbal bases of the examples in phonological terms, we note that (16a-c) end in a sonorant followed by a toned plosive; such sequences are realised as a voiceless sonorant followed by an unaspirated plosive. The addition of a toned dental suffix produces a geminate plosive which must be degeminated, since otherwise an unacceptable sequence of three consonants would emerge. We have seen degemination at work earlier on, hence there is nothing new or surprising here.[11]

In (16d) we have a preaspirated dental plosive in the infinitive, i.e. an aspirated geminate; in the preterite yet another aspirated dental plosive is attached. Degemination removes one of the identical plosives but the remaining two induce preaspiration in the preterite in the same way as in the infinitive. This explains why a preaspirated labial or velar plosive (15f-g) is interpreted as a spirant before the dental suffix while a preaspirated dental plosive remains unchanged in the preterite. The same degemination mechanism can be evoked with verbs like *gifta* [cɪfta] 'marry': a sequence of two aspirated dental plosives is simplified, which creates the impression that consonantally the verbal base with and without the preterite suffix sounds the same.

The example in (16f) illustrates another instance of degemination; this time, however, the dental suffix leaves its trace in the form of sonorant devoicing, hence a sequence [nttʰ] is interpreted as [n̥t]. The example is instructive in yet another way. The devoicing of the sonorant in the preterite clearly shows which dental suffix is selected, namely the aspirated one. The motivation for this particular selection is not obvious, however. In several cases above we argued that it is the final consonant of the base that determines the choice. The dental consonant of the suffix is invariably in the onset position and must be able to govern the preceding consonant. This happens despite the fact that the preceding consonant is on occasion suppressed or only leaves its trace in the melody of the coda consonant (cf. (10, 15a-b)). To govern a preceding consonant the onset cannot be less complex than that consonant, i.e. it can be of the same or greater complexity. Equal complexity is a sufficient condition for government. If this is the case, then we need to ask why the preterite of *lenda* does not select the toneless dental consonant which, with degemination, would result in *lendi* [lɛntɪ] without sonorant devoicing. The answer must be that there is nothing phonologically

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[11] A morphological consequence of the structure of the verb coupled with the phonological regularities at work, is the partial homophony of the verbal paradigm in the present and the preterite, i.e. *skemmti* [scɛm̥tɪ], *skemmtir* [scɛm̥tɪr], *skemmtum* [scɛm̥tʏm] represent the 1st sg, 2nd sg, and 1st pl both present and past.

implausible about such a solution which, in fact, is attested elsewhere. Consider the homophonous verb *senda* and its preterites:

17)   senda [sɛnta] 'send'   sendi [sɛntɪ]
               senda [sɛnta] 'hurl'   senti [sɛn̥tɪ]

Degemination is found with both verbs, but sonorant devoicing with one only. In our terms this means that with the reading 'send' the verb selects the toneless dental, while with the reading 'jettison' it chooses the toned one. In both cases the dental suffix meets the sufficient conditions for government since it is only the spirantal variant that would be unacceptable: a stop cannot be governed by a spirant, hence [nð] could not occur. The actual selection made by the two verbs in (17) is an idiosyncratic fact about them. We could perhaps claim that the toneless variant, as the sufficient one, is selected by the morphology but can be overridden by a lexical diacritic on the verb. In a similar vein we discussed the two verbs *mæla* above (see (13)); here we may add that verbs can be found which admit of both variants, where the choice is a matter of individual preference. One such verb is *ræna* [rai:na] 'rob' with its preterite either *rændi* [raintɪ] or *rænti* [raiɲtɪ]; we suggest that the former is the regular or morphologically-selected variant while the latter is determined by the lexicon, not unlike the English *dreamed – dreamt* or *leaped – leapt*.

Our final case comes from verbal bases ending in the interdental spirant [ð] as illustrated in (16g-h). In both instances this spirant is replaced by a plosive in the preterite, which means that the suffix has to be a plosive itself as otherwise we would have no local source for the occlusion element. The existing forms show that a single interdental spirant, as in *eyða* [ei:ða], selects the toneless plosive, which donates its occlusion to it, the result being a toneless dental geminate plosive, i.e. *eyddi* [eit:ɪ]. An interdental spirant following (and governing) the trill [r], as in *myrða* [mɪrða], selects the toned plosive which donates its tone to the trill in the coda. The interdental spirant itself is suppressed since it cannot be included in either the coda or the onset, and we end up with *myrti* [mɪr̥tɪ]. Admittedly, the mechanisms just described follow from the general phonological picture we have formed above; they constitute a possible and perhaps very likely scenario, but one that would need more substantiation and research to turn it into something more than a possibility. The crucial point seems to be that the onset [ð] selects a different variant depending on whether it governs a preceding sonorant or not. Thus, when a governor, it calls for a stronger or toned dental suffix, while a non-governing [ð] is satisfied with a weaker or toneless dental. This seems the intuitively correct result.

Our discussion of the dental preterite suffix in Modern Icelandic has forced us to clarify a few imprecise assumptions and to articulate several phonological regularities. The dental of the suffix invariably occupies the onset position. This

means that the final part of the verbal base, including the nucleus and the consonant(s) following it, has to be squeezed into a single rhyme, which normally corresponds to just two skeletal positions. As a result, any verbal base ending in a consonant must necessarily have a short vowel in the preterite. Similarly, base-final geminates are simplified. Superheavy rhymes are eschewed and are attested in very few cases indeed. The suffixal variant is selected depending on the elemental make-up of the final consonant or consonantal cluster of the base. Most typically, a final continuant opts for the spirantal version of the suffix, a toneless stop calls for a toneless plosive, and a toned obstruent requires a toned dental plosive. These regularities can be overridden by lexical specification. This possibility, however, is highly restricted since the coda licensing principle is never violated. Bases ending in the interdental spirant are special, as instead of taking the continuant version, they select the plosive, either toneless or toned. The choice of the variant induces further changes in the consonants of the base; these follow from the coda-onset contacts that Icelandic allows, and hence are of general applicability. Individual instantiations of these include the merger of consonantal melodies and the suppression of skeletal positions, with concomitant degemination, spirantisation, and sonorant devoicing. In this sense, the dental suffix illustrates and instantiates the phonological regularities of the language at large.

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