Much phonological theorizing builds on an alleged dichotomy between structure-building rules and neutralizing (structure-changing) rules. The principal theoretical aim of this paper is to argue that there is no such dichotomy.

Declarative Phonology (Scobbie et al. 1996; Coleman 1998) is a conceptually minimal approach to phonological knowledge in which generalizations are stated directly over a unique surface level of representation (there are no intermediate levels or strata). DP is computationally restrictive, since structure-changing operations (transformations) are disallowed: the information contained in representations may be combined in a monotonic structure-building operation, unification. Constraints/rules in DP are not extrinsically ordered, either derivationally, as in rule-based theory, or hierarchically, as in OT. Only intrinsic principles of ordering (e.g. the Elsewhere Principle) apply.

In DP there is a straightforward structure-building interpretation of neutralization. Specifically, neutralization presupposes an underlying disjunction of specifications. As an example of this, consider the well-known contrast in obstruent voicing which is neutralized in word-final position in languages like German and Russian. This contrast must be reinterpreted as between non-alternating [−voiced] and alternating [+voiced] // [−voiced]. Once this device is made available, the old division between structure-building and structure-changing rules evaporates.

However, I’ll also be arguing that computationally pertinent elements (CPEs) cannot be conflated with how they are interpreted substantively, or what is predicated of them. Substantive identity does not imply formal identity. Yet, conflation has become common practice in phonological research, and failure to observe the distinction has dire empirical consequences as soon as one attempts to formulate subtler patterns of neutralization declaratively.

The discussion will be grounded in an analysis of metaphony in the Vèfn dialect of South Saami, a Finno-Ugric language spoken by about 300 people in Norway and Sweden Lorentz (1973). The patterns present a particular descriptive challenge for the reason that, under declarative assumptions, computationally distinct CPEs may be featurally non-distinct despite being associated with distinct surface alternations.

Historically, bisyllabic and trisyllabic words had distinct systems of vowel contrast in the first (stressed) syllable and the unstressed second and third syllables. In the first syllable $\sigma_1$ we had $/i \text{ a } o \text{ u} \tilde{\text{a}} \tilde{\text{o}} \tilde{\text{u}}/$, whereas in the second syllable $\sigma_2$ we had $/i \text{ a } u \text{ i} \tilde{\text{a}} \tilde{\text{u}}/$. Metaphony originally involved the spreading of vocalic features from $\sigma_2$ to $\sigma_1$, and the six vowels in $\sigma_2$ were associated with distinct alternations in $\sigma_1$. None of the historical values of the vowels survive intact in polysyllabic words in the modern language. Furthermore, the vowels of $\sigma_2$ have been subjected to featural and quantitative attrition. On the surface, the only vowels possible in this position are now central $a$ and $i$. Despite this mass leveling of vowel contrast in $\sigma_2$, the contrasts have survived in the form of the metaphonic alternations in $\sigma_1$. This is shown in (1), where the historical $\sigma_1$ vowel is shown ranged along the top row of the table, and the historical $\sigma_2$ vowel is shown in the far right column.\footnote{For convenience, I will refer to the modern reflexes by their etymological designation: ‘$\acute{a}$’ is nothing more but shorthand for the partial description $[+\text{round}].$}

If the source of the phonological variation in the vowels of $\sigma_1$ cannot be attributed synchronically to $\sigma_2$, metaphony must involve the docking of lexically floating feature complexes into the vowel of $\sigma_1$. These feature complexes are construed synchronically as affixes associated with specific morphological environments.

Since, in DP, the ‘underlying form’ must be a partial description of the fully specified surface form, we first reduce each set of variants to its common denominator. This will give us eight underspecified representations for the vowels of $\sigma_1$ and six floating feature complexes, one for each of the six metaphony series. Crucially, this analysis returns several pairs whose partial descriptions are identical. For example, the partial descriptions for short ‘$\acute{a}$’ and ‘$\tilde{\text{a}}$’ in $\sigma_1$ are non-distinct (they are both $[\text{']}$), yet they pattern differently with respect to metaphony, since ‘$\acute{a}$’ ranges over the set $\{\text{a} \text{ i} \tilde{\text{a}} \tilde{\text{u}}\}$ but ‘$\tilde{\text{a}}$’ ranges over the set $\{\text{a} \text{ e} \text{ u} \text{ i}\}$. The vowels in each of these sets have nothing in common besides the fact that they are vowels. The same is true of short ‘$\acute{u}$’ (range: $\{\text{\text{a}} \text{ u} \tilde{\text{u}}\}$) and ‘$\tilde{\text{u}}$’ (range: $\{\tilde{\text{a}} \tilde{\text{u}}\}$) in $\sigma_1$.\footnotetext{For convenience, I will refer to the modern reflexes by their etymological designation: ‘$\acute{a}$’ is nothing more but shorthand for the partial description $[+\text{round}].$}
which are both [+round]. Similar problems arise when we try to factor out the common denominators for each of
the six metaphony series. Both the \( \text{ı} \)- and the \( \text{ı} \)-series have the common denominator [−back], yet they affect the
vowels of \( \sigma_1 \) differently, as can be verified from (1) (e.g. the \( \text{ı} \)-series is associated with monophthongization in \( \sigma_1 \),
and the \( \text{ı} \)-series is not). Similar problems arise in defining the contributions of the \( \text{ı} \)- and \( \text{ı} \)-series, both of which contribute [+low] (!).

This is precisely where the descriptive challenge lies, and where the conceptual distinction alluded to earlier
between CPE and predicate is thrown into relief. CPEs are shorn of any content whatsoever. Given the distinction
between categorial form and featural content, there is no reason why distinct CPEs should not be associated with
the same featural content. Indeed, metaphony in South Saami provides us with more than one case in which this
has to be so. If DP is on the right track, then featural difference cannot be constitutive of contrast: contrast is a
fundamental and irreducible aspect of any system of categories and categories may contrast (i.e. be distinct CPEs)
irrespective of any content they share.

In the case at hand, we would analyze, say, the \( \text{ı} \)- and \( \text{ı} \)-series as distinct CPEs, CPE\(_1\) and CPE\(_2\). Since what
matters is that they are distinct to the computational system, we can formulate the relevant constraints on the
mapping between the underlying and surface form independently for each CPE, without reference to the featural
content of either. Constraints thus turn out to be implications holding between abstract contentless category labels
and featural content.

In pursuing this solution, I hope to show that DP has a major role to play in the emerging debate on the place
of substantive considerations of naturalness in phonological theory (Hale and Reiss 2000) and the extent to which
the phonological grammar is a purely computational system.

(1) **Metaphony table for Vefsna South Saami**

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**References**


