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Towards a Usage-Based Cognitive Phonology[1]

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ABSTRACT

The usage-based conception of language is a major tenet in Cognitive Linguistics, but cognitive phonology has not yet been developed sufficiently in this direction. Often, phonemic analysis is carried out at the high level of abstraction of `a language´, disregarding rich patterns of language-internal variation. This paper first argues that cognitive phonology must aim at a higher degree of descriptive refinement, especially in the direction of social variation. Then it goes on to examine the implications of a usage-based and multi-faceted model for a theoretical discussion of the phoneme as a prototype category.

KEYWORDS: usage-based cognitive phonology, lectal variation, distributed cognition, receptive and active competence, language acquisition, models of phonemic representation

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I. ON THE NECESSITY OF A USAGE-BASED FRAMEWORK FOR COGNITIVE PHONOLOGY

A recent Google search on `accent reduction´ (January 7, 2007) gave 2.040.000 results. Most of the first 400 results corresponded to courses offered by private companies or public institutions (universities included) aiming at a reduction of foreign accents. However, a surprisingly high number also had as their target the reduction of native accents. In such cases, the course descriptions often explain in quite straightforward terms that having a regional accent can `keep you from being promoted´ or `hamper you professionally and socially´. It is easy to find companies that specialize in `American Regional Dialect Reduction´ and offer courses or products which teach the unfortunate speakers with regionalisms such as `American South and Texas´, `Mid-West farm Belt´, `American Urban and Rural Black´ or even `New York City and North Jersey´ how to `speak without an accent´. It has thus not gone unnoticed that there is market for teaching people how to speak with socially prestigious accents. The unspoken assumption is that accents are socially diagnostic: humans have `passive´ competence of lectal varieties (cf. Kristiansen, 2003) in the sense that we possess the ability to process clusters of linguistics cues which quickly and efficiently signal social and regional origin (hearer *categorizes* speaker lectally and socially) and concomitantly invoke the corresponding social stereotypes (hearer *characterizes* speaker socially and geographically).

One of the most important cues to correct dialect identification (perhaps even the most significant one: cf. Purnell *et al.*, 1999; van Bezooijen & Gooskens, 1999) is allophonic variation. However, while the disciplines of Sociolinguistics and Social Psychology of Language have explored the relationship between linguistic variants and social meaning for more than four decades now, social and regional variation has strangely enough been relegated to a secondary position in cognitive phonology. Yet, there are good reasons for investigating these areas in more depth within a Cognitive Linguistics framework. For a start, it would seem more than just pertinent, the emphasis on meaning-making processes provided, to investigate not only the mechanisms by means of which allophonic variation evokes social meaning, but also the various options language users employ once the link between linguistic form and social domain has been established (cf. Kristiansen forthcoming a). Further, an analysis of linguistic variants in actual

usage within social and linguistic dimensions which taxonomically speaking are more specific than the large-scale and abstract category of `a language´ is only in line with the fundamental claim that Cognitive Linguistics is a *usage-based* perspective. As Langacker, the scholar who coined the term, once phrased it:

> In a usage-based model, substantial importance is given to the actual use of the linguistic system and a speaker's knowledge of this use; […] It is a non-reductive approach to linguistic structure that employs fully articulated schematic networks and emphasizes the importance of low-level schemas (Langacker, 1999: 91).

In turn, Geeraerts (2001, 2005; Geeraerts *et al*., 1994) has repeatedly drawn attention towards the logical entailment of such a position: we can only take the claim that Cognitive Linguistics is a usage-based approach seriously if the kind of language that we analyze is *real* language, language as it is actually used by real speakers in real situations. Obviously, an analysis which in a natural way incorporates social factors and other types of language-internal dimensions not only provides us with a far more realistic picture, but also widens the gap with respect to disciplines according to which it is still acceptable, and possible, to analyze languages in terms of idealized speakers and homogeneous speech communities.[2] It naturally follows that a fine-grained map of allophonic variation within a given speech community cannot ignore social variation of the type just described.[3] Lectal variation will naturally form part of any description, or model, which purports to provide a realistic picture of phonetic variation and phonemic categorization.

However, the implications are not only descriptive, but also theoretical. From a diachronic perspective, knowledge about the social significance of linguistic variants may well turn out to have an influence on active competence, and accordingly on the nature of the variants in actual usage – both quantitatively and qualitatively - in a given language at a given historical time. A theory of language that intends to describe and explain the dynamics of language change in adequate ways cannot afford to ignore the (synchronic) mechanisms of actual language usage. Obviously, to obtain a picture which allows us to discuss the nature and evolution of not only phoneme categories but also phoneme inventories, the very first step is to aim at a high level of

descriptive accuracy. Usage-based models, then, take the data as they actually appear and set up theories which conform to the facts.

As far as the link between usage and language acquisition is concerned, Taylor (2002: 27) summarizes the relationship in the following way:

> It is assumed that the input to language acquisition are encounters with actual linguistic expressions, fully specified in their phonological, semantic, and symbolic aspects. Knowledge of a language is based in knowledge of actual usage and of generalizations made over usage events. Language acquisition is therefore a bottom-up process, driven by linguistic experience.

Though I shall also touch on acquisition in what follows, my main concern will be the descriptive and theoretical implications of zooming in on real usage in a more persistent way.

For the sake of highlighting the importance of social variation, I have started out with this particular aspect, but a usage-based model is obviously not one-dimensional. In fact, if Cognitive Linguistics shares an interest in low-level schemas situated at the level of parole with Sociolinguistics, with Functionalism it shares, amongst many other aspects (cf. Nuyts, 2005) the view that meaning cannot be studied in isolation, separable from the nature and the purpose of what is communicated and from the dynamics of communication as such. In the next section I focus on three of the dimensions which have a bearing on allophonic variation, viz. the ideational, discursive, and social functions of language. In other words, I will discuss (a) the kind of phonetic variation which serves the fundamental purpose of realizing a distinctive unit (i.e. the phoneme) and which does not necessarily carry an additional social message, (b) co-textual variation (that which derives from discursive factors), and (c) variation of a contextual type (that which pertains to social cognition and interaction).

II. A MULTI-DIMENSIONAL APPROACH TO PHONETIC VARIATION

In what follows I shall discuss a number of different dimensions implementing the terms `ideational´, `social´ and `discursive´. These correspond, roughly speaking, to Halliday's (1978) trichotomy of the `ideational´, `interpersonal´, and `textual´ functions of language. However, on

the assumption that not only inter-personal, but also inter-group and intra-group mechanisms are at work in social interaction, the term `social´ will be employed instead of `interpersonal´. Likewise, `discursive´ is preferred to `textual´, since, although we know that texts – in the sense of coherent stretches of language regardless of size or mode – are oral as well as written, the dynamics of ongoing, oral, discourse is made more prominent by using the former expression. I retain, albeit reluctantly, the term `ideational´ since social information is no less a question of (internally complex and subjectively construed) semantic domains than is `factual´ information. In this respect, Jakobson's (1960) `referential´ and Lyon's (1977) `descriptive´ do not offer a helpful distinction, either.

II.1. The ideational function of language

The ideational function of language, according to which phonemes function as builders of `factual´ meaning at the level of the morpheme and allophonic variants are processed as mere phonemic slot-fillers, is so well-known that little needs to be explicated. In very general terms, since the discovery of minimal pairs, both Structuralism and Functionalism established a clear distinction between the meaning-making levels of linguistic structure (beginning with morphology) and the meaning-building ones (i.e. the levels `below´ morphology). It was not until the birth of Sociolinguistics that the correlation between social variables and phonetic variants began to be studied in a systematic way. Cognitive Linguistics has perhaps neglected precisely that aspect, but in turn it has contributed to a prototype-theoretical conception of the phoneme as a mental category (Mompeán, 2004; Nathan, 1986, 1994, 1996, 1999; Taylor, 1990, 1995, 2002). In a phonemic prototype category, phonetic variants cluster around a central member which is maximally contrastive with respect to the central members of neighboring categories (Taylor, 1995: 221). In theory, then, the specific sets of phoneme categories organized around such major acoustic-perceptual contrasts in actual usage (the options logically being constrained by human physiological conditions in general) constitute the phoneme inventories of natural languages.

However, although the cognitive phonology view of phoneme category structure is certainly an attractive model, it is far from unproblematic. For a start, it is implicitly assumed that

the vast kind of language-internal variation we encounter across lectal categories can be brought under one schematic representation. It is assumed, for example, that the English phoneme category /t/ can be described (implementing either a network model or a radial category model) in such a way that all the variants of /t/ in actual usage in `English´ can be subsumed within the same category. In the case of /t/, even if social variants are allowed to become reflected, we can still easily talk about a consistent radial category, featuring extensions based on relative similarity with respect to central or more peripheral members, all of which ultimately organized, in more or less direct ways, around a prototypical member. Yet in many other cases, the model is not that easily applied. Or rather, viewed from a usage-based perspective, the data fail to fit the model in as neat a way as we would like them to. This is particularly true in the case of the vowels. Let us take an example from the Linguistic Atlas of England (Orton *et al.*, 1978):

Figure 1. Variants of the vowel in the verb *lay* in traditional English dialects according to *The Linguistic Atlas of England* (Orton *et al*., 1978).

The map in Figure 1 represents realizations of the vowel pronounced in the word-form <lay> in traditional dialects in England between 1950 and 1960. The data are perhaps somehow obsolete, but they will do for our present purposes, as the heterogeneous situation conveyed by the map is representative of dialectal variation. We may note, for a start, that many of the steps of the Great Vowel Shift never reached the very North of England, with retention of many of the monophthongs from the Old English period as a result. In fact, while it is certainly still possible to draw up a schematic representation which depicts chaining relationships among the variants, or instantiations, in actual occurrence, it is much harder to posit that there should be just one single phoneme (not in the sense of a prototype category, but of a distinctive builder of ideational meaning) at work at the same time. We encounter realizations such as [laɪ] and [li:], which would clearly be transphonemic if one specific phonological system, such as RP, were to form the basis of our model (i.e. [laɪ] and [li:] evoke the semantic poles of *lie* and *lee* for a speaker of RP and many Southern English dialects). The question is not only how to chart the internal structure of a formal category in adequate ways, but also whose system(s) we are representing. Large-scale speech communities are complex and heterogeneous, and to be really usage-based cognitive phonology must account for the fact that there are multiple, and quite dissimilar variants in use and different phonological systems at work within the same language. The easy way out is to adopt the position that each lectal variety forms an autonomous system of its own, to be analyzed independently, regardless of the existence of neighboring, or adjacent systems. As I have pointed out on other occasions (cf. Kristiansen, 2003: 76), this is precisely the way systemic-functional linguistics solved the problem. By establishing a distinction between language as institution (consisting of independently formed varieties) and language as system (language perceived as a system analyzable in terms of layers of linguistic structure), Halliday (1978) sifted one fairly homogeneous (but of course still very heterogeneous in many other respects) kind of language from the sum of its lectal varieties. Yet a usage-based approach cannot afford to work at such a high level of abstraction, especially in the field of cognitive phonology. It is not realistic to work around one variety of a language, no matter how prestigious and accessible it happens to be, and equate it with the language in question.

II.2. The discursive function of language

Natural phonology argues that the discursive roles of hearer and speaker result in a series of (perhaps conflicting, but on the other hand perfectly compatible) tendencies. While both hearer and speaker seek improvements, speaker does so by means of mechanisms involving `ease of effort´ and hence `ease of articulation´. The hearer-oriented role, in turn, is rather aimed towards `clear and effective communication´. Following Stampe (1979), Nathan (1996: 116-117) has argued that *fortitions* are processes which select among all possible human sounds those which constitute the phonemes of a particular language and which define prototype effects for language sounds. *Lenitions*, on the other hand, are processes which create allophonic variants, i.e. extensions from a prototypical member within a radial network. These phonological processes are "universal cognitive mechanisms that languages have and may or may not use (that is, may or may not suppress) in any given instance" (Nathan, 1996: 113). Fortitions thus help us understand phoneme inventories in terms of series of phoneme categories whose prototypical members show a maximum degree of perceptual difference. Such an approach is of course highly compatible with general principles of prototypicality: maximum acoustic-perceptual salience and inter-categorial contrast as an organizing principle for the structure of phoneme inventories and categories constitute criterial factors in both cases. Numerous processes of assimilation, on the other hand, may be explained in terms of lenitions (e.g. the `rule´ according to which an alveolar nasal becomes labialized in immediate contact with other labial sounds: <in Paris> [ɪm'pærɪs]). Obviously, the discursive (or co-textual) variants which systematically occur in a given dialect - or at least in the most prototypical instantiations of the variety in question – would naturally form part of a minute description of intra-phonemic variation.[4]

II.3. The social function of language

Accents are socially diagnostic. When a stretch of speech is processed, not only can hearer decode an ideational message (conveyed by constructions from those layers of a language we traditionally label in terms of phonology, morphology, syntax or lexis), but also an additional social message. This can be even more forceful than an explicit statement, precisely because

hearer on occasions receives the information in an implicit way. The information we receive without being fully aware of it is likely not to be questioned in the same way as an explicit statement about regional origin and psychological characteristics would. Paradigmatic variation thus overrides the linear constraint of language in subtle ways. To the extent that children gradually build up knowledge of lectal varieties and learn how to relate them systematically to social domains, social values and stereotypical perceptions, a speaker can become not only categorized, but also characterized on the mere basis of his accent.

If this (relative) awareness has implications for language change, it may ultimately also have an influence on the shape of phonemic categories and inventories. In this respect, when a given phonetic variant begins to spread throughout the social and regional dimensions, ceases at a given point, co-exists with other variants and eventually replaces a number of its local `competitors´, the role and the motivations of the speakers who, either above or below the level of conscious awareness, opt for just this variant should not be underestimated. In fact, as Bybee points out, in order to understand language change, we should look for dynamic mechanisms which pertain to or influence actual language usage:

> …the true universals of language are the dynamic mechanisms that cause language to change in certain systematic ways as it is used and as it is transmitted to new generations. (Bybee, 2001: 189)

The kind of social cognition that will be described in more detail in this section can be viewed to fall within the category of such dynamic mechanisms. In a multi-dimensional approach to language variation and change, cognitive, social and functional factors will naturally combine as causative mechanisms to eventually shape the systems of a given language. This is a conception which is ultimately *not* compatible with theories which regard social factors as mere triggers of deeper, inherent or `natural´ causes of language change (e.g. Aitchison, 1991).

At this stage it is necessary to clarify that in this paper the term `social´ is used to denote the various social contexts which surround us. On the one hand there is an *immediate context* which involves the speech event as such, including the participants (speaker, hearer, bystanders, etc.) and their social status, the setting, the topics, the communicative goals, etc.). On the other

hand, there is also a *wider social context* which involves the participants' knowledge of, or belief in, a series of the Cultural Cognitive Models (Holland & Quinn 1987) at their disposal, and their knowledge about social groups, including social and linguistic stereotypes. These two types of context intertwine and interact in intricate ways. In fact, they are only distinguished in such an apparently easy and discrete way here for the sake of explanatory clarity. The former situates social interaction in real time and space and enables us to work around actual (and often purposive) usage of speech styles. The latter is transmitted, negotiated, developed and maintained in situated social interaction. Both types of context thus play a crucial role in social cognition.

In very general terms, in the author's main line of research (e.g. Kristiansen, 2001, 2003, forthcoming a) the fact that accents are socially diagnostic has served as a starting-point from which related issues have been explored in a number of different directions, including the relationship between accents (in terms of structured speech patterns) and social meaning from a Cognitive Linguistics perspective. My research thus falls within the wider fields of cognitive dialectology, cognitive sociolinguistics and language variation and change, but part of the analysis has a direct bearing on phonology and may be summarized as follows:

1. Lectal varieties (i.e. those categories we more traditionally label in terms of regional or social dialects, accents or speech styles) and social categories (i.e. social groups and identities such as British, Cockney, Northerner, South African, Australian, etc.) constitute prototype categories which interact at various levels of abstraction. The central images of lectal varieties (speech templates or linguistic stereo*types*, consisting of a cluster of salient features, of which allophonic variants play an important role) act as effective reference point constructions which through a basic metonymic operation (accents form part of a wider frame, a social domain) evokes the corresponding social stereotypes: LANGUAGE STANDS FOR SOCIAL IDENTITIES.

2. Once the link between a linguistic and a social stereotype has been established, it may be put to even more constructive uses, as speakers posses not only receptive, but also – at least to some extent – productive competence of speech styles. It is extremely difficult to imitate a

non-native speech style to perfection, but the most salient features are relatively easy to perform. Paradigmatic variation is also a metaphor: LANGUAGE IS A TOOL FOR CONVEYING SOCIAL MEANING.

These are statements which need to be spelled out in more detail. When I implement the notion of linguistic stereotype it is in a neutral, technical way. What I have in mind is a complex cluster of features which, from the perspective of folk perception, in the best and clearest way allows us to categorize and identify the structured speech style of the members of a given speech community. Linguistic stereotypes very effectively evoke the corresponding social stereotypes, conceived, in equally neutral terms, as outgroup images of a given social category.

Speech patterns acquired in early childhood are not easily changed, and linguistic stereotypes thus constitute an especially reliable marker of social identity. Hence, the link between linguistic and social stereotypes is fundamentally of a metonymic nature: an EFFECT FOR CAUSE mapping which leads the conceptualizer from a linguistic trigger to a wider social target: to a social group and the encyclopaedic knowledge we have about it (social habits, dress, dance, song). This knowledge includes a series of Cultural Cognitive Models (i.e. ideological patterns and components) and often take the form of stereotypical perceptions.

I understand social stereotypes in terms of simplified outgroup perceptions which condense information regarding what the members of a given group are like (e.g. in terms of psychological attributes, ideological beliefs and social behavior). The existence of a fairly stable relationship between speech styles and social targets thus underlies the general metonymy LANGUAGE STANDS FOR SOCIAL IDENTITIES. When a linguistic feature is heard as `prestigious´, `intelligent´ or `posh´ and in reality it is the group of speakers associated with the feature in question which is being evaluated as such, it is accordingly not a process of iconization (Irvine & Gal, 2000), but rather an indexical process which is at work. The force of the process is easily comprehended if we bear in mind that the features contained in just one two-syllable word (cf. Purnell *et al*., 1999) suffice to evoke the whole lectal category (a part-whole metonymy) which in turn links, again indexically, with a social domain and the corresponding social stereotypes.

Receptive competence is however only the starting-point of a much more complex story. Once a stable referential link has been established between a lectal variety and a social domain, entrenched linguistic trigger - social value relationships can now be put to new, constructive uses. In other words, the existence of receptive competence can be exploited by speakers in order to *signal* social values. Structured paradigmatic variation can thus also be put to metaphorical uses: LANGUAGE IS A TOOL FOR CONVEYING SOCIAL MEANING.

If I speak of the central images of lectal varieties and social groups as cognitive reference point constructions (and not just cognitive reference points), it is to emphasize the fact that such images are relative and relational: situated and group-dependent construals. Social and linguistic stereotypes are perhaps best understood as instances of situated cognition (cf. Kristiansen, forthcoming b), as structure which emerges, is transmitted, negotiated and maintained through dynamic interaction between people in real situations in real historical time. In consequence, the specific combination of items which compose a given social stereotype will to a large extent depend on contextually determined intergroup relationships. In the case of linguistic stereotypes, the features that characterize the speech of an outgroup will also be determined by the nature of the features present in our own ingroup speech pattern. For instance, the phonetic variants which are perceived as salient and identifying of French to an Englishman or a Dane might not be viewed as such by an Italian. If a speaker possesses a similar realization in similar phonetic contexts in his own language, the feature will not stand out as perceptually salient. Lectal categorization, when viewed from this broad perspective, is not only a purely cognitive phenomenon, but also a process which must also be considered in terms of cultural situatedness.

For linguistic stereotypes to relate in an exclusive way to a social group – for accents to be socially *diagnostic* – the cluster of features that set a speech style off as distinct from others must be composed of a unique combination of perceptually salient features. This is in consonance with Nunberg's (1978) line of thought when he asked himself how hearer and speaker manage to determine referents in deferred ostension. In metonymic conceptual operations, what kind of visual demonstratum will successfully lead to the intended referent, and which will fail to do so? As I have previously pointed out (Kristiansen, 2003), Nunberg in reality asked himself what the ideal signifier in operations of metonymic reference is like. He reasoned that a given form will

successfully lead to the intended referent if it relates to it in an `exclusive´ way (so as to identify and not just characterize the target) and that the form in question must be `perceptually distinct´ enough for effective subclassification to take place, so as to be able to distinguish it from similar forms within the same general category which have different values attached to them.

In the field of phonology, there are multiple possibilities (though each language only exploits relatively few of these) of establishing acoustic-perceptual contrasts which allow for salient subsets to become effected within the more general category of a phoneme. There is no reason why such minor contrasts should not function according to the same fundamental principles as those which determine degrees of prototypicality for phoneme categories in general:

> …the putative central member of /t/ -say, the voiceless aspirated alveolar plosive- enters into a number of highly salient perceptual and articulatory contrasts with the putative central members of neighbouring categories, such as the unaspirated alveolar plosive of /d/, the voiceless aspirated velar plosive of /k/, and so on. (Taylor, 1995: 228)

Intraphonemic acoustic-perceptual contrasts (subphonemic prototypes) are thus minor when compared to that which sets [t^h] off from, say, [k^h], but still major enough to create distinct subsets *within* a given category:

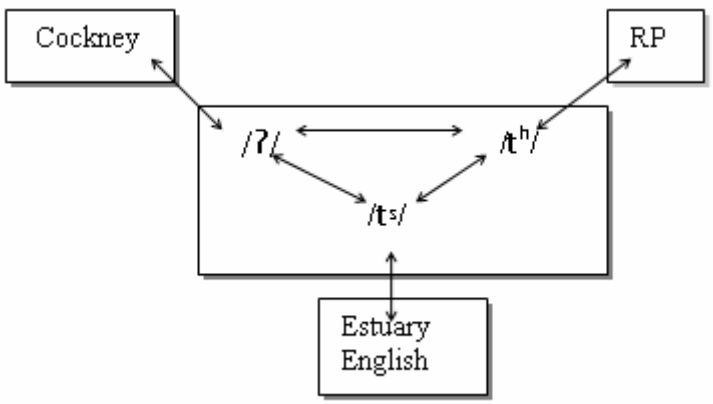

Figure 2. Some linguistic stereotypes based on intraphonemic acoustic-perceptual contrasts within the category /t/ in British English and metonymic reference to social domains.

As a case in point, the use of the glottal stop in intervocalic position is obviously not sufficient to invoke the Cockney accent. Rather, it is a complex cluster of features (cf. Kristiansen, 2003, forthcoming a) which from a hearer-oriented perspective effectively categorizes a stretch of speech as a token of a given type in an exclusive way. From a speaker-oriented perspective, we would speak in terms of social differentiation being achieved by means of linguistic distinctiveness (cf. Giles *et al*., 1987; Tajfel & Turner, 1979).

Assimilation to a prototype category is usually thought of in terms of relative similarity with respect to another member of the category in question, be this peripheral or more central. Hence we speak of chaining relationships or radial networks. Prototype categories are flexible entities in the sense that the boundaries are extendable (new members may be added to allow for human cognition to adapt itself to change, innovation or new discoveries in a complex social and physical world). In theory, a new member is similar enough to at least one existing member in order to be categorized as a member of a given category and not as a member of a contrasting category (or an instance of a given schema, not another). Conversely, however, a new member must also necessarily be perceived as distinct, or different enough to deserve the status of a different subcategorization, a new extension or a new instantiation, to use several of the notions in current usage, and not just a token of an already existing type.

For the sake of exemplification, consider an invented case of categorization from the visual domain. In Figure 3, the left-most shape is a *kiki* and the right-hand shape is a *booba*.[5] Or so at least 95 per cent of subjects systematically estimated in a series of experiments on psycho-acoustics (Köhler, 1929, 1947; Werner, 1934, 1957; Werner & Wapner, 1952) when asked which shape was called what in a language unknown to them, the options being kiki and booba (the latter word pronounced with [ɔː], not [uː]):

Figure 3. A kiki and a booba.

Suppose that, as a reader of this paper, you are now asked to draw another kiki and that you draw a shape which is very similar to the kiki represented above. Suppose that you are told that you were expected to reflect a `different´ kiki, not the same kind of kiki (i.e. not a token of the same type). You then draw a kiki with fewer or perhaps more sides than the first one, but presumably still with pointed sides, so as not to produce a booba. If asked to do the same with the booba shape, your drawing might resemble this one:

Figure 4. A different kiki and a different booba.

Say more instances of irregular kikis, or six-sided kikis, become produced, either in different situations or by different groups of subjects. And that four-sided boobas show up systematically alongside seven-sided boobas under a series of contextual circumstances. The general categories of kikis and boobas have now become divided into subcategories, with slightly different tokens representing two different subtypes. At the linguistic end of the formal trigger-conceptual content axis, a new term would in all probability now arise to designate the new intra-categorical subtype, and this form would in many cases iconically convey both membership (retain part of the word-form designating the general category) and subclassification (possess some kind of formally distinctive element). The adjectival modifier in `four-sided kiki´ serves the latter purpose, the modified head the former.[6] The point is of course that successful subcategorization seems to be based as much on subtle, but still perceptually salient enough differences as on perceived similarity. In a similar way certain allophones, those which I have referred to in terms of subphonemic prototypes, while perceived as members of the same general category, are also perceptually distinct enough to form a new subcategory and thus serve as ideal triggers of new, additional meaning. Salient allophones can serve the dual purpose of realizing a phoneme (according to the ideational function) and evoke social group membership at the same time.[7] When viewed from both a hearer and speaker-oriented perspective, the possibility of drawing on such a pool of triggers of social meaning enables hearer to decode social information on the one

hand, and allows groups of speakers to encode it by choosing especially contrastive forms in their speech, much in the same way as they would, more mundanely, wear a distinctive kind of garment or opt for a specific hairstyle.

III. LECTAL VARIETIES AS EXPERIENTIALLY GROUNDED CONSTRUALS

In this section lectal categories will be examined in terms of construals grounded in individual and group-related experience. In III.1, I discuss the distinction between receptive and productive competence of lectal categories and relate competence to the notion of relative awareness. Subsection III.2 centers on lectal competence and language acquisition, and finally, in III.3 I address the question of lectal competence and distributed cognition.

III.1. Receptive and productive competence

Languages are schematic with respect to their instantiations: we inevitably speak a given variety of our mother tongue. In much the same way, linguistic input necessarily consists of real instantiations which become processed for a variety of purposes in terms of low-level or high-level schemas. For example, a phoneme is a schematic abstraction which cannot be pronounced as such. Also, words are invariably realized by means of a combination of specific phonetic variants. A word such as <butter> can only be realized as e.g. [ˈbʌtʰə], [ˈbʊtʰə] or [ˈbʌʔə] and then processed `ideationally´ as a sequence of phonemes (/ˈbʌtə/ → `butter´). In the right circumstances (i.e. when hearer possesses the necessary knowledge and is attentive enough) such instantiations will also be processed lectally (a given combination of linguistic features leads us to a particular lectal variety). That phonetic detail should be stored and processed alongside the function of realizing a phoneme is certainly not at odds with Bybee's (1988, 2001) model of a mental lexicon and a usage-based phonology; words are stored in their concrete phonetic forms and phonetic detail retained in long-term memory.

Let us assume that we gradually acquire knowledge about a large number of lectal varieties and the speech communities they relate to. In other words, that we gradually acquire receptive

competence of speech styles. Lectal categorization would then involve a conceptualizer who correlates a token (stretch of unidentified speech) with a number of idealized speech models (linguistic stereotypes). The similarity may be relative, of course; two people who `speak with the same accent´ obviously do not speak exactly the same way. Rather, their intonation patterns, phonetic realizations and phonemic slots are judged to be relatively similar when compared to a model. But we also soon learn how to put linguistic stereotypes to other, equally constructive uses. The fact that effective categorization seems to be based on a reduced series of highly salient features facilitates the process known as style-shifting. While it is extremely difficult, if not impossible, to imitate a non-native accent to perfection, with all the subtle phonotactic and distributional combinations of salient and much less salient variants, the components of a linguistic stereotype are fairly easy to imitate. The term productive competence denotes the use of features from a style which does not form part of a speaker's habitual repertoire.

A note is now necessary on awareness. Accents are socially diagnostic because linguistic cues index social meaning, or – in more technical terms – because a source-in-target metonymic conceptual operation mediates between structured sets of linguistic triggers and the social domain they project. However, this process is presumably often a below-the-level-of-consciousness affair. A little more than four decades ago, with the birth of Sociolinguistics, it became clear to many scholars that a systematic study of social dialects could not rely on the same methods as those traditionally implemented in the study of regional dialects. Eliciting informants' intuitions in a direct way, e.g. by means of the questionnaires used in many surveys, proved to be an inadequate procedure for a systematic description of social dialects for two major and interrelated reasons. On the one hand, social speech styles relate to contextual factors. Speakers vary their style according to situational factors such as setting and topic, or the style and status of the interviewer.[8] They also evaluate, consciously or not, the relative position of their own style on a social hierarchy of varieties according to variables such as prestige and stigmatization – and might accordingly over-represent the actual occurrence of features which rate high on the scale of prestige. On the other hand, actual usage, as the sociolinguists soon recognized, is often situated below the level of conscious awareness. In consequence, speakers' own perception of their speech style is likely not to coincide with actual usage, self-perception being potentially

distorted, inaccurate or – if we take the principle of the cognitive unconscious seriously – quite simply not fully accessible.[9] Awareness is furthermore a gradable dimension, and speakers are presumably often only conscious to a certain degree of the messages they receive when listening to stretches of speech. However, messages received below the level of conscious awareness are still received – and may lead to positive or negative evaluations, to rejection, admiration or imitation, if only on an apparently intuitive basis. Finally, and with regards to productive competence, that a speaker should occasionally imitate – or try to adopt on a regular basis – a feature from a given speech style because it is `fashionable´ is a commonly quoted explanation of sound change. Yet fashion can surely also be viewed as a variable which is ultimately dependent on hearer's perception of the hierarchical position of the lectal and social domains projected by a given linguistic feature. This perception invariably involves at least an implicit degree of awareness regarding the link between linguistic feature, social group and social meaning. Fashion could thus also be viewed as a cover term for a limited, but still productive degree of awareness as regards the processes which relate linguistic form to social meaning.

We all soon acquire a natural stylistic repertoire and moreover posses the ability to imitate new speech styles – or at least the most salient features of the styles of other groups. We may even set up new, local identities. These are often effected by selecting a series of socially meaningful features stemming from stable, large-scale social categories. Eckert (2004), for instance, reports on the various ways in which one particular British English feature (final /t/ with an audible release of aspiration), associated with the British as superior, intelligent and educated, has been put to a variety of different uses by American speakers of English (cf. Kristiansen, forthcoming a).[10]

The features that are imitated, or adopted and put to new uses, in the first place are those that stand out as especially salient. In this respect, not all contrasts are equally important in terms of acoustic-perceptual perception, and this is one more reason why we should treat the social function as separate dimension. It could be argued, for instance, that an account of phonetic variation which incorporates the variants in actual usage within the lectal varieties that compose a given language (alongside those that arise from discursive factors and other relevant functions) will already include the kind of social variation which is under scrutiny in this section, i.e. that by

lowering the level of abstraction so as to work around language-internal varieties and not `a language´, the social function is already duly covered. But if we did that, we would on the one hand remain at a descriptive level and fail to appreciate numerous factors which might well have a bearing on language change, and on the other hand miss out on the opportunity to investigate such factors in more depth. Language acquisition, for instance, is one of the areas in which it might be particularly fruitful to invest.

III.2. Lectal competence and language acquisition

So far research on accent-based speaker identification (e.g. Purnell *et al*., 1999; van Bezooijen & Gooskens, 1999; the many studies on speech identification in relation to Artificial Intelligence) and perceptual dialectology (e.g. Niedzielski & Preston, 2000) has largely concentrated on adult informants. Yet, if we adopt a usage-based approach and assume that the acquisition of speech styles is experientially grounded and that phonetic detail is stored as such (Bybee, 2001) and put to constructive uses, then there is a lack of empirical studies on the acquisition of receptive and productive competence of lectal varieties in children. When do children begin to construe low-level schemas, paying attention not only to what is said, but also to how it is said? If schemas are usage-based, at what age does dialect identification emerge, and how specific is it at different intervals of age? There is a need in other words to investigate, amongst others, the following factors:

- The degree to which children acquire receptive competence of accents at different intervals of age.
- The relative precision with which accents are identified at different intervals of age.
- The relative degree of awareness regarding the specific features which allow children to proceed to correct dialect identification.
- The relative capacity of children to imitate accents (productive competence) at different intervals of age.
- The factors which, age apart, have a bearing on lectal acquisition.
- The relative degree of awareness of children regarding the relationship between linguistic and social stereotypes.

III.3. Lectal competence and distributed cognition

If "input to language acquisition are encounters with actual linguistic expressions, fully specified in their phonological, semantic and symbolic aspects" (Taylor, 2002: 27) and "knowledge of a language is based in knowledge of actual usage and of generalizations made over usage events" (ibid), it follows that not all individuals will possess the same kind of knowledge, nor always effect the same kind of generalizations. Or as Geeraerts (1997: 110) formulates it, a distinction between "a cumulative, macro-level picture of the language and the individual language user's micro-level knowledge" is most convenient:

> […] we would probably not want to maintain that all mature speakers of the language actively command the entire range of semasiological possibilities that are combined in the prototype-based descriptions. An alternative way to interpret diagrams […] is to think of them as representing the summed knowledge of language users at a certain moment in the development of the language (and then also, of course, the knowledge of an ideal language user). (ibid.)

From the perspective of a level of granularity which lies above that of the individual, Sharifian (2003) argues that the elements of cultural schemas are not shared by all members of a cultural network, but rather distributed across the minds. It is not by virtue of the belief in only one schema that one becomes a member of a cultural group, but the overall degree of how much a person draws on various cultural schemas that makes an individual a more or less representative member. Cultural schemas, or cultural cognitive models, thus thrive within groups and the group emerges as such, shaped and brought into existence by relatively shared beliefs, values and norms. In similar ways, the group also determines and is determined by relatively shared speech patterns such as `dialects´, `accents´ and `styles´ and by relatively shared social stereotypes.

In this respect it would be interesting to know more about how uniform folk perception of the way in which another social group speaks is across the members of a given ingroup. We might also want to know more about the extent to which linguistic stereotypes constitute relative construals across different cultural and lectal communities. To what extent, for instance, does the linguistic stereotype of Spanish differ when acquired by a Frenchman, an Italian and an

Englishman, respectively? How do the features of one's own mother tongue – and motheraccent-influence our perception of what stands out as contrastive or salient? But even more important are the theoretical implications of viewing competence of a given language in terms of relatively shared and distributed knowledge.

IV. MODELS OF PHONEMIC CATEGORY STRUCTURE

The two prevailing models of phonemic category structure in Cognitive Linguistics (Mompeán, 2004: 436-444) are the *radial category model* and the *network model*. In this section we shall briefly discuss these in relation to a usage-based cognitive phonology.

The radial category model assumes that less prototypical members are organized around a prototypical member in terms of extensions assimilated to the category on the principle of relative similarity:

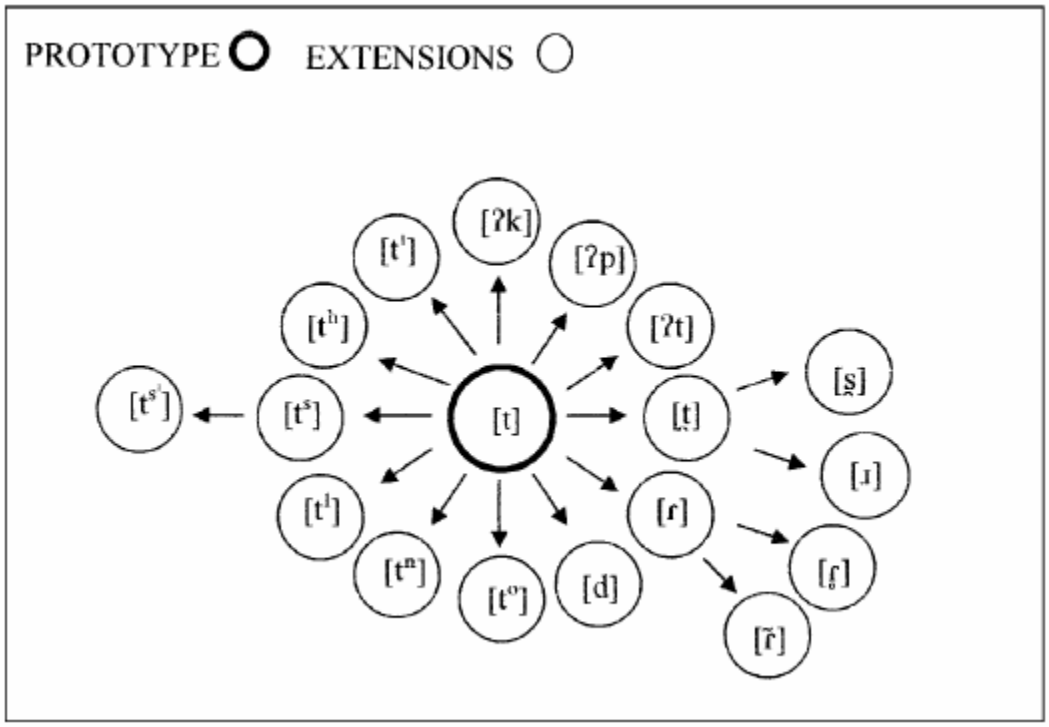

Figure 5. The radial category model as represented in Mompeán (2004).

The resulting chaining relationships stretching out from the centre to the periphery have been compared to the spokes of a wheel:

> The specific nature of the organization has been termed a radial category, because the relationship among the members is similar to an image of spokes on a wheel. There is (or may be) a central member or members. Arranged around the central members are less central ones, which are similar to the central member, but differ from it in some respect (Nathan, 1996: 110-111)

The members `arranged together on one spoke´ do not necessarily have any kind of relationship with members forming part of adjacent spokes:

> Adjacent spokes do not necessarily have any relationship with one another, but only via a path that they can both trace back to the same center. (Nathan, 1996: 112)

Metaphorical mappings involving source domains which comprise elements such as wheels and chains are adequate enough if lectal varieties are understood in terms of different analogical systems which do not interact in dynamic ways with one another. However, these mappings do not suffice if we also intend to describe the ways in which perceptual dissimilarity and intra-phonemic contrasts among the members of phonemic categories allow for language users to convey social differentiation through linguistic distinctiveness. Our pictorial representations, arrows included, should also convey the possibility that contrastive relationships emerge in a non-linear fashion. Metaphorically, then, we are in need of a more suitable source domain than wheel. The label radial network itself is in fact more neutral in the sense that it implies a system of interwoven relationships which need not follow a specific path.

Langacker's (1988) network model, on the other hand, involves a category prototype, context-induced extensions from this prototype and a schema which captures the commonality perceived in the various extensions. The improvement with respect to the radial category model thus lies in the fact that the network models operates with a two-level structure: the level of actual occurrence (of often quite dissimilar variants) and a schematic unit which is an abstraction over

usage-based events. In the case of phonemic categories, the schema corresponds to the phoneme as such:

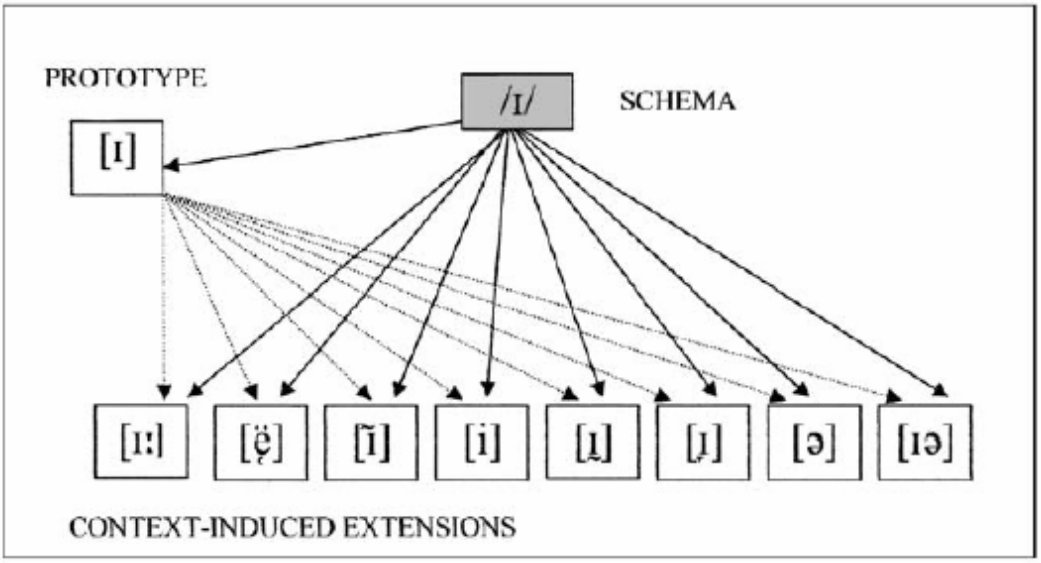

Figure 6. The network model as represented in Mompeán (2004).

As Mompeán explains, it is often not possible to extract one schema which represents a generalization with respect to all the extensions (which is only natural, the very nature of a prototype category considered). Rather, several schemas may arise which relate to different clusters of instances:

> However, it is not always possible to abstract a viable, psycholinguistically plausible schema that is fully compatible with all the members of a category. For example, not every member of the phoneme category /t/ shares the features ‘‘alveolar’’, ‘‘voiceless’’, and ‘‘stop’’, so the abstraction of a highly abstract schema which contains a feature common to all members of the category and distinguishes the category from others is impossible (Taylor, 1990). The model permits, however, the abstractions of local schemas embodying the commonality of many but not all members of the category (Bybee, 1999). Some commonality between certain members of a phoneme category may exist but the commonality may not extend to the totality of the members. One such local schema for /t/ could contain the features [voiceless], [alveolar], and [stop], shared by many but not all members of the category (Taylor, 1990). (Mompeán, 2004: 458)

The need to posit that various schemas are at work at the same time is of course related to the fact that quite often formally very dissimilar variants are functionally operative as distinctive speech sounds in the same lexical sets in the same language. In such cases it is not easy to draw a coherent representation which involves only two levels of abstraction: specific language-internal variants and one language-specific schema.

In the light of the previous discussion, it might be useful to approach the problem from a variety of different angles. First, by applying our general knowledge about prototypicality to phonemic categories, second, by discussing the role of lectal varieties in phonemic description and third, by bringing in the perspectives of distributed cognition, expert analysis and folk perception.

IV.1. Phonemic categories and prototypicality

As we have just observed, similarity in form and commonality are considered as unifying factors in cognitive phonology. In the case of the radial network model, the relationship between the prototype and its extensions is based on perceived similarity, and in the case of the network model, schemas arise as generalizations embodying the commonality of their instances. In the absence of a commonality which applies to all members, local schemas obviously provide a category which exhibits a high degree of variation with internal cohesion. Let us observe that in a prototype category it is only normal for family resemblances to cluster in partially overlapping subsets, and we would certainly not expect there to be one single feature which would be common to all the extensions (unless one opts for a classical model based on necessary and sufficient features, or an essentialist definition). In fact, one would expect a phonemic category to exhibit the same characteristics as any other prototype category, to varying degrees, does: (i) absence of classical definitions, (ii) clustering of overlapping senses – or features, (iii) degrees of representativity, and (iv) absence of clear boundaries. In the case of lexical items (cf. Geeraerts *et al.*, 1994: 48), the first two characteristics operate at the intensional level and the last two at the extensional one, but combine in other ways as well: while (i) and (iv) reflect the flexibility and vagueness that characterizes many prototype categories, (ii) and (iii) in turn result from perceived

differences in structural weight. Nonequality and nonrigidity thus lie in the very nature of prototypicality.

Furthermore, it is often not formal, but functional criteria which determine whether a new subcategorization is established within a prototype category. In the case of the superordinate category FURNITURE, for instance, ashtrays may become assimilated as (peripheral) category members (Taylor, 1995) because they are functionally related to other such domestic artifacts despite being dissimilar in form to other central or non-central members. In the case of phonetic variants, from a speaker-oriented perspective the need for distinctive variants to convey social meaning can lead to both intra-phonemic and trans-phonemic variation. From a hearer-oriented perspective, dissimilarity would at first sight appear to be as counter-productive as lenitions are when viewed against the principles which underlie fortitions. However, opposing tendencies need not be incompatible. Even if a given speech sound (*y*) were to be classified as an instance of a given phoneme (*Y*) in hearer's own phonological system, when uttered by a speaker from a different speech community in a context where *x* is expected, *y* could still be classified as an instance of phoneme *X*, at least for the purpose of mutual understanding – as when [laɪ] is heard and `lay´ is understood (cf. above). In other words, if "each encounter with the language leaves a mental trace in the corpus" (Taylor, 2002: 33), and our receptive competence is experientially grounded, the variant y will be understood to belong to category X in the speech and system of the speaker in question – an at least ad hoc categorization based on functional, rather than perceptual criteria.

What, then, holds a phoneme category together? Clusters based on perceptual similarity or co-occurrence of distinct realizations in the same phonetic context, or more specifically, within the same lexical set? Is the train of thought primarily in the direction of `as this sound is similar to sound y it must be processed as phoneme Y´ or `as this sound occurs in a context where I expect sound y, it should be processed as an instantiation of phoneme Y´? In the former case, the radial category model is adequate enough, but in the latter case the network model is superior as it enables us to work around different layers of abstraction. It is also worth noticing that one of the implications of such a perspective is that phoneme recognition might well be lexically

mediated. If this is the case, the ideational function interacts with the social function of language in ways which are flexible enough to allow for both of these apparently conflicting tendencies to co-exist, to render language an efficient tool for a variety of communicative purposes at the same time.

IV.2. Phonemic categories and lectal variation

The network model, then, allows us to work around different levels of abstraction. Would it be possible for the model also to incorporate low-level schemas at an intermediate level of linguistic diversity? A model capable of operating with high-level schemas, local schemas and instances should indeed be able to reflect the taxonomic intricacies of language-internal variation in a far more precise fashion than the radial network model. It might also be fruitful to shift the perspective from category-internal variation (involving pure form) to a language-internal one, reflecting form, users and functions alike. An intermediate level of `local schemas´ would furthermore fill an important gap in a usage-based approach: that which – mediating between *parole* and *langue* – incorporates structured variation at the level of lects. Obviously, the kind of low-level schemas discussed in this section differ from the results of a post-hoc analysis concerned with finding patterns in subgroups with relative similarity as the basic criterial factor. Rather, it is an account which allows for language-internal categories to form part of the global picture. Relative dissimilarity between (clusters of relatively similar) features and a consideration of the ways in which these relate to their users would certainly also form part of the analysis.

The network model moreover allows us to reflect the factor of awareness as discussed in section III.1 above. The following three-level figure draws on Tuggy's (1993) representation of the ambiguity-vagueness cline between lexical polysemy and homophony:

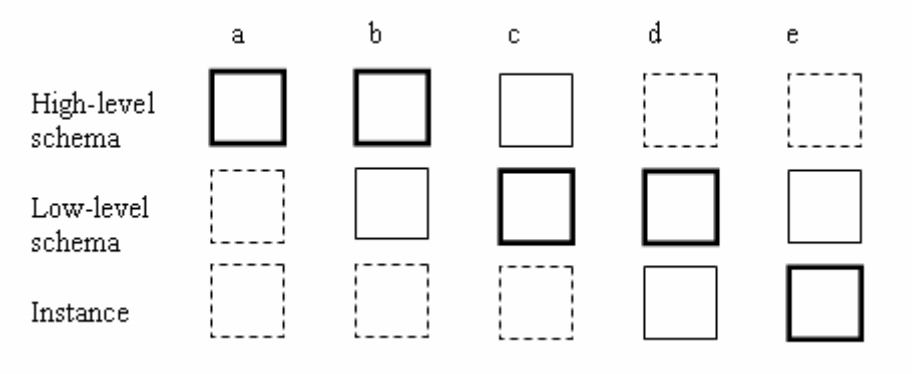

Figure 7. Salience and awareness in phonemic and lectal categorization

In Tuggy's analysis, the thickness and continuity of the lines iconically convey the enhanced entrenchment, or degree of salience, of either a schema or a semantic structure, associated with the same phonological pole. Tuggy views entrenchment in terms of enduring salience, i.e. salience apart from relatively transitory effects such as directed attention or heightened activation due to contextual factors. As it is precisely such transitory effects that we are interested in, the same conventions will do for our present purposes. 7a illustrates the ideational function of language: the high-level schema (the phoneme as a distinctive unit) receives full attention while lectal schemas and phonetic instances are backgrounded - which does not equal saying that the information provided is discarded.[11] Priority is given to the distinctive function fulfilled by the phoneme – an abstraction realized by specific instances. In 7b and 7c, lectal categorization becomes increasingly more prominent. 7d and 7e both illustrate a high degree of awareness regarding the social function of language: the high-level schema is backgrounded and attention is on the link between linguistic form and social meaning, with an emphasis on either form, or meaning, respectively.

IV.2. Phonemic representation and phonemic categorization: expert analysis vs. folk perception

We have so far argued that regardless of whether we implement the radial category model or the network model, our description should aim at being as refined as possible. Ideally, we would aim

at incorporating the whole range of variants in actual use in a given language - conceived of in terms of a heterogeneous speech community and a complex social system.

If what we intend, however, is to reach a better understanding of what goes on in the mind of the native speaker, this picture may well turn out to be rather fictitious. Even if we succeeded in bringing all the variants in actual use under the same schematic representation, the representation might not be very realistic. To the extent that cognition is distributed across speech communities and cultural groups - if knowledge is only relatively shared - a realistic view cannot posit that the individual user stores the whole range of variants in actual use within a language, be they phonetic variants or perhaps the multiple senses of a polysemous lexeme or preposition.

Sandra and Rice (1995) convincingly question the validity of representations of vast, global networks of senses depicted in the analysis of linguists as opposed to what ipso facto is acquired and stored in terms of mental representations in the mind of the individual, and it is indeed important to establish a distinction between the linguist's attempt at providing a global picture (one which cumulatively depicts the existence of multiple networks) and folk perception (the relative knowledge of a more global network in the mind of the individual - and the linguist's attempt at reflecting more local networks). The tension involves a clash between a perspective which in a structuralist or generativist fashion zooms in on `language structure´, independently of the fact that there might be more than one system at work, and one which regards language-internal variation as natural and worthy of attention. The two perspectives are not mutually exclusive, though. Both analyses are possible and complementary - but we need to acknowledge the differences in a clear and conscious manner.

V. CONCLUSIONS

Phonetic dissimilarity and categorization have been keywords throughout the various sections. Categorization as such is of course based on relative similarity - a cohesive factor which helps us organize a vast amount of variation into structured sets of like components - but it also involves the creation of subsets, established as much on the basis of relative dissimilarity. Categorization

also applies to the social world. At more precise levels of abstractions than that of `a language´, there are multiple social and lectal subsystems which together constitute `a society´ and `a language´. In this respect I have distinguished between the role of hearer and speaker, and argued that our receptive and productive competence of lectal varieties also plays a role in the configuration of phoneme categories and inventories. In other words, a cognitive dialectology - including a cognitive phonology - may well serve not only to mediate between `language´ and `society´ but also to spell out in full the consequences of a truly multi-faceted approach to phonetic variation.

I have also stressed the difference in perspective between expert analysis and folk perception in phonemic description, and argued that the distinction is useful when theoretical models face linguistic facts. Finally, I have examined the relative adequacy of the radial category model and the network model and concluded that the network model seems to present a number of advantages over the radial category model.

NOTES

1. This paper is associated with the research project HUM2005-08221-CO2-01.

2. E.g. the generativist and structuralist conceptions of language as a system (competence and langue, respectively) which is analysable independently of social and contextual factors.

3. For the importance of distributed cognition and the distinction between expert analysis and folk perception, cf. section IV.3.

4. Note that I intentionally use the term `dialect´, and not `language´: the specific nature of such low-level schemas varies considerably from one language-internal variety to another. This is one of the reasons why it is impossible for an average (adult) speaker to imitate an accent to perfection.

5. I am grateful to Raphael Berthele for introducing me to the `kiki´ and the `booba´ in his intervention on folk perception and phonosymbolism in the Theme Session *Lectal Variation and the Categorization of Lectal Varieties in Cognitive Linguistics*, ICLC9, Seoul. In the original experiment, Köhler (1929) called the stimuli `takete´ and `baluma´.

6. Ablaut of course serves the same differentiating purpose. In the case of English <swim, swam, swum>, the combination of three maximally distinct variants (close front i, open a, close back u) renders paradigmatic variation less ambiguous. The use of specific combinations of phonemes or morphemes in processes of derivation and declension is in this sense not entirely unmotivated. An interesting case is that of the terms <starboard and <larboard>. Both word-forms used to denote the left and right side of a ship, respectively. The terms effectively cued

both general categorization (retention of the shared element <board>) and subcategorization (addition of different pre-modifying elements). However, (or so the anectodal story goes; cf. http://en.wikipedia.org/wiki/Port_(nautical)) from an acoustic-perceptual perspective, when implemented under harsh climatic conditions at sea, the terms were not distinctive enough - and larboard was gradually replaced by <port>.

7. It is interesting to note that the processes at work are basically the same ones as in fortitions and in general mechanisms of categorization; the difference lies in the application.

8. After Labov's (cf. Labov, 1972) initial study on Martha's Vineyard, he left the topic of how speech features relate to social identities and social values somewhat behind to concentrate on his `attention paid to speech´ model. By drawing attention away from situational contextual factors he aimed at eliciting speaker's vernacular, the assumption being that speech is always monitored to context.

9. When Lambert et al (1960) undertook the task of proving that we primarily evaluate speakers on the basis of their group membership rather than on the individually-based characteristics of their voice (testing in reality the existence of a group-related link between linguistic and social stereotypes), awareness also played a major role. The matched-guise technique was implemented to show that the same (bilingual) speaker was rated quite differently according to the language he or she spoke. The subjects tested thus ignored the fact that they were attributing different sets of group-related psychological attributes to one and the same person in each case and not to different individuals. A panel of judges even rated their own speech variety (French Canadian) as inferior with respect to the more prestigious variety tested (English Canadian) –a result which in all likelihood would not have been obtained if the researchers had implemented direct methods of elicitation.

10. It should be noted that Eckert's reasoning is in line with a variety of models on style shifting opting for approaches which assign a more active role to the speaker. Instead of merely adapting himself lectally to the circumstances of a given situation, a speaker may create personae (Coupland, 2001) or engage in proactive identity construction (Walfram & Schilling-Estes, 1998).

11. It is important to note that the perspective adopted, while still category-internal, does not depict the structure of a phonemic category, but rather language-internal variation. I do not wish to argue, in this respect, that lectal varieties are schematic with respect to the features they are composed of. Just as a category such as BIRD cannot be said to be schematic with respect to features such as eggs, wings, or feathers but rather to members such as robins or penguins, a lectal category such as British English is schematic with respect to Glaswegian or Liverpudlian, but not in a direct way with respect to phonetic features: the features in question point metonymically to a lectal category. Any schematization involved (e.g. from linguistic stereotype to token) is achieved by way of such mechanisms.

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