Distinctive Features

The smallest units of linguistic structure, from which larger units are built, sometimes seen as the attributes by which phonemes can differ. The idea is fundamental in phonology, where many generalisations are standardly stated in terms of features.

See also: Generative Phonology; Phoneme; Optimality Theory
KT: Chomsky, Noam; Jakobson, Roman; Trubetzkoy, N.S.

One of the few areas of phonological consensus is that segments are composed of features. Features play crucial phonological roles, being used (i) to express how segments contrast with each other and (ii) what groups of segments ('natural classes') formally have in common, (iii) to model what changes or spreads in phonological processes in *Generative Phonology, and (iv) in the formulation of constraints in *Optimality Theory. The Prague Linguistic Circle provided the first detailed expression of the ideas behind feature theory, and relevant ideas occur in American Structuralist work. Jakobson, seen as the father of distinctive feature theory, developed these ideas to propose what became, through further reworking by Chomsky & Halle, the standard model.

Although the notions were implicit in earlier phonetic description, Trubetzkoy (1939) focused attention on phonology's subsegmental level. Trubetzkoy described 'oppositions' between phonemes, invoking the idea that phonemes are characterised by the contrasts they exhibit in languages. American Structuralists also spoke of phonemes' features, principally to oppose the distinctive and non-distinctive properties of languages' indivisible phonemes. Jakobson revised these largely language-specific notions and sought a small language-universal set of features, which exist independently of the segments that they compose.

Trubetzkoy focused on distinctive oppositions – those which signal phonological contrast. These could be privative (a marked property is either present or absent), equipollent (both members are of equal status) or gradual (a less important notion, with several gradations of one property). All Jakobson's features were arguably equipollent, with two values, each characterising a definite property (e.g., tense/lax, nasal/oral).

Jakobson's work (some collaborative, clearly expressed in Jakobson, Fant & Halle, 1952) based features primarily on segments' acoustic properties. Chomsky & Halle (1968) redefined features using principally articulatory definitions, and used them in phonological rules, setting the scene for Standard Generative Phonology. They reinforced features' binary nature, using plus and minus values (e.g., [+back], [–nasal]) in underlying representations and virtually all rules.

Phonologists have since refined the set of features, or sought structure in their organisation (to account for group behaviour in processes). Features are now linkable to multiple segments, and are sometimes reinterpreted as being exclusively privative (and given different names, such as 'autosegments', 'components' or 'elements'). Feature theory is fundamental in phonology: certain currents now push for a less categorical notion of feature, but these smallest linguistic units are in no danger of being split further.

Primary Sources
Chomsky, Noam & Halle, Morris (1968) *The Sound Pattern of English*. New York: Harper and Row.

To appear in: Chapman, S. & Routledge, P. (eds) *Key Ideas in Linguistics and the Philosophy of Language*. Edinburgh: Edinburgh University Press.

Jakobson, Roman, Fant, Gunnar & Halle, Morris (1952) *Preliminaries to Speech Analysis*. Cambridge, MA: MIT.

Trubetzkoy, N.S. (1939) *Grundzüge der Phonologie*. Christiane Baltaxe, trans. *Principles of Phonology,* Berkeley: University of California Press, 1969.

Further reading

Anderson, Stephen (1985). *Phonology in the Twentieth Century*. Chicago: University of Chicago Press.

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NB: The (*See Also*'s) at the start, and asterisked phrases in the text refer only to other entries which feature in *Key Ideas in Linguistics and the Philosophy of Language*. The '*KT*' at the start refers to entries in the companion volume *Key Thinkers in Linguistics and the Philosophy of Language*. It's a good book – buy it!

Further further reading and notes

(Titles and things which I could not include in the published version due to constraints on space: 500 words in total...)

- Work on distinctive features is often carried out under the heading of 'segmental structure', or under the heading of 'phonological representation'.

- It's easy to get the idea that the recognition of 'parts of segments' is an exclusively twentieth-century idea. This is literally true in terms of the overt discussion of subsegmental entities, but the basic ideas behind feature theory are arguably implicit in a number of aspects of pre-twentieth-century work: in some writing systems, including the International Phonetic Alphabet, and in systems of phonetic and phonological description, such as those used in nineteenth century historical and descriptive work.

- The use features in rules was one of the central notions of Standard Generative Phonology. In principle, rules were allowed to convert the binary values of features to 'multi-valued' integers by the time that a derivation had reached the level of phonetic representation, but this was not really taken up in practice. Chomsky & Halle (1968) explicitly sanction/advocate this (but use it only for stress). The practice of Standard Generative Phonology (and work which has developed this tradition) has really been to use only 'categorial' feature values (plus or minus, present or absent).

- Issues in distinctive feature theory (or 'subsegmental phonology') have provided some of the main driving forces in the development of phonological theory. As well as refining or redefining the set of features, models have arisen which aim to recognise structure among the organisation of features, to account for how they behave as units in phonological processes (whereas previously segments had been seen as unordered feature bundles). In Feature Geometry, for example, features are grouped into classes, arranged in a hierarchical feature tree. The different names that have been given to 'features' in such work include 'autosegments', 'components' or 'elements' (in Autosegmental, Dependency and Government Phonology, respectively). In these models 'features' are often argued to be partially or exclusively privative and may be linked to more than one segment (a standard phonological assumption now).

- The use of features is not limited to phonology: syntactic and semantic units (such as words and concepts) are widely thought to be comprised of syntactic or semantic features, as well. The idea was developed overtly in phonology first, however. In syntax, for example, syntactic features (such as person and number features), are sometimes assumed to be organised through a feature geometry.

- Much has been written on distinctive features and their development. Apart from the references given above, some interesting things to read are:
    Fischer-Jørgensen, Eli (1975). Trends in Phonological Theory. Copenhagen: Academisk Forlag.
    - The other standard 'History of Phonology', apart from Anderson (1985).

To appear in: Chapman, S. & Routledge, P. (eds) *Key Ideas in Linguistics and the Philosophy of Language*. Edinburgh: Edinburgh University Press.

Harris, John (2007) 'Representation'. In Paul de Lacy (ed.) *The Cambridge Handbook of Phonology*. Cambridge: Cambridge University Press.
- An interesting recent take on the role of representation in phonology (including the role of subsegmental structure, such as features or elements, in accounting for phonological generalisations) – its conclusions are rather negative (somewhat unnecessarily so, I'd say), but its discussion of the history of some relevant ideas is well worth reading.

Bermúdez-Otero, Ricardo & Honeybone, Patrick (2006) 'Phonology and Syntax: a Shifting Relationship'. *Lingua* Vol. 116, 543-561.
- Some self-promotion: we briefly discuss the way in which the notion of distinctive features in phonology has been imported into syntax, along with other kinds of interactions in the history of phonology and syntax.

Singh, Sadanand (1976) *Distinctive Features: Theory and Validation*. Baltimore: University Park Press.
- This is an unusual but interesting quite early consideration of a number of theories of the set of features, including some fundamental discussion of what a theory of features should do. The earlier chapters are certainly worth a look.

- Some standard references for post-*SPE* developments in distinctive feature theory are:

Anderson, John & Ewen, Colin (1987) *Principles of Dependency Phonology*. Cambridge: Cambridge University Press.
- The classical statement of Dependency Phonology, one of the models which seeks to develop a model of subsegmental structure where all features (called 'components' in DP) are privative.

Clements, G.N. (1985) 'The Geometry of Phonological Features'. *Phonology Yearbook*. Vol. 2: 225–252.
- One of the classical statements of Feature Geometry, which seeks to find structure in the organisation of distinctive features, grouping them together under shared feature nodes.

Goldsmith John (1976) 'Autosegmental Phonology.' Ph.D. dissertation, MIT. Published by Garland Press, New York, 1979.
- The classical statement of Autosegmental Phonology, important in the development of the idea that features can be linked to more than one segment – a crucial notion in non-linear phonology.

Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud (1985) 'The internal structure of phonological representations: a theory of Charm and Government'. *Phonology Yearbook* 2, 305-328.

Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud (1990) 'Constituent structure and government in phonology'. *Phonology Yearbook* 7, 193-231.
- These two are the classical statements of Government Phonology, which, like Dependency Phonology, seeks to develop a model of subsegmental structure where all features (called 'elements' in GP) are privative. Much work of John Harris from the 1990s is also fundamental for Government Phonology. There has been quite some cross-fertilisation between Government and Dependency Phonology, and most work in this tradition of analysis is now done either in Government Phonology or in a hybrid Government-Dependency model.
- The German version of the (1990) article, (published earlier, but done later) is important, as it includes the main statement on segmental structure:
  - Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud (1989) 'Konstituentenstruktur und Rektion in der Phonologie'. Prinzhorn, Martin (ed.) Phonologie. *Linguistische Berichte* Sonderheft 2. Opladen: Westdeutscher Verlag, pp. 31–75.
- Perhaps the best place to start for Government Phonology ideas about segmental structure, though, is:
  - Harris, J. (1994) *English Sound Structure*. Oxford: Blackwell.