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**Ken Lodge (2009) *Fundamental concepts in phonology: Sameness and difference*.
Edinburgh: Edinburgh University Press. Pp.vii+160.**

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Lodge describes *Fundamental concepts in phonology* as ‘an attempt to bring together various strands of my work from over the past forty years’ (p.vi). Whatever its title might suggest, the book is not a textbook. Part career retrospective and part monograph, it focuses on the concepts of sameness and difference, and aims to hold up to scrutiny a number of related issues in phonology, such as segmentation and biuniqueness. It also outlines Lodge’s ‘declarative’, ‘polysystemic’, ‘abstract’ and ‘non-segmental’ phonological framework.

‘Declarative’ refers to the fact that like Coleman (1998), Ogden (1999a), Bye (2007) and others, Lodge accounts for alternations using inviolable constraints only, and avoiding all structure-changing and destructive processes. ‘Polysystemic’ refers to the idea that a phonology consists of multiple subsystems which are to some extent interrelated, but can be formalised as coherent systems in their own right (see Ogden 1999a: 62-66). A polysystemic approach recognises that particular morphological or structural domains (for example verbs, or stressed syllables) may be associated with phonological constraints that have no function in other domains (for example nouns, or unstressed syllables), and explicitly restricts the application of constraints to their respective domains. Importantly in the context of Lodge’s book, this includes the recognition that different systems of contrast operate in different positions in prosodic structure (for example, vowel systems in stressed *vs* unstressed syllables). Lodge accepts the idea that such differences may have an impact on the representation of the contrastive units involved: a phoneme *x* that occurs in contexts *y* and *z* does not necessarily have an identical feature representation in both contexts. Finally, ‘abstract’ and ‘non-segmental’ refer to the fact that Lodge advocates a clear division of labour between phonological representation and phonetic description – of which more later, and that the phonetic segment has no primary phonological status in his framework (see Coleman 1992, Ogden 1999b, Local 2003).

A book focusing on sameness and difference in phonology is timely given the current interest in exemplar-based approaches (e.g. Coleman 2002, Johnson 2007), which bring to the fore the fundamental role of categorisation and abstraction from phonetic detail in the establishment of phonological representations; and given the renewal of interest in the nature of phonological representations and contrast, following a long period of focus on processes. For example, in recent years, Morén (2006) has revisited existing models of feature geometry and proposed a new, minimalist model; Mielke (2008) has developed an emergentist approach to distinctive feature theory; and Avery et al. (2008) and Dresher (2009) have re-evaluated the place of contrast in phonology, including its role in motivating underspecification theories. Lodge’s focus is similarly on representational issues. He largely steers clear of arguments about processes, presenting declarative accounts of selected data from a range of languages (including German, Icelandic, English, Irish and Scots Gaelic) without elaborating a case against derivational alternatives.

According to Lodge, phonological difference can be defined on two levels: ‘phonemic’ and ‘systemic’. Phonemic difference is established in the familiar way, by testing whether a given

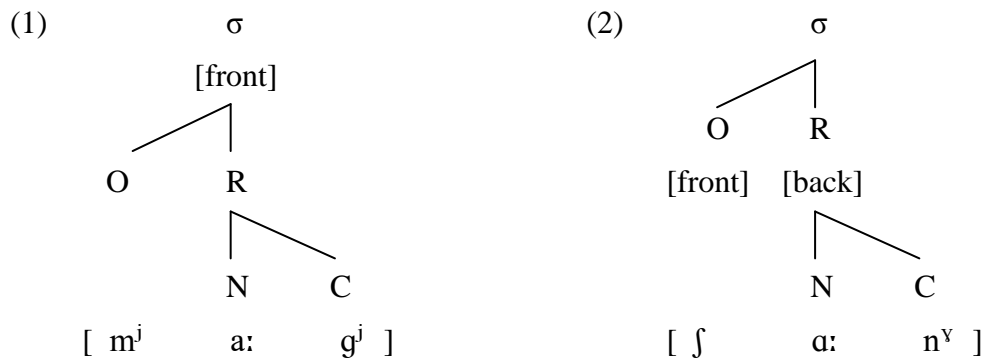
phonetic difference gives rise to a lexical distinction. Systemic difference is established by comparing the functions of two sounds in their respective phonological environments: for example, by establishing how many other sounds each contrasts with. Unfortunately Lodge does not elaborate more concrete criteria, but acknowledging the importance of both levels in establishing degrees of phonological difference is useful. Phonemic analyses, and much subsequent generative work, have tended to neglect the systemic dimension. Explicitly polysystemic work, on the other hand, such as that of the London School (Palmer 1970), has downplayed the relevance of the phonemic dimension. As Lodge points out, the risk of the latter approach is that it can lead to ‘unbridled polysystemicity’ (p.41): an outlook in which the recognition of phonological sameness across structural environments is all but impossible, so that, for example, ‘[s] in *see* is considered to be different from the [s] in *same*, *sieve*, and even *seap*, where the following vowel is ‘the same as’ the one in *see*’ (p.41). Lodge’s version of polysystemicity is kept in check by his acknowledgement of the relevance of phonemic distinctions, while maintaining that systemic considerations play a crucial role in the establishment of phonological representations.

Of course, it is desirable for a framework of representation to incorporate both a consistent way of encoding phonemic sameness and difference and a consistent way of encoding systemic sameness and difference. Lodge’s framework accommodates both, firstly because it incorporates underspecification and secondly because it allows for the non-terminal attachment of features.

Lodge’s main motivation for adopting underspecification is that a phonology that disallows both structure-changing and destructive rules can use it to handle basic alternations. For example, a structure-changing rule such as $d \rightarrow t$ can be made structure-building by removing the voicing specification from the input representation: $T \rightarrow t$, where T is an alveolar plosive unspecified for voicing. An important corollary of this approach is that sameness and difference are encoded at multiple levels of representation: phonemic identity is encoded in fully specified representations, while systemic considerations determine the nature of the underspecification and formulation of structure-building statements. This is clearly visible in Lodge’s treatments of German vowels. Lodge points out that in German, a vowel quality such as [y:] can occur in lexical items which are part of an *umlaut* alternation, such as *Füße* [fy:sə] ‘feet’ (singular *Fuß* [fu:s]); and in non-alternating lexical items, such as *für* [fy:ʌ] ‘for’ (p.47). In his analysis, the difference between the two is marked at the level of lexical representation: the *umlaut* vowel is specified [round], and receives the feature [front] by rule; the non-alternating vowel is specified [round, front] to start with (p.113). The fully specified representations are identical. Similarly, Lodge observes that [f] in Scots Gaelic has three ‘sources’: it occurs in *mutation* alternations as the lenited correspondent of [p^h] and [m], and with the lenited correspondent Ø (p.29). All three instances of [f] are associated with the same features, [voiceless], [oral], [friction] and [labial], but they differ both in their lexical representations and in the nature of the structure-building processes that give them their full specifications (p.117).

Lodge’s representational framework is similar to that of Coleman (1998), among others, in that features are not necessarily organised into segment-size bundles, but ‘may be attached to any syllable node, not just terminal nodes, or even at levels higher than the syllable’ (p.102). For example, Lodge offers the partial representations in (1) and (2) in an analysis of

Muskerry Irish data (pp.109-110). In (1), [front] is attached to the Syllable node to signal that its phonological domain is the syllable as a whole. In (2), [front] and [back] are attached at Onset and Rhyme level. Whatever the rationale for these particular analyses, it should be clear that this approach exploits the expressive potential of non-linear representation to the full (and allows for accounts of feature ‘spreading’ without destructive processes, p.106), and can result in analyses in which the phonetic segment has no obvious unit status.



It also has major implications for the encoding of sameness and difference. One can imagine two segments associated with the same set of features in full specification, but different in the location of some of the features in the prosodic hierarchy, in addition to possible differences in how many features are specified lexically, and how the segments receive their full specifications. One could also imagine talking about sameness and difference at the Rhyme level, or the Syllable level, or the Foot level, establishing ‘phonemic’ and ‘systemic’ differences between units of this size. The representation in (1) suggests as much: it allows, in principle, for the existence of minimal pairs such as [mʲa:gʲ] ~ [mʸa:gʸ], in which syllable-level frontness vs backness is the only active distinctive feature.

Throughout the book, Lodge emphasises the complexity of the relationship between sameness and difference at the phonetic and phonological levels. Many of his examples involve a single phonological contrast associated with differences along multiple phonetic parameters. In these cases, marking the contrast with a single distinctive feature seems like an unwarranted simplification from a phonetic point of view, although appropriate phonologically. Lodge’s conclusion is that phonological representations need to be accompanied by statements of the phonetic implementation of the features that constitute it. These statements are language-specific and context-sensitive: for example, an analysis of Icelandic aspiration requires at least three statements of the phonetic implementation of the feature [voiceless]: one for attachment at Rhyme level, one for Coda and one for Onset (p.108). Crucially, they can be complex, referring to multiple phonetic correlates of a single feature. In the case of [front] in the representation in (1) above, for example, the statement should refer to the quality of the Nucleus vowel as well as the palatalisation observed on the Onset and Coda consonants.

Unfortunately, Lodge’s failure to specify exactly what constitutes systemic sameness and difference is symptomatic of a general lack of rigorous exploration of the ideas outlined so far. With reference to sameness and difference, Lodge’s approach offers a finite number of combinations of phonetic and phonological sameness and difference: phonetic difference,

phonemic sameness, systemic sameness; phonetic difference, phonemic sameness, systemic difference; and so on. Some of these combinations warrant discussion: for example, if two sounds are phonetically the same, how can we establish that they are phonemically – as opposed to systemically – different? But Lodge does not develop the model, and returns at various points in his discussion to what would seem a binary view on phonological sameness. The phonemic level of sameness appears to be the sticking point. This sits rather uncomfortably in a ‘non-segmental’ phonology, and perhaps for this reason Lodge glosses over sameness at the phonemic level in several places, while emphasising systemic differences. For example, when Lodge asks ‘What reason is there for identifying as the same the stressed vowels of *Canada* and *sanity*, or those of *Oberon* and *verbose*?’ (p.35), the answer seems obvious: phonetically, they are very similar, and what difference there may be between them is not lexically distinctive. Similarly, Lodge asserts that ‘I specifically do not identify the vowel system in the final syllable of Malay disyllabic words with that in the first syllable; the former is subject to constraints on tongue height depending on whether the syllable has a coda or not, the latter is not so constrained’ (p.36). In both cases the sounds involved would appear to be phonemically equivalent, although different systemically. In Lodge’s treatment, the systemic difference appears to outweigh the phonemic sameness.

In fact, in his own discussion of the example of [s] in *see*, *same*, *sieve* and so on mentioned above, Lodge suggests that ‘the guard against unbridled polysystemicity resides in the acknowledgement of phonetic similarity as a classifier when no other functional considerations are relevant’ (p.41). Taken literally, this means that phonological sameness follows from phonetic similarity when systemic considerations do not suggest a different analysis. This skips the crucial question of whether observed phonetic differences are potentially lexically distinctive or not. In English, such differences as exist between alveolar fricatives in different vowel contexts are not lexically distinctive, so the instances of [s] are the same on the phonemic level. To suggest that the fricatives are phonologically the same simply because of phonetic similarity and the fact that there is not much more to say about them phonologically seems counterproductive.

With reference to phonological representation, Lodge’s analyses employing underspecification are clear and parsimonious, but his use of non-terminal feature attachment is less convincing. In demonstrating his representational framework, Lodge refers to non-terminal attachment primarily as a way of accounting for phonological contrasts whose phonetic correlates span more than one segment. For example, he suggests that in German, alternating [y:] is lexically specified [round], and [round] is attached at the Syllable level, to account for the presence of liprounding throughout syllables with rounded vowels. As indicated above, [front] is added by predictive statement, and it is attached at the Nucleus level (p.112). This is presumably because ‘frontness’ is *not* necessarily observed across the syllable as a whole – unlike in the Muskerry Irish case illustrated in (1).

This emphasis on the use of non-terminal attachment of features to reflect the temporal extent of the phonetic correlates of those features leads to the question of whether *any* phonological features can be justified as ‘terminal’, given the extent of segment-to-segment coarticulation, and is somewhat at odds with other work in Declarative Phonology. As pointed out by Coleman (1998) and Ogden (1999b), in a framework that requires explicit statements of phonetic implementation, the temporal alignment of correlates of particular features is specified in those statements, and therefore does not need to be encoded at the phonological

level as well. Moreover, in a framework that accepts a notion of headedness, default phonetic implementation models can be set up, in which, for example, features associated with a Nucleus are expected to have an extent that includes the Onset and Coda (see Coleman 1992). This way a clear distinction is maintained between the (phonetic) extent and the (phonological) domain of features, and '[d]istributional criteria remain the best basis on which to determine the domain of each distinctive feature' (Coleman 1998: 209). These distributional criteria include feature co-occurrence constraints, instances of positional neutralisation and so on: the kinds of things that cause systemic differences between segments, and the kinds of things Lodge accounts for in terms of underspecification. Given the theme of this book and Lodge's phonological framework, then, leaving the division of labour between underspecification and non-terminal attachment in encoding sameness and difference largely unexplored seems something of a lost opportunity.

On the related issue of abstractness, while arguing in favour of a clear division of labour between phonetic description and phonological representation, Lodge chooses not to explore the ramifications of banning all intrinsic phonetic interpretation from phonology, opting instead for an approach with 'partly phonetic' unary features such as [LIPS: neutral] and [MANNER: stop] (p.103). For example, in accounting for German forms such as [ʒʌn^yt^yə] 'harvest', in which 'postvocalic' /r/ is associated with the vowel quality [ʌ] and a degree of pharyngealisation, Lodge uses [PHARYNX: narrow] attached at Rhyme level (p.93). It is difficult to see the 'clear separation of phonetics and phonology' (p.87) Lodge advocates in this analysis.

The issue of abstractness is pertinent to the theme of the book. One related question is whether phonological contrast is best encoded using binary or unary features: in short, is the perceived absence of a particular feature a sufficient basis for phonological equivalence or not? Lodge argues that from a phonetic point of view, binary features are suspect, since generally the articulatory configurations associated with '+' and '-' are both best described in positive terms (p.76). Unsurprisingly, Lodge's own 'partly phonetic' features are unary. But when outlining an alternative analysis of the German /r/ data referred to above, with fully abstract features, Lodge replaces [PHARYNX: narrow] by [±r] (p.93). Of course, his phonetically motivated objection to binarity is irrelevant in the latter approach, so Lodge cannot be accused of inconsistency. Still, as in the case of non-terminal attachment of features, not exploring the implications of this choice for the representation of sameness and difference – here potentially doubling the number of equivalence classes defined by one's feature set – seems somewhat short-sighted.

A final, more general criticism is that the 'retrospective' nature of this book is rather prominent. Lodge does not stray far from analyses he has written about before, and some sections read rather like summaries. Moreover, Lodge's criticisms of other analyses mostly cover sources published over a decade ago, focussing heavily on Goldsmith (1995). This is not necessarily a flaw, but discussion of, for example, Morén's (2006) Parallel Structures Model of feature geometry, or Steriade's (2007) discussion of contrast in phonology would certainly have been welcome. Finally, exemplar-based approaches are referred to in passing (e.g. p.142), but not explored in any detail, despite the suggestion by Bye (2007) that they are compatible with an abstract version of Declarative Phonology not unlike that advocated by Lodge.

In sum, Lodge's book is a timely reminder of a range of issues and theoretical positions worth exploring in relation to phonological contrast and representation. It arguably lacks in rigour and engagement with current literature, and it remains to be seen how many readers will be persuaded that Lodge's phonological framework will provide answers to the questions of how to delimit phonological sameness and difference, and how to encode these notions in phonological representations. But Lodge is right to stress that these fundamental questions are worth asking.

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