AN INTRODUCTION TO PHENOMENOLOGICAL PHONOLOGY (PP)

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ABSTRACT – Phenomenological Phonology (PP) is a framework for studying phonological phenomena which I have been developing over recent years. It is intended as an alternative to mainstream theories based on or deriving from Generative Phonology (GP), and uses the insights of phenomenological philosophy. In this paper, I give a brief outline of PP. More in-depth discussion and justification is available in Fraser 1992 (hereafter SSP) and Fraser (in press).

1   WHAT IS PHENOMENOLOGY?

Phenomenology is a diverse and often misunderstood philosophy. It has two main branches, roughly characterisable as a philosophy of consciousness and a philosophy of experience. PP is based on some of the key insights of the latter. The first of these is the observation that there is a distinction between a *thing* and its *description*, or between reality-in-itself and our perception or interpretation of reality. This observation is of course common to many philosophies, but in phenomenology, it causes attention to be directed away from the many possible descriptions or perceptions of reality, and turned towards the *maker* of those descriptions (the Subject), and the *processes* by which descriptions are made.

Phenomenology thus takes very seriously the insight that any description is Subjective, in the sense of being the *product* of a *process* performed by a *Subject*, and pursues rigorously the implication that no description – not even those of the hard sciences – is more objectively valid than any other. This does not mean, as it is often parodied, that we can never say anything about anything, or that any description is as valid as any other. It means that, for any description to be accepted as valid in a particular context, the process whereby that description has arisen must be specifiable.

2   WHY IS PHENOMENOLOGY RELEVANT TO PHONOLOGY?

One of the fundamental concepts of mainstream generative phonology (GP) is that of 'representation', and one of its defining assumptions is that phonology is about the transformation of a phonological representation into a phonetic representation, and vice versa. These ideas bring up many issues of debate and difference of opinion within GP – the exact definition of the two representations, their status in terms of their 'abstractness', the nature of the processes that relate them, and so on. Some current theories attempt to do away with the two-representation model, and/or with the transformational process that relate them. I would argue however that proposals for 'monostratal' phonology imply an unacknowledged second level of representation, and those which attempt to do away with transformational processes only change the nature of the processes, rather than eliminating them.

What is conspicuous by its absence in all these discussions, both in GP and in the wider arena of cognitive science, is detailed analysis of the concept of representation itself, and the presuppositions of the idea that the phonetic and phonological representations are related by transformation. It is in this respect that I find phenomenological ideas most useful, since it allows precisely this – an understanding of what a representation is.

3   HOW CAN PHENOMENOLOGY PROVIDE THE BASIS FOR A THEORY OF PHONOLOGY?

Phenomenological principles allow development of a framework within which phonological phenomena can be understood. The key concept here is 'description'. A description is similar to a representation in the present context, and use of 'description' as a term reduces the temptation to confuse the PP concept with the GP concept.

The fundamental process in PP is the *creation* of descriptions (or representations) of *undescribed* material; compare the GP process of transforming representations into other representations. We can understand the general nature of this process in terms of a three-part framework: a *description* is created from

something undescribed (the Something) by *someone making that description* (the Subject). We can now look at how these three elements, the Description, the Something and the Subject, are evident in speech.

3.1   The Something: Speech sounds before they are described

The Something we are dealing with in phonology is undescribed speech sounds. Of course it is not possible in this framework to describe speech sounds objectively. All that is possible is to point to the Something whose description we are interested in: the noises that people make with their vocal tracts in order to communicate linguistically. These can be described in numerous ways, which we will discuss in more detail below.

A particular speech sound Something can be isolated without being described by being captured on tape or computer. This can then be inserted into different contexts and changes to its description noted. For example, it is possible to isolate the portion of the word 'spat' which is represented in spelling with '_pat', and play it with and without the preceding 's' sound. Doing this will make English speakers want to describe it as beginning with a 'p' in one case and as beginning with a 'b' in the other case. It is tempting but inaccurate to suggest that the 'p' has changed into a 'b', or that any other transformation of one description into another, has taken place.

The PP framework encourages us rather to see the situation as one in which an undescribed Something is described in one case as a 'p' and in the other as a 'b'. The relationship between the 'p' and the 'b' is that they are both derived from the same Something, not that one is transformed into the other.

3.2   The Subject: The person describing the sounds

The Subject is the person who makes a description of the undescribed Something. Any time there is a described speech sound, PP encourages us to ask which Subject has made that description, and to look at the process of its description.

A key insight is that in phonology there are *two* Subjects creating descriptions of speech sounds. The first is the language using Subject (LUS) being modelled by linguistic theory. The second is the linguist *making the model*.

The LUS is using the language to understand not-already-described reality and to communicate. The goal is the linguistic meaning of the sounds, and the background understanding is general knowledge of the language, culture and situation. The linguist is modeling or theorising the language behaviour of the LUS. The goal is to make a model of a certain kind, and the background understanding has to do with what a model is, what the purpose of this model is, what 'science' is, and so on.

The LUS is different from the Subject as conceived in GP. This must be so, because the Subject assumed by GP is a engaged only in transforming one representation into another by means of some form of computation. The Subject in PP is engaged in creating representations or descriptions of not-already-described-reality, and understanding the relationships between the descriptions and between the aspects of reality being described.

One of the factors in determining representations of reality is the knowledge the Subject has about the world, the language, and the context in which the representation is being made. In PP as in GP, a major research question is the specification of the knowledge Subjects have that enables them to constitute linguistic Descriptions.

3.3   The Descriptions of Speech Sounds

The descriptions with which we are concerned in PP are those made of speech sounds by each of these two Subjects in the contexts in which they operate. There are many such descriptions. Some relate to the LUS; others relate to the linguist. In PP these two kinds of description are fundamentally different, and there is little temptation to confuse them. It is worth noting that this type of confusion is all but inevitable in GP, given the 'systematic ambiguity' GP deliberately encourages between 'grammar' as linguist's construct and 'grammar' as native speaker's competence (SPE:3). This kind of ambiguity is anathema to PP.

3.3.1 Psychophonological description

A psychophonological description (PsD) is a description of speech sounds made by the LUS, and PP is committed to demonstrating that any description so called in a model is indeed one made by the LUS. To do this, it is necessary to observe not just speech sounds but Subjects. In order to determine what psychophonological descriptions are like, we have to ask, 'How does the LUS describe speech sounds?'. It becomes evident immediately that there is not just one psychophonological description, but many. Psychophonological descriptions can be at different levels of abstraction, though the concept of 'abstract' in PP is very different from that of GP.

The first, and thus the least abstract, description of speech sounds by the LUS is as units like those known in ordinary language a 'word', i.e. a linguistically meaningful unit of speech sound. It is very tempting to ask, as GP does, what *components* make up the word. In PP this does not make sense. Described components of descriptions are themselves descriptions, so questions arise as to the description of the components as much as the description of the whole. Explaining the perception of words in terms of the prior perception of smaller units (acoustic features, or segments) is considered question-begging in PP. It may be worth reminding readers that I am talking at this point about the description of speech sounds as words, not about the description of the world using words (cf. Dell 1980:21 fn14).

I claim then that the word is the least abstract description of sound to the LUS, and the basic 'building block' of PP. The rationale for this claim has several parts, which for lack of space I will merely rehearse here: in language acquisition, it is this kind of meaningful unit that is learned first; in speech perception and production, these are the units that people are most conscious of and as which they most obviously describe speech sounds; in the bigger picture, language is about meaning and its communication.

The word is not however the only kind of description the LUS makes of speech sounds. The LUS can also describe parts of words. The first partition is the division of words into a sound-part and a meaning-part, so that we can think of the sound of the word 'dog' separately from the meaning 'dog'. This is certainly not something that Subjects do automatically, or that we as linguists can presuppose. Learning to do it is a similar process to that involved in learning to abstract the concept of 'red' from observation of red things. It is traditional in linguistics to think of words as a pairing of sound and meaning in an arbitrary relationship. For PP, while this is a useful way of talking *for linguists*, it cannot be literally true *for Subjects*. Rather PP sees both sound and meaning as being derived from understanding of an unpartitioned whole comprising both sound and meaning in a 'linguistically meaningful sound'. The traditional idea of an arbitrary relationship is seen in PP as analogous to considering a coloured object to be a pairing of 'redness' and 'ballness', an idea which may appeal to componential semanticists but is preposterous to many others.

The LUS also subdivides the sound-part of words into sublexical units of various kinds. This is certainly true of literate Subjects, and PP predicts that it will be true even among non-literates. Evidence for this too comes from several sources. People can talk about speech in terms of sublexical units; and their behaviour in classifying and comparing words – as pointed out in GP – seems to indicate some kind of awareness of words as having an internal structure. The types of units that seem to be relevant include syllables, onsets and rimes of syllables, and segments. It would also seem that Subjects are able to divide up the sound-aspect of words in a non-linear way, abstracting tone, intonation, and other aspects.

This account gives a principled way to decide on the relative abstractness of the various Psychophonological Descriptions from the Subject's point of view. Sublexical units are more, not less, abstract, than words. This makes for a significant shift from the traditional assumption of GP, with important implications for the theory of PP.

3.3.2 Phonetic description

A phonetic description (PhD) is also a description of speech, but a linguist's one. The role the phonetic description plays in PP theory is quite different from the role of the phonetic representation in GP. However we do not attach the prefix 'psycho-', since the phonetic representation does not play a role in

the Subject's mental processing during speech perception or production. There is no temptation in PP, as there apparently is in GP, for linguists to make a phonetic representation and then ascribe it to the LUS.

In PP, the phonetic description is *more abstract* than any of the psychophonological descriptions (notice the reversal of status from that given the two representations in GP). The reason for this is perhaps clear following earlier discussion. In order to make a PhD it is necessary to understand a lot about language in general, and, usually, something about the particular language you are transcribing. The idea of making a PhD would only occur to someone who was able to take an attitude of detachment in observing language (most likely someone familiar with more than one language or dialect). It is certainly not a description that would arise for a Subject in the course of normal life, as is clearly demonstrated by the fact that phonetic descriptions of sounds have a very limited role in ordinary conversation, and the difficulty Subjects have in focussing on the phonetic aspects of speech sounds when asked to by linguists.

As evidence for this point of view, consider the following well-attested observations: there is no sense in which the phonetic representation is an automatic transduction of 'real speech', as is clearly demonstrated by the difficulties of making a 'low level' transcription by machine, and indeed by the difficulty even highly trained phoneticians face in making a phonetic transcription of a language they do not know. To make a phonetic transcription, a linguist has to know the meanings of the sounds, at least to some level.

As there can be many different goals and points of view for the linguist, so there can be many different kinds of phonetic transcription. To ask 'What is *the* phonetic representation of this particular stretch of speech?' is not very helpful. The answer of course is 'It depends'. It could be articulatory, acoustic or auditory, in units of segments or features, or parameters, it could be relatively 'broad' or relatively 'narrow', etc (see Laver 1994 for some useful discussion).

4   A PROGRAMME FOR PHENOMENOLOGICAL PHONOLOGY
Some questions which arise in this framework are
- How do Subjects describe speech sounds?
- What are the descriptions of speech sounds which are most useful to linguists?
- What generalisations can we make about the sound systems of languages?
- What is the best description of a particular language for a particular purpose?

In answering these questions, rigour in PP is achieved by constant reference of phonological experience and observation to the big picture of the PP framework – as opposed to allowing theory to 'run away with itself', or the formalisms to become more of an object of study than the reality, criticisms often levelled at GP. This is in fact exactly the purpose and value of having a framework such as the one presented above: it allows a more hermeneutic theory development (see SSP).

4.1   Methods
In PP, study of the PsD involves observation of and discussion with Subjects regarding their linguistic behaviour. In this respect PP has affinity with the 'experimental' schools of GP.

PP also sets great store by detailed and accurate description and transcription of speech. Phonetic description, in PP, is not considered simple and uninteresting; there is no sense that phonetic description is 'mere' observation. In fact, for PP the issues involved in providing a relevant phonetic description are if anything more tricky that those of the PsD, where there is always the possibility of returning to the 'base level' of the Subject's own naming of the linguistically meaningful units of the language. I agree with Pierrehumbert (1990:391): 'Phonetic representation is one of the most difficult problems in linguistics'.

5   IMPLICATIONS OF PP

5.1   Transformation
The most important implication of the PP framework is that it reduces the emphasis on defining processes which transform a phonological representation into a phonetic representation. In the phenomenological view, there is no reason for these two kinds of representation to be transformable into one another. Even if such a transformation could be done simply, there would be no temptation to ascribe it to the language-

using Subject, as the task is obviously performed by the linguist, not the Subject. In fact, of course, this computational transformation cannot be done simply. The entire history of GP demonstrates this. Perhaps it will one day be possible to transform phonological representations into phonetic ones with a better degree of precision than it is now. But such success would be on a level with that of a grand theory that could transform a representation of any bird, Escher-like, into that of a corresponding reptile. Perhaps such a theory can be made, but it would fall a long way short of being a satisfactory account of evolution.

To suggest that what the language-using Subject is doing is transforming one representation into another, even if we could show how it is done, cannot account for the really interesting thing Subjects do, which is to *create* representations of speech sounds from something previously *un*represented.

5.2   Double articulation and coarticulation

Consider the 'double articulation' view of language that underpins GP: the idea that language is made up of two levels, one with a few small meaningless elements, the other with many larger units, made by combining units from the first, associated with meanings. This view is useful to linguists, but very limited as an account of language for the LUS, raising as it does questions about how the Subject could ever apprehend small meaningless units of sound. In PP, the small meaningless units are abstractions from meaningful words, rather than the components of which words are made up.

The 'double articulation' view of language generates questions about how the small meaningless units of language are joined together to create larger meaningful units, leading to the vast research on coarticulation. In PP by contrast, the obvious question is: 'How do smaller units get created from the basic linguistically meaningful units?'. Considering the rules that would be necessary to join segments together into a smooth flow of continuous speech is still useful in PP, for practical tasks such as speech synthesis. But there is no temptation to look for such rules – devised by linguists – in the minds of Subjects. Rather, the focus is on questions like "How do Subjects ever come to consider the 't' at the beginning of 'top' and the 't' in 'stop' to be the 'same' sound?". Many of the hairy theoretical issues around coarticulation in GP-based phonetics and phonology (see refs in Fraser in press) could be readily sorted out, I claim, by distinguishing the points of view of the linguist and of the Subject – as suggested by the PP framework.

5.3   Features

There is little place in PP for the Distinctive Features of GP, whether arranged as matrices or in other geometries, and indeed the whole notion of the 'features' of speech is quite different in PP. The Something certainly has characteristics or features which can be observed, compared, abstracted and described. Once the characteristics or features have been described in this way however they are Descriptions, not features of a Something. In PP it is considered important to give the correct ontological status to the elements of the theory: features are features, not entities (cf. similar point in Linell 1979). PP is thus in strong disagreement with the GP view expressed succinctly by Basbøll:

> As soon as we operate with natural classes of segments, we in fact also operate with distinctive features characterising these classes, at least implicitly. (Basbøll 1988:196)

Bird (1995) makes a very imaginative analogy of Distinctive Features with the primary colours, which, when combined, make up the actual colours of experience. While this is a useful analogy for explaining GP's view of how DFs work as the basic unit of sounds, it also highlights the quite different understanding in GP and in PP of the relationship between things encountered in experience, and scientific analysis of those things. Primary and secondary colours are equal in experience; the knowledge that some colours can be created by combining other colours is the product of a detached or scientific appraisal. It would be unusual to suggest that in order for a Subject to experience the colour orange they must at some 'lower' level make a representation of the colours red and yellow.

5.4   Relationship between psychophonological and phonetic descriptions

I have been at pains to argue throughout that the psychophonological and phonetic descriptions are not related by transformation from the point of view of the Language-Using Subject. However this is not to say that there is no relationship at all between them. Far from it. They are after all descriptions derived from the same 'Something', and specifying a relationship between them is an important goal of PP.

The two descriptions are related not directly, but through the 'Something'. To translate one into the other is not a matter of applying a computational process. It is a genuine translation in the sense of translating of one language to another. To translate (effectively) from Japanese to English, it is necessary to understand the Japanese sufficiently to go back to the meaning of the words and reconstitute that meaning in English words Similarly to translate one description of speech into another, it is necessary to get behind the description and come to some understanding of the 'Something' from which it is constituted; from there it is possible to constitute another description of the same Something, by taking a different Subjective point of view, or seeing it in a different context.

6   REFERENCES

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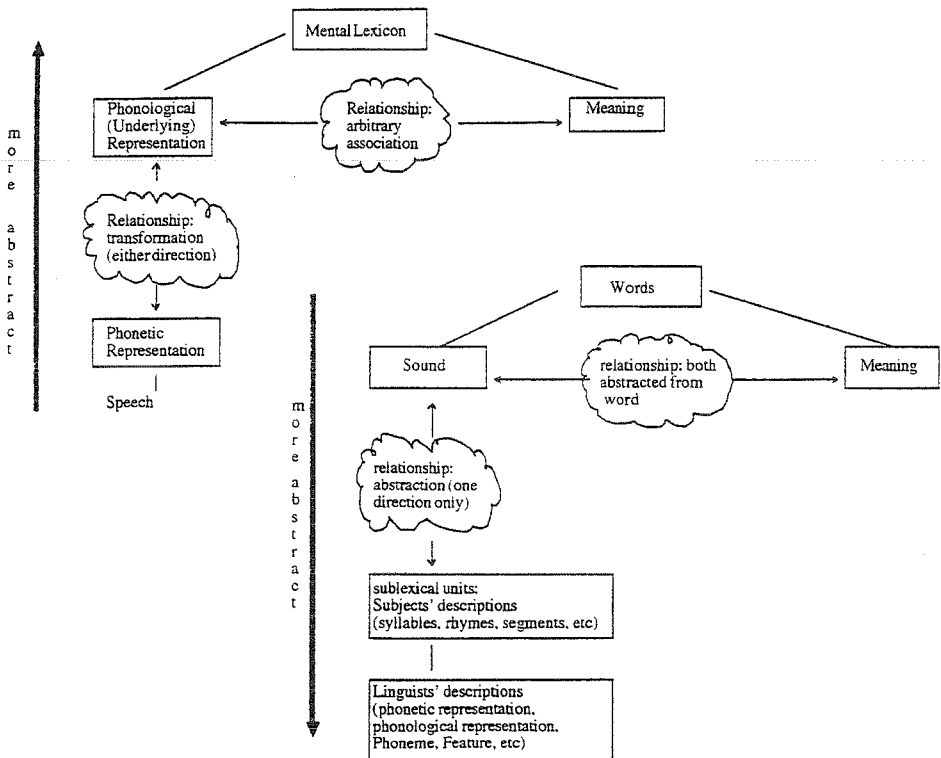
Figure 1: A comparison of generative phonology (left) and phenomenological phonology (right)

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