

**EXPERIMENTAL APPROACHES IN THE REALM OF LANGUAGE VARIATION  
– NEW PERSPECTIVES ON DATA ACQUISITION OF LINGUISTIC VARIATION  
AND ITS PERCEPTION**

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**Keywords: variationist linguistics, language dynamics, experiments, linguistic methods**

Experimental approaches in the realm of language variation – new perspectives on data acquisition of linguistic variation and its perception

In the context of data acquisition of linguistic variation, modern studies on language variation and language change have increasingly emphasised the importance of implementing standardised research designs that go beyond the methods of questionnaire surveys (cf. Kallenborn 2016). On the one hand, such research designs are needed in order to adequately analyse syntactic and morphological variables on the basis of sufficient language data (cf. Kortmann 2010); on the other hand, they pave the way for the interoperability of data retrieved from written questionnaires as well as oral tasks (cf. Cornips/Poletto 2005, 942).

Thus, it is hardly surprising that these standardised methods are gradually being applied in current large-scale variationist projects such as SyHD(2016) and DiÖ (2016). They not only offer an efficient way of gaining statistically relevant quantitative and comparable data, but also enable targeted testing of factors that could influence the choice of variants. In addition, such methods allow for the detailed investigation of phonetic-phonological aspects in a controlled setting.

Within the panel, we advocate a broader concept of the term ‘experiment’. In this sense, an experiment is first and foremost a standardised research design for empirically obtaining language data.

Since data gained through experiments are commonly of high statistical relevance, they are often used as a foundation for models and theories or are applied to verify

these. However, we are aware that language is a non-linear, complex, dynamic and adaptive system (Bülow 2016; Ellis 2011), which is why one cannot control for all potentially influencing factors in linguistic experiments. As a consequence, the settings will be quasi-experimental, which means that a certain degree of repeatability and comparability can be ensured, but the causal explanatory force is limited (cf. Kristiansen 2010, 530).

The panel covers experiments in the laboratory and artificial settings (recordings in the language laboratory; neurodialectology) as well as in the field (speech production tests and attitudinal tests in the informant's natural environment). Within the context of a pluralistic methodical investigation setting, these various approaches will be described and discussed, as the strengths of different methods can compensate for the weaknesses of others (cf. Kallenborn 2016). In general, the panel will discuss experimental settings in the light of numerous theoretical approaches to obtaining objective language data as well as subjective attitudinal data on all linguistic system levels. These approaches range from neurodialectology, sociolinguistics and urban language research to studies of vertical variation, language awareness and language perception. The focus will be put on theoretical questions concerning the acquired data, i.e. the authenticity of the data or the observer's paradox, and on practical research aspects of designing experiments and elicitation settings. The presented investigations are currently being carried out in Bavarian and Alemannic-speaking areas, which will enable the presenters to refer to concrete examples of their studies. Moreover, the broad-based interdisciplinary special research programme (SFB) "German in Austria: Variation – Contact - Perception" – a cooperation between different universities and institutes in Austria – offers an ideal basis for discussion, while input from outside the SFB will broaden and supplement the discussion. The individual presentations will be spearheaded by an introduction and rounded off by a final discussion.

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1. Introduction: Experimental approaches in the realm of language variation – new perspectives on data acquisition of linguistic variation and its perception. Ludwig Maximilian Breuer (University of Vienna) and Lars Bülow (University of Salzburg).
2. Phoneme change and cognition: A neurolinguistic approach on cross-dialectal comprehension. Manuela Lanwermeier (University of Marburg).
3. The lab situation: articulatory-acoustic vs. acoustic experiments. Sylvia Moosmüller (Austrian Academy of Sciences) and Michael Pucher (Austrian Academy of Sciences).
4. Vertical variety spectrum in rural Austria: An experimental approach to the collection of syntactic data along the dialect-standard axis. Tim Kallenborn (University of Vienna).
5. Grasping urban language – setting up a framework for analysing variation in cities and their surroundings using speech production tests. Kristina Herbert (University of Graz), Stefanie Edler (University of Graz) and Nina Bercko (University of Graz).
6. Austrian German in the minds of their speakers: Perspectives – Challenges – Empirical Approaches. Eva Fuchs (University of Salzburg) and Wolfgang Koppensteiner (University of Vienna)
7. Discussion. Jürgen Erich Schmidt (University of Marburg)

## **INTRODUCTION**

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Current large-scale variationist linguistic projects in German speaking countries such as SyHD (2016) or DiÖ (2016) emphasise the importance of implementing standardised research designs in the context of data acquisition of linguistic variation. Such research designs are needed in order to adequately analyse syntactic, morphological, and phonological variables on the basis of sufficient language data (cf. Kallenborn 2016; Kortmann 2010; Seiler 2010). They also guarantee the interoperability of data retrieved from written questionnaires as well as oral tasks (cf. Cornips/Poletto 2005: 942). Standardised research designs in the form of quasi-experimental settings not only offer an efficient way of gaining statistically relevant quantitative and comparable data, but also enable the targeted testing of factors that could influence the choice of variants.

Firstly, we will outline what we mean by experimental settings in variationist research. In this regard, we are advocating for a broader concept of the term 'experiment'. An experiment is first and foremost a standardised research design for empirically obtaining objective language data and receiving information about language assessments and attitudes towards language. Secondly, we will give an overview of current variationist linguistic projects working with quasi-experimental settings. Our focus will be on the interdisciplinary special research programme (SFB) "German in Austria: Variation – Contact - Perception" (DiÖ 2016), taking a closer look at the project's methodological issues and empirical outcomes. Thirdly, we will explore the definition of language underlying our approach, i.e. language as dynamic, complex, and adaptive system (Bülow 2016; Ellis 2011). These systems develop in a non-linear way due to the permanent interaction of various influencing factors. Such factors, e.g..

the interaction between the observer and the observed, lead to the main problem of objective measurement. As a consequence, we can only assume the settings will be quasi-experimental, which means that a certain degree of repeatability and comparability can be ensured, but the causal explanatory force is limited (cf. Kristiansen 2010, 530). Fourthly, we will provide a short outlook on the panel talks with regard to their numerous theoretical and methodological approaches. These approaches range from neurodialectological settings to speech production tests and attitudinal tests. We would like to point out their possible intersections and differences.

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# PHONEME CHANGE AND COGNITION: A NEUROLINGUISTIC APPROACH ON CROSS-DIALECTAL COMPREHENSION

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**Keywords:**neurolinguistic, dialect change, dialect cognition, electroencephalography

While communicating, differences in speakers' dialect phoneme inventories may cause comprehension difficulties, which may lead to competence modifications. Misunderstandings during communication caused by such dialect differences are thus thought to trigger dialect change (Labov, 2010; Schmidt & Herrgen, 2011). For the most part, previous findings are based on production data, but neurolinguistic experiments using electroencephalography (EEG) can also help to gain a better understanding of the effects caused by cross-dialectal communication. The main advantage of such studies is that they provide an insight into speech processing of linguistic stimuli in the range of milliseconds. For the investigation of neural effects involved in phoneme change processes, it is essential to adapt classic event-related potential (ERP) designs to the requirements of dialectology.

Using production data from the end of the 19<sup>th</sup> (*Sprachatlas des deutschen Reichs*) and 20<sup>th</sup> century (*Bayerischer Sprachatlas*) a phoneme change from / $\widehat{o}a$ / to / $o:$ / and / $\widehat{ou}$ / can be observed in the MHG  $\widehat{o}$  phoneme. It is assumed that these competence modifications are triggered when Central Bavarian listeners systematically misunderstand the variants used by the Bavarian-Alemannic speakers in interaction (Schmidt & Herrgen, 2011).

In the first part, this talk deals with the question as to which special requirements need to be fulfilled before carrying out an ERP dialect study. In the second part, an ERP study is presented in which cross-dialectal communication between Bavarian-Alemannic speakers and Central Bavarian listeners is simulated. Using an adapted oddball design containing full sentences combined with a semantic rating task, Central Bavarians were exposed to Bavarian-Alemannic dialect variants which either have different meanings in both of the dialect areas (/ $\widehat{ro}as\eta$ / 'roses' respectively 'journeys') or

only occur in the Bavarian-Alemannic transition zone (/lôas/ 'sow'). Since /oû/ and /o:/ appear jointly as a result of the phoneme change, this contrast is investigated as well (/lõ:/, /lõü/ 'wage'). The central question is whether different neural effects can be elicited for these contrasts. The results indeed show a mismatch detection between expected (native) and encountered (non-native) dialect forms resulting in an N200 and late positive component (LPC) for /rôasŋ/ and /lôas/ which is absent for /lõü/ (Lanwermeier et al., 2016). These results support the assumption that non-native dialect variants lead to enhanced neural costs during cross-dialectal comprehension. The phoneme change can thus be interpreted as a strategy to avoid costly communication difficulties in close dialect contact settings. Hence, neurolinguistic experiments allow a deeper insight into the interplay between speech cognition and interaction which cannot otherwise be achieved by production data.

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**THE LAB SITUATION:  
ARTICULATORY-ACOUSTIC VS. ACOUSTIC EXPERIMENTS**

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**Keywords: articulatory acoustic, speech production, data elicitation**

Prompted by Labov's seminal work on Martha's Vineyard or New York city, sociolinguistics of the 1970s and 1980s was characterized by intense discussions on how to obtain authentic speech data. In this respect, Labov was definitely a pioneer (Labov 1984). With the growth of increasingly better technologies, researchers were able to obtain quite authentic acoustic data. However, for articulatory analyses, specific measurement instruments have to be applied, resulting in a rather artificial speech situation and, possibly, in some interference with articulation (Hoole and Nguyen 1999). In this contribution, we perform a comparison of a subject's speech production recordings in two experimental settings: acoustic data synchronized with EMA compared with the same subject's speech production using independent acoustic data.

Synchronized EMA + acoustic recordings of two male subjects were conducted at the Institute of Phonetics and Speech Processing, Munich. Acoustic recordings of the same two subjects were performed in the lab of the Acoustics Research Institute, Vienna (Schabus et al. 2014). In both settings, the subjects had to read a list of 200 sentences, in normal and fast speech mode. For the articulation rate, the number of linguistic syllables per second were counted, with pauses subtracted from the total duration.

Preliminary results suggest that speech production differs in an articulatory-acoustic setting vs. in a purely acoustic setting. As one might expect, the articulation rate was slower in the articulatory-acoustic setting than in the acoustic setting, both under normal and fast speech condition:

Table 1: Articulation rate (measured as linguistic syllable/s) for recordings in an articulatory-acoustic and in an acoustic setting, at normal and fast speech rate.

ling. syll/s	articulatory	acoustic	p
normal rate	4,3	4,7	.01
fast rate	6,3	6,9	.002

Moreover, we observed differences in the production of consonant clusters. Thus, in an VF(P)#PV condition, where F is either a voiceless palatal or a velar fricative, P is an alveolar plosive /t/ or /d/, and V is a vowel, the plosive is more often realized as a dental fricative in the articulatory-acoustic setting than in the acoustic setting (27 % vs. 5 %, respectively). We explain the fricativation by the difficulty of producing a complete closure due to the sensor coil on the tip/blade of tongue.

For the time being, we analysed only one subject, and we have to consider speaker-specific differences in dealing with the impairment due to sensor coils. However, it is worth keeping an eye on such differences.

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**VERTICAL VARIETY SPECTRA IN RURAL AUSTRIA: AN EXPERIMENTAL  
APPROACH TO THE COLLECTION OF SYNTACTIC DATA ALONG THE DIALECT-  
STANDARD AXIS**

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**Keywords: variationist linguistics, standard/dialect axis, syntactic variation, data elicitation**

On January 1<sup>st</sup>, 2016, the special research programme (SFB) “German in Austria – Variation – Contact – Perception” was launched in cooperation with the universities of Vienna, Salzburg and Graz as well as the Austrian Academy of Sciences. Within this special research programme German in Austria will be analysed from diverse research perspectives. One substantial research interest is the analysis of vertical variety spectra (cf. Auer 2005) – i. e. the variation between the “deepest” base dialects and the standard language. This dimension is of central interest in two project parts (PP) within the SFB (PP03 and PP04). While PP04 focusses on the structure of vertical spectra in cities, PP03 concentrates on 16 rural localities all over Austria. PP03 aims at finding answers to the following questions (among others): Can different varieties be separated between the poles “deepest dialect” and “standard language”? Can we find different structures of vertical variety spectra at different rural localities? Where do dialects end and regiolects begin?

Even though PP03 focusses on two linguistic levels, phonology and syntax, the paper will concentrate on the syntactic level: In order to gather sufficient syntactic data to answer the questions concerning the vertical variation mentioned above PP03 will collect data from different recording situations. Freely spoken data will be gathered in two situations: While a structured interview is expected to elicit data closer to the standard, conversations among friends are expected to elicit data from more dialect registers.

As it is known that syntactic constructions often do not appear in a sufficient number in free speech PP03 will also apply an experimental approach which was firstly developed and used in Kallenborn (2016): Within this approach, syntactic data is collected by

using speech production tasks (SPT). These SPTs are designed to elicit particular syntactic constructions using audio-visual stimuli. For example, to elicit progressive constructions a video is shown to the informants while a voice from the computer asks “What is happening here?”. In order to get dialect data as well as standard data each SPT is conducted in two runs: Within the dialect run the question is asked by a dialect speaker and within the standard run the question is asked by a speaker in standard language. As shown in Kallenborn (2016), this approach delivers a sufficient number of high quality data for quantitative analyses. Furthermore, the data are inter- and intrasituatively as well as inter- and intraindividually comparable.

The paper gives an overview of the syntactic data collection of PP03. I will present the structure of the SPTs for selected phenomena and will present first results.

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**GRASPING URBAN LANGUAGE –  
SETTING UP A FRAMEWORK FOR ANALYSING VARIATION IN CITIES AND  
THEIR SURROUNDINGS USING SPEECH PRODUCTION TESTS.**

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**Keywords: variationist linguistics, sociolinguistics, urban language, standard/dialect axis, linguistic methods, data elicitation**

In modern variationist and sociolinguistic studies, analyses of repertoires of speakers in urban areas and the linguistic variants constituting these repertoires have advanced to the centre of research interest. In consideration of the linguistic and sociocultural complexity of cities, methods of modern urban language research are, naturally, diverse. They range from two-dimensional variation studies, assuming areal as well as social variation, to ethno-methodological and interactional studies (e.g. Moosmüller and Scheutz 2013; Bucholtz and Hall 2005). Within our long-term project ‘Vienna and Graz – Cities and their influential force’, which is a subproject of the special research program ‘German in Austria’ we aim at holistically examining the vertical variation of urban language use on the dialect/standard axis by combining a broad variety of elicitation methods – an urgent desideratum for Austria. The multiple methods of data collection range from standardised experimental speech production tests (as developed and used in Kallenborn 2016) to analytical interviews, conversations among friends and free everyday conversations. These methods have been designed in close cooperation with our partner project ‘Speech repertoires and varietal spectra’, which focuses on rural areas rather than on urban ones. Thus, this complementary approach to our data collection will lead to an extensive corpus that will cover the entire horizontal spectrum as well as the vertical one. While the non-

standardised methods are aimed at documenting how individual repertoires are unfolded in formal and informal settings, the speech production tests are designed to constitute the framework in which the wide range of linguistic variation between the poles on the dialect/standard axis can be observed. The presentation will illustrate how such a framework can be set, i.e. how speech production tests can be applied in order to elicit data about the language use close to both poles of the axis. In addition, the presenters will give first insights into preliminary results of the speech production tests (with a focus on syntactic/morphosyntactic phenomena) and evaluate whether these results can reveal first tendencies regarding the following research questions:

- Does the internal structure of linguistic variation differ considerably between cities of different sizes and different demographic and societal structures, which is the case for our two research locations Vienna and Graz?
- Could size and societal factors of cities determine the amount of influence urban registers have on language use in their geographical surroundings?

Finally, we will tackle the question whether such a methodical approach can be viewed as a suitable frame for revealing the dynamics of urban colloquialism and will argue that an integrative approach can offer a holistic view on language variation in urban areas.

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**AUSTRIAN GERMAN IN THE MINDS OF THEIR SPEAKERS:  
PERSPECTIVES – CHALLENGES – EMPIRICAL APPROACHES**

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**Keywords: perceptual variationist linguistics, attitude & perception towards Austrian varieties, sociolinguistics, linguistic methods**

Although there have been approaches in the past (e.g. Soukup 2009; Pfrehm 2007), perceptual variationist linguistic studies targeting the German standard language in Austria have not yet answered the question of the/an Austrian standard variety and its horizontal-national and vertical-social positioning. For example, the linguistic and sociolinguistic relationship between the Austrian standard on the one hand and other German standards in other countries on the other hand has by no means been exhaustively analysed to date. In addition, the linguistic and sociolinguistic relationship between the Austrian standard and varieties of the non-standard (e.g. dialects and intermediate varieties called regiolects) is still unclear.

As recent attitudinal-perceptual findings and innovative empirical-methodological developments seen in studies in other German speaking countries already have shown, intrasituative variation of elicitation methods is necessary to cope, amongst other, with highly variable parameters (e.g. context sensitivity, intra- and interindividual grade of variation), the empirical complexity of qualitatively surveying linguistic perceptual (self-)concepts, images and prestige as well as issues in verbalizing language attitudes, stereotypes etc. (cf. Soukup 2012). As Purschke (2015, 38) puts it: “[Attitudes] can only be deduced indirectly from overt behavior, which is still one of the crucial problems of empirical attitude research”.

In the framework of a current research team (SFB “German in Austria”) standard language attitudes and standard language perception in Austria will be analysed by

means of a mixed methods approach combining quantitative and qualitative methods. Research on language attitudes in the German-speaking countries hitherto focused especially on perception of adult individuals and certain groups of speakers (emphasizing on students / young academics). Within the SFB-Project, attitudinal-perceptual data of pupils and adults of various age groups will be contrasted. These diverging age and social groups demand a lot of the methods of data elicitation itself. Therefore data acquisition is conceptualized multi-dimensionally; both more qualitatively-orientated data (interviews) and experimental settings (modifications of Verbal Guise Techniques in particular) will be applied.

The presentation will answer the following questions:

- Who perceives which standard or near-standard varieties/sections of the spectrum of German how, and which attitudinal-affective values are ascribed to them or to the speakers of these varieties? Which social functions are attributed to standard and near-standard varieties in Austria?
- In the minds of speakers/listeners, where does 'standard German' end and 'non-standard' begin, or rather where does the Austrian standard end and another standard – particularly a/the 'German German standard' – begin in the minds of listeners?
- Especially: Which methods (differentiating in the experimental degree) are optimally suited for which of the aforementioned questions? Which methods fit which age and social groups the best?

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