FISCHER, O. & F. VAN DER LEEK
1983 On the demise of the Old English impersonal construction, in Journal of Linguistics 19, 337-368

HAAN, G. DE & F. WEERMAN
1985 Finiteness and verb-fronting in Frisian, in Haider,H. & M.Prinzhorn (eds.) Verb Second Phenomena in Germanic Languages, Dordrecht, Foris

HAEGEMAN, L. & H. BENNIS
1984 On the status of agreement and relative clauses in W.Flemish, in de Geest,W. & Y.Putseys (eds.) Sentential Complementation, Dordrecht, Foris, 33-55

HULK, A.
1988 La construction impersonnelle et la structure de la phrase, to appear in Recherches Linguistiques de Vincennes, 18

KEMENADE, A. VAN
1987 Syntactic Case and Morphological Case in the History of English, Dordrecht, Foris

KOOPMAN, H.
1984 The Syntax of Verbs, Dordrecht, Foris

KOSTER, J.
1987 The relation between pro-drop, scrambling and verb movements, unpublished ms. Groningen

LIGHTFOOT, D.
1981 The history of NP movement, in Baker,C. & J.Mc.Carthy (eds.) The logical Problem of Language Acquisition, Cambridge, MIT Press

PLATZACK, C.
1987 The Scandinavian languages and the null-subject parameter, in Natural Language and Linguistic Theory vol. 5,3 377-401

RIZZI, L.
1982 Issues in Italian Syntax, Dordrecht, Foris

SAFIR, K.
1982 Syntactic Chains and the Definiteness Effect, Ph.D. MIT
1986 Subjectclitics and the Nominative Drop Parameter, in Borer,H.(ed.) The Syntax of Pronominal Clitics, Syntax and Semantics 19, Academic Press

TARALDSEN, K.T.
1978 On the NIC, vacuous application and the that-trace filter, unpublished ms. MIT

Harry van der Hulst & Norval Smith

Tungusic and Mongolian vowel harmony: a minimal pair

0. Introduction

In this paper we offer an explanation of the apparently minimal difference between the vowel harmony systems of the Eastern Mongolian languages such as Khalkha, and those of languages belonging to the Tungusic language family. These two groups are fairly closely related, and are spoken in geographically contiguous areas.

In van der Hulst and Smith 1987 we proposed an explanation for the fact that Rounding Harmony (RH) in Khalkha and Buriat, which affects only underlying low vowels, may apparently "skip" over occurrences of the vowel /i/ as in (1).

(1)	Stem	Ablative Suffix	Output	Gloss
	mOrin-	-ÅAs	mOrin-OOs	horse

The other high vowels in Khalkha - /u/ and /U/ - are opaque to RH despite being round themselves.

In the Tungusic languages that have RH the vowel /i/ acts as opaque to RH. However, the Tungusic languages share the opacity of /u/ (and /U/ if present) with Khalkha and Buriat. Compare example (2) from Standard Evenki.

(2)	Stem	Ablative Suffix	Output	Gloss
	OrOr-	-A	OrOr-O	deer
		Destinative Suffix		
	OrOr-	-(i)glA	OrOr-iglA	deer

Both groups of languages possess ATR Harmony (AH) as a regular feature, while many have RH.

Before we go into more detail we must discuss the theoretical framework we adopt here, which is a further development of that employed in van der Hulst and Smith 1987.

1. Theoretical Framework

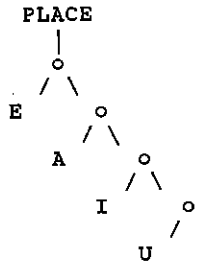
A number of features of the theoretical framework utilized are

familiar. Firstly we employ the same single-valued feature framework assumed in recent work such as Anderson and Ewen 1987, van der Hulst and Smith 1987; Ewen and van der Hulst 1987, 1988; van der Hulst 1988; Smith, de Wit and Noske 1988; Smith and de Wit 1988; and Smith 1988.

Secondly we assume as previously a hierarchical model of the segment as proposed in Clements 1985 and Sagey 1986, and adopted by many others since. However we now claim that our proposal regarding vocalic features was misguided in certain respects, and claim that this must be adjusted in the light of new insights into the structure of the place tier.

In van der Hulst and Smith 1987 we employed the hierarchy in (3).

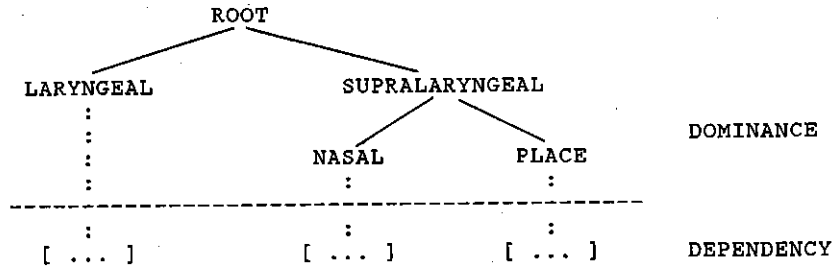
(3)



The idea behind this proposal was that there is a fixed hierachization of vocalic features, suggesting that the relation between vocalic features can be put on a par with the relation between, for example, the laryngeal, supralargyngeal, nasal and place nodes, which are all constituents (referred to as class nodes) in a tree-like structure representing phonological segments. In this respect our proposal seemed to differ from that of Dependency Phonology in which the relation between features belonging to the same gesture is interpreted in terms of dependency rather than in terms of a constituency relationship.

As in current geometrical phonology, in DP, a segment is represented in terms of a tree-like structure. The constituents in this tree are the so-called gestures (which correspond roughly to the above-mentioned class nodes). Gestures contain the actual features, which can enter into dependency relations. Here, we will follow this line and assume the following model of segment-internal structure:

(4)



This view differs in details from the standard DP system. Also, we leave aside the status of major class and manner features for the moment and refer to Den Dikken and van der Hulst (1988) for a discussion of these matters.

The distinction between constituency relationship and dependency relationships is important and we will integrate it into our proposals regarding vocalic features. Unlike the hierarchical organization of class nodes or gestures, which is fixed, there is no fixed dependency relationship. Hence, both (5a) and (5b) are wellformed:

(5)

Of course, as no linear precedence is implied we replace (5a & b) by standard DP notations, as in (6a & b), but nothing hinges on this point:

(6)

A potential distinction which can be made between these two notations involves the (im)possibility of representing a "headless" segment, e.g. segment which, in their vocalic gesture contain a dependent feature without having a head. Before we discuss this crucial matter, let us briefly mention a few other aspects of the approach we assume here.

In van der Hulst 1988 it is pointed out the interpretation of the vocalic features depends on their status as either head or dependent. We will assume this proposal here and refer to Ewen and van der Hulst (this vol.) for some discussion. For the sake of this discussion we may confine ourselves to giving the respective feature definitions:

(7) a. Interpretation as a Governing Feature

[I]: Palatal constriction
[U]: Velar constriction
[A]: Pharyngeal constriction

b. Interpretation as a Dependent Feature

[I]: Expanded pharyngeal cavity (ie. ATR)
[U]: Expanded labial cavity (ie. rounded)
[A]: Expanded oral cavity (ie. lowered jaw)

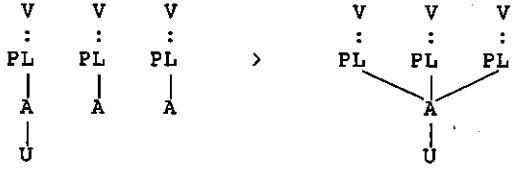
2. Fusional Harmony

We accept the stance of Mester 1986 that Vowel Harmony that is dependent on the presence of some feature [F], and operates within the domain delimited by occurrences of that feature - so-called Fusional Harmony - is to be described as the result of the operation of the Obligatory Contour Principle (OCP) with respect to the feature [F].

This mode of explanation presuposes what Mester calls "dependent tier ordering", which, as Ewen and van der Hulst (this vol.) point out, corresponds to intragestural dependency in DP as discussed above.

In the model adopted by Mester, then, Fusional Harmony is the automatic consequence of the combination of this mode of representation and the OCP. In (8) we illustrate this using "our" single-valued features, rather than Mester's binary SPE-system:

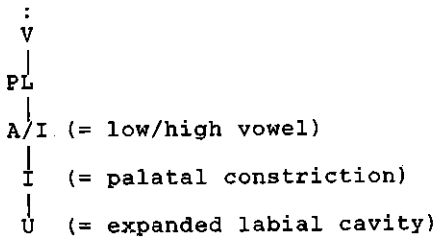
(8)



Mester refers to harmony of this type as "fusional".

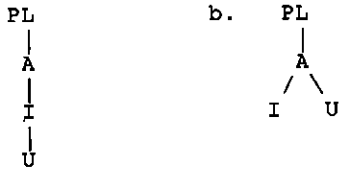
In the analysis of Turkic languages in general we assume that Palatal Harmony (PH) involves a dependent [I] being spread basically over a whole word. In some languages such as Kirghiz (Johnson 1980), Altai (Korn 1969), and Northern Altai (de Wit 1988) RH occurs in certain contexts fusionally on front vowels. This might suggest the following stacking of features:

(9)



Dependencies of this type show that it is necessary to allow dependency "chains", although it might very well be that both (10a) and (10b) are wellformed:

(10) a. b.



We will leave this matter undecided here.

3. Khalkha Rounding Harmony

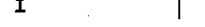
Let us now turn to a consideration of the Khalkha RH facts. The vowel system is as in (11). We will indicate governing values of features by upper-case letters, and dependent values by superscript lower-case letters.

(11) The vowel system of Khalkha

/i/	=	I^i			/u/	=	U^i
					/U/	=	U
/e/	=	AI^i			/o/	=	$A^{i\,u}$
			/a/	= A	/O/	=	A^u

As we observe in van der Hulst and Smith 1987, /e/ is the [+ATR] vowel corresponding to /a/. For this reason the underlying representation of /e/ must be /A^i/. This means that we have to have a redundancy rule introducing the feature [I]. This we give in (12).

(12)



That is, a dependent specification for [I], and the absence of [U] (governing or dependent) implies a governing specification for [I]. Observe that no specification as to [A] is required, since non-[A] vowels are also in agreement with this redundancy rule,

which thus achieves a more general formulation.

This fact is of immediate significance for the specification of /i/ - the only other vowel falling within the ambit of the redundancy rule. /i/ does incorporate a certain redundancy as it is specified here. In terms of underspecification, we have two options, either to derive dependent [I] from governing [I], or to do the reverse. But Redundancy rule (12) already does the latter, so that this is the cheapest - and most elegant - way of expressing the redundancy involved.

Now we can turn to the behaviour of /i/ in relation to RH. The /i/-skipping case can be represented as follows:

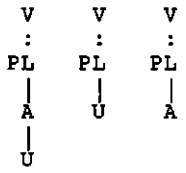
(13)

Note that we thus analyse RH as fusional harmony, implying that the "empty node" does not count as a barrier to OCP-induced fusion. In other words the two cases of [A] may be regarded as adjacent and therefore susceptible to the action of the OCP by reason of the fact that there is no governing node present in the underlying representation of the intervening /i/.

Note that the addition of the governing feature [I], which will follow from the operation of Redundancy Rule (12) will not result in the interruption of the colinking of [A] to the first and third segments, since although [I] will be attached to the same dependent place node, a different subtier is involved.

The case of the opaque /u/ and /U/ is quite different, as can be seen from (14).

(14)



Here the first and third segments are not adjacent in respect of the nodes [A]. The superior node in this case, a governor, is present in the second segment, because of the presence of the governing feature [U].

4. Tungusic Rounding Harmony

As an exemplar of this group we select Standard Evenki. Standard Evenki has the following vowel system (Konstantinova 1964):

(15)

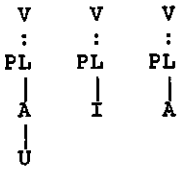
/i/ = I^1			/u/ = U^1
	/@/ = A^1		
/E/ = AI	/a/ = A		/O/ = A^u

Note that in contradistinction to Khalkha Standard Evenki has an opposition between in unrounded vowels between front vowels /i/ and /e/ and central vowels /a/ and /@/ - where the latter is the [+ATR] congener of /a/. In other words we cannot make use of redundancy rule (12) for nonhigh vowels since the result of making /a/ [+ATR] is not a front vowel.

In Standard Evenki there is still a redundancy involved in the front high vowel /i/, however. Which aspect is redundant is clear. Both high vowels have a forecastable [ATR] feature.

This means that the kind of sequence that gave rise to skipping in Khalkha no longer has a representation such that this is possible.

(16)



Because the most elegant expression of the redundancy rules in Standard Evenki required us to represent /i/ underlyingly as /I/, and not as /.^{1}/ as in Khalkha, it is not possible for the OCP to work here.

Note that /u/ will block RH in Standard Evenki just as in Khalkha.

There are dialects of Evenki whose vowel system has both [+ATR] and [-ATR] /i/ and /u/, in which case of course neither of the features of /i/ will be redundant. There are, however, also dialects with no [-ATR] /i/, but which do have the [ATR] contrast in the back high vowels. This requires some attention.

The question is obviously which of the two aspects - governor or dependent feature - of this vowel is redundant. As there is no clear basis for deciding this, it would seem most obvious to let the status of the two features themselves decide. The situation whereby only a dependent feature is present, and no governor, is clearly a marked one, so that we assume that in this case the redundant feature is the dependent one.

It would therefore seem that in both these cases involving Evenki dialects, the end result is the same as in Standard Evenki. This corresponds with the facts in these dialects, as it appears to do in all Tungusic languages with RH. /i/ (and its [-ATR] congener, if present) is always opaque for RH.

5. Opacity in fusional and spreading harmony systems

Following Mester 1986, 1988 we have adopted a distinction between harmonies which are OCP-induced and those that are the direct result of spreading. The case of Turkic dialects in which rounding spreads in front words shows a case in which harmony takes place due to the spreading of a governing feature, which is similar to fusional harmony in that the harmony results from activity on another tier, but different from it in that this activity involves spreading rather than fusion. Following Steriade (1981), we will refer to this latter type as parasitic harmony. Mester makes refers to this as dependent spreading harmony (Mester 1986).

We end up with three kinds of harmony processes:

(19) A typology of harmony processes

a. fusional (OCP-induced)
b. spreading
c. parasitic

The distinction between fusional harmony and spreading harmony is in part at least dependent on the choice of the type of feature system. Cole and Trigo 1988 discuss a number of cases involving both fusional and parasitic harmony (although they use the term parasitic for both). Their approach differs from Mester's in ways that need not concern us here. They discuss the wellknown situation commonly found in languages having ATR-harmony, of a low vowel lacking a harmonic congener which blocks the propagation of ATR. This can be interpreted as a situation in which ATR propagates in strings of NONLOW vowels. In their analysis ATR harmony is takes place within a [-low] domain, an analysis which would be impossible in our feature framework.

We have seen that opacity in type a systems results from the impossibility of collapsing two governors in the presence of an intervening governor. In spreading harmonies however opacity typically results from the impossibility for an intervening element to govern the spreading feature. Thus the ATR-situation just described would be an example of the second type of case.

6. Conclusion

Skipping as we have explained it is clearly a highly marked phenomenon - it will not all too frequently be the case that a dependent feature occurs without a governing feature. RH in both Tungusic and Eastern Mongolian languages is fusional harmony. Could skipping occur with spreading (vowel) harmony? We must admit that the possibility cannot be excluded. Situations that might provide cases of this would include the interactions of epenthetic vowels (i.e. vowels that initially at least have no melodies) and various types of vowel harmony.

A closer examination of other Tungusic and Eastern Mongolian systems must be made in order to establish whether the analyses posited for the languages discussed here are applicable to RH systems in the other languages. These seem to be behave in a similar fashion to the two languages examined here.

References

Anderson, J. and C. Ewen (1987), Principles of Dependency Phonology. Cambridge: CUP.

Clements, N.G. 1985), The geometry of phonological features. In: C. Ewen and J. Anderson (eds.), Phonology Yearbook 2, 225-252. Cambridge, CUP.

Cole and Trigo (1988), Parasitic harmony. In: H. van der Hulst and N. Smith (eds.), Features, segmental structure and harmony processes. Dordrecht: Foris.

den Dikken, M. and H. van de Hulst (1988), Segmental hierarchitecture. In: H. van der Hulst and N. Smith (eds.), Features, segmental structure and harmony processes. Dordrecht: Foris (to appear).

Ewen, C. and H. van der Hulst (1987), Single-valued features and the distinction between [-F] and [0F]. In: F. Beukema and P. Coopmans (eds.), Linguistics in the Netherlands. Dordrecht: Foris.

Ewen, C. and H. van de Hulst (1988), [High], [Low] and [Back] or [I], [A] and [U]. In: P. Coopmans and A. Hulk (eds.), Linguistics in the Netherlands 1988. Dordrecht: Foris.

van der Hulst, H. (1988), The dual interpretation of |I|, |A| and |U|. NELS.

van der Hulst, H. and N. Smith (1987), Vowel Harmony in Khalkha and Buriat (East Mongolian). In: F. Beukema and P. Coopmans (eds.), Linguistics in the Netherlands 1987. Dordrecht: Foris.

Johnson, C. (1980), Regular disharmony in Kirghiz. In: R. Vago (ed.), Issues in vowel harmony. Amsterdam: Benjamins.

Konstantinova, O.A. (1964), Evenkijskij jazyk: Fonetika. Morfologija. Akademija Nauk SSSR: Moscow-Leningrad.

Korn, D. (1969), Types of labial harmony in the Turkic languages. Anthropological Linguistics 11, 98-106.

Mester, A. (1986), Studies in tier structure. Dissertation, University of Massachusetts.

Mester, A. and J. Ito (1988), Feature predictability and feature specification: palatal prosody in Japanese metrics. ms.

Sagey, E. (1986), The representation of features and relations in nonlinear phonology. Dissertation, MIT.

Smith, N. (1988), The geometry of consonantal features. In: H. van der Hulst and N. Smith (eds.), Features, segmental structure and harmony processes. Dordrecht: Foris.

Smith, N. and H. de Wit (1988), The harmony systems of Pasiego and Tudanca. ms.

Smith, N., H. de Wit and R. Noske (1988), Yurok: vowel and consonant features and their interaction. ms.

Steriade, D. (1981), Certain parameters of metrical harmony. GLOW lecture.

de Wit, H. (1988), Rondingsharmonie in het Noord-Altai. Master's dissertation, University of Amsterdam.

Haike Jacobs

Bounded stress systems in recent metrical theory

0. *Introduction*

In Hayes (1987) a revised parametric metrical theory is proposed as an improvement of the stress theory advanced in Hayes (1981). The old theory permitted four basic bounded stress systems, yielded by the following set of parameters: Quantity-Sensitive (QS) vs. Quantity-Insensitive (QI) and right dominant (rd) vs. left dominant (ld). Since two of these stress systems (QS-ld and QI-rd) turned out to be typologically uncommon, the revised theory has stipulated a new inventory of metrical core units which is claimed to be superior, because marked and unmarked stress systems can be described straightforwardly as such.

Limiting itself to bounded stress systems, this paper discusses some problematic aspects of the way in which the marked stress systems (QS-ld and QI-rd) are accounted for in the revised theory and proposes an alternative way to improve Hayes' (1981) theory, which as will be shown, is not thwarted by these problems.

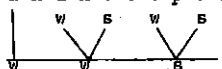
Section 1. illustrates Hayes' parametric stress theory of (1981) and his revised theory of (1987). Section 2. demonstrates, on the basis of Southern Paiute, that a reanalysis of former QI-rd according to the latter theory both complicates metrical theory and captures the markedness of former QI-rd in an unnecessarily complex way. In order to avoid these problems, an alternative solution to describe the former QI-rd systems will be proposed. Section 3. illustrates, on the basis of Classical Latin, how QS-ld stress systems are treated in the revised theory and proposes an alternative way to describe these systems. The alternative is immune to the objections that must be raised against the revised-theory approach. Finally, section 4. summarizes and discusses the proposals which this paper purports to advance.

1. *A parametric metrical theory and its revisions*

The set of parameters QS-QI and rd-ld yield four basic bounded stress systems which are illustrated on the basis of Weri, Warao, Passamaqouddy and Classical Latin, in (1)-(4). In Weri the main stress falls on the final syllable and secondary stress on each alternating preceding syllable. The Weri stress facts are accounted for by constructing QI-rd feet from right-to-left over the word and by grouping these feet into a right dominant word tree as illustrated in (1).[1]

(1) Weri à k u n è t e p á l "times"

-QI-rd; R-L



-rd word tree