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12. Language and space: The linguistic dynamics approach

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1. Introduction

The research goal of the linguistic dynamics approach can best be presented in contradistinction to that of classical dialectology. Traditional dialectology was shaped by an axiom of dissolution: the dialect change observable from the outset was interpreted as a process of rapid disappearance as a result of the increasing prevalence of standard varieties. Research focused on the reconstruction of dialects, assumed to have been stable for centuries before the dissolution process set in. Accordingly, the research goal was the

description of the spatial distribution of the oldest and least standard forms of language in isolation and its explanation in terms of historically remote processes.

In contrast, the primary research goal of the linguistic dynamics approach is the precise analysis of the dynamic processes at work within complex language systems and their explanation in terms of individual cognitive and interactive-cum-communicative factors. The data basis consists of directly observable empirical processes of stabilization or modification. For a (linguistic) dynamic dialectology, this means that the continuing development dialects have shown since they began to be studied is not a source of interference in the reconstruction of a putative "initial state", but rather an ideal source of detailed insight into the processes acting on data samples distributed across space (both groups of speakers and varieties) and time. The same is true for variation within a dialect at a particular point in time. Concurrent variants do not obscure an idealized homogeneous variety; they need instead to be analyzed as an integral aspect of the constant varietal flux.

Shifting the research goal necessitates a modification of the observational basis in line with Labov's (1994) requirement that apparent-time and real-time analyses be linked. Within the linguistic dynamics approach, a research tool has been developed to this end: the dynamic language atlas, which allows the accurate tracking of selected data on the linguistic competence and performance of various groups of speakers across space and time. This new "research laboratory for a theory of language (change)" is introduced in section 2. It can be located in a tradition reaching back to neogrammarian linguistics, in which extensive dialectological studies are recruited to empirically test and further develop theorems of language change. Section 2.1 presents the new research possibilities opened up by such broad-scale real-time analyses and the opportunities for validation that arise when the data presented in dialect atlases are systematically related to more comprehensive surveys and direct performance records (village and regional grammars, sound recordings) and modern language variation studies. Section 2.2 aims to make visible the theoretical challenges raised by this new research tool. To this end, four surprisingly clear-cut preliminary findings from the to-date most advanced dynamic language atlas (the *Digital Wenker Atlas*) are presented. They reveal completely unexpected developments which require a fundamental readjustment of the explanatory schema.

Section 3 describes how the theoretical consequences of these findings have been elaborated under the rubric of the "linguistic dynamics approach" by the Marburg research team (cf. Schmidt 2005a, 2005b, 2005c, 2008; Schmidt and Herrgen, to appear; Herrgen 2006; Lameli 2004; Lenz 2003; Rabanus 2008; Kehrein 2006, 2008). The theoretical core is the concept of *synchronization* (section 3.1), developed in response to the Saussurean idea of *synchronie* in light of Hermann Paul's model of dynamic individual competence. The root cause of linguistic dynamics is seen as the constant calibration of an individual's language competence through linguistic interaction (i. e., language performance), leading to either a stabilization or modification of the participants' linguistic competence. *Mesosynchronizations*, in which groups of speakers in direct contact with one another construct common linguistic knowledge over extended periods of time, are the decisive factor in the dynamic of regional varieties. The second pillar of the approach is the linguistic dynamic understanding of *variety* (section 3.2). This concept distinguishes between elements of linguistic knowledge that an individual can easily overrule within a specific synchronization act and those elements modifiable only through phases of active learning, i. e., usually only in the course of generational change. The latter

include the sign-generating (phonological, prosodic) and combining (morphosyntactic) rules that form the foundations of linguistic competence. They are also the basis of full varieties (*Vollvarietäten*) like the dialects and regiolects. The theory's third stanchion is the concept of a *modern regional language* (section 3.3). It is impossible to study the development of a dialect in isolation without ignoring the fact that dialects have long been an integral part of a dual variety formation and that all twentieth-century and contemporary dialect speakers from countries where a well-developed school system provides instruction in a standard variety have bivarietal competence (in dialect and regiolect). Alongside the well-documented *horizontal* dialect formations (of coexistent base dialects; *Dialektverbände*), sketchily studied *vertical* regional language formations have emerged in the past 200 years or so. Their historical origins and varietal structure are explored here.

In a closing section it will be shown how the unexpected findings from the new "research laboratory" can be explained with the help of these elements of the linguistic dynamics theory.

2. Spatially distributed language as a research laboratory for a theory of language (change)

One hundred and thirty years ago, the neogrammarians recognized that the meticulous examination of an individual dialect (as in the village monographs, cf. Winteler 1876) represented an outstanding resource for the development and validation of theories of language change and hence of language itself. At roughly the same time, the initial findings of dialect geography (Wenker 1878) were rapidly proving a theoretical challenge *par excellence* to the contemporary account of language change (cf. the highly informative overview in Auer 2005). Early dialect geography challenged the neogrammarian attempt to explain change in isolated varieties in terms of internal (sound laws, chain shifts) and cognitive factors ("analogy"; cf., respectively, Paul 1886: 46−65, 85−98; Pfalz 1918; the overview in Murray in this volume) with its finding that "every word has a history of its own" (Malkiel 1967; cf. Wenker 1889: 22−23) and developed an alternative attempt to account for the palpably observable distribution of linguistic phenomena in space through external (sociodemographic/interactive) factors. In so doing, correlations between (bundles of) isoglosses and geographical, historicopolitical and denominational borders were explained as the ultimate effects of former barriers to communication or "intercourse" (*Verkehrsgrenzen*; cf. Wrede 1903: 30−35; Frings 1924: 8).

To this day, the central questions which arose continue, in modified forms, to dominate theories of language change. This is true of the old conundrum of whether a sound change equally affects all the words of a variety in the same phonological context ("Does sound change proceed one word at a time. Or does it change phonemes as a whole?" asks [Labov 1994: 502]). But it is equally true of the far more basic issue of the nature of the relationship between internal and external factors. Can a simple allocation of these to the distinct stages of every language change (emergence vs. spread of an innovation) be made, as Croft seems to assume? ("The phonetic and conceptual factors […] are responsible only for innovation, and social factors provide a selection mechanism for propagation" [Croft 2000: 39].) Or does a causal nexus of function and structure characterize the process by which linguistic innovations become established under the agency

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of variation and selection (as in the theory of diachronic adaptation, cf. Haspelmath 1998; see also Andersen 1973 on abductive change)?

The opportunities to clarify these fundamental questions on the basis of accurate empirical data have improved dramatically since the neogrammarian era. Whilst the individual "living" dialect, (apparently) independent of written language, could be viewed as a test bed for a theory of language (change) in 1876 and, much later, Moulton (1962: 25) could answer his own question of whether "there is any laboratory in which we can test the working hypotheses of structural linguistics" with the suggestion "that such a laboratory exists in the material of a linguistic atlas", we have at our disposal today, for the first time in the history of linguistics, the opportunity to accurately trace the development of language in time and space using empirical data. This new, much improved "research laboratory" is introduced in this section.

2.1. The new "research laboratory": Dynamic language atlases as broad-scale real-time studies

The great dialect atlases of classical dialectology mapped (usually word-for-word) the areal distribution of samples of sectors of the linguistic competence (for example, the phonology and morphology of the "dialect" variety) of selected speakers from particular social groups (e.g., schoolchildren or sedentary farming folk) at particular times. Wherever we have such early surveys of linguistic competence at our disposal − whether very wide ranging (e.g., Wenker's *Sprachatlas des Deutschen Reichs* [surveyed around 1880], Gilliéron and Edmont's *Atlas Linguistique de la France* [1902−1969], or Jaberg and Jud's *Sprach- und Sachatlas Italiens und der Südschweiz* [1928−1960]) or confined to specific regions (e.g., Kurath's [1939−1943] *Linguistic Atlas of New England*) − we have the opportunity to track the development of linguistic competence across space and time through a fresh survey of the same sectors of competence among the descendants of the original group of speakers. In some cases, such (in part multiple) reinvestigations have indeed been made on a grand scale. For instance, because of the obvious methodological weaknesses or gaps in the early supraregional atlases (Wenker: indirect data collection from elementary school teachers using the spelling rules of the time; Gilliéron: just 992 survey locations for all of France; Jaberg and Jud: only 405 localities surveyed for Italy and southern Switzerland), regional atlases with a dense net of survey locations have been created in France, Germany and Italy from 1950 onwards. These partly incorporate the investigative programs of the old supraregional atlases but have, at least until now, only rarely been exploited for comparative mappings.

Such linguistic atlases as do not just permit a comparison over time but systematically present directly comparable linguistic data collected at different times, we refer to as dynamic language atlases (*sprachdynamische Atlanten*). The earliest example of such an atlas is the *Schlesische Sprachatlas* (Bellmann 1967), which, for the vanished German dialects of Silesia, presents data from the Wenker survey of 1880 together with sound recordings of the Wenker sentences from 1962−1966 in a series of paired maps, the uppermost of which (the more recent data) is reproduced on tracing paper. The most comprehensive and sophisticated dynamic language atlas to date is the *Digital Wenker Atlas*, published across the internet (Schmidt and Herrgen 2001−2009; <http://www.

diwa.info>). Its special value for precise linguistic dynamic analyses is closely bound up with the history of German dialectology. Because the 40 Wenker sentences are the basis of the only extant survey of the entire German-speaking area (*G. Wenkers Sprachatlas des Deutschen Reichs*), because the latter with its c. 50,000 individual locations is also the world's densest survey of the dialects of a language, and because of intrinsic methodological flaws, the Wenker lemmas have been sampled time and again in the history of German dialectology. They have, for example, been considered in most dialect monographs (since 1890) and included in extensive sound recordings from 1950 on; since 1970 they have formed an element of the German regional linguistic atlases, including the post-1980 polydimensional regional atlases that surveyed differing social groups; and they are often still an element in the extensive investigative armory of contemporary language variation studies. As a rule, the *Digital Wenker Atlas* presents the data collected at different times from a range of social groups in a manner which facilitates direct comparisons (cf. Kehrein, Lameli and Nickel 2005): the historical Wenker maps can be called up over the internet, the original survey forms can be viewed, more recent sound recordings containing the mapped lemmas can be played, and the corresponding maps from modern regional atlases can be overlaid semi-transparently. For all of the other data sets (traditional village monographs, dialect-geographical investigations, contemporary language variation studies) the internet publication offers georeferenced research aids.

The enhanced research opportunities offered by this new geolinguistic laboratory are manifest: (a) real-time analysis of language (data segments) across space, (b) combination/cross-linkage of these data segments with thorough descriptions of the phonological and morphological subsystems of a variety at various points in time, and (c) combination/cross-linkage of the dialect variety data segments with a full description of the vertical dimension of a language across space (i. e., dialect−standard variation).

Re (a): Dynamic language atlases' most obvious advantage is the possibility of genuine real-time analysis they afford (see Labov 1994: 73−112 on the fundamental problems of real-time analyses, usually of a tightly constrained area). Traditional, unidimensional dialect atlases represent a sample of linguistic data at a particular "point in time" (or better, during a survey period). From a diachronic perspective, such a synchronic state represents a "frozen random sample" of the development of a language across space and time. Naturally, there have been (in part laborious) attempts to interpret the observable spatial distribution of the linguistic data as the result of antecedent processes of change. This can proceed in a relatively simple manner, as for instance when traditional dialect geography interprets wedge formations on maps as "vanguards of innovation" or marginal strips as "relicts" and "explains" them with the presumed prestige of historical language bearers and cultural currents (*Kulturströmungen;* cf. Schrambke in this volume). It can also proceed with virtuosity, as when the selection and adaptation (of the variants) of various innovative impulses is deduced from their functionality in comparison to the linguistic structure of antecedent systems (cf., for example, Seiler 2003 or Haas in this volume). The methodological problem remains the same: the assumptions regarding previous language states remain uncertain. As a rule, they can only be supported by isolated findings from older written sources or assumptions about historical frames of reference or be based on inferences from the synchronic data of an atlas. At best, a relative chronology can be postulated. In light of this problem, more recent geolinguistics has attempted to harness the sociolinguistic apparent-time approach (cf.

Labov 1994: 43−72) to the investigation of language change across space. For instance, for those regions of South America characterized by high mobility and intensive language contact, the pluridimensional language atlas has been developed (cf. *Atlas Lingüístico Diatópico y Diastrático del Uruguay* [Thun and Elizaincín 2000−]). In contrast to unidimensional dialect atlases, the catalog of questions and the number of locations are reined in radically and phenomena believed to be currently subject to change are especially targeted. This makes it possible to extend the survey of linguistic competence to cover various social attributes (age, gender, education, mobility, etc.) and to collect performance data from these speakers in a range of contexts (interview, reading aloud, spontaneous material). The goal is to be able to analyze the sociocontextual and spatial distribution of data as a series of simultaneous windows onto a complex process unfolding in time (cf. Thun 2000: 83). Of course, the fundamental methodological problem for any apparent-time approach remains unresolved: synchronic variability is interpreted as change across time despite having no systematic control over the temporal dimension. With a dynamic language atlas, language change processes can be tracked precisely through space and time for various speaker types and contexts. Since these processes are observable through empirical spoken language data from a particular time, correlations with contemporaneous external factors can be studied exactly. Even more significant is the fact that the linguistic structure of antecedent systems, within the framework of which functional adaptations occur through language change processes, does not need to be posited, but is known from empirical observations.

Re (b): Since historical language atlases always represent small samples of the linguistic competence of particular groups of speakers of a variety, knowledge of the full set, that is, the complete prosodic/phonological and morphological structure of the historical dialect, is of decisive significance in any linguistic dynamic analysis. This is exactly what is described in the phonetically precise village monographs and early dialect geographical studies, which also include a virtually complete catalog of the correspondences between phonemes and lexemes, described in terms of historical reference systems. In the German language area with its extremely dense net of such monographs, they also furnish a vital tool for validating Wenker's survey method using (nearly) contemporaneous data, particularly his imprecise transcriptions.

Re (c): Only when the vertical dimension of linguistic variation can be included is a full analysis of fundamental language change processes possible. It is not widely recognized that, to a degree, this can even be done for past language states. In Germany, socially differentiated sound recordings of dialect speakers began being made in 1922, capturing the "individual languages of the same location, of people of varying age, gender and status" (Wagner 1924−1925: 230; my translation). In the fifties, Zwirner made 5000 recordings of the "everyday language" of various social groups (cf. Zwirner, Maack and Bethge 1956). In the absence of appropriate analytic tools, these recordings have, however, barely been evaluated, but the opportunity for retrospective analyses with up-to-date methods now exists. Far more imperative, however, is the opportunity to combine a systematic investigation of a language's variation spectrum with an analysis of the material furnished by a dynamic language atlas. Any modern investigation of the overall variation structure of language areas needs to be designed to also function as the endpoint of a true *panel* (cf. Labov 1994: 76−77), i. e., to represent a fresh survey of the same data sample effectively tracked through time by a dynamic language atlas (cf. Elmentaler 2006 and, on the "REDE" project, <http://www.regionalsprache.de> and Kehrein 2008).

2.2. Preliminary findings from the new laboratory as a challenge for language (change) theory

With the help of the *Digital Wenker Atlas*, the development of the German dialects over almost exactly a century can thus be closely followed, albeit for a restricted sample of linguistic data (viz., the lemmas of the 40 Wenker sentences) but a very large language area. For large parts of the Middle and Upper German language areas, regional atlases, whose data date from between 1970 and 1990, i. e., about a century after Wenker (1880), are available. Intermediary stages are documented in a relatively dense net of monographic studies (from between 1890 and 1960) and sound recordings (post-1950 in high quality). It will be some time until the final results of this first large-scale attempt at a linguistic dynamic real-time analysis are available. But the potential that these analyses harbor and the theoretical challenge they pose are already apparent in the preliminary findings which have emerged so far: despite the dramatic social upheavals of the twentieth century in Germany (the transformation from an agrarian to an industrial to a relatively mobile service-based society), there is no reason to believe in a rapid decline in the currency of dialects between 1880 and 1980. Overall, the situation is one of relative stability (cf. Herrgen in this volume). Far more fascinating is, however, the fact that while the dialects of an area have remained completely unchanged for over a century with regard to some phenomena, the repeatedly postulated convergence on the standard language can in fact be observed for other phenomena, and − most surprising of all − that yet other dialectal phenomena are diverging from both the standard and the dialect! Naturally, the theoretical challenge lies in explaining why the individual cases have developed so differently. The spatial distribution of the various developments also offers new potential insights. This is illustrated in the following in a simplified and in part schematized form. It should be made clear in advance that the analyses to date show that there is an absolutely dominant external factor driving dialect change in Germany in the twentieth century. It is not, as is widely expected, the familiarity of all speakers with the written and spoken standard. Rather, it is − as a result of broader social transformations − the supplantation of the local (locality-based) network of communicative relationships still dominant in the nineteenth century by the thoroughgoing regionalization of such interaction. (On this "supralocalization" or "de-localization" see the articles by Britain and Mæhlum in this volume, as well as Schmidt and Herrgen, to appear.)

Absolute constancy over a century without any variation in either language area, A or B, is primarily observed when the isogloss separating the two variants coincides with the historical boundary between two dialect formations (*Dialektverbände*). An example is southern *was* versus northern *wat* ('what') in West Middle German. This seems easy to explain with existing language change theories. The theoretical challenge first becomes clear when closer examination of an actual case reveals (1) that all speakers in areas A and B have active mastery of both variants (*a* is also the Standard German variant, *b* the dialectal variant), (2) that no barriers to intercourse (*Verkehrsgrenzen*) or other external distinctions currently separate language areas A and B, and (3) that *a* and *b* are linguistically marginal (single-word) opposites, completely detached from the phonological structure of the dialects in A and B (cf. Schmidt 2005c: 24−30).

Type 1: Absolute stability over a century

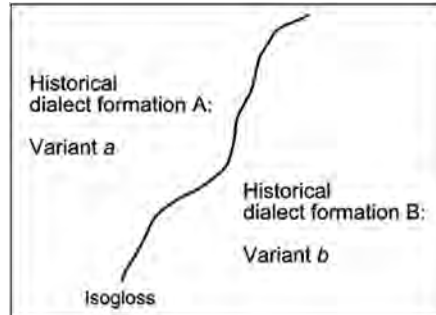

Fig. 12.1: Absolute stability over a century (Type 1)

Type 2: Development away from both the standard language and the old dialect

Type 2 is illustrated by a verbal inflection example (cf. Schmidt and Herrgen, to appear: 4.2.1). In Standard German, *bringen* 'to bring' is neither a strong (class *b,* e.g., *singen−sang−gesungen* 'SING') nor a weak verb (class *c,* e.g., *sagen−sagte−gesagt* 'SAY'), but rather a rare case of mixed inflexion (*bringen−brachte−gebracht*; class *a*). Ongoing psycholinguistic studies (cf. Niedeggen-Bartke 2002, described in Schmidt and Herrgen, to appear: 4.2.1) show that German children acquire the past participle (*gebracht*) very late and that before the age of four, the verb is usually inflected following the rules for class *c* (**gebringt*) or class *b* (**gebrungen*). Such innovation thus arises spontaneously in the normal course of child language acquisition in line with the principle of analogy, well explored since the neogrammarian era.

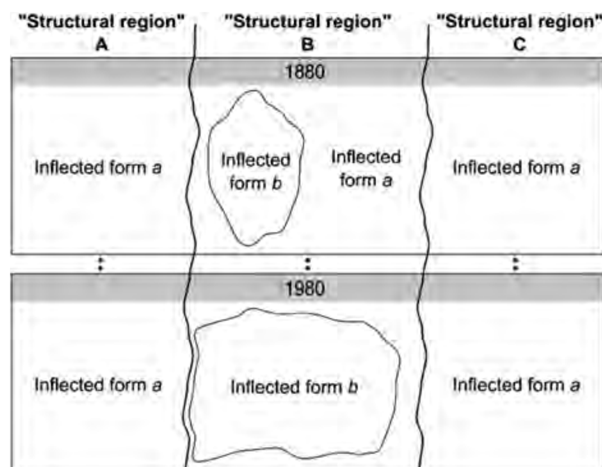

Fig. 12.2: Development away from both the standard language and the old dialect (Type 2)

In dialect area B in 1880, the *a* and *b* forms stood juxtaposed, *a* as the old, standard-conform dialect form, *b* a highly salient dialect form. In four sets of data from three different periods (1880, 1939, older speakers in 1980, younger speakers in 1980), the spread of the innovation can be traced very clearly. It can be empirically demonstrated that form *b* "spread out" in stages and ultimately took over the entire dialect area B (Rhine Franconian left of the Rhine). In that this innovation repeatedly recurs, it can be seen as a "natural" language change, upon closer investigation surprising only for the fact that the clear standard language norm and the negative evaluation of the variant have not hindered its spread. It is much more of an issue to explain why the innovation does not spread to the neighboring areas of A and C. These differ from B primarily in their phonological structure (they are "structural regions", see section 3.3); the morphological structure in the innovation zone in B generally corresponds to that of A and C. Hence, the linguistic preconditions for a functional adaptation were identical. Nor can the differential effects of any external factors be discerned – here too, both variants are well known to all the speakers in all of the areas under observation.

Type 3: Broad-scale transformation of the phonological structure of dialect areas

The examples for Types 1 and 2 depict relatively isolated phenomena, for which the ongoing influence of the historical boundaries between dialect formations or "structural boundaries" within them present explanatory challenges for linguistic theory. Type 3 involves broad-scale phonological change and shifts in the phonological boundaries between former dialect formations. One example is the change in the old dialectal diphthongal phoneme corresponding to MHG /oː/ (e.g., /o͡u/, /a͡u/ or /o͡a/ in words like *groß* 'big', *Rose* 'rose', *Loos* 'sow (female pig)', *rot* 'red', *tot* 'dead', *Brot* 'bread', *hoch* 'high') in six different Middle and Upper German dialect areas (cf. Schmidt and Herrgen, to

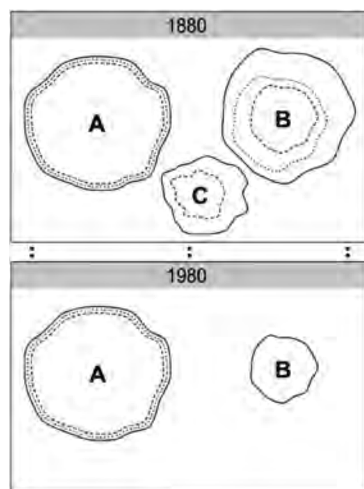

Fig. 12.3: Broad-scale transformation of the phonological structure of dialect areas (Type 3)

appear: 4.2.3). In 1880, all of the individual isoglosses for such words coincide in some of the dialect areas (e.g., area A in the schematic map shown as Figure 12.3). In these cases (e.g., in the southern Palatinate), there is no language change to be seen, even 100 years later: the dialect areas are stable, their phonological structure has not changed, the isoglosses for the individual lemmas are still superposed. The situation is completely different in dialect areas B and C, where in 1880 the isoglosses for the various words did not coincide. Here, in every case we have examined, the individual lemma boundaries have shifted over the course of the past century. In most cases, the erstwhile diphthong phoneme has been replaced by whichever former dialectal phoneme is phonetically most similar to the phonemes of the surrounding dialect areas (e.g., /o͡a/ in Bavarian Swabia replaced by /o͡u/, /oᵘ/ or /oː/). The old diphthong then either becomes a single lemma relict (area B, e.g., western Upper Bavarian) or vanishes completely (area C, e.g., the Bavarian Swabian transition zone). The clarity of this finding is striking. (1) For phonologically relevant phenomena (i. e., phonemic splits and mergers), the old aphorism "every word has a history of its own" implies that a very long term (in this instance phonological) change is in progress. A long-standing language change process has not yet been completed. (2) The phonological transformation proceeds via a lexeme-for-lexeme phonological redistribution. It is equally clear that, where the individual lemma boundaries of a phoneme in two different periods coincide, a (more recent) language change process has not yet set in.

Type 4: The role of functionality in structural change in dialectal subsystems

A further important early finding out of the new linguistic laboratory can be described without recourse to a map. In Rabanus (2008), changes in the inflectional morphology of person, number and case was investigated in 43 small-scale areas. German pronominal and verbal inflection has long been characterized by increasing syncretism (the collapse of inflective categories). The one-hundred-year comparison shows how this long-term change has unfolded in specific cases. For instance, there is total case syncretism of second-person plural pronouns in certain North Bavarian dialects – in 1880, NOM *IHR*, ACC/DAT *ENK*; in 2000: NOM/ACC/DAT *ENKS*. In other dialects the verbal inflexion has syncretized, e.g., *beißen* 'to bite' – in 1880: 3SG *BAES-T*, 2PL *BAES-TS*; in 2000, 3SG/2PL *BAES-T*. The astoundingly clear upshot of this very extensive analysis is that there must be an internal factor, for which the boundaries of the linguistic sub-areas are irrelevant, that acts to limit or stop the morphological change. It emerges that there is a functional lower limit to the spread of syncretism: the retention of a distinction when decoding semantic roles in minimal sentence pairs. Rabanus employs the methodological tool of the "minimal sentence", in which the syntactic slots for predicate, subject and object(s) are filled with just the inflected verb plus pronouns. Through the interplay of the verbal and pronominal inflectional categories he can then show how preserving the functional lower limit controls language change (Rabanus 2008: 260–271). For the chosen example, this means that complete case syncretism of second-person pronouns (i. e., *ENKS* in all cases) has not developed in a single village dialect in which verbal inflection syncretism also occurs – that would have led to ambiguous minimal sentence pairs of

the type *ENKS BAES-T DEI*, in which case cannot be unequivocally assigned (*Ihr beißt sie* [2PL.NOM bite.2PL 3SG.FEM.ACC] 'You bite her' or *Euch beißt sie* [2PL.ACC bite.3SG 3SG.FEM.NOM] 'She bites you').

3. Theoretical implications

The implications of these findings for a theory of language (change) have been explored by the *Deutscher Sprachatlas* team in Marburg in numerous publications under the rubric of the linguistic dynamics approach (LDA; cf. section 1). *Linguistic dynamics* (*Sprachdynamik*) is defined as the study of the influences acting on the constantly shifting complex of language and the resultant modifying and stabilizing processes.

The starting point is the assumption that linguistic changes arise because (groups of) speakers in interaction with other (groups of) speakers, who have other lingual system and register competencies, apply cognitive, usually unconscious, optimization strategies in keeping with their communicative goals. The key theoretical gambits are fourfold: (1) supplanting the Saussurean dichotomy between synchrony and diachrony with the concept of *synchronization*; (2) resorting to the idea of *individual competence* as the basis for theoretical explication in linguistics; (3) propounding a simple, purely linguistic concept of *variety* that can discriminate between full and sectoral varieties; and (4) setting out a structural analysis of the entire dynamic language system which posits several clearly distinguishable vertical variety formations (regional languages) below the level of the standard language and its norms.

3.1. The concept of synchronization

The concepts of system and of structure were introduced into linguistic theory in 1867 (cf. Whitney 1867: 50) and taken up by the neogrammarians (cf. Sievers 1876: 3−4). Not many people are aware that the famous charge of atomism was in the nineteenth century directed exclusively against the pre-neogrammarian theory of language, especially against August Schleicher (cf. Paul 1877: 322 and Gabelentz 1888 [1966: 258]). It was clear in the neogrammarian theory of language that the analysis of linguistic change had to involve the analysis of (synchronic) language states (see Reis 1978: 180−183 on Paul's comprehensive concept of *Sprachgeschichte,* which included both synchrony and diachrony). It was Saussure who stridently rejected such an integrative analysis. Based on the justifiable assumption that systemic relationships can only pertain between elements that coexist (1916: 227), as is true of the individual competence vis-à-vis a single specific act of language production, but not of *langue*, he believed he needed to demand a strict separation of synchrony and diachrony "at any price" (cf. the "*panchronie*" polemic, Saussure 1916: 226, 2003: 105−109, 154−155). In hindsight it is fascinating to reconstruct how prodigiously productive the "Copernican revolution in linguistics" (Verburg 1950: 224) associated with Saussure's name has been in the history of the discipline, even though it was very soon and very prominently made clear (cf. Schuchardt 1922 [1917]: 265−267), that the strict separation of synchrony and diachrony fell short of its intrinsically heterogeneous and constantly changing object, language − "actual synchrony is dynamic" (Jakobson 1980 [1962: 53]). Language is not a semidynamic system,

as suggested by Saussure's famous example of the chess game. In a semidynamic game of chess there are indeed static states which can be analyzed completely independently of their emergence (i. e., they are temporally isolated, atemporal). In contrast, truly dynamic systems like language, the solar system or the stock market are constituted by the time-dependent relations between their elements and can therefore not be adequately analyzed without involving the time dimension.

The linguistic dynamics approach builds on Paul's concept of dynamic individual competence (1880: 27−39 [1886: 21−34]; cf. Schmidt 1993: 182−185). Speakers do not progress from synchronic state to synchronic state, they actively and interactively "synchronize" their complex and distinct systems of linguistic knowledge (their individual competencies). By *synchronization* we mean "the calibration of competence differences in the performance act", which results in a "stabilization and/or modification of the active and passive competencies involved" (Schmidt and Herrgen, to appear: 2.1.3).

What does this mean? Partners in an interaction synchronize their language so as to conform to the cooperation principle (Grice 1975), that is, the desire to be understood, or at least not misunderstood. Interactions consist of acts of language production and of language comprehension. In every act of production a speaker applies the linguistic knowledge he/she has acquired over the course of a lifetime (individual competence) to match it to his/her partner's communicative expectations and ability to understand. He/she anticipates their capacity to comprehend (are they a child, a tertiary educated expert, …?) and their expectations regarding linguistic appropriateness (spouse, casual acquaintance, examiner, …) and activates appropriate segments of (conscious or unconscious) linguistic knowledge that may well have been acquired long before (e.g., knowledge of regional variants learned from grandparents). The dynamic of the individual interactions is essentially a result of feedback from the conversation partner (on interactionist approaches, see Auer 1990: 26−28; Milroy 2002; Meyerhoff 2002; Keller 2003: 132−143). Has the partner signaled a complete lack of comprehension (e.g., with a questioning glance), partial comprehension (*You think?*), the non-fulfillment of a behavioral expectation (e.g., through implicit or explicit correction), or complete comprehension and fulfillment of my behavioral expectations (e.g., through a confirmatory signal like the particle *hm*)? Each type of feedback effects a modification or stabilization of the applied language production strategy. Temporality and dynamism are thus constitutive characteristics of every interaction, no matter how elementary. We are dealing with the apriority of time in linguistic interaction.

Whether such modifications and stabilizations remain temporary or whether they effect a profound cognitive reflex (usually a restructuring of individual competence) depends upon how the interaction is evaluated, the interaction partner and the context in which it takes place. Correction by a caregiver or role model during the long language acquisition phase or even an embarrassing use of language can invoke an instant and ongoing restructuring, whereas a failed interaction with a little valued counterpart often tends to remain inconsequential (cf. Schmidt and Herrgen, to appear: 2.1.2). The elementary synchronization act just described (the calibration of the individual competencies within a single interaction) is referred to as *microsynchronization*. It underlies all of the other types.

To understand the dynamic of a language and its varieties we need to observe microsynchronizations and their outcomes over a period of time. The time-dependent relationships which constitute truly dynamic systems are based not only on the immanent temporality of the individual interactions but also on periods in which subjects interact

with varying frequency, thereby synchronizing their linguistic knowledge and situation-dependent linguistic conventions. What do we mean by this?

In the course of his/her life, any individual interacts with only a (small) fraction of the total language community; even with these he/she only interacts in certain periods (phases of life); the interactions in these phases only cover a portion of the situations relevant for the individual (e.g., occupational or domestic communication); and even the communicative contexts divided among particular phases of life vary in their subjective significance. It is of central importance for a realistic picture of the dynamic of an entire language to remember that individuals participate in the totality of synchronization acts in any period, whereby they find themselves in clearly different phases with regard to their linguistic knowledge, i. e., in periods of accelerated or retarded change. The periods in which speakers learn the fundamental rules of the semiotic system of language, the periods in which they actively and deliberately conform to the (language) behavioral expectations of others, the periods in which mutual unconscious accommodation takes place, and the periods of retardation in which changes are rare or language loss can even occur, all vary constantly from one individual to the next.

The system of language is thus doubly dynamic − on the basis of individual factors and of socio-interactive factors. If we want to understand the dynamic system as a whole, we have to clarify which factors lead to divergence and which to convergence. Since the cooperation principle applies to every interaction, if individuals interact over an extended period in a context that is important for all participants (cf. Eckert and McConnell-Ginet 1992; Wenger 1998), e.g., a primary school class, a youth peer group, or other "communities of practice"), this leads to a series of parallel synchronizations. The cognitive repercussions of such a series of microsynchronizations depend on the length of the period over which the communication partners mutually interact (e.g., in a marriage), the frequency of the interactions (*Kommunikationsdichte*), and the biographical relevance the communication partners see in the enduring collective context. Where there is sustained duration, high communicative density and high individual significance, the participants develop similar optimization strategies. The result is a partial congruence in the linguistic knowledge of the participants, more precisely: an extensive congruence in that segment of their linguistic knowledge which enables the communication partners to successfully negotiate the situation in which they are participating. Such a series of parallel acts of synchronization, performed by individuals in personal contact situations, which lead to the establishment of common context-dependent linguistic knowledge, we term *mesosynchronization* (Schmidt and Herrgen, to appear: 2.1.3.2).

Mesosynchronization is thus always an integrative force within a circumscribed segment of the complex dynamic of the language *in toto*. Mesosynchronizations are responsible for the establishment of group and context−dependent linguistic conventions and thus, in the final instance, for the formation of varieties. In terms of the language as a whole, they can have either a divergent or an integrative influence. They are divergent to the extent that the groups which enact them develop special knowledge and integrative to the extent that the mesosynchronizations are interlinked, i. e., where similar or even parallel optimization strategies are developed in interconnected situations. It should be clear that the concept of synchronization is the key to a unified account of linguistic divergence and convergence.

Macrosynchronizations play a decisive role in integrating the language as a whole. We use *macrosynchronization* to refer to synchronization acts via which the members of a linguistic community orient themselves to a common norm.

Practically all members of a linguistic community or a larger social grouping in which personal contact between members is not a given undertake macrosynchronizations. Viewed over the long term, the boundaries of collective macrosynchronizations define the boundaries of the dynamic system of a particular language. For its speakers, they are (identical with) the boundaries of a particular language.

We must differentiate between macrosynchronizations which align with the written norm and those which align with the oral norm (the pronunciation standard). In German, a common language only arose when writers developed a mutual written norm and then aligned their macrosynchronizations with it. Conversely, a linguistic community disintegrates to the degree that its major constituent groupings begin to orient their macrosynchronizations to differing target norms. The all-embracing effects of macrosynchronization processes can be clearly observed in the development of German and Dutch. Historically, there was a continuum between the two at the base dialect level (cf. Kremer 1979: 133−134). The long-term orientation toward two separate standard norms (German and Dutch) led the complete variety systems to diverge, so that today there is a linguistic divide (a "sprachliche Bruchstelle", cf. Kremer 1993: 26, 36; Smits 2007: 312−313) between even the least standard varieties. The beginnings of a much more recent divergence can currently be observed between German and Luxembourgish (cf. Gilles 1999: 261; see Gilles and Moulin 2003 on the standardization of Luxembourgish).

Within a dynamic language as a whole, the written standard exhibits the slowest rate of change, in that here all of the "conservative forces" come to bear. The primary function of writing is to transcend the immanent volatility of oral communication (short-term memory) and − by preserving them − to extend the period over which linguistic acts can exercise communicative effect (as in the delivery time of a letter or the reception of a novel over decades or even centuries). The codification of a written language (e.g., in dictionaries) and the institutionally backed prescriptive norms (e.g., the maintenance of orthographic and grammatical rules over decades) lead millions of individuals to make, consciously but independently of one another, parallel retroactive microsynchronizations (looking things up, learning norms), which act together to reduce the speed of change.

The oral norms on which the members of major groupings base their macrosynchronizations have been distributed by the mass media (radio and television) for around 70 years. Although participation in these macrosynchronizations is primarily receptive, it can still be demonstrated to have an impact on the development of the complete variety system of a language. This is true for both the near-standard varieties (significant reduction of regionalisms in the regiolect of speakers socialized in the radio era, cf. Lameli 2004: 108−111) and the spoken standard itself: since the oral norms have mainly been spread by nationally organized mass media, national pronunciation norms have been able to prevail, e.g., in American vs. British English or Austrian, Swiss and German standard pronunciations, despite the integrative influence of largely congruent written norms.

3.2. The linguistic dynamic concept of variety

The linguistic dynamic concept of variety was introduced in Schmidt (2005b). The key point is that varieties cannot be satisfactorily delimited from "outside", i. e., through statements about the frequency of variants even when correlated with social and

contextual factors. This temporal, social and contextual continuum stands in contrast to a clear linguistic/cognitive division. While lexical and pragmatic differences can be easily overcome in acts of synchronization, the same is not true of phonological/prosodic and morphosyntactic differences, because these are the fundamental sign-generating and linking rules which form the core of an individual's linguistic competence. Actively overcoming a competence gap here requires restructuring one's central linguistic knowledge: the mapping of phonemes to lexemes has to be relearned sign by sign, new morphological categories must be acquired, and the assignment of syntactic functions to both these and existing categories is reorganized. Most speakers do not fully succeed in learning new prosodemes, and they are clearly aware of this linguistic/cognitive barrier. In reception mode, they react to failed attempts (such as hypercorrections, cf. Herrgen 1986) with sanctions (linguistic ridicule, shibboleths); in production mode with avoidance strategies. For an individual to overcome gaps in fundamental competence thus requires extended phases of learning. The linguistic dynamic concept of variety therefore distinguishes between *full* varieties, which exhibit such fundamental dissimilarities, and *sectoral* varieties, which do not. *Full varieties* can be specified as sectors of linguistic knowledge defined by independent prosodic/phonological and morphosyntactic structures on the basis of which individuals or groups of speakers interact in particular situations. The full varieties of a language are semi-discrete and interdependent. The minimal and necessary criterion is the presence of at least one "idiovarietal" element or structural feature in the prosodic/phonological or morphosyntactic subsystems.

Full varieties must be distinguished from (1) sectoral varieties such as technical jargons (*Fachsprachen*), which are based on a full variety (whether standard or dialect) and feature restricted, sectoral, usually lexical distinctions and substitutions and in which an individual's competence is subject to continual, lifelong change and from (2) speech levels (*Sprechlagen*), which arise from conventional allophonic and allomorphic variation within a full variety in correlation with social, contextual and spatial factors. Speech levels' lack of inherent distinguishing features means that, in practice, the relationship between linguistic and socio-contextual constellations (i. e., types) has to be specified case-by-case using statistical tests (cf. Lenz 2003: 218−222).

3.3. Duplex (horizontal and vertical) variety formations: Modern regional languages

We are now in a position to explore a linguistic constellation that suggests an explanation for the unexpected results from the new "research lab" of the dynamic language atlas discussed in section 2.2. This is a two-dimensional (horizontal and vertical), duplex variety formation, for which we suggest the label of *modern regional language*.

What is meant by this can be best explained by taking as an example the language most thoroughly investigated in this regard, German. Certain horizontal variety formations have long been recognized and extensively studied, viz., the old dialect formations. If one takes into account all of the horizontal differences between the erstwhile local dialects, including the lexical distinctions and one-off phonological contrasts, the spatial distribution pattern which emerges is a continuum interwoven by a confusion of isoglosses. The achievement of structuralist dialectology was the creation of a dialect classi-

fication scheme that did not foreground isolated phenomena, but was instead based solely on linguistic/structural criteria. The classification principle was whether there were phonological/prosodic and morphosyntactic similarities between the dialects of an area A that distinguished them from those of area B. The dialect formations so defined in German, or the structural regions within them (cf. Wiesinger 1983) thus delimit full varieties, the speakers of which possess fundamental similarities in their core linguistic competence.

Vertical variety formations have been subject to little study and our linguistic understanding of them is inadequate. They arose in German between 1720 and 1800 (cf. Schmidt 2005a), as larger groups of speakers, initially in the cities, began to base their speech on the written language that had arisen out of a purely written accommodation process. These speakers could only draw on their own fundamental levels of competence when pronouncing such (combinations of) graphemes, i. e., on the dialectal phonological/prosodic structures available to them. As a consequence of congruent mesosynchronizations all oriented to the written forms, oralization conventions for the new spoken variety emerged. Under the selective principle of maximal communicative range, consensus could only develop as far as the underlying dialectal uniformity of phonological structure permitted, i. e., within the old dialect formations. With the introduction of compulsory schooling from 1800 on, these oralization conventions became norms that were propagated in literacy lessons (speaking in chorus as a synchronization act). The new oral variety is known as regional (or *landschaftliches* 'landscape-based') High German. Spoken German thus became a two-variety language, shaped by the coexistence of a large number of duplex − horizontal and vertical − variety formations: the old horizontal dialect formations each with their own, structurally anchored regional *Hochdeutsch*.

The duplex variety formation of the nineteenth century has been retained only in German-speaking Switzerland, although of course both varieties have changed here too, thanks to the regionalization of communication (cf. Christen 1998: 292−294 on dialect) and the general spread of the Swiss German pronunciation norm via the broadcast media. In contrast, a completely different linguistic constellation has emerged in Germany. In 1898, on the basis of the regional High German of northern Germany (cf. Vietor 1890: 12), Siebs established a pronunciation norm for the stage (*Bühnenaussprache*) that has been disseminated via radio since 1930 and (in modified form) via television since the second half of the twentieth century. This means that all speakers have been subject to constant macrosynchronization with the federal German spoken standard, which has at a very minimum altered their passive competence. Outside of northern Germany this led to a southwards diffusing devaluation of the former regional High Germans, now no longer seen as equal to Standard German, but rather as colloquial, linguistically nonstandard (more precisely substandard) forms, for which we suggest the label of *regiolect*. Thus, in Germany too, the old duplex variety formations have generally endured. But their linguistic status and dynamics have been fundamentally altered by the prevalence of the federal German spoken standard. They are now perceived to be regionally confined: they have become regional languages (*Regionalsprachen*; cf. Schmidt 2009: ■■■).

A *modern regional language* can be defined in the light of the historical origins of these variety formations and their current linguistic status; it is an aggregate of varieties and speech levels unified by mesosynchronizations and bounded horizontally by the

structural boundaries of the dialect formations or regions and vertically by its differences to the national oralization norms of the standard variety.

The term thus encompasses all full varieties and speech levels that exist beneath the standard variety. A regional language is therefore also a language and not a regional variety. The (variation) linguistic structure of the various regional languages is primarily dependent upon whether additional vertical varieties exist alongside the *regiolect*, defined as a supraregional nonstandard full variety, namely *dialects*, understood as the least standard and most local (regionally restricted) full varieties.

3.4. Structure and dynamics of the modern regional languages

Contemporary spoken German is in this view determined by the horizontal coexistence of regional languages, which in turn represent vertical variety formations within which the horizontal structural boundaries of the least standard varieties (the old dialect formations) coincide with the boundaries of the regiolects. This can be schematized as in Figure 12.4. With one notable exception (cf. Kehrein 2008), no studies directly comparing the linguistic structure of the various modern regional languages (cf. Schmidt 1998) exist. The most comprehensive study to date of the variation structure of a single regional language is Lenz (2003). Service sector employment now dominates the formerly agricultural hinterland of a small Moselle-Franconian town, the region in which Lenz's 50 speakers were raised. None of them has an active command of the spoken standard, although the younger, better educated speakers in particular take pains to achieve it. They fail at the phonological boundary between the regiolect and the Standard German oralization norm, leading to hypercorrections, but all have command of the regiolect. A comparison of regiolect performance in various constellations of speakers and contexts reveals, with the help of multivariate and implication analyses, three distinct speech levels: the *regional accent*, the *upper nonstandard* and the *lower nonstandard*. Linguistically, the speech levels can be differentiated by virtue of the fact that, in addition to the common phonological features that define the entire Moselle-Franconian regional language and hence also the regiolect of this subregion, lone-word regionalisms occur in the upper nonstandard, and with greater frequency in the lower. These regionalisms are of two kinds: either they are common to all the varieties of the greater region or they are subregional allophonic deviations from the standard. Viewed sociolinguistically, it is

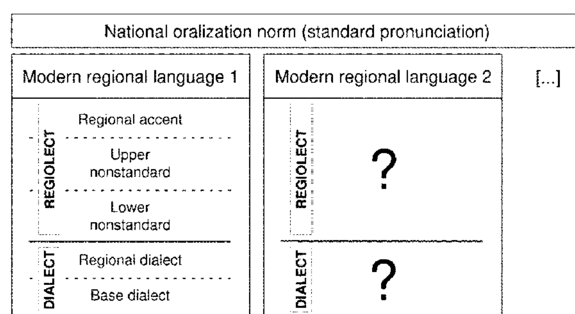

Fig. 12.4: The linguistic structure of modern regional languages

above all the younger speakers that live in town who also make active use of the near-standard speech levels of the regiolect, while the older speakers from the surrounding villages are proficient only in the less standard speech levels. The key linguistic criterion for mastery of a speech level is primary language socialization. Are we dealing with bivarietal speakers who were raised in dialect and only subsequently acquired the regiolect, or with monovarietal speakers, whose primary language socialization was conducted exclusively in the regiolect? The key contextual criteria for the choice of speech level are the conversation partners and their usage: in interaction with speakers of one's own regional language, the least standard speech levels of the regiolect are employed, but when talking with standard-speaking strangers, the regional accent is adopted. The ongoing reevaluation process is well illustrated by speakers' subjective evaluations of the various speech levels. Whilst older, more rural, bivarietal speakers still consider the lower nonstandard to be *Hochdeutsch* (Standard German), the younger, town-dwelling, monovarietal speakers classify even the regional accent as bad or incorrect German ("schlechtes oder nicht richtiges Hochdeutsch"). Using the same method, Lenz was able to identify two speech levels within the dialect variety, the *base dialect*, which still includes truly local features (older speakers), and the *regional dialect*, characterized by (sub)regional features (younger speakers).

It surely needs no spelling out that the dynamic of the regiolect described by Lenz can be interpreted in light of the apparent-time hypothesis as an ongoing convergence on the spoken standard. The two real-time studies to date have produced contradictory results. Whereas Spiekermann (2006) observed (among other things) an increase in regional allegro speech features in the Upper German area that he interpreted as increasing regionalization of the standard, Lameli (2004: 215−217), working with the same type of speaker in the same situation (city council meetings) in the Middle German area, was able to establish a convergence on the standard over forty years for one group of speakers, for another group even a shift from regiolect to the colloquial standard (*Kolloquialstandard*), a speech level of Standard German that, although linguistically and objectively still characterized by regionalisms, is considered standard by listeners from the most diverse regions of Germany. In a North German city in contrast, Lameli recorded absolute stability in the speech levels over a forty-year period. While there are still too few studies to allow an exploration of the dynamic of the regiolect, an investigation of dialect dynamics is already possible on the basis of the very clear findings from the linguistic research laboratory introduced in section 2, the dynamic language atlas. How such an investigation might proceed with the help of the linguistic dynamics approach is illustrated in the following section.

4. A rudimentary explanation of twentieth-century dialect dynamics

By the end of the twentieth century, all German dialect speakers had acquired active bivarietal competence (in dialect and regiolect) and at least passive competence in the standard spoken language. The comprehensive regionalization of communication had decisively reshaped all interaction. Of the surprising findings reported in section 2.2, those which do not concern purely internal factors (i. e., all except Type 4) cannot be explained through an isolated analysis of the dialect variety and its dynamics. An expla-

nation only becomes possible when the structure of the modern regional languages and their constitutive mesosynchronizations are included in the analysis. Let us begin with Type 1, the juxtaposition of individual lemmas on the borders of two dialect formations that remains stable over more than a century, although barriers to communication between the regions no longer exist and all speakers have an active command of the neighboring region's variants, or can at least read them aloud. These oppositions, which reveal no connection whatsoever to the phonological structures of the dialect areas, involve those features common to both the dialect and the less standard speech levels of the regiolect. They are thus employed in all interactions within each of the regional languages, leading to a constant stabilization via mesosynchronizations conducted in the regional language (cf. Schmidt 2005c: 25−28).

A very similar process is involved in Type 2, the single lemma change in inflection class that, within a century, has prevailed over both Standard German and the old dialect throughout an entire area and has only been halted at the former boundary of the neighboring structural region. Since this is a "natural" language change and the innovation zone (area B) has essentially the same morphological structure as its neighboring regions, here too an isolated analysis of the dialect variety cannot explain the change. Thanks to the thoroughgoing regionalization of interaction patterns, all of the speakers of areas A, B and C are familiar with the inflectional variants which deviate from both the dialect and the standard (passive competence). The decisive difference lies in their evaluation. While the speakers in the innovation zone consider the variants to be dialectal alternatives drawn from their own regional language, this is not the case in the adjoining areas. Hence, when children acquiring dialect overgeneralize in the direction provoked by the irregular German linguistic structure, they are not corrected by adults living in B, since the forms are treated as appropriate regional language variants (i. e., stabilizing mesosynchronizations occur). The natural language change can proceed untrammeled. The situation in the neighboring areas is completely different. Here the variants, which arise in the normal course of language acquisition, whilst recognized, are evaluated as extraneous to the resident's own regional language and hence corrected (i. e., modifying mesosynchronizations occur). The corrective behavior of those effecting linguistic socialization, typical of the entire German language area apart from B, does not change, and a language change that might be thought natural is inhibited.

The explanatory potential of the linguistic dynamics approach is seen most clearly in Type 3, where broad-scale phonological change progresses via word-by-word phonological redistribution (*Umphonologisierung*). The concurrence of the isoglosses of a phoneme at some point in time indicates that a process of language change has not yet started; "staggered" isoglosses mean that the change is in progress at the time of the survey. But this finding is outweighed by the new opportunity to use the dynamic language atlas to very precisely determine which factors are responsible for why in certain subregions (A) no language change takes place, while in others (B and C) it very much does. The external factors of "regionalization of communication" and "familiarity with standard language forms" apply equally across all subregions. Analysis shows that it is the specific nature of the phonological differences between each of the subregions A, B and C and their adjacent dialects (cf. the "white space" on the map of Figure 12.3) which triggers language change in one situation and not in another. Because of the specific nature of the phonological differences (the "internal" factor), using the former dialect's phoneme system in Areas B and C in regional communication with speakers of the surrounding

dialects (the external factor) leads to faulty decodings (misunderstandings or incomprehension). For example, differences in the assignment of phonemes to lexemes automatically lead to faulty decodings in the Bavarian-Swabian transition zone, where the erstwhile dialectal phoneme /ɔ͡a/ (in, e.g., *Brot, Rose, tot, Seife, Weizen,* or *Geiß*) is misunderstood in the neighboring Bavarian dialects, e.g., *Broat* is heard as *breit* 'broad', not *Brot* 'bread' and *Roas* as *Reise* 'journey' not *Rose* 'rose'. This instigates a constant stream of modifying synchronizations that in the longer term sets a process of language change in motion. The situation in Area A is different: the phonological differences can be surmounted during the performance act, without giving rise to errant decodings (thus producing stabilizing synchronization acts). How the lexeme-for-lexeme phonological redistribution proceeds is also extremely revealing. The end target of the change is not the equivalent phoneme from the standard language, but rather that phoneme from the original local dialectal register that shares the greatest similarity with its equivalent in the neighboring regions (cf. Schmidt and Herrgen, to appear: 4.2.3.7). The role of the standard language, in which all bivarietal speakers have passive competence, is restricted to the mental connection (via lexemes) between two old dialectal phonemes. It functions as a cognitive "bridge" and determines the "target phoneme" of the phonological shift when an erstwhile dialectal phoneme causes interactive complications in variety contact situations. The degree to and order in which lexemes assigned to an old dialectal phoneme are involved in the phonological redistribution process depend upon their social and contextual relevance. Lexemes which can potentially be implicated in any regional language interaction (e.g., *Brot* 'bread') are subject to early and complete phonological reordering, whereas lexemes whose use is confined to narrow communicative contexts (e.g., *Loos* 'sow') are the last to be rephonologized. It is fascinating, finally, to reflect on the long-term communicative advantages of successive lexeme-based phonological rearrangement. Thanks to the fact that, initially, only a few of the lexemes relevant in intragenerational regional communication are implicated in the phonological change, the old dialectal phonemic system can generally be maintained over decades, minimizing interactive complications in communication with earlier generations. Clearly, we are dealing with a perfect, albeit unconscious, optimization strategy.

5. References

Andersen, Henning
1973 Abductive and deductive change. *Language: Journal of the Linguistic Society of America* 49(4): 765−793.

Auer, Peter
1990 *Phonologie der Alltagssprache: Eine Untersuchung zur Standard/Dialekt-Variation am Beispiel der Konstanzer Stadtsprache*. Berlin/New York: de Gruyter.

Auer, Peter
2005 Sound change / Lautwandel. In: Ulrich Ammon, Norbert Dittmar, Klaus J. Mattheier and Peter Trudgill (eds.), *Sociolinguistics: An International Handbook of the Science of Language and Society*, vol. 2: 1717−1727. 2nd ed. (Handbücher zur Sprach- und Kommunikationswissenschaft 3.2.) Berlin/New York: de Gruyter.

Bellmann, Günter
1967 *Schlesischer Sprachatlas,* vol. 1: *Laut- und Formenatlas*. Marburg: Elwert.

Christen, Helen
1998 *Dialekt im Alltag. Eine empirische Untersuchung zur lokalen Komponente heutiger schweizerdeutscher Varietäten*. (Reihe Germanistische Linguistik 201.) Tübingen: Niemeyer.
Croft, William
2000 *Explaining Language Change: An Evolutionary Approach*. (Longman Linguistic Library.) Harlow: Pearson Education.
Eckert, Penelope and Sally McConnell-Ginet
1992 Think practically and look locally: Language and gender as community-based practice. *Annual Review of Anthropology* 21: 461−490.
Elmentaler, Michael
2006 Sprachlagenspektren im arealen Vergleich. Vorüberlegungen zu einem Atlas der deutschen Alltagssprache. *Zeitschrift für Dialektologie und Linguistik* 73: 1−30.
Frings, Theodor
1924 *Rheinische Sprachgeschichte*. Essen: Baedeker.
Gabelentz, Georg von der
1888 [1966] Pott. *Allgemeine deutsche Bibliographie* 26, 478−485. [Reprinted in: Thomas A. Sebeok, *Portraits of Linguists: A Biographical Source Book for the History of Western Linguists 1746−1963*, vol. 1, *From Sir William Jones to Karl Brugmann*. (Indiana University Studies in the History and Theory of Linguistics.) Bloomington: Indiana University Press, 251−261.]
Gilles, Peter
1999 *Dialektausgleich im Lëtzebuergeschen. Zur phonetisch-phonologischen Fokussierung einer Nationalsprache*. (Phonai 44.) Tübingen: Niemeyer.
Gilles, Peter and Claudine Moulin
2003 Language Standardization in Luxembourgish. In: Ana Deumert and Wim Vandenbusche (eds.), *Germanic Standardizations. Past and Present*, 303−329. Amsterdam: Benjamins.
Gilliéron, Jules and Edmond Edmont
1902−1969 *Atlas Linguistique de la France* (ALF). 13 vols. Paris: Champion.
Grice, Herbert Paul
1975 Logic and conversation. In: Peter Cole and Jerry L. Morgan (eds.), *Syntax and Semantics,* vol. 3, *Speech Acts*, 41−58. New York: Academic Press.
Haspelmath, Martin
1998 Does grammaticalization need reanalysis? *Studies in Language* 22: 315−351.
Herrgen, Joachim
1986 *Koronalisierung und Hyperkorrektion. Das palatale Allophon des /ch/-Phonems und seine Variation im Westmitteldeutschen.* (Mainzer Studien zur Sprach- und Volksforschung 9.) Stuttgart: Steiner.
Herrgen, Joachim
2006 Die Dynamik der modernen Regionalsprachen. In: Joachim Gessinger and Anja Voeste (eds.), *Dialekt im Wandel. Perspektiven einer neuen Dialektologie*, 119−142. (Osnabrücker Beiträge zur Sprachtheorie 71.) Bremen: Redaktion OBST.
Jaberg, Karl and Jakob Jud (eds.)
1928−1960 *Sprach- und Sachatlas Italiens und der Südschweiz* (AIS). 8 vols. Zofingen: Ringler.
Jakobson, Roman
1962 [1980] Zeichen und System der Sprache. In: Fritz Hintze, Georg Friedrich Meier, Eugen Seidel and Wolfgang Steinitz (eds.), *Zeichen und System der Sprache, vol. 2. Veröffentlichung des 1. Internationalen Symposions "Zeichen und System der Sprache" vom 28. 9. bis 2. 10. 1959 in Erfurt*, 50−56. (Schriften zur Phonetik, Sprachwissenschaft und Kommunikationsforschung 4.) Berlin: Akademie. [English translation: Sign and system of language: A reassessment of Saussure's doctrine. *Poetics Today* 2(1): 33−38.]
Kehrein, Roland
2006 Regional accent in the German language area − How dialectally do German police answer emergency calls? In: Frans Hinskens (ed.), *Language Variation: European Perspectives*, 83−96. Amsterdam/Philadelphia: Benjamins

Kehrein, Roland
2008 Regionalakzent und linguistische Variationsspektren im Deutschen. In: Frans Patocka and Peter Ernst (eds.), *Dialektgeographie der Zukunft. Akten des 2. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD) am Institut für Germanistik der Universität Wien. 20. bis 23. September 2006*, 131−156. (Zeitschrift für Dialektologie und Linguistik. Beihefte 135.) Stuttgart: Steiner.
Kehrein, Roland, Alfred Lameli and Jost Nickel
2005 Möglichkeiten der computergestützten Regionalsprachenforschung am Beispiel des Digitalen Wenker-Atlas (DiWA). In: Georg Braungart, Peter Gendolla and Fotis Jannidis (eds.), *Jahrbuch für Computerphilologie 7*, 149−170. Paderborn: Mentis.
Keller, Rudi
1990 [2003] *Sprachwandel. Von der unsichtbaren Hand in der Sprache*. (Uni-Taschenbücher 1567.) Tübingen: Francke. [3rd ed.]
Kremer, Ludger
1979 *Grenzmundarten und Mundartgrenzen. Untersuchungen zur wortgeographischen Funktion der Staatsgrenze im ostniederländisch-westfälischen Grenzgebiet*. 2 vols. (Niederdeutsche Studien 28.) Köln/Wien: Böhlau.
Kremer, Ludger (ed.)
1993 *Diglossiestudien. Dialekt und Standardsprache im niederländisch-deutschen Grenzland*. (Westmünsterland 1.) Vreden: Landeskundliches Institut Westmünsterland.
Kurath, Hans
1939−1943 *Linguistic Atlas of New England*. 3 vols. (Linguistic Atlas of the United States and Canada.) Providence, RI: Brown University.
Labov, William
1994 *Principles of Linguistic Change,* vol. 1, *Internal Factors*. (Language in Society 20.) Oxford: Blackwell.
Lameli, Alfred
2004 *Standard und Substandard. Regionalismen im diachronen Längsschnitt*. (Zeitschrift für Dialektologie und Linguistik. Beihefte 128.) Stuttgart: Steiner.
Lenz, Alexandra N.
2003 *Struktur und Dynamik des Substandards. Eine Studie zum Westmitteldeutschen (Wittlich/Eifel)*. (Zeitschrift für Dialektologie und Linguistik. Beihefte 125.) Stuttgart: Steiner.
Malkiel, Yakov
1967 Every word has a history of its own. *Glossa: An International Journal of Linguistics* 1: 137−149.
Meyerhoff, Miriam
2002 Communities of practice. In: J. K. Chambers, Peter Trudgill and Natalie Schilling-Estes (eds.), *The Handbook of Language Variation and Change*, 526−548. (Blackwell Handbooks in Linguistics.) Malden, MA/Oxford: Blackwell.
Milroy, Lesley
2002 Social networks. In: J. K Chambers, Peter Trudgill and Natalie Schilling-Estes (eds.), *The Handbook of Language Variation and Change*, 549−572. (Blackwell Handbooks in Linguistics.) Malden, MA: Blackwell
Moulton, William G.
1962 Dialect geography and the concept of phonological space. *Word* 18: 23−32.
Niedeggen-Bartke, Susanne
2002 Williams syndrome and German participles. Poster presented at the International Symposium on Assessing the Dynamics of Human Brain Functions, August 2002 in Marburg.
Paul, Hermann
1877 Die Vocale der Flexions- und Ableitungssilben in den ältesten germanischen Dialekten. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 4: 315−475.
Paul, Hermann
1886 *Principien der Sprachgeschichte*. 2nd ed. Halle: Niemeyer.

Pfalz, Anton
1918 Reihenschritte im Vokalismus. In: *Beiträge zur Kunde der bayerisch-österreichischen Mundarten*, 22–42. (Kaiserliche Akademie der Wissenschaften in Wien. Philosophisch-historische Klasse. Sitzungsberichte 190, vol. 2, Abhandlungen.) Wien: Rohrer.

Rabanus, Stefan
2008 *Morphologisches Minimum. Distinktionen und Synkretismen im Minimalsatz hochdeutscher Dialekte*. (Zeitschrift für Dialektologie und Linguistik. Beihefte 134.) Stuttgart: Steiner.

Reis, Marga
1978 Hermann Paul. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 100: 159–204.

Saussure, Ferdinand de
1916 [1968/1974] *Cours de linguistique générale*. [Édition critique, vol. 1. Rudolf Engler (ed.). Wiesbaden: Harrassowitz.]

Saussure, Ferdinand de
2003 [2002] *Wissenschaft der Sprache. Neue Texte aus dem Nachlass*. Ludwig Jäger (ed.), Elisabeth Birk and Mareike Buss (transl.). Frankfurt am Main: Suhrkamp. [Originally published as *Écrits de linguistique générale*. Simon Bouquet and Rudolf Engler (eds.) in collaboration with Antoinette Weil. Paris: Gallimard.]

Schmidt, Jürgen Erich
1993 *Die deutsche Substantivgruppe und die Attribuierungskomplikation*. (Reihe Germanistische Linguistik 138.) Tübingen: Niemeyer.

Schmidt, Jürgen Erich
1998 Moderne Dialektologie und regionale Sprachgeschichte. *Zeitschrift für deutsche Philologie* 117: 163–179. [Special issue: Werner Besch and Hans Joachim Solms (eds.), *Regionale Sprachgeschichte*].

Schmidt, Jürgen Erich
2005a Die deutsche Standardsprache: Eine Varietät – drei Oralisierungsnormen. In: Ludwig M. Eichinger and Werner Kallmeyer (eds.), *Standardvariation. Wieviel Variation verträgt die deutsche Sprache?,* 278–305 (Jahrbuch des Instituts für deutsche Sprache 2004.) Berlin/New York: de Gruyter.

Schmidt, Jürgen Erich
2005b Versuch zum Varietätenbegriff. In: Alexandra N. Lenz and Klaus J. Mattheier (eds.), *Varietäten – Theorie und Empirie*, 61–74. (VarioLingua 23.) Frankfurt: Lang.

Schmidt, Jürgen Erich
2005c Sprachdynamik. In: Eckhard Eggers, Jürgen Erich Schmidt and Dieter Stellmacher (eds.), *Moderne Dialekte – Neue Dialektologie. Akten des 1. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD) am Forschungsinstitut für deutsche Sprache "Deutscher Sprachatlas" der Philipps-Universität Marburg vom 5.–8. März 2003*, 15–44. (Zeitschrift für Dialektologie und Linguistik. Beihefte 130.) Stuttgart: Steiner.

Schmidt, Jürgen Erich
2009 Die modernen Regionalsprachen als Varietätenverbund. In: Peter Gilles, Evelyn Ziegler and Joachim Scharloth (eds.), *Empirische Evidenzen und theoretische Passungen sprachlicher Variation*, ■■■–■■■. (VarioLingua ■■.) Frankfurt: Lang.

Schmidt, Jürgen Erich and Joachim Herrgen
to appear *Sprachdynamik. Eine Einführung in die moderne Regionalsprachenforschung*. (Grundlagen der Germanistik.) Berlin: Erich Schmidt.

Schmidt, Jürgen Erich and Joachim Herrgen (eds.)
2001–2009 *Digitaler Wenker-Atlas (DiWA). Georg Wenkers Sprachatlas des Deutschen Reichs*. Bearbeitet von Alfred Lameli, Alexandra N. Lenz, Jost Nickel und Roland Kehrein, Karl-Heinz Müller, Stefan Rabanus. Marburg: Forschungzentrum Deutscher Sprachatlas.

Schuchardt, Hugo
1922 [1917] Sprachgeschichte und Sprachbeschreibung. In: Leo Spitzer (ed.), *Hugo Schuchardt-Brevier. Ein Vademekum der allgemeinen Sprachwissenschaft. Als Festgabe zum 80. Ge-*

burtstag des Meisters zusammengestellt und eingeleitet von Leo Spitzer, 264−269. Halle: Niemeyer.

Seiler, Guido
2003 *Präpositionale Dativmarkierung im Oberdeutschen.* (Zeitschrift für Dialektologie und Linguistik. Beihefte 124.) Stuttgart: Steiner.

Siebs, Theodor
1898 [1969] *Deutsche Bühnenaussprache. Ergebnisse der Beratungen zur ausgleichenden Regelung der deutschen Bühnenaussprache, die vom 14. bis 16. April 1898 im Apollosaale des Königlichen Schauspielhauses zu Berlin stattgefunden haben*. Berlin: Ahn. [New edition: Helmut de Boor, Hugo Moser and Christian Winkler (eds.), *Deutsche Aussprache. Reine und gemäßigte Hochlautung mit Aussprachewörterbuch*. Berlin: de Gruyter.]

Sievers, Eduard
1876 *Grundzüge der Lautphysiologie. Zur Einführung in das Studium der Lautlehre der indogermanischen Sprachen*. Leipzig: Breitkopf and Härtel. [Later editions titled *Grundzüge der Phonetik.*]

Smits, Tom F. H.
2007 Strukturwandel in Grenzdialekten. Die Konsolidierung der niederländisch-deutschen Staatsgrenze als Dialektgrenze. Unpublished PhD dissertation, Department of Linguistics, Faculty of Linguistics and Philosophy, University of Antwerp. [To appear in Zeitschrift für Dialektologie und Linguistik. Beihefte.]

Spiekermann, Helmut
2006 Standardsprache als regionale Varietät − Regionale Standardvarietäten. In: Joachim Gessinger and Anja Voeste (eds.), *Dialekt im Wandel. Perspektiven einer neuen Dialektologie*, 81−101. (Osnabrücker Beiträge zur Sprachtheorie 71.) Bremen: Redaktion OBST.

Thun, Harald
2000 Altes und Neues in der Sprachgeographie. In: Wolf Dietrich and Ulrich Hoinkes (eds.), *Romanistica se movet. Festschrift für Horst Geckeler*, 69−89. Münster: Nodus.

Thun, Harald and Adolfo Elizaincín (eds.)
2000− *Atlas lingüístico diatópico y diastrático del Uruguay* (ADDU). Kiel: Westensee.

Verburg, Pieter A.
1950 [1966] The background to the linguistic conceptions of Franz Bopp. *Lingua* 2, 438−468. [Reprinted in: Thomas A. Sebeok, *Portraits of Linguists: A Biographical Source Book for the History of Western Linguists 1746−1963*, vol. 1: *From Sir William Jones to Karl Brugmann*, 221−250. (Indiana University Studies in the History and Theory of Linguistics.) Bloomington: Indiana University Press.]

Vietor, Wilhelm
1890 *Die Aussprache des Schriftdeutschen*. 2nd ed. Lepizig: Reisland.

Wagner, Kurt
1924−1925 Grammophonische Aufnahmen deutscher Mundarten. *Teuthonista* 1: 229−231.

Wenger, Etienne
1998 *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.

Wenker, Georg
1878 *G. Wenkers Sprach-Atlas der Rheinprovinz nördlich der Mosel sowie des Kreises Siegen.* Hand-drafted atlas held in the archives of the Forschungszentrum Deutscher Sprachatlas in Marburg.

Wenker, Georg
1887−1923 *Sprachatlas des Deutschen Reichs. Laut- und Formenatlas.* 1647 hand-drafted full-color maps held in the archives of the Forschungszentrum Deutscher Sprachatlas in Marburg and in the collection of the Staatsbibliothek Stiftung Preußischer Kulturbesitz in Berlin (2 copies extant).

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Wenker, Georg
1889 *Sprachatlas des Deutschen Reiches. Einleitung*. Handwritten manuscript held in the collection of the Staatsbibliothek Stiftung Preußischer Kulturbesitz in Berlin.
Whitney, William Dwight
1867 *Language and the Study of Language. Twelve Lectures on the Principles of Linguistic Science*. London: Trübner.
Wiesinger, Peter
1983 Die Einteilung der deutschen Dialekte. In: Werner Besch, Ulrich Knoop, Wolfgang Putschke and Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, 807−900. (Handbücher zur Sprach- und Kommunikationswissenschaft 1.2.) Berlin/New York: de Gruyter.
Winteler, Jost
1876 *Die Kerenzer Mundart des Kantons Glarus in ihren Grundzügen dargestellt*. Leipzig/Heidelberg: C. F. Winter.
Wrede, Ferdinand
1903 Der Sprachatlas des Deutschen Reichs und die elsässische Dialektforschung. *Archiv für das Studium der neueren Sprachen und Literaturen* 57(111): 29−48.
Zwirner, Eberhard, Adalbert Maack and Wolfgang Bethge
1956 Vergleichende Untersuchungen über konstitutive Faktoren deutscher Mundarten. *Zeitschrift für Phonetik und Allgemeine Sprachwissenschaft* 9: 14−30.

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