Construction des connaissances sociolinguistiques

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Individuals, Populations, and Timespace: Perspectives on the Ecology of Language

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In the present article we distinguish the concept of ECOLOGY OF LANGUAGE as developed in Mufwene (2001ff) from that of ECOLINGUISTICS developed especially in Fill & Mühlhäusler (eds., 2001). We explain how the ECOLOGY OF LANGUAGE concept, inspired primarily by macroecology, applies to language evolution by articulating various factors internal to language ("internal ecology") and external to it ("external ecology") that bear on how it emerged phylogenetically and on how specific languages change structurally and may speciate into separate varieties, as well as on their vitality. Because these phenomena have been elaborately discussed elsewhere, we devote more space to explaining how the notion of LANGUAGE ECOLOGY also applies as a useful heuristic tool to sociolinguistics, more specifically to the ethnography of communication.

Dans cet article, nous introduisons une distinction entre le concept d'ÉCOLOGIE DU LANGAGE, tel qu'il est développé par Mufwene (2001 et ouvrages suivants), et celui d'ÉCOLINGUISTIQUE, tel que présenté en particulier dans Fill & Mühlhäusler (éds., 2001). Nous expliquons comment l'ÉCOLOGIE DU LANGAGE, inspirée principalement par la macroécologie, peut s'appliquer à l'évolution linguistique. Nous montrons comment différents facteurs internes au langage et aux langues (ici référés en tant que relevant de l'« écologie interne ») ainsi que des facteurs externes (dits d'« écologie externe », en particulier la notion d'espacetemps, qui réélabore le rôle accordé à l'espace dans la dialectologie traditionnelle) apparaissent pertinents pour rendre compte de l'émergence phylogénétique du langage, des changements de structures linguistiques, de la spéciation langagière, et de la vitalité des langues. Comme ces phénomènes ont été largement discutés dans de précédentes publications, nous nous consacrons ici surtout à montrer comment la notion d'ÉCOLOGIE

DU LANGAGE peut aussi s'appliquer, en tant qu'outil heuristique, à la socio-linguistique et, plus spécifiquement, à l'ethnographie de la communication, considérée ici en particulier à travers un terrain de Vigouroux (entre autres 2005) comparant deux marchés dans la ville du Cap, en Afrique du sud. Il s'avère ici utile de rediscuter des notions comme celle de « communauté de pratiques ». D'autres exemples sont considérés, comme les interactions dans un café internet au Congo (Vigouroux 2009).

1. Introduction

Ecological approaches to language practice and language evolution (e.g., Mufwene 1996, 2001, 2005, 2008; Calvet 1999) have too easily been lumped together with ecolinguistics (e.g., Mühlhäusler 1996, 2003; Fill & Mühlhäusler, eds. 2001), for instance by Edwards (2002, 2011) and Lechevrel (2008), though Lechevrel (2011) refrains from the confusion. The main reason is that practitioners of both paradigms acknowledge influence or inspiration from Voegelin, Voegelin, & Schutz (1967) and Haugen (1971), who paved the way in applying in linguistics the concept of ECOLOGY. Having borrowed the concept from biology at large, they showed how its interpretation as 'environment' can help articulate factors external to language that bear on its vitality and/or the evolution of its structures. As also noted by Edwards (2011), both the ecolinguistics and the language ecology paradigms have continued to be informed by macroecology, though deriving different inspirations from it.

Seeking support in environmentalists' advocacy discourse for the protection of endangered species and the needed changes in human life styles, self-proclaimed ecolinguists (especially Skutnabb-Kangas 2000 and Mühlhäusler 2003) have essentially promoted Whorfianism and alerted linguists and other interested persons to the negative consequences of the loss of "indigenous languages." According to them, the geographical and demographic expansion of especially European colonial languages has entailed the unfortunate decrease of linguistic and therefore cultural diversity, thus making humanity less adaptive to the environment.

On the other hand, analogizing languages with viral species rather than with organisms (the tradition in linguistics since the 19th century, with the exception of Paul 1880/1891), Mufwene (2001ff) has sought to articulate more explicitly what the ecology (internal and

external) of a language consists of and what particular factors (such as TIME OF ARRIVAL in a colony/habitat, DEMOGRAPHIC STRENGTH of the relevant population relative to another, ECONOMIC POWER, POPULATION STRUCTURE, TYPES OF SOCIAL INTERACTION, AGE, GENDER, RELIGION, and VARIATION in the linguistic system) have influenced, if not completely determined, the specific ways in which it has evolved locally. He has thus sought to explain how differences in local ecologies can explain, for instance, how a language can prevail in one setting but not in another, why a population in one setting shifted away from their heritage language to embrace another, while another population in a seemingly similar situation did not do the same, and why a language has remained structurally closer to the protolanguage in the motherland in one setting but not in another.[50] This approach assumes that every setting of language use and human interaction is a contact setting (see also Nelde 2002), although Mufwene argues that contact is fundamentally inter-idiolectal, at the level of individuals interacting (typically, dyadically or triadically), even when idiolects of separate languages are involved. In the same way biological populations are in contact only to the extent that individual members of one population interact with individual members of the other, so too communal languages are in contact to the extent that individual speakers/signers speaking/signing them interact with each other across language boundaries, bring their idiolects in contact with each other, and can accommodate each other. As pointed out by Weinreich (1953), real language contact occurs in the minds of individual speakers, where structural information is processed, and where features associated with the same or similar functions are brought into competition and can be negotiated during interactions.

For Mufwene, the mind is thus one of the most direct ecologies of language (see below), as it filters all the ecological pressures that are external to the speaker/signer that can affect the evolution of a language, viz., how its structures can change and whether it will thrive or die after a period of attrition. Since historical, genetic, and evolutionary linguistics are interested in languages as communal phenomena, the foregoing conjures up the role and significance of the "invisible

[50] Similar positions have been articulated by Heller (2002), who prefers to characterize her views as "sociolinguistic," and Williams (2002), who identifies his work as "geolinguistic." A germane position is presented by Breton (2002).

hand" (Smith 1776, Keller 1994) or "self-organization" (according to complexity theory). This process brings about communal norms through the mutual accommodations speakers/signers make to each other. It also determines the vitality of a language, because whether it dies or stays alive (and how in the latter case) depends on how its speakers/signers converge in the choices of codes they make during their linguistic interactions (Mufwene 2001, 2005, 2008).

This essay is not directly about the strengths and shortcomings of these different evolutions from the extension of the biological notion of ECOLOGY to language, which Lechevrel (2011) assesses competently. (See also Edwards 2002, 2011 for informative critiques of the advocacy stand of ecolinguists.) We wish to articulate the specific places of the notions of INDIVIDUAL, POPULATION, and TIMESPACE in the approach developed particularly by Mufwene (1996ff), hoping to help understand what ECOLOGY is and how it contributes to shedding light on language practice and language evolution both historically and phlylogenetically.

To our knowledge, this is the first time that anybody has attempted to extend the notion of LANGUAGE ECOLOGY to that of TIMESPACE, a concept that Vigouroux (2009) and others (see below) have borrowed from Wallerstein (2004) to conflate different scales and dimensions of SPACE (geographic, social and symbolic), TIME, and other factors that are inseparable for a better understanding of language practice. We therefore devote more space to this less familiar territory to show how Mufwene's ecological approach is not at variance with traditional sociolinguistic and ethnographic approaches to language practice. We submit that it is an integrative approach that enriches them especially in highlighting how the factors that have often been invoked singly to account for linguistic behavior are interrelated dynamically.

2. Individuals and populations

Mufwene (in press) underscores the importance of highlighting the ecological roles that individual hominin/human anatomical and mental structures have played as prerequisites to the emergence of languages (signed or spoken) as communicative technologies. In other words, the general architecture of modern human languages (consisting of phonic or manual signs produced with specific articulators and used compositionally according to module-specific combinatorial

principles/constraints) could not have evolved if hominins/humans had been endowed with different anatomical and mental structures. The human mind and anatomy are thus the requisite direct external ecologies to modern human languages, having determined the particular architectures these technologies would assume.

Mufwene (in press) also argues that languages would not have emerged if hominins/humans had not lived in social structures that call(ed) for communication between individuals. For him, language as technology was developed incrementally and collectively by populations invested in enabling and sustaining communication between their members. Social life is thus another important ecological factor that has not only prompted the emergence of language as technology for communication but also determined whether or not a particular language would be maintained for communication once the economic and political conditions change and how it will evolve if it is maintained.

Underlying the above position is also the assumption that there are no populations without individuals. Thus the relationship between, on the one hand, individuals and idiolects and, on the other, populations/species and individual languages are worth making some sense of. Because every hominin/human anatomical structure is somewhat singular, variation is to be expected in the mechanical ways various signs are produced and/or perceived. In addition, everybody's mental structure is singular, despite our belief in Cartesianism, which applies more adequately to similarities rather than to identity between the ways our minds work. Thus, there is room for variation in the ways that meaningful units (most obviously words and longer utterances) are produced or interpreted.

On the other hand, there is also another phenomenon that keeps everybody from developing an idiolect that is completely different from those of other members of their speech communities. Convergence produced by the mutual accommodations that speakers/signers make to each other during regular interactions leads them to develop ways that are akin to each other's, thus to develop communal norms. This reality is adequately captured by Ludwig Wittgenstein's notion of FAMILY RESEMBLANCE, which enables communicators to lump only some idiolects into the same dialect, sociolect, or language but not others. When it comes to the definition of a language, the saying "Birds of a feather flock together" should be modified to "Birds that flock together

develop the same feather" or, more concisely in French, "Qui s'assemble se ressemble."[51] For language and culture, it is because the practitioners interact with and can copy from each other, thus can be influenced by each other, that they behave alike.

However, as noted in Mufwene (2001ff), members of particular populations do not operate like players in a sports team operating according to explicitly articulated rules of engagement, *pace* Saussure's (1916) seminal comparison of linguistic conventions with rules of a chess game. Moreover, speakers/signers interact within overlapping networks; and, because we live in geographically and politically circumscribed spaces (villages, neighborhood, and cities), populations are typically discontinuous. So norms can vary according to networks (one of the key dimensions of sociospatial relations) but more conspicuously according to sociolects, dialects, and languages. The reformulation provided above for the traditional saying "Birds of a feather flock together" accounts for various factors that sociolinguists have found relevant to explaining variable linguistic behavior, e.g., AGE, GENDER, and EDUCATION/PROFESSION, which facilitate more frequent interactions between some population members and underlie some of the overlapping networks alluded to above.

In all such cases, it has been assumed, on solid empirical grounds, that individuals respond to social pressure and their linguistic characteristics reflect those of the social groups they are associated with. What has not received as much attention, however, is the phenomenon of non-conformists typically treated as "outliers" in variationist sociolinguistics. Typically, they have been either tossed out or marginalized because they skew group patterns. Such speakers/signers are actually informative about the ecological role of individuals as filters of pressures exerted by nonlinguistic factors associated with peers or the socioeconomic environment. An important facet of the most direct external language ecology that lies in the speaker/signer himself/herself is that individuals do not perceive the same inputs identically and do not have identical personalities nor identical mental capacities. Thus, they do not process the inputs identically nor respond identically to external ecological pressures.

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[51] This is indeed the opposite of the traditional saying *Qui se ressemble s'assemble*, the idiomatic translation of the English apothegm.

A great deal of this variation in responses to external ecological pressures also has to do with individual speakers'/signers' particular life trajectories, the personalities and social identities they have developed, and of course their psychological conditions at the times the pressures were exerted on them. We are dealing with complexity in human behavior and in the emergence of communal trends. Whatever happens to a communal language is the outcome of what individual speakers/signers do, as the behaviors of most of them converge toward a (new) norm. However, individuals' behaviors need not converge toward total uniformity; "outliers" are part of social life. As aptly observed by Paul (1880/1891), norms are only group averages; they do not make populations uniform.

Although historical linguistics and sociolinguistics in particular are predicated on the existence of communal norms and aim at explaining how they change or how they vary intra-communally, we must remember that populations consist of individuals more concerned with whether or not they are understood than with developing communal norms. Thus, linguistic communities consist of individuals, acting alternatively as innovators and copiers, but doing things individually at specific communicative events situated in specific settings and having varying goals (Mufwene 2001, 2005, 2008).[52] (See also Breton 2002, Nelde 2002, and Edwards 2011 for implicit statements of this position.) The big picture emerging from these interactive dynamics is that, while speakers/signers accommodate each other in different directions regarding different features, the accommodations do not necessarily obliterate variation, and some individuals may remain more singular than others.[53]

Integrating the distinction between individuals and populations in theories of language enables us to account for evolutionary processes that are not uniform as normal phenomena. For instance, language shift and language loss are not lived uniformly by all members of a population. Thus, as much as French is endangered in Louisiana, there are still some individuals who speak French, although their French is

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[52] The notion of TIMESPACE, discussed below, will become a better alternative to that of SETTING.

[53] Another facet of this picture, which we will keep out of this essay, is that norms are just transitory, emergent phenomena; the mutual accommodations keep the "system" continually in a state of flux, in search of equilibrium, according to complexity theory. "Outliers" just make that equilibrium more elusive.

influenced in varying ways by English. As much as language policies in Quebec promote French, not every Francophone expresses the same loyalty to their heritage language (Mougeon, in press; Auger, in press). Some Francophone Québécois are more committed to their heritage language and ethnic identity-marker than others do, depending on how they experience socioeconomic and cultural pressures from the surrounding Anglophone populations or what particular advantages they hope to derive from being (dominant) English speakers.

From a structural point of view, the Africanization of French (from which the characterization "les français d'Afrique") and the indigenization of English in former British exploitation colonies has not proceeded uniformly from one speaker to another; indigenized idiolects do not all exhibit identical sets of deviations from the metropolitan varieties. Creole continua have also made obvious the fact that the transformation of European colonial vernaculars into creoles has not proceeded uniformly across the populations that appropriated them under the influence of substrate languages (Mufwene 1994). In all these cases, the language learning and practice experiences of individual speakers have not been identical. The speakers themselves are not equally gifted for language either; nor do they face the socioeconomic pressures exerted on them with identical personalities (as noted above). Despite the focus of evolutionary linguistics (historical and genetic) on communal languages, we must remember that the drivers of change lie in the interactions of idiolects and the dynamics of mutual accommodation among their speakers, regardless of whether the communal trends emerging from them are attributed to the "invisible hand" or "self-organization."[54]

Because populations are discontinuous, more properly identified as "metapopulations" consisting of "habitat patches" in macroecology (Hanski 1996), one can account for dialectal variation and language diversity by invoking negatively the principle of "Qui s'assemble se ressemble" explained above. The emergence of local or regional norms within "habitat patches" does not proceed uniformly

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[54] We consider these terms as equivalent. The former says honestly that experts cannot account for what produces the norms, while the latter assigns some agency to the different units and variants, which putatively negotiate for themselves the space they occupy or the role they play in the emergent system. Still, the specific processes that produce the organization are not articulated, which amounts to the action of the "invisible hand."

from one patch to another. Although the fundamental design of the language technology is the same, the specific implementation of the plan is not, indeed in ways similar to variation in the hardware and software of computers.

Thus, not only has there emerged what may be termed "American English" as a colonial super-variety distinct from an Australian super-variety, among others, but also there is variation within each one of them, according to, particularly, time and pattern of emigration from England, kind of settlement in the colony, time and kind of contact with other populations, and the particular English varieties spoken by the emigrants (Mufwene 2009).[55] These considerations, which justify Breton's (2002) and Williams' (2002) geolinguistics interpretation of the ecology of language (which include political and administrative factors that bear on the vitality of languages in specific nations/territories) make it compelling to enrich Mufwene's conception of ECOLOGY with that of TIMESPACE, explained in the next section. All human interactions, including those that bear on language evolution, from the points of view of both vitality and structural change, are situated in time and in space, though influence from these factors is mediated through the socioeconomic structure identified by Breton (2002) as "anthroposphere."

3. Timespace as a composite ecological factor

3.1. Although SPACE as an external ecological factor has often been invoked to explain language dynamics and change, the relationship between SPACE and LANGUAGE has remained under-theorized in linguistics. Spatial metaphors have long been part of linguists' toolkit, but, as noted by Johnstone (2004), they have been taken for granted in sociolinguistics, as if no issues could arise from them.[56] Historically, geographic space was one of the first factors invoked to account for language variation. Dialectology, the first area in linguistics to have correlated language variation with physical location, has been primarily descriptive, focusing more on the mapping of language features

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[55] Likewise, word processors, for instance, vary according to specific edition (year of production) and the particular populations/languages they are intended for, although the variation is by design and not the consequence of choices and adaptations that users make while using the product.

[56] Britain (2010a) presents a useful review of the variationist approach to space.

than on invoking the structuring effects of space on the distribution of linguistic features (Britain 2004, 2010b). No questions appear to have been asked about how linguists' mapping of linguistic features not only represents but also constructs our knowledge of language variation. Yet, maps are not above the politics of knowledge (Harley 1992).

Sociolinguistics has inherited from dialectology the SPACE-to-LANGUAGE one-way causal relationship, with SPACE constructed as one of the causes of language variation. This position has led to the equation that 'different people talk differently because they come from different geographic spaces'. Although a number of studies have shown the relevance of such an assertion, the association of GEOGRAPHIC SPACE with WAYS OF SPEAKING raises a number of theoretical and methodological issues. Among them is that of AUTHENTIC and REPRESENTATIVE SPEAKER, which was indirectly conjured up in the previous section in relation to inter-idiolectal variation. Where a population is heterogeneous, how does the investigator decide which speakers/ signers are the ideal ones or the most representative of their community?

Issues of authenticity have often been addressed through the lens of ORIGIN. Individuals are associated with the geographic space they came from and their language variety interpreted as iconizing this space. Such an approach has become difficult to sustain at our time of increasing geographic mobility and contacts with speakers of different varieties, especially in urban environments. Moreover, proponents of the SPACE-LANGUAGE iconicity have typically assumed that geographic space is constructed independent of the social actors who inhabit it. Thus, although both diatopic and diastratic factors (e.g. ,GENDER, LEVEL OF EDUCATION, and SOCIAL CLASS) have been taken into account in variationist sociolinguistics, they have been conceptualized as if they were independent of each other. Rickford (1986) and Cameron (1990) are justified in criticizing variationists for reifying such social categories and others, as becomes evident below.

Since the 1970s Marxist geographers have argued that GEOGRAPHIC SPACE is as social as SOCIAL SPACE is geographic. (For a linguist's review of geographic thoughts, see Johnstone 2010.) According to Lefebvre (1974), geographic space both constructs social practices and is constructed by them. In other words, a physical location is not just a setting where language is practiced, it is also shaped by the latter. Consequently, space should no longer be studied as

static but rather as a dynamic entity that is constantly being constructed. This implies that geographic space is not neutral nor given; it is the product of particular activities (including language practice) and social relations. Our task as linguists is therefore to understand what social processes construct geographic space, therefore how language use and practice shape this production.

In other words, geographic and social spaces as part of language external ecology have a history shaped in some ways by the population whose language is influenced by them. European settlement colonies of the Americas can be invoked here to illustrate this position. As explained by Chaudenson (2001, 2003) and Mufwene (2001, 2005, 2008), the differential evolution of European colonial languages was a consequence of the particular population structures that the colonists developed locally, and indeed variably from one colony to another, to support the economic regimes they had instituted. Where segregation became part of the socio-economic institution, it was in response to the small proportion of the emergent colonial population the Europeans constituted. Thus creoles emerged as varieties that are structurally divergent ethnolects not as by-products of the tropical spaces where they emerged but of the particular ways in which these geographical spaces were constructed by the colonial masters and to a certain extent also by the slaves themselves. The colonial population structure prevented most of the slaves from interacting (regularly) with European colonists and fostered language transmission from nonnative speakers to new learners in the majority of cases, which facilitated structural divergence.

This hypothesis is verified by the fact that no particular ethnolect associated exclusively with former African slaves emerged in Brazil or in former Spanish colonies, where no race segregation system was institutionalized on the model of that found in former English and French insular and coastal colonies (Mufwene 2008). African American English is genetically and structurally akin to American White Southern English, from which it was indistinguishable until the late 19th century (Bailey & Thomas 1998). They have a common ancestor in the colonial English spoken on the tobacco and cotton plantations, on which the African slave population was a minority and race segregation was instituted only after the abolition of slavery (Mufwene 1999).

Interpreting physical locations as processes prompts linguists not to posit SPACE as an *a priori*, thus as a neighborhood, a region, or

a country whose boundaries are defined arbitrarily by administrative conventions. Instead, a space can be defined by particular social practices that give it significance. These include the particular culture(s) and language variety or varieties that have evolved in it. Along the micro-macro continuum, this prompts us to revisit the notion of SET-TING, often defined as the physical contextual backdrop of a speech event, for instance, a physician's office, a church, or a market, per Hymes' (1967) SPEAKING model. Accordingly, language use has typically been approached as contextually framed by the setting, i.e., a speaker uses an X-variety or X language in a Y-setting, but hardly as framing the setting.

Vigouroux's (2005) comparison of traders' contrastive language practices in two adjacent craft markets in Cape Town's city center, which are physically very similar but are constructed as different by them, underscores the importance of approaching a setting as constantly (re)created and maintained by language users. The two markets are located near each other, 200 meters apart; they both sustain the same trading activities; the African artifacts sold on the two markets are identical; they share the same customers, who often go from one market to the other; and many of the traders (especially African Francophone migrants) work at both markets, alternating between the two. Yet, at one market, the Francophone traders conceal their Francophonity by interacting only in English with their European Francophone customers, while at the other they use French to lure them away from the other non-Francophone traders.

Such differential language practices cannot be explained without taking into account the way in which traders construct the two physical locations. Because of its long history, the first market, Green Market Square, is defined both by insiders and outsiders as a local market, epitomizing Cape Town. Although, over the years, the African Francophone traders have transformed the flea market into an African craft market, they are still considered as foreigners/outsiders. From a business point of view they are in competition with Anglophone local and foreign traders. Using English enables them to pass as insiders and sell their goods in the same way as other non-Francophone traders.

On the other hand, the second, fairly recent market, the Pan African Market, was opened in 1996 by foreign African traders to promote Pan African crafts in Cape Town, true to its name. The majority of

traders working there are of foreign African origin. In this setting, displaying Francophonity becomes a sign of distinction in a location where traders' legitimacy as locals is not an issue. Speaking French becomes an asset from which they can reap benefits especially with European Francophone customers, who don't often speak English fluently.

Like the colonial setting example, this one situates the spatial fold of language ecology in the emergent frame of "niche construction" (Odling-Smee *et al.* 2003), according to which the environment and the organisms it hosts coevolve, influencing each other. In this case, differing definitions of, for all intents and purposes, the same physical space generates different kinds of positionality, which trigger different language practices and relations between actors (traders and customers). It is precisely these practices that make evident the different ways in which a space can be defined.

This realization about the influence of setting and actors on each other is significant for sociolinguistic theory, because it prompts us to reexamine the notion of COMMUNITY OF PRACTICE. (See Lave & Wenger 1991 and Eckert & McConnell-Ginet 1992 for its application beyond the social theory of learning.) A community of practice is defined as a collection of people who interact with each other because they are engaged in common practices and share common interests. From a theoretical point of view, this approach operates a shift from an agent-centered perspective to a practice-based one. Social ties are therefore understood as produced by and enacted through practical activities. Yet, as shown by Vigouroux's example of the two markets, divergent linguistic behaviors may emerge between people who belong in the same community of practice. The community of practice alone will not account for all aspects of language practice. It must be complemented by an ecological, albeit ethnographic, approach that highlights how language practices are shaped by and in turn construct the physical space in which they occur.

Perceptual dialectology, which gathers folk perceptions of accents and maps their geographical distribution (Preston 1989), is also a good illustration of the social construction of physical space. Studies in this field show that speakers' emic perceptions of language boundaries do not match linguists' isoglosses. Such discrepancies point out that what speakers interpret as geographic differences usually belong to the realm of ideology, where social boundaries are drawn between

"we-and they-groups" (Iannaccaro & Dell'Aquila 2001). Perceptual dialectology highlights the intrinsic relation between the diatopic and the diatrastic dimensions of language use by analyzing them together. More importantly, it shows that the construction of space is as ideological as it is physical (Johnstone 2004), as we argue below. Ideology may enter the construction of patterns of linguistic diversity within a given space, as people may choose to interact or not to interact regularly with members of a particular group and thus to adopt/accommodate or avoid their salient linguistic features (Eckert 2004). Perceptions of and attitudes to "Black" and "White" features in American English may be accounted for from this perspective, in some spaces. The same applies to the so-called "parlers des banlieues" in France as discussed in, for instance, Gadet (2003a, 2003b) and Fagyal (2010).

Such findings advocate a non-deterministic approach to physical and social spaces, especially in factoring speakers' agency in. In other words, a person sounds the way he/she does because he/she may have chosen to do so but not necessarily because he/she comes from the place associated with the accent. As argued by Johnstone (2004), being a "local" is about how locality is embodied or, in some cases, how outsiderness is concealed by speakers through their use of linguistic features; it is not an essentializing relation to a given environment. Thus, the interrelation of geographic with social spaces is not tantamount to an ecological determinism according to which spatial structures would unilaterally determine the patterns of social organization, nor to social determinism, with the social only providing the environment within which social activity occurs. That is, a geographic area does not *ipso facto* determine a set of social practices from the outside; it is itself both socially produced and behavior-generating on the model of niche construction.

We should pause for a moment and ask what is actually constructed about space: its meaning and its materiality? Space shapes language practice by imposing "ways of speaking" that arise from the norms and expectations it is associated with. For example, one is expected not to talk loud in a library or not to use vulgar language in a church. Doing otherwise is likely to invite social sanctions such as a reprimand or ridicule. On the other hand, what is considered as good communicative behavior in one setting may be considered inadequate or improper in another. For example, erudite speech may be admi-

red at an academic meeting but is likely to be ridiculed as pedantic at a casual social gathering or simply be considered amusing. It is informative to further reflect on the interesting ways in which speech and ecology covary, since the same topological space can be redefined several times over as a different ethnographic setting, depending on what particular actors are engaged in what specific social activities in it. Thus, one's living room may call for formal language on one occasion but for (very) informal and even vulgar language on another.

While Blommaert *et al* (2005a) are justified in arguing that linguistic competence must be evaluated relative to ethnographic setting, the above discussion also suggests that language varieties may sometimes "travel" well from one geographic space to another, depending on how these spaces are socially constructed. It is indeed true that a linguistic resource that enables a speaker to communicate successfully in a given setting may not be as successful in another (Blommaert *et al* 2005b). However, it also appears that the communication problem may be solved by just redefining the setting in the way explained above, although not everybody has the authority and competence to do so. An advantage of the ecological approach over the standard sociolinguistic and ethnographic paradigms is that the concept of ECOLOGY not only connects the different factors that bear on linguistic behavior in the present case but is also dynamic. It avoids the traditional static and autonomous ways that space in particular has been invoked in linguistic analyses of verbal interactions and language evolution.

The above discussion is not intended to dismiss outright the material construction of space. The first example that comes to mind is architecture. Markus & Cameron (2002) analyze a short text thought to be from the architect William Stark in 1807 about the organization of the Glasgow Lunatic Asylum. This text provides the taxonomy that applies to the intended residents of the building. Through a fine-grained discursive analysis of Stark's taxonomy and his architectural plan of the asylum, the two authors demonstrate how social hierarchy translates into spatial and discursive organization. Patients are categorized according to SEX (men and women are located in the two opposite wings of the building), SOCIAL CLASS (inmates of higher rank are located at the front of the building, while the others are relegated to the back), and MEDICAL DIAGNOSIS (less afflicted patients are housed near the center while the others are assigned to remote wards). Accor-

ding to Markus & Cameron, the spatial arrangement of the asylum does not follow the discursive construct of the taxonomy in the same straightforward way. Yet, there is a homology between spatial, social, and discursive hierarchies. For example, in the textual layout, men are graphically positioned above women and patients of a higher rank are placed above inmates of a lower rank. In addition, the way space is organized in the asylum constrains the ways people can operate in it, with the privileged ones (men of higher rank who are less afflicted) given more latitude to circulate. Thus, the physical ecology of the asylum influences its functional construction as a social institution and thus as a functional ecology, which in turn influenced William Stark's discourse. This creates an interesting "cascade of [partial] ecological determinisms" that favor particular behaviors without necessarily precluding alternative ones.[57]

The example above shows that the issue of "*which-meaning* space" is related to those of "*whose-meaning"* and "for *what purpose*." Put differently, who gets to decide on the competing meanings of SPACE? Can geographic space be free of ideology and power dynamics? The following example of workplace organization may provide an answer. Describing call centers, Sewell & Wilkinson (1992: 283) talk of *virtual panopticon*, because their spatial distribution enables constant surveillance of the employees by the manager and by each other. Operators have no privacy: they can always be looked at and listened to. While such an open work-environment constrains the employees' daily practices (for example they cannot entertain private

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[57] In a number of unpublished lectures since 2005, Mufwene has invoked this cascade of ecological determinisms to explain, relative to the evolution of European languages in the colonies, how geographic ecology determined particular economic ecologies (e.g., farming vs plantation), how these in turn favored particular population structures (integrated vs segregated social ecologies), and how these influenced language evolution regarding the emergence of creole and non-creole varieties. Ecological determinism was not absolute to the extent that, for instance, developing one form of economy rather than another depended also on the time of the colonization of a territory relative to another (the PERIODIZATION factor), on the European markets' particular interests, and on the availability of capital. Determinism was real when it ruled out particular economic regimes in some territories. Thus, as lucrative as it was, sugarcane cultivation would not have been a wise investment in most colonies north and south of the tropics and in those with arid land. It was also real, albeit partially, when an economic regime created a drastic disproportion of African slaves and European populations and the colonial administration found it necessary to institutionalize race segregation in order to ensure the security of European colonists from slaves' uprisings.

conversations), it also creates a sense of egalitarian relationships, which obliterate social hierarchies. In this case, ideology is embedded in space; it is not only made visible through space organization but also enacted.

3.2. We should now turn to the other fold of this section: TIME as an ecological factor. As suggested by the spelling *timespace* in the title of this essay and in the heading of section 3, TIME and SPACE are intrinsically intertwined. According to Wallerstein (2004: 98), who coined this spelling, "for every kind of social time, there exists a particular kind of social space." However, does the statement that any event is situated in time and space sufficiently justify blending TIME and SPACE into a single concept? How do we account for TIME in the construction of SPACE and therefore in language practice?

A spatial-temporal turn occurred in linguistics in the past decade when some linguists (e.g., Blommaert 2003 and Blommaert, Collins & Slembrouck 2005a) became interested in the effects of "globalization" on language practice. At the heart of the matter was the wish to broaden the sociolinguistic paradigm in order to account for speakers' increasing mobility across transnational and socio-historical spaces and to understand the transformation of the forms and functions of linguistic resources as these are lifted from some sociohistorical spaces/ecologies and reinserted into new ones. The intention of these linguists' spatial-temporal approach was to invoke ideological, geographic, and socio-economic factors concurrently both to explain small-scale language dynamics and to bridge the micro/macro dichotomy around which many studies have been articulated. However, as we show below, creolistics was far ahead the game, as in fact alluded to by Collins, Slembrouck, & Baynham (2009). Globalization is a spatial-temporal phenomenon par excellence, because it involves different scales (viz., local, regional, national, and transnational) due to time compression enabled by the advent of faster communication and transportation technologies, especially with the current option of transferring information digitally.

The most recent forms of globalization,[58] an important ecological factor, call for revising some of our core working assumptions

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[58] We speak of "most recent forms of globalization" because we believe that globalization is not a recent phenomenon (Mufwene 2005, 2008), just some of its forms as experienced now are new.

in linguistics. These include the following: 1) COMMUNITY, which is more and more difficult to define geographically/ spatially, as social relations and verbal interactions now stretch over local spaces and often across national boundaries; 2) SPEECH COMMUNITY, from which some sociolinguists such as Eckert & McConnell-Ginet (1992) have proposed to shift to COMMUNITY OF PRACTICE, as explained above; 3) CULTURE, because it is harder to associate it with a bounded space; and 4) LOCALITY, since our interactions are less and less constrained by the physical *hic et nunc* of the speaker/signer.

Among the questions that the study of globalization and language practice raises are the following: What are the relevant spatial units of analysis that account for language dynamics at a time when the policies of modern nation-states and civil societies are increasingly based on transnational spaces, which challenge the bounded socio-historical spatial conception of the NATION-STATE (Heller 2008)? How do we analyze interactions in societies where distal relationships are no longer clearly distinguishable from proximal ones? Since the global is understood as a web of interconnections, what are the natures of the connections that obtain between the different spaces and therefore between the people that inhabit or evolve in them? What are the actual linguistic outcomes of these interrelations? To the extent that these interconnections and the consequent interdependences influence language practice and language evolution, they are facets of external language ecology, though the pressure they exert on speakers/signers may be experienced indirectly, mediated by other factors.

We think that linguistics can contribute to the understanding of GLOBALIZATION by explaining how the interconnectedness of different temporalities and distant geographical spaces bears on social and therefore language practices. Part of the challenge, theoretically and empirically, lies in identifying the scale(s) in which language practice or any social action occurs and is made sense of.[59] We argue that the relevant spatial-temporal units of analysis are shaped by semiotic practices; they should not be assumed to be ontologically pre-

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[59] The same questioning also applies to geography. It has prompted some geographers to revisit units of analysis such as REGION, NEIGHBORHOOD, and NATION. For theoretical debates about scales in geography see, for instance, Howitt (1993), Brenner (2001), and Marston & Smith (2001). In linguistics, see Blommaert (2007) and Blommaert, Collins & Slembrouck (2005a, 2005b).

given; nor should they be posited *a priori* by the researcher, as we show below.

Our example comes from Vigouroux (2009), in which she discusses, from an ethnographic perspective, multilingual practices in a Congolese Internet café, downtown Cape Town. She noticed that written notices posted on the walls either to inform customers about the prices and available services or to prevent any potential dispute display a range of language resources that vary according to the communicative functions of the notices. For example, all regulatory notices are written in English, in French, or in both. Although most of the customers are African migrants from the Democratic Republic of Congo, no African language is used in the regulatory notices.

Vigouroux argues that the exclusion of African languages from the written representations both re-enacts and maintains at the local level of the Internet café linguistic hierarchies and asymmetrical power relations constructed in another timespace: the homeland at the time when they left it. Written notices enable the intertwining of the two distinct and seemingly unrelated timespace scales: the bounded physical location of the Internet café constantly redefined by the on-going language practice and the more diffuse timespace scale of language ideologies instilled by the education system and sustained by long-term language policies and the economic system.

This interrelation of two different timespace scales illustrates what Lemke (2000) calls "heterochrony," which is defined as "a long timescale process [producing] an effect in a much shorter timescale activity." Heterochrony entails that scales are intrinsically relational (Howitt 1993, 1998) and therefore should not be approached in dichotomous macro/micro terms, with the micro scale being analyzed as a downsized reproduction of the macro. This dichotomy is no longer tenable in a world where overlapping sociospatial networks are articulated on divergent geographic scales. Interpreted dialectically and non-hierarchically, SCALE makes it possible to overcome the micro/macro dichotomic approach. In Blommaert *et al.*'s (2005a: 197) words: "Space and scale offer a connection between macro-conditions and micro-processes." We submit that there is no absolute *space* pure and simple but there are spatial relations. Temporality is inscribed in and constructs each scale; it also enables and articulates the relationships between them.

Although the notion of SCALE is fairly recent in sociolinguistics, the idea it seeks to capture is not. Older linguistic notions such as VEHICULAR, VERNACULAR, and LINGUA FRANCA have definitions that are scale-grounded. The same applies to the notion of WORLD LANGUAGE used for languages that function at a higher scale, transcending the geographic boundaries associated with nation-states. Our GEOLINGUISTIC IMAGINATION is constructed on the scalar model, with languages ranked on a continuum of more, or less, global, with English ranked as the world language par excellence, a global one according to some students of globalization (e.g., Crystal 1997, McArthur 1998, Pennycook 2007). At the other end of the scale are several ethnic languages, especially those spoken by small groups and isolate populations, and new varieties such as creoles, all perceived as bounded to their localities.[60] Such a scalar approach to languages re-enacts hierarchized socioeconomic spaces structured around centers and peripheries (Wallerstein 2004), be they urban or rural areas, cities or suburbs in the French urban landscape, northern or southern hemispheres ("Nord vs Sud" in the Francophone political discourse), the French "Hexagone" (the metropole) vs. overseas departments, etc.

As significant as it is, Britain's (2010a) review of the way in which linguistics has not taken socio-spatial factors into account seriously to explain the dynamics of language change overlooks the important contribution that the scholarship on the emergence of creoles has made to the subject matter. Scholars such as Chaudenson (1992, 2001, 2003), Mufwene (2001, 2005, 2008), and Singler (1996) have highlighted the relevance of population movements and contacts and, more generally, the sociohistorical ecologies in which these new vernaculars emerged to understanding language speciation.

The ecological approach developed by Mufwene grew from a number of questions that the emergence of creoles prompts but the current literature fails to answer to his satisfaction. Among these questions are: Why have creoles emerged in certain geographic spaces and not in others, including those, such as Brazil, which used slave labor in the sugar cane industry ? On the other hand, there are small colonies such as Cape Verde and Curaçao that did not have large permanent

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[60] There are of course some exceptions, such as Haitian Creole, whose diaspora speakers represent a large proportion (about a couple of millions) of the total Haitian population (of about 10 million).

slave populations and did not sustain sugarcane cultivation but produced creoles! What specific features of population structure fostered the emergence of creoles that turn sugarcane or rice cultivation into a mere contingent factor?

In the process, Mufwene went as far as to hypothesize the cascade of ecological determinisms mentioned above (explained in note 8), which shows that in the vast majority of cases language evolution in the colonies was ultimately related to their respective geographic ecologies, because these played an important role in favoring the particular economic systems that the colonists would develop. The economic regimes bore on the population structures that emerged, and population structure bears almost directly on language evolution, through how it determines which individuals interact with which others, notwithstanding other factors that have to do with their respective language learning skills, among other factors we need not get into here (Mufwene 2001, 2005, 2008, 2010).

4. Conclusions

Although Mufwene has been inspired especially by population genetics and macroecology to account for aspects of language evolution, especially the emergence of creoles and language speciation, it appears that he has also provided an integrative, hitherto macro-level approach that bridges sociolinguistics, the ethnography of communication, and language evolution. To date Mufwene has focused on the macro-level, although he has also invoked ecology to account for the selection of particular structural features into the emergent varieties.

We have shown above that the approach can be extended to both macro and micro aspects of language practice and need not be restricted to aspects of language evolution. It is not at odds with traditional approaches but calls for the factors traditionally invoked to account for language behavior not to be considered as independent of each other. Highlighting the complexity of language behavior, this ecological approach also highlights the dynamic nature of the interactions and interdependences between some of the factors. It is integrative, enriching sociolinguistics and the ethnography of communication in ways similar to the contribution it has made to evolutionary linguistics. While it validates all these traditional approaches, it also shows that there are other factors that bear on language behavior and lan-

guage evolution that have not usually be considered by these approaches. It is informative to consider them globally and to highlight how interdependent some of them are. Thus, it shows how much linguistics has to gain from being informed by other disciplines and from being integrative within.

The focus on individuals and variation among them is especially important, because it makes it easier to explain how communal norms, patterns, or trends emerge when individual speakers/signers converge in their behaviors. On the other hand, it also makes allowance for some members of a population not to participate in the convergence process without appearing to be anomalous, contrary to how "lames" and "outliers" have been made to look in variationist sociolinguistics. In fact, the approach raises the question of how communal norms, patterns, or trends emerge in the first place. It is in this context too that linguistics must factor in the role of ideology not only in individual linguistic behaviors but also in the construction of concepts such as SPACE and TIME.

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