

Paths and opportunities: geolinguistic methods in dialectology

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ABSTRACT

The dimensional approach to language is a feature of contemporary linguistic research, in which the three main dimensions of language functioning – spatial, temporal, and human – are brought together as an integral whole. Geolinguistics as a specific method of work and approach to analysis, approaches the temporal and social aspects from the spatial point of view. This method has made a major contribution to the exploration of the spatiality of linguistic phenomena and the closely related regularities. The basic material is a collection of dialectal or multilingual words, represented by maps, arranged in atlases, which depict the distribution of sounds, shapes, words, and meanings.

The origin of geolinguistics can be dated to the last quarter of the 19th century, and its development to the 20th century: in addition to classical dialectology and diachronic linguistics, the new grammar school also played a major role in the creation of this method. Over time, its use in the study of regional variants within languages has increasingly extended to cross-language studies as well. Nowadays, the method of producing language atlases has become much more sophisticated: they reflect both the semantic changes in linguistics that are periodically renewed, and the basic data representation procedures brought about by modern technological developments.

KEYWORDS: dialectology, dimensional language approach, geolinguistics, isogloss, language atlas, data informatization, KNyK project.

1. Introduction

The dimensional approach to language is a feature of contemporary linguistic research, in which the three main dimensions of language function are united in an organic whole: the spatial, the temporal and the human dimension (see Kiss 1999, 420., Kiss 2002, 3–20., Juhász 2002b, 166., Juhász 2002a, 149–153.). Geolinguistics as a specific working method and analytical approach approaches the temporality and sociality aspects from the spatial point of view (see Juhász 2001a, 92., Juhász 2007b, 134.). This method has greatly contributed to the exploration of the spatiality of linguistic phenomena and the closely related and thus detectable regularities. It is based on a collection of dialectal or multilingual glossaries, represented by maps and arranged in atlases, which depict distributions of sounds, shapes, words, and meanings (see Juhász 2007a, 33.).

The origin of geolinguistics can be dated to the last quarter of the 19th century, and its development to the 20th century: in addition to classical dialectology and diachronic linguistics, the new grammar school also played a major role in the creation of the method: its pioneers tried to explore the spatial relationships of language-historical connections – for example, the preservation of archaisms and the geographical arrangement of the birth of neologisms. Over time, its use in the study of regional variants within a language has increasingly extended to cross-language studies as well (on the creation of areal linguistics among others, see Sándor 2004, 22., for more details, see Balázs 1983). According to this, the method ‘enables the study of different dialects of the same language as well as dialects of typologically different languages, i.e. the relationships between languages and dialects’ (Lizanec 1992, 8.). Nowadays, the method of creating language atlases has been refined a lot: they can be seen in the fundamental data visualization procedure caused by the changes in the perspective of linguistics that are renewed from time to time and because of the modern technical development.

2. Briefly about the international geolinguistic studies

In geolinguistics, the tool of spatial representation has become the language atlas. The German-born linguist Georg Wenker is credited as its inventor and father: the *Sprach-Atlas von Nord- und Mitteldeutschland* (NMD), published in 1881, contained 339 words with a spatial division, transcribed by teachers of the region into dialects. Later, Wenker continued his research on the whole of Germany, with some 40,000 research points, and the result was the *Deutsche Sprach-Atlas* (DSA). Another great pioneer of geolinguistics was the French linguist Jules Gilliéron. Two atlases are associated with his name: a regional atlas, the *Petit*

Atlas phonétique du Valais Roman (sud du Rhône), and the French Grand Atlas, the *Atlas linguistique de la France* (ALF). The material of the latter was collected by Edmond Edmont: he went through 630 research points with a questionnaire compiled by Gilliéron containing about 2000 headwords. The atlas was published between 1902 and 1920 and contained mainly a lexical map sheet. Although Gilliéron worked with a rarer network of research points than Wenker, the advantage of the French Grand Atlas is that it strived for the highest phonetic accuracy in its data communication, and therefore surpasses the German language atlas in reliability. The application of the so-called impressionist method can also be linked to Gilliéron's atlas, i.e., the first answers to questionnaires are recorded. The essence of this methodological innovation lies in the fact that earlier dialect researchers primarily sought and wanted to put on paper the general, the legal and the regular in linguistic data, i.e., to record a kind of median ratio. In contrast, Gilliéron followed the principle that the researcher cannot undertake to map the laws and general characteristics of dialects, but should capture the momentary linguistic utterance. It is a fact of scientific history that these first map sheets profoundly reshaped the idea of dialectal isoglosses, i.e., the precise delimitation of dialectal phenomena. The big lesson from both maps is that the different phonetic laws do not act in the same way in all words, i.e., linguistic phenomena are transmitted in a word-bound way, and thus each word may have a different isoglossis. The central problem of geolinguistic studies is still the issue of the tightening of isoglosses (see Kiss 2001, 72–73., Kálmán 1962, 3–9., Hajdú 1998, 191.).

With the birth of large atlases, the need for regional atlases soon arose. Solving the initial methodological difficulties led researchers in increasingly modern directions, although at first there were purely technical questions that did not concern the basic principles of geolinguistics. The importance of regional atlases was mainly due to the increase in the density of the network of research points, the more methodical selection of informants, the linguistic accuracy of recorded language data, respectively the elimination of the mechanical practice of collection (see ÓHA 1959, 15.). In fact, Dauzat suggested that in order to create a more accurate linguistic picture, it should be necessary to create landscape atlases in addition to the French large atlas. K. Jaberg was the first to deal with the relationship between large atlases and landscape atlases (for more details, see ÓHA 1959, 18–20.). He and J. Jud are also credited with creating the collection and mapping method of the Swiss school. As a result of their common research, the *Sprach- und Sachatlas Italiens und der Südschweiz* (AIS) was created between 1928 and 1940. The Moscow and Soviet, as well as the Romanian and Polish schools of geolinguistics made equally significant achievements (see Lizanec 1992, 54–56. for their description).

In addition to the examination of regionality, research into the impact of historical, cultural and social factors on language has increasingly come to the fore in atlas works. The creator of the *Atlante Linguistico Italiano* (ALE), Matteo Bartoli, mostly followed French methods in his work: the Atlas created between 1924 and 1965 already paid more attention to cultural differences and to the dialect. In addition to the cultural aspect, atlases also

examining age differences soon appeared: among others, Hans Kurath started such an enterprise in 1939, and his work resulted in the publication of the *Linguistic Atlas of the United States and Canada* (LANE, 1988). Through its targeting – i.e., joint mapping of territorial and social differences – the informants participating in the research were classified into three main groups (higher education, more educated, barely educated), and then divided into further subgroups according to additional criteria. Although the study focused on how the speakers' use of language is related to social status, speech was used to determine who belongs to which social class. *The Linguistic Atlas of the Seto Inland Sea* (LAS) also set as a goal the recording of language use according to different social groups and age categories (see Fujiwara 1947). In many respects, these atlases are considered by the history of science to be the forerunners of the so-called multidimensional (polystric) atlases.

Since the 1980s, studies of change have been an almost necessary and indispensable 'accessory' to dialectological studies. This results in the closer connection of dialect research with sociolinguistics, and consequently its methodological renewal and expansion (see Kiss 1999). The spread of sociolinguistic principles and methods has naturally resulted in the need to create multidimensional geolinguistic atlases that show sociolinguistic variables (gender, age, social class, speaking situation) in addition to spatial movement. These in fact explain why there are differences and what differences occur in the scope of dialect and regional language use, in the rate of acquisition of bilingualism, and in the degree of change in dialects (see Kiss 1998, 31.). In Europe, following American and Japanese precedents, the so-called two-dimensional language atlas: Bellmann's *Mittelrheinischer Sprachatlas* (MRhSA), which was published between 1994 and 2002, presents two groups of informants representing radically different sociolinguistic variables (elderly, deep-rooted, local peasants and commuting, young workers) language data. It was also at this time that an approach emerged in Hungary that calls attention to the combined consideration of the three basic dimensions of linguistic functioning, both in dialectology and in the representation of geolinguistic atlases (see Kiss 1999, 420., Kiss 2002, Juhász 2002a, Juhász 2002b, 166.).

3. About geolinguistic studies in Hungary: history, results and perspectives

The idea of Hungarian geolinguistics first arose with Ferenc Toldy: in one of his lectures at the Hungarian Society of Scientists in 1843, he proposed the idea of creating a 'language brooch' based on the study of the geographical distribution and ethnographic contact of dialects (see Szilágyi 1979). János Melich prepared the first geolinguistic maps for the study of the cross-linguistic adoption of lexical equivalents from the surrounding Slavic languages. Antal Horger published phenomenon maps on the dialectal division of Eastern Székely at the turn of the century (see Horger 1905). In connection with the study of the Tiszahát

and Ugocsa dialects, Bálint Csűry made an attempt to map the isoglosses of various dialect phenomena (see Csűry 1929). In the 1930s, following the efforts of István Papp, Géza Bárczi was asked by the first Hungarian ethnolinguistic conference to prepare and direct the work on the *A magyar nyelvjárások atlasza* ([Atlas of Hungarian Dialects], MNYA). In collecting data, the collectors followed an improved version of the method of the French school of Gilliéron. The chairman of the working group was Géza Bárczi, and the members were Loránd Benkő, László Deme, László Imre Samu, Béla Kálmán, Miklós Kázmér, Kálmán Keresztes, Lajos Lőrincze and József Végh. The pursuit of phonetic fidelity was a fundamental aspect of the transcription, and community-level archaisms and neologisms were consciously observed and collected. These were separated on the maps using special symbols, and the social validity of the various phenomena was also taken into account. As research points, they worked with several data sources and, after the interviews, only the data that were representative of the language use of the community were included on the map sheets. The so-called one-off occurrences (hapax legomenons) remained in limbo, but can still be found in the collection notebooks (among others see Deme–Imre 1975, 189–190., Juhász 2007b, 134., ÓHA 1959, 20–21., Juhász 2001b, 114.). As a result of several decades of work, the MNYA the first of its six volumes was published in 1968, and the last in 1977 (on the preparatory work, history and method of atlas research, see Bárczi 1947, Deme 1956, and for more details see Deme–Imre 1975, on its usability see Deme–Imre 1962, on the importance of the atlas, see Juhász 2007a, 34–35.).

In a way, it can also be seen as an “extension” of the MNYA towards the East. The *A romániai magyar nyelvjárások atlasza* [Atlas of Hungarian Dialects in Romania] (RMNYA) is similar in size to the MNYA, which consists of 395 research points and 1162 map sheets – although its network of research points is smaller, but the questionnaire is about three times as large as the Hungarian atlas (see Juhász 1997). Due to the political circumstances, the work of the collector László Murádin is of scientific historical significance: after the fieldwork between 1959 and 1967, he started to prepare the 1200 manuscript map sheets and to compile the complete dialect material in the form of a data base. Although the *A romániai magyar nyelvjárások nyelvföldrajzi adattára* [Geolinguistical Database of the Hungarian Dialects in Romania] ultimately remained in manuscript form, it served as a valuable raw material for subsequent computer data processing. The atlas, created with digital technology and also published in print, was edited by Dezső Juhász. The publication started in 1993, and the last volume was published in the year 2010.

Recognizing their significance, interest in regional language atlases started relatively quickly: like its international antecedents, the Grand Atlas coincided with its fieldwork. There is no doubt about its complementary role next to the Grand Atlas (see Bárczi 1959, 4.). The series of Hungarian atlases was opened by József Végh’s *Őrségi és hetési nyelvatlasz* ([Dialect Atlas of Őrség and Hetés] ÓHA), published in 1959. The small atlas, consisting of 217 map sheets, provides an important basis for the study of many theoretical and methodological issues related to (landscape) language atlases. The topic of the first Hungarian

dialectological symposium was mostly the issue of regional language atlases (see Szabó–Molnár 1982, 187–215.). Lajos Király highlights that landscape atlases with a complete network of research-points are intended for a more intensive examination of the various dialect types and a more precise determination of isoglosses. As a result, the preparation of landscape atlases covering several landscape units, created for a special purpose, came to the fore in geolinguistic research for a long time (see Király 1988, 554–555.).

The ÓHA paved the way for the birth of many additional regional atlases: atlases related to the Hungarian-inhabited areas were published, partly domestically and partly beyond the border. Without claiming to be complete, in the order of their publication, they are the following: Attila T. Szabó's 25 map sheets showing the dialects of Cluj and its surroundings (T. Szabó 1944), Géza Bárczi's show edited from the trial collections of the great atlas (Bárczi 1947), Olga Penavin's from the former Yugoslavian territories – Muravidék, Baranya, Bácska, Bánát – atlases, and the Slavonian dictionary and language atlas (Penavin 1966, 1969, 1972, 1970–1978, 1984, 1988, 1995), the *Hétfalu nyelvjárási atlasza* ([*Dialect Atlas of Hétfalu*] Vöő 1971), the *Állathangutánzó igék, hívogatók és terelgetők somogyi nyelvatlasza* ([*Somogy language atlas of animal-sounding verbs, callers and herders*] Balogh–Király 1976), the *Hangutánzó igék vasi és muravidéki atlasza* ([*Atlas of voiced verbs in Vas and Muravian regions*] Guttmann–Köbölkúti 1987), the *Székely nyelvföldrajzi szótár* [Székely geolinguistic dictionary] collected by Mózes Gálffy and Gyula Márton and published in the form of a dictionary (SzNySz 1987), the *Nyelvjárási jelenséghatárok a Dél-Dunántúlon* [Linguistic boundaries of the South Transdanubia] publication (Király 1990a), *A moldvai csángó nyelvjárási atlasza I–II.* [Atlas of the Moldavian Csangó dialect I–II.] (Gálffy–Márton–T. Szabó ed. 1991., MCSNyA.), *A kárpátaljai magyar nyelvjárások atlasza* [The Atlas of Hungarian Dialects in Transcarpathia] (Lizanec 1992, 1996, 2003), the *Zselici nyelvatlasz* [Language Atlas of Zselic] (Rónai 1993) and the *Szilágysági nyelvatlasz* [Language Atlas of Szilágyság] (Gyula Márton collect., Hegedűs ed. 2000). In addition to the RMNyA [Atlas of Hungarian Dialects in Romania], which was compiled in the period 1949–1969, several regional language collections of great importance – from a total of 634 research points and containing about 600 000 linguistic data – were produced, but the first two volumes of the above-mentioned Moldavian Csángó Atlas (Gálffy–Márton–Szabó T. 1991) and the *Szilágysági nyelvatlasz* [Szilágyság language atlas] edited by Attila Hegedűs (Hegedűs 2000) are still awaiting publication (for a summary see Vargha 2013). About nine landscape atlases are available from the collections aimed at investigating the Székely dialect. In addition to the publications published so far, based on the summary of Lajos Cs. Nagy (2004), *Csík és Gyergyó atlasza* [Atlas of Csík and Gyergyó] in the manuscript can be included (see Gálffy 1957, 1969 for the two stunts of Moses Gálffy derived from them), the *Háromszéki atlasz* [Atlas of Háromszék] (for the presentation of various phonetic and morphological phenomena, see Cs. Nagy 2004), the *Udvarhelyszéki atlasz* [Atlas of Udvarhelyszék] (the three mentioned together: *Székely nyelvatlasz* 1954–1968 [Székely language atlas 1954–1968]), the *Aranyosszéki nyelvjárási atlasza* [Atlas of the Aranyosszék dialect] (Muradin 1956–1958), the *Felső-Maros mente tájnyelvi atlasza* [Landscape language

atlas of the Upper Mureş region] (collected by Dezső Balogh and Pál Teiszler from 1959), the *Szamosháti tájnyelvi atlasz* [Landscape language atlas of Szamoshát] (collected by Pál Teiszler in the 1960s), and finally the *Bánsági nyelvjárás atlasza* [Atlas of the Banat dialect] (István Vöö, collection of material in the 1960s). The series of regional atlases published in the period after the 2000s is opened by the *Nyitra-vidéki magyar nyelvjárások atlasza* [Atlas of the Hungarian dialects of the Nyitra region] (Sándor 2004), and also the *Sárvíz menti nyelvjárások atlasza* [Atlas of the dialects along the Sárvíz] (Sajtos 2004), the *Somogy-zalai nyelv-atlasz* [Language atlas of Somogy and Zala (S-ZA, Király 2005), Hegedűs Attila's data from two time periods, put on dialect maps (Hegedűs 2005), and the research results of the Hungarian-Ukrainian-Romanian triple border language use illustrated on multi-dimensional maps (P. Lakatos 2012). Works published after the turn of the millennium have in common that they carry the multidimensional (polystratic) approach in some form. Among others, István Lanstyák (1992, 110–115.) drew attention to the role and importance of the applicability of socio-dialectological aspects, which have become common in the methodology of international geolinguistic research. In his view, the role and *raison d'être* of traditional methods in dialectological research is not only preserved, but with the help of maps he actually supports that the data of previous maps made with traditional methods can form the basis of more exact researches. Among these, he mentions dialectometric studies (see Vargha 2017), as well as the cluster analysis associated with Trudgill's name (see Borsos 2011, among others).

As regards the present and prospects of Hungarian atlas research, Jenő Kiss raised the need for a second, general atlas of the Hungarian language in 2006, as well as the goals and future possibilities of this project (see Kiss 2006, 129–142). In 2007, the Geolinguistic Research Group of the Hungarian Academy of Sciences – ELTE was established, which, as the first large-scale undertaking of Hungarian dialect research in the new millennium, presented the blueprint for the creation of a new Hungarian Grand Atlas (ÚMNyA). He was assigned his task by the MNyA partial repetition of his fieldwork in an updated version: therefore, the new collection, which takes the map sheets of the Atlas as a starting point, is a follow-up study. The research is both narrower and broader than the methodology of the MNyA: although the fieldwork was carried out at fewer research points and with a shorter questionnaire, the range of questions was expanded with a new module: sociological, sociodialectological, semantic call phrases, searching for grammaticality judgments, examination of linguistic mentality and forms of greeting. The research had three main aims. (1) the collection of synchronous regional language usage data covering the entire Hungarian language area; (2) presentation of the social, political, and cultural reorganizations reflected in the use of language by comparing the old and the new Atlas (along with the modern, computerized storage and map representation of audio data); (3) Examining attitudes determining the regional language use of dialect speakers covering the entire Hungarian-speaking area (for a summary of the timeliness, necessity, method, goals, functions and expected results of the ÚMNyA, see Kiss 2006, Kiss 2009, 197–198., Kiss 2010, and see the website of the

ÚMNyA: <http://www.umnya.hu> [the link is no longer available]; also, for a longitudinal, cross-dialect comparative analysis of the databases of the MNyA and ÚMNyA, see Iglai 2017).

The *Kemenesalja és vidéke nyelvföldrajzi kutatása* [Geolinguistic research of Kemenesalja and its region] (KNyK project) expands the range of studies that are currently being carried out on the topic of domestic socio-dialectology and that use the geolinguistic method. The research, whose fieldwork took place between 2018 and 2020, is organized around two main aspects of investigation. It aims at the real-time, (compared with MNyA data) empirical change analysis of the various sound and morphological phenomena, as well as the synchronous state analysis of the three interrelationships of the language's forms of existence (space, time, society); partly aimed at exploring the judgments of the dialect speakers participating in the research related to their own native language variant, bearing differences on a regional basis, which can be also grasped in synchrony (see Ferenczi 2021, 11–46. for its theoretical methodological foundations).

4. Map types and representation techniques

Since the appearance of the earliest language atlases, there have been two main procedural methods: the linguistic material can be mapped using the so-called data entry method or the visualisation method. László Deme (1956, 25–30.) presents the characteristics of these methods on the basis of the mapping techniques of the atlases published up to that time, and notes that an atlas must necessarily be of source value, since it is just as much a repository of data as, for example, a dictionary of a landscape. Consequently, the data entry method has the advantage that the different variants of the word forms can be recorded with a high degree of precision, but it does not allow generalisation of the material and clutters up the map. In the illustrative method, symbols are assigned to the linguistically relevant groups and are the only ones recorded on the maps, accompanied by an appropriate explanation of the symbols. The advantage of this method is that it allows the generalisation and synthesis of the collected linguistic material: specific spatial formulas can appear in the representation of linguistic phenomena, and their typification can facilitate the evaluation of the data and the detection of diachronic movements that can be evaluated from a synchronous position (see Juhász 2001a, 107–108.).

The data entry and the illustrative method can of course be used together: as in international practice, so in the Hungarian atlas and landscape atlases, these methods are mixed. At the beginning of the work on the Hungarian Grand Atlas, the atlas team was of the opinion that the data descriptive method would be used in addition to the linguistic data, in order to make the material clearer and easier to handle. Deme (1956) even argued that more illustrative sheets were needed in the large atlas, but as this was not possible, his mapping

ideas were mostly implemented in the *ŐHA*. He uses a combination of colours and the size of letters and signs to show the impact of the vernacular on dialects: the spatial variability of variation, the loss of space of archaisms and the growth of neologisms (see *ŐHA* 1959, 94–99.).

However, the editing principle of the *MNyA* differs somewhat from the practice used in the *ŐHA*: in the order of the linguistic data without social validity (i.e., without restrictive brackets), the more dialectal variants are listed before those closer to the vernacular. If there are several similar dialectal names for a concept, the one that is more specific to a smaller area, i.e., more closely related to a research point, will be ranked first. While the original intention of the *Big Atlas* collectors was to indicate generational differences, fieldwork experience has shown that dialect phenomena cannot be consistently classified in this way, and so the recording was based on the linguistic role of the collected linguistic data rather than the age of the respondents. In other words, archaic language forms in relation to the dialect average were marked in round brackets; and neologic language forms in relation to the dialect average were marked in square brackets (for more details see Deme–Imre 1975, 199–200., 243–244., 1959, 78.). Regardless of the practice used, this is also in line with the view of József Végh (*ŐHA* 1959, 78–79.), who argues that in linguistic research the main question is not how members of the younger or older generation speak (this is more a sociological question), but which of the dialectal forms are the so-called main varieties, and which are the ones that are in the process of disappearing and which appear as new ones. Lajos Király (1982, 208.) argues for the choice of the method that best reflects the linguistic reality.

Although the *ŐHA* also contains so-called summary map sheets focusing on a single phenomenon, the best examples of this are contained in the large monograph by Samu Imre (Imre 1971), who already raised the possibility of the so-called statistical method during the work on the language atlas and later during the data verification phase (Imre 1962). Through his work he can be considered one of the most prominent representatives of structuralist geolinguistics in Hungary: he examined the spatial and quantitative distribution of dialectal differences in various phonetic situations and presented the results in the form of graphical symbols showing the frequency distribution. In the context of structuralist geolinguistic research, Jan Goossens concludes that the representation of phoneme frequency is the most difficult task to solve, and he argues for the need to give more and more space to linguistic statistical studies in dialect studies. Nevertheless, he explores new ways of representing structuralist linguistic problems, new explanations of the spread of linguistic variation, and new causes of linguistic change (see Kiss 1972, 345–354.).

Lajos Király also uses several methods of representation in the *S–ZA*. He uses the data entry method, the visualisation form over the data, but he also uses graphic symbols on a single map sheet or on a common map sheet summarising several headings, and we also find statistical summary maps with frequency indicators. Like József Végh, Király also breaks with the *MNyA* practice: he gives first place to the most frequently occurring, rather than the more ‘dialectal’ variant (see Király 1990a, 18–22., Király 1990b, 55–67.).

A great help to geolinguistic researchers is the publication of Péter Lizanec's three volumes of the *A kárpátaljai magyar nyelvjárások atlasza* [The Atlas of Hungarian Dialects in Transcarpathia] (1992, 1996, 2003): in his study of the Hungarian-Ukrainian contact effect he has developed a unique cartographic method which takes into account not only Soviet-Ukrainian research results but also international ones (for the basic principles of the cartographic method see Lizanec 1992, 11–16.). The atlas contains lexical, semantic and so-called summary sheets. The system of markings used on the semantic sheets, which is a novelty, shows partly the diversity of meanings of words from a diachronic point of view and partly indicates the spatial extent of meanings and the strength of their use among speakers of different generations. And the total number of meanings of the words shows the semantic micro-field (see Lizanec 1998, 69–72.). Géza Szabó's so-called function diagram method is also a new feature in the history of Hungarian geolinguistics: on the one hand, it allows for a more detailed and even stage-by-stage comparison of language-language use behaviour; on the other hand, it allows for a comparison of local and regional averages with the average language use of individual respondents (see, among others, Szabó 1987, 516–524., Szabó 1998, 33–62.).

Thanks to the technical and technological innovations in the collection and recording of linguistic data, as well as to the new linguistic approaches that have gained ground in dialect research, there has been a modernisation in the cartographic representation of data and the techniques of representation used. This technological innovation initially helped mainly in the preparation phase of printed maps, and later the digitisation and computerisation of the entire mapping process (from the organisation of data into a database, their retrieval according to various criteria, to their display on maps and their accessibility) became more and more widespread. In this field, the series of map sheets showing the Ukrainian-Romanian-Hungarian triple border was a pioneering undertaking in the Hungarian geolinguistic literature (see P. Lakatos 2012, and on the international and domestic demand for multidimensional atlases, see T. Károlyi–P. Lakatos 2006, 84–86.). Although these map sheets may be regarded as transitional in terms of technical implementation compared to interactive cartographic processes, they were definitely innovative in terms of their content, purpose and representation technique: for the first time in this country, it was possible to map the synchronous dynamics of linguistic change by placing linguistic data in the coordinate system of space, time and social dimensions. Compared to previous signal boundary mapping, this method – apart from the novelty of its technical production – brought the greatest innovation in the geolinguistic representation of the correlation of linguistic and social variables. This method makes it possible to relate apparent time and real time studies to each other and to represent regional linguistic reality in such a way that the linguistic data and phenomena detected can be placed at the two extreme poles of the dialect-medial language and the spectrum of change they enclose (see Kiss 1999, 424.). In addition, social distributions can be assigned to the data on the map sheets, thus capturing the dynamics of language use in space, the social distribution of linguistic variables, and the direction of linguistic change with its identities and differences due to social factors. The sociodialectological-dimension-

al aspects and the social distributions (age, education) associated with the variables make it possible to draw a more precise picture of the isoglosses of the phenomena under study than is possible with 'traditional' methods, to visualise the subdivisions within the isoglosses, the direction of linguistic movement and to predict the expected changes in the linguistic boundary. Language use variations due to the artificial boundary, the facts of phase shifting, can be clearly shown on the map sheets. The applied multidimensional (polystratic) representation method enables the exploration of relationships that would remain hidden by the traditional geolinguistic representation method (for more details on the representation method, principles and map types, see Iglai 2012, 28–42., and for a summary see Iglai 2017, 48–49.).

The Bihalbocs Hungarian dialect mapping, database management, mapping and analysis program has resulted in a significant qualitative leap: in addition to the sociolinguistic aspects, it has brought innovation in the technical design of data management and map production. In line with the profile of the research, the program allows the creation of a database that can be sorted, grouped and coded in any way, and the linking of linguistic data with sound fragments. As the dynamic mapping process has become more sophisticated over the years, the range of representations and types of maps expanded: in addition to mapping, it is now possible to represent the correlation of linguistic data with independent variables and to perform interactive dialectometric measurements by aggregating data. In the latter case, the colouring of the map changes with the change of the selected research point, and the similarity matrix resulting from the data comparison shows the linguistic distance of the research point under study in relation to the other members of the research point network. The settlements with lower linguistic similarity are lighter in shade and those with higher linguistic similarity are darker.

With the help of the program, it is possible to integrate different data repositories and display them on a map sheet. Thanks to its informatization, MNyA and RMNyA and several regional atlases are now available (see Vékás 2007, and for a summary see Vargha 2017), and the Bihalbocs software is also used to informatize and manage the language variants in the framework of the KNyK project; this program also helps to compare these data with the informatized version of MNyA in the comparative analysis module. ■

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KIVONAT

A dimenzionális nyelvszemlélet napjaink nyelvjáráskutatásának sajátossága, amelyben szerves egységet alkotva áll együtt a nyelvi működés három fő dimenziója: a térbeli, az időbeli és a humán dimenzió. A nyelvföldrajz mint sajátos munkamódszer és vizsgálati szemlélet a térbeliség felől közelíti az időbeliséget és a társadalmiság szempontját. E módszer nagymértékben hozzájárult a nyelvi jelenségek területiségének, továbbá az ezzel szorosan összefüggő törvényszerűségek feltárásához. Alapanyaga a térképek segítségével ábrázolt, atlaszokba rendezett dialektális vagy multilingvális szógyűjtemény, amely a hang-, alak-, szó és jelentéstani jelenségmegoszlásokat ábrázolja.

A nyelvföldrajz keletkezése a 19. század utolsó negyedére, kibontakozása pedig a 20. századra tehető: a klasszikus dialektológia és a diakrón nyelvészet mellett a módszer létrejöttében nagy szerepet játszott az újgrammatikus iskola is. Az egy nyelven belüli területi változatok vizsgálatában való alkalmazása idővel egyre inkább kiterjedt a nyelvek közötti vizsgálatokra is. Napjainkra a nyelvatlaszok készítésének módszere sokat finomodott: tetten érhetők rajuk a nyelvtudomány időről időre megújuló szemléleti változása és a modern kori technikai fejlődés okozta alapvető adatmegjelenítési eljárása is.

KULCSSZAVAK: dialektológia, dimenzionális nyelvszemlélet, geolingvisztika, izoglossza, nyelvatlasz, adatinformatizálás, KNyK-projekt.