

Typological Analysis and Microvariation

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It is a widespread assumption in dialectometry that language change proceeds in small steps resulting in dialect continua where each dialect is minimally dissimilar to its neighbor (e.g. Nerbonne et al. 1999). There is less consensus as to whether microvariation of this type should be conceived in terms of minimal differences in surface forms (counted for instance in terms of Levenshtein distance) or in terms of microvariation of grammatical parameters. We claim that cases of grammatical microvariation do exist and that minimal steps can be defined as minimal changes in Property Values, the defining ranking conditions of a typological system as understood in the theoretical framework of Optimality Theory (OT) (Alber & Prince 2021; DelBusso 2018; Apostolopoulou 2022).

Our first case study concerns long-distance metathesis of liquids (LDM) in the diachrony of certain Romance varieties, e.g. Tertenia Sardinian *krannuya* < *CONUCLA* (Rohlf 1949). Dialects exhibiting LDM vary with respect to (a) whether the metathesizing liquid originates in a non-final complex onset or a non-final coda and (b) whether it moves all the way to the first syllable or is moved locally. Metathesis obtains a high Levenshtein distance score since it implies both deletion and insertion of a segment. Furthermore, there are no documented cases of stepwise movement of liquids to the left until they reach their final landing site, indicating that LDM is not guided by minimal disruption on the surface. The attested variation is best captured in an OT-based typological model where a set of four constraints (1) evaluates all relevant mappings of input to output strings. The resulting typology, generated with the help of OTWorkplace (Prince et al. 2007), is characterized by four Properties in which constraints antagonizing each other determine the Property Values (2).

(1) LDM typology – Constraint set	
Name	Definition
ALIGN (ONS, LEFT) = ONS1	No non-initial complex onsets
*L.C	No (L in) coda
LINEARITY	No metathesis
LOCALITY	No distal metathesis

(2) LDM - Properties	
Property - values	Ranking condition
MetOns - yes/no	ONS1 < > LINEARITY
MetCoda - yes/no	*LC < > LINEARITY
Distance - local/distal	LOCALITY < > M.sub
SurvivingMarked – L.C/CL _{2,3}	ONS1 < > *L.C

L = liquid (subject to metathesis); M.sub = the subordinate markedness constraint (ONS1 or *L.C) in a grammar; CL_{2,3} = non-initial complex onsets

Diachronic change in Sardinian is modeled correctly as a minimal change in the Property Value MetOns (from no metathesis in Latin to long metathesis from non-initial onsets) and then, in a second diachronic step, as a change in the Property Value MetCoda (allowing long metathesis from codas, as well). A similar minimal diachronic path can be traced for varieties of Spanish, where local metathesis from codas precedes local metathesis from non-initial onsets.

In our second case study we compare different formal approaches to grammatical microvariation and the predictions they make for language change, taking as an example the variation in foot-type encountered in the Panoan language family. We conclude that for the analysis of this case a definition of grammatical microvariation in terms of Property Values is preferable to an approach in terms of Border Point Pairs (loosely: minimal re-ranking of constraints; Merchant 2019; Merchant & Prince 2023).

Most Panoan languages are analyzed as iambic (3a), but some are trochaic (3b).

(3a) Saynáwa: dense.ia.L.o				X = stressed syllable; Y = primarily stressed syllable; u = unstressed footed syllable; o = unfooted syll.; 4s/5s = strings of four and five syllables. Sources: González 2016; Couto 2015; Parker 1994
4s	uX. uY	me. se.no. 'te?	'to peep'	
5s	uX.o . uY	ma. po.tə.re. 'pe?	'nape'	
(3b) Huriapano: dense.tr.L.o				
4s	Xu. Yu	tʃi.βaŋ. 'kaŋ.ki	'(they) followed'	
5s	Xu.o. Yu	iʃ.to.ki. 'raŋ.ki	'(it) came running'	

Some Panoan languages furthermore display variation of foot-type within the same language (Brazilian Matsés); others change foot-type in a subpart of the lexicon (Huriapano). Inter- and intradialectal variation can be interpreted as language change targeting foot-type.

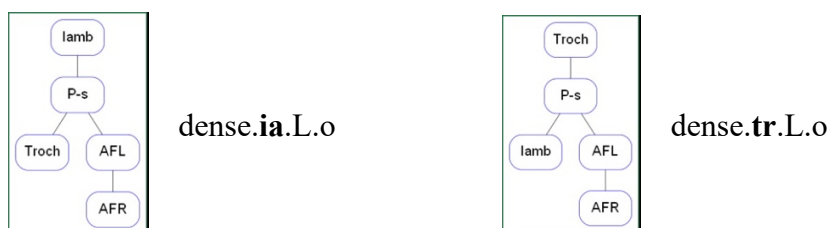
In formal typologies of stress such as nGX (Alber & Prince 2017), languages of type (3a) and (3b) differ in exactly one Property Value, the value of foot-type:

(4) Property values of languages of type (3a) and (3b) in nGX

	<i>Density</i>	<i>Foot-type</i>	<i>Foot-positioning</i>	<i>Unary elements</i>
dense.ia.L.o	dense	iambic	left	o
dense.tr.L.o		trochaic		

The grammars of the two language types, however, show that the difference between them is not minimal in terms of ranking of single constraints (more specifically, in terms of border point pairs, in the sense of Merchant & Prince 2023; Merchant 2019).

(5) Grammars of (3a) and (3b)



In the change from (3a) to (3b), both the rankings between the foot-type constraints TROCH and IAMB and between these and the constraint PARSE (P-s) are changed. We conclude that variation in terms of foot-type as found in Panoan is minimal property-wise though not ranking-wise.

The Panoan case also allows us to make a point similar to that made for LDM: changes in foot-type cannot be interpreted as surface-minimal. The prominence relations of a string parsed into iambic feet (uX.uX.o) change for almost every syllable if the same string is parsed into trochaic feet (Xu.Xu.o). The necessary notion of minimal change here is grammatical.

We conclude that grammatical microvariation does play a role in language variation and change. Our case studies of LDM show that minimal change in Property Values adequately models the historical change which otherwise involves an important disruption of surface structures. Variation in foot-type in Panoan shows that we need to conceive of microvariation in terms of Property Values rather than simple re-ranking of constraints.

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