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HUNGARIAN DIALECT CLASSIFICATIONS[1]

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Abstract

This paper presents a historical overview of the classification of Hungarian dialects. Ten classification attempts are presented with various conceptual and methodological backgrounds. Simonyi (1889) made a systematic comparison of Hungarian dialects based on phonological variables. The first detailed classification was made by Balassa (1891), based on dialect surveys. His map of dialect areas was republished several times with slight modifications; in its last form (Kálmán 1966), it still appears in Hungarian textbooks. Laziczius (1936) took a structuralist approach that was further developed by Imre (1971) who also applied quantitative methods for the identification of dialect types. Juhász's (2001) classification, distinguishing ten dialect regions, and synthetising and refining previous work is nowadays the accepted classification of Hungarian dialects. These dialect regions were later partially confirmed by automatic classifications based on computerised ethnographic atlas data (Borsos 2011, 2017) and dialectometric studies of integrated computerised Hungarian dialect atlases (Vargha-Kocsis 2016, Vargha 2017).

Keywords: Hungarian, isoglottic dialectology, linguistic geography, dialect classification, dialectometry

Name: magyar nyelv [ˈmɒɟɒr̪ˈɲɛlv] **Language-code:** ISO 639-1 hu, ISO 639-2 hun

CLASSIFICACIONS DIALECTALS DE L'HONGARÈS

Resum

Aquest article presenta una visió històrica de la classificació dels dialectes hongaresos. Es presenten deu intents de classificació amb diferents antecedents conceptuals i metodològics. Simonyi

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(1889) va fer una comparació sistemàtica dels dialectes hongaresos a partir de variables fonològiques. La primera classificació detallada la va fer Balassa (1891), a partir d'enquestes dialectals. El seu mapa de zones dialectals va ser reeditat diverses vegades amb lleugeres modificacions; en la seva darrera edició (Kálmán 1966), encara apareix als llibres de text hongaresos. Laziczius (1936) adoptà un enfocament estructuralista que va ser desenvolupat per Imre (1971), el qual també va aplicar mètodes quantitatius per a la identificació de tipus dialectals. La classificació de Juhász (2001), que distingia deu regions dialectals i que sintetitza i perfecciona els treballs anteriors, és avui la classificació acceptada dels dialectes hongaresos. Aquestes regions dialectals van ser posteriorment confirmades parcialment mitjançant classificacions automàtiques basades en dades d'atles etnogràfics informatitzats (Borsos 2011, 2017) i estudis dialectomètrics d'atles de dialectes hongaresos informatitzats integrats (Vargha-Kocsis 2016, Vargha 2017).

Paraules clau: hongarès, dialectologia isoglòtica, geografia lingüística, classificació dialectal, dialectometria

MAGYAR NYELVJÁRÁSI KLASSZIFIKÁCIÓK

Absztrakt

Jelen tanulmány a magyar nyelvjárások osztályozásának történetét tekinti át. Tíz osztályozási kísérletet mutat be különböző fogalmi és módszertani háttérrel. A magyar nyelvjárások szisztematikus összehasonlítását és osztályozását Simonyi valósította meg történeti fonológiai alapokon (1981). A magyar nyelvjárások első részletes osztályozását Balassa József (1891) végezte el nyelvjárási felmérések alapján. A magyar nyelvjárási területeket bemutató térképét kisebb módosításokkal többször újra kiadták; legutóbbi formájában (Kálmán 1966) ma is szerepel a középiskolásoknak szánt magyar tankönyvekben. Laziczius (1936) strukturalista megközelítést alkalmazott, ezt fejlesztette tovább Imre (1971), aki kvantitatív nyelvföldrajzi vizsgálatok alapján vállalkozott a nyelvjárástípusok azonosítására és elemzésére. Juhász (2001) tíz nyelvjárási régiót megkülönböztető, a korábbi munkákat szintetizáló és finomító osztályozása ma a magyar nyelvjárások elfogadott osztályozása. Az általa azonosított nyelvjárási régiókat később részben megerősítették a számítógépes néprajzi atlaszadatokon alapuló automatikus osztályozások (Borsos 2011, 2017) és az integrált számítógépes magyar nyelvjárási atlaszok dialektometriai vizsgálatai (Vargha-Kocsis 2016, Vargha 2017).

Kulcsszók: magyar nyelvjárások, klasszikus dialektológia, nyelvföldrajz, nyelvjárások osztályozása, dialektometria

1. Introduction

Hungarian is a member of the Uralic (formerly: Finno-Ugric) language family and is the only Uralic language spoken in Central Europe. It belongs to the Ugric branch with Mansi and Khanty. These languages are distant from Hungarian in space and time, so shared linguistic roots, revealed mainly by successful attempts to find regular sound

correspondences, do not imply any level of mutual intelligibility. For a description of the Hungarian language see Kenesei & Szécsényi (2022).

Hungarian has been the most widespread native language in the Carpathian Basin for about the past thousand years. For historical reasons, the Hungarian language area is not limited to the territory of present-day Hungary. It is also spoken by autochthonous communities in as many as seven neighbouring countries, mainly in regions of the Carpathian Basin that formerly belonged to the territory of the Kingdom of Hungary, roughly from the 10th century until the Paris peace treaty at the end of World War I. Hungary, a country with a Hungarian ethnic and linguistic majority, lost about two thirds of its pre-war territory and more than half of its citizens; one third of the native speakers of Hungarian found themselves in a minority status from one day to the next in June 1920, without leaving their birthplaces. The new state borders often cut ethnically, culturally and linguistically homogeneous areas in two or even in three (Tolcsvai 2021). Among the dialect areas or regions of the classification maps presented below, especially the standard classification (Juhász 2001: 460-461), there are none that fall entirely within the borders of present-day Hungary. Also, there are three Hungarian dialect regions located entirely within the territory of present-day Romania.

During the last century, the Hungarian language could preserve its status fully only inside Hungary. The nationalist and assimilationist policies of the newly formed states around Hungary severely restricted the rights of the minorities that had been annexed to these states. The situation of Hungarians in a linguistic minority status became even worse during the communist era. This hostile political environment also affected dialect research. Data collection for the Atlas of Hungarian Dialects (Deme-Imre 1968-1972) could only be carried out at 38 sites in the neighbouring countries.

Political attempts to restrict language rights and language use of Hungarian minority groups are still present or sometimes even reinforced in the 21st century (Kontra 2021, Csernicskó & Kontra 2022). Presently, Hungarian is one of the official languages in Vojvodina (northern region of Serbia), where the Hungarian National Council, the self-governing body of the Hungarian minority, which represents the

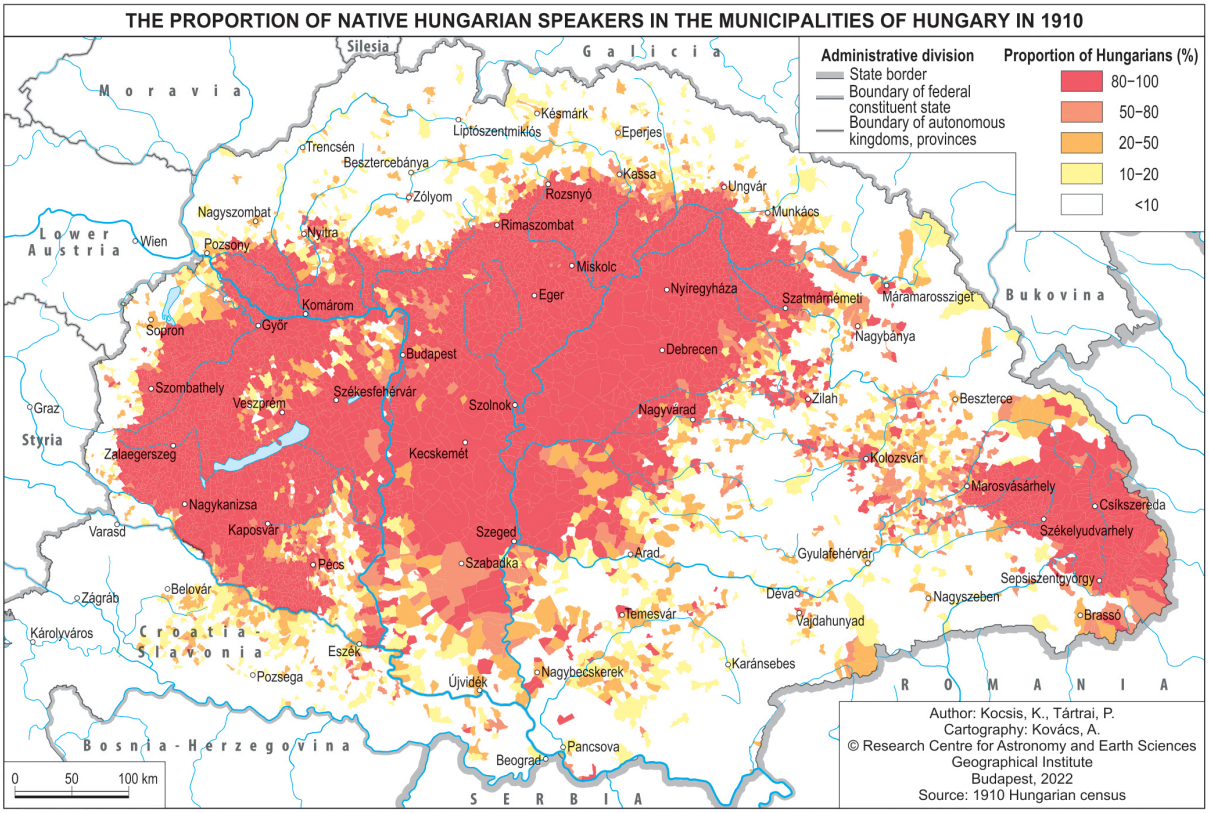
Hungarian national community in matters of language use, education, information and culture within the framework regulated by law, participates in decision-making procedures, has decision-making powers in certain matters – such as the official Hungarian names of settlements with a significant Hungarian population – and may establish institutions. In the officially bilingual areas of Muravidék (Prekmurje, in north-eastern Slovenia), Hungarian is recognized by the Slovenian government and is used as the second official language alongside Slovene. In these areas, all public signs are written in both languages, and primary as well as secondary education is bilingual, thus non-Hungarian children also can learn the language at school. The official use is guaranteed in some settlements with traditional Hungarian presence in Burgenland (Austria) and Croatia as well.

However, the legal protection of Hungarian and possibilities of language use are more restricted in other countries. In Romania and Slovakia, in settlements where the proportion of Hungarians reaches a (typically 20%) threshold, the use of mother tongue in the public administration is possible, at least in theory. Hungarian was recognized as a regional language in many settlements of the Transcarpathia region of Ukraine according to the 2012 language law, but this law was repealed in 2018 as part of a series of recent restrictive measures targeting the language use and educational institutions of national minorities. At the beginning of 2022, Ukraine was the only country where the language of the autochthonous Hungarian minority was banned from public life and where the language of education in the community's educational institutions is about to change (from the mother tongue to the state language).

As a rule, primary and secondary education in Hungarian is guaranteed in public schools too, with the recent exception of Ukraine. Higher education in Hungarian is available in Romania, Slovakia, Serbia, and Ukraine, to a smaller extent in state-financed, but mainly in private institutions.

The Hungarian language area is presented (Map 1) according to the census of 1910 (the last census before the dismemberment of Hungary). The map shows the percentage of those who named Hungarian as their mother tongue, but Hungarian was more widely spoken, being the numerically dominant language in the Carpathian Basin. This moment is close to the publication date of the first dialect classification

map (Balassa 1891) as well as to data collections forming the basis for the last classifications. Other maps showing the changes in the ethnographic landscape of the region from 1495 to 2011 can be found in Kocsis and Tátrai's work (2015). The Hungarian minority of Moldavia (North-Eastern Romania, east of the eastern borders of Transylvania) is not included in the maps as there are no reliable census data available for this region (Tánczos 2011). This area is presented, especially in the last classifications, as a separate dialect region.



Map 1. The Hungarian language area according to the census in 1910 (Kocsis–Tátrai 2015)

There are mentions of Hungarian dialect differences in historical and grammatical works from the 16th century onwards, but the systematic research of dialects only began in the 19th century. Two precursors of the classification of Hungarian dialects are worth mentioning: Ferenc Verseghy and Ádám Pálóczi Horváth.

In his work entitled *Proludium In Institutiones Linguae Hungaricae* (1793) Ferenc Verseghy divides the Hungarian language area into three dialects: Danubian, Tisza

valley and Transylvanian. He gives a few examples to support his classification, the most important of which is the difference in the use of [ø] and [e] in the same position, while another distinctive feature he mentions is the degree of the tendency to palatalisation. His classification, as well as his reasoning, is highly impressionistic and not without value judgments. He deems some morphologic variants incorrect and some phonetic ones irritating to the ears. He cannot give a reliable description of the geographical distribution of the features he mentions, but this is quite understandable, as there were no detailed descriptions of Hungarian dialect speech at the time.

A second pioneer of Hungarian dialect classification is Ádám Pálóczi Horváth (1815). In response to a call from the Hungarian National Museum, he wrote an essay on the general definition of dialects, the application of this definition to Hungarian and the potential usefulness of dialects for the enrichment of the literary language. He divides the Hungarian language area into two main dialects named after the two main rivers of Hungary, the Danube (in the west) and the Tisza (in the east). In his classification, Transylvania belongs to the Tisza region. He also divides the two main dialects into smaller subdialects. In describing dialectal differences, he mainly mentions morphological or syntactic features.

During the 19th century, folklore texts, dialect descriptions and regional vocabulary collections were published in scientific journals (Laziczius 1936: 11–18) that could provide the basis for the first detailed classifications of Hungarian dialects.

2. Dialect classifications

Systematic descriptions and classifications of Hungarian dialects date back to the last decades of the 19th century. The first classifications (grouped here as isoglottic and ethnographic) of Simonyi (1889) and Balassa (1891) were inspired mainly by historical linguistics, while the later classifications (isoglottic or dialectometric) of Laziczius (1936) and Imre (1971) had a structuralist approach. Previous works were synthetized by Juhász (2001) in a detailed classification, regarded as a standard even today. Dialect classifications of the 20th century have recently been challenged by

dialectometric research investigating dialect similarity patterns (Borsos 2011, 2017, Kocsis & Vargha 2016, Vargha 2017).

2.1 Zsigmond Simonyi (1889)

In 1889, Zsigmond Simonyi, the most influential Hungarian linguist of the turn of the 19th and 20th centuries, published a monograph entitled *The Hungarian Language* (*A magyar nyelv*) in which he also described the spatial variation of Hungarian (Simonyi 1889: 187-234). His work was based exclusively on data and analyses published by others, which were sometimes very incomplete and contradictory. Thus, he was unable to provide a more detailed classification than the identification of major areas.

2.1.1 Framework: Isoglottic dialectology

In his classification, Simonyi relied on previous studies and data collections, mainly published in the journal *Magyar Nyelvőr*, as well as on his own experience with dialect variation. He only defined the major dialect areas along two criteria:

1) phonetic realisation of historical /e/, thus [e], [ɛ] or [ø];

2) distinction between /eː/ and /ɛː/ and their realisations.

2.1.2 Classification of dialects

Simonyi distinguished eight major dialect areas and presented his classification in a table, so he did not try to draw a map (1889: 205) (Table 1).

Dialect	**Historical /e/** ***szem*** **'eye'**	**Historical /ɛː/** ***kéz*** **'hand'**	**Historical /eː/** ***él*** **'lives'**
1. Palóc (north)	[e] [sem]	[ɛː] [kɛːz]	[eː] [eːl]
2. Dunántúl (Transdanubia)	[e] [sem]	[eː] [keːz]	[eː] [eːl]
3. Komárom	[e] [sem]	[eː] [keːz]	[iː] [iːl]
4. Göcsej-Sopron (west)	[e] [sem]	[eɛ] [keɛz]	[iː] [iːl]
5. Felső-Tisza (north-east)	[ɛ] [sɛm]	[ɛe] [kɛez]	[iː] [iːl]

6. Duna-Tisza (central)	[ø] [søm]	[eː] [keːz]	[eː] [eːl]
7. Udvarhelyi székely (western Székely)	[ø] [søm]	[eː] [keːz]	[e̯ː] [e̯ːl]
8. Keleti székely (eastern Székely)	[e] [sem]	[eː] [keːz]	[e̯ː] [e̯ːl]

Table 1. Dialects according to Simonyi (1889: 205) (the original Hungarian phonetic transcriptions are replaced with IPA symbols)

Simonyi later published a revised version of his work (1905), in which he used another classification, that of József Balassa (presented below as the second classification), and even published a map composed by Balassa, a slightly modified version of the original from 1891.

2.2 József Balassa (1891)

Balassa was the first to systematically study the spatial distribution of linguistic features in the Hungarian language area, based on a dialect survey. His aim was to give a detailed classification of Hungarian dialects and to present his classification on a map drawn with cartographic precision. His monograph entitled *The Classification and Description of Hungarian Dialects* (*A magyar nyelvjárások osztályozása és jellemzése*) was published in 1891.

2.2.1 Framework: Isoglottic and ethnological classification

Balassa based his classification not only on previously published dialect descriptions, but also on his own dialect survey. He sent out written questionnaires all over the country and – as he states it – "received quite a number of responses" (1891: 25). He gives some details about the filled-in questionnaires (informant's name and geographic location) in footnotes in the chapters describing dialects and subdialects. He also carried out some field work himself.

Although he had at his disposal a certain amount of raw dialect data from the questionnaires and his own research, he never intended to map the spatial variation of linguistic features. His main task was the classification of dialects, the identification of dialect areas and several subdialects for each area (Balassa 1891: 20).

Balassa took into consideration not only linguistic variables, but also the geographic position, ethnic or demographic conditions, ethnographic traditions, and settlement history. Thus, his classification cannot be considered as purely linguistic. The main linguistic features he mentions as key determinants of his classification are only phonetic or phonologic ones, but in the general presentation of spatial linguistic differences and when describing subdialects, he mentions some morphological and syntactic features as well. The most prominent ones are presented in the table bellow (Table 2).

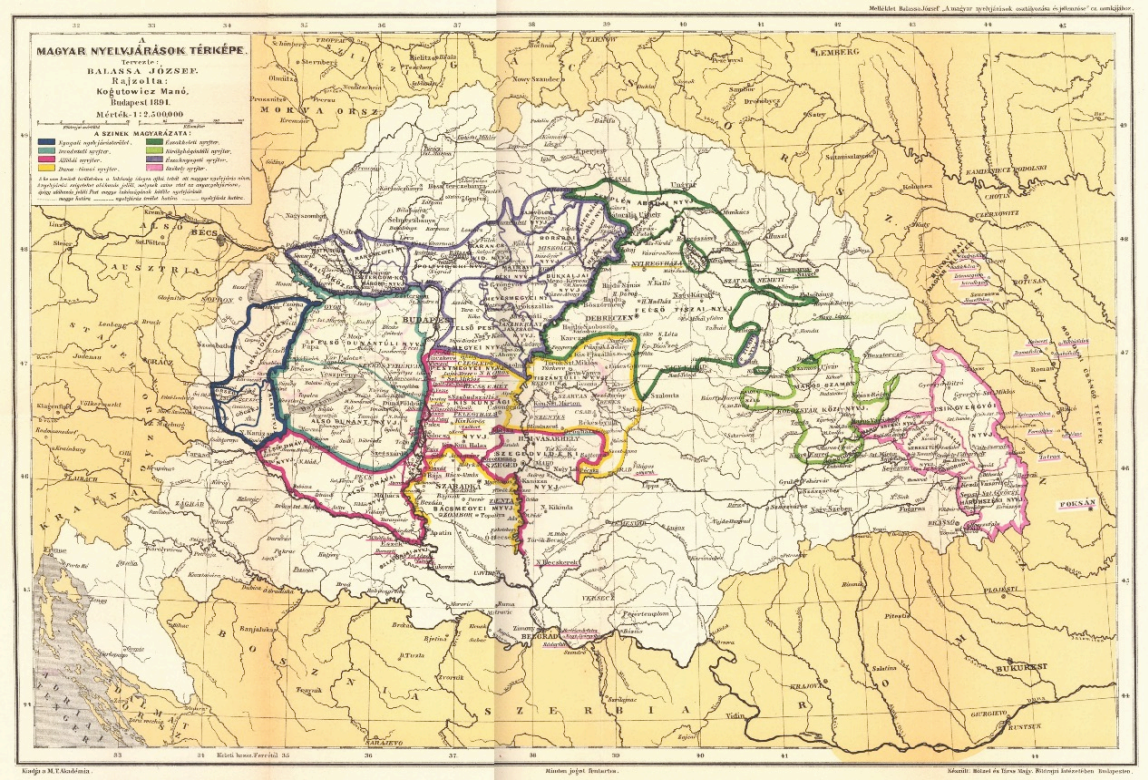
Grammar field	**Features**
Phonetics and phonology	The frequency of [ø] at the expense of [e] or [ɛ]. The existence of the palatal lateral /ʎ/ in the consonant system and its absence and substitution with [l] or [j] as in the word *király* (‘king’) pronounced as [kiraːʎ], [kiraːl] or [kiraːj] in different dialects. The presence or absence of long closed vowels in the vowel system or their reduced frequency. The presence or absence of the opposition between /ɛː/ and /eː/ and the phonetic realisation of these vowels. The more open or more closed pronunciation of certain vowels compared to other dialects or the standard. /l/ or /r/ deletion between a vowel and a consonant or in absolute word-final position. The presence or absence of the lengthening of a vowel before a deleted consonant.
Morphology	The suffixes *-nál, -tól, -hoz* (e.g. *at* the Potters, *from* the Potters, *to* the Potters) have special variants in some dialects: *-nott -nól -ni.* The verbs ending in *-t* in some dialects have different forms in imperative mode while in other dialects the imperative and the indicative verb forms are identical. Different conjugations of verbs with suffix -ik in S/3.
Syntax	The different ways of expressing ‘I have to’: *nekem el kell menni/el kell mennem/el kell, hogy menjek/el kell menjek/el kellek menni* (‘I have to go’)

Table 2. Some of the features used by Balassa for the classification of Hungarian Dialects

2.2.2 Classification of dialects and subdialects

Balassa divided the Hungarian language area into 8 dialect areas, each composed of several dialects (Map 2). By dialect, Balassa meant a small territorial unit characterised by the same dialectal features. Some dialects are also divided into subdialects.

In Balassa's opinion Székelyland, that consists of the A), B) and C) parts of the VIIIth dialect area, should be considered apart from the rest of the dialects because, in many aspects, it alone produces the diversity that characterises the whole language area.



Map 2. József Balassa's classification of Hungarian dialects (1891)

The major and minor units of Balassa's classification are as follows:

I. Western dialect area (Nyugati nyelvjárásterület):

1. dialect of the Rába valley (Rábavidéki nyelvjárás)
2. Őrség
3. dialect of Hetés
4. dialect of Göcsej
5. dialect of Zala

II. Transdanubian dialect area (Dunántúli nyelvjárásterület):

1. dialect of Upper Transdanubia (felsődunántúli nyelvjárás)
2. dialect of Lower Transdanubia (alsódunántúli nyelvjárás)

III. Dialect area of Lowland (Alföldi nyelvjárásterület):

1. dialect of Kiskunság (kiskunsági)

2. dialect of Szeged and surroundings (szegedvidéki)

3. dialect of the land between the rivers Danube and Drava (duna-drávaközi): a) subdialect of Sárköz, b) subdialect of Lower Drava (alsódrávai), subdialect of Slavonia (szlavóniai), subdialect of Upper Drava

IV. Danube-Tisza dialect area (Duna-tiszai nyelvjárásterület):

1. dialect of Pest County (Pest megyei nyelvjárás)

2. dialect of Bács county (Bács megyei nyeljárás)

3. dialect of Transtisza (tiszántúli nyelvjárás)

V. North-eastern dialect area (Északkeleti nyelvjárásterület):

1. Upper Southeastern dialect (felső-tiszai nyelvjárás)

2. dialect of Lower Szamos (alsó-szamosi nyelvjárás)

3. dialect of Zemplén and Abaúj counties (zemplén-abaúji nyelvjárás)

VI. Dialect area beyond Király-hágó (Királyhágóntúli nyelvjárásterület):

1. dialect of Kalotaszeg (kalotaszegi nyelvjárás)

2. dialect of the land between the rivers Maros and Szamos (maros-szamosközi nyelvjárás)

3. dialect of Küküllő county (küküllőmegyei)

VII. North-western dialect area (Északnyugati nyelvjárásterület):

A) Middle Palóc dialect region (középső palócz nyelvjárásvidék):

1. dialect of Mátra (mátravidéki nyelvjárás)

2. dialect of Borsod (borsodi nyelvjárás)

3. dialect of Karancs (karancsvidéki nyelvjárás)

4. dialect of Ipoly valley (ipolyvidéki nyelvjárás)

B) Eastern Palóc dialect region (keleti palóczos nyelvjárásvidék):

1. dialect of Sajó valley (sajóvölgyi nyelvjárás)

2. dialect of Hernád valley (hernádvidéki nyelvjárás)

3. dialect of Hegyalja (hegyaljai nyelvjárás)

4. dialect of Zilah (zilahi nyelvjárás)

C) Western Palóc dialect region (nyugati palóczos nyeljárásvidék):

1. dialect of Bars County (barsmegyei nyelvjárás)
2. dialect of Esztergom-Komárom (esztergom-komáromi nyelvjárás)
3. dialect of Mátyusland and Csallóköz (mátyusföldi és csallóközi nyelvjárás)

D) Southern Palóc dialect (déli palóczos nyelvjárás)

1. dialect of Heves county (hevesmegyei nyelvjárás)
2. dialect of Bükkalja (bükkaljai nyelvjárás)
3. Upper Pest County dialect (felsőpestmegyei nyelvjárás)
4. dialect of Jászság (jászsági nyelvjárás)

VIII. Székely dialect area (Székely nyelvjárásterület):

A) Dialect of Marosszék (marosszéki nyelvjárás)

B) Western Székelys (nyugati székelység)

1. dialect of Keresztúr (keresztúri nyelvjárás)
2. dialect of Sóvidék (sóvidéki nyelvjárás)
3. dialect of Havasalja (havasalji nyelvjárás)
4. dialect of Homoródvidék (homoródvidéki nyelvjárás)

C) Eastern Székelys (keleti székelység)

1. dialect of Csík and Gyergyó (Csík és Gyergyó nyelvjárása)
2. dialect of Hétfalu (hétfalusi nyelvjárás)
3. dialect of Háromszék (háromszéki nyelvjárás)

D) Dialect of the Moldavian Csángós (moldvai csángók nyelvjárása)

Although we can see sharp boundaries on the map, Balassa was aware of the dialect continuum. He never thought about these dialect areas as linguistically strictly delimited. This transitional nature of dialects and dialectal features is reflected in the way he treats a large territory as mixed between dialect areas III and IV.

Balassa's work has not been adapted only by Simonyi (1905), it also strongly influenced other scholars. Antal Horger in his work about Hungarian dialects (1934) gives a detailed overview of the spatial variation of several linguistic phenomena, but he denies the scientific relevance of dialect classification. However, somewhat contradictorily, he adopts Balassa's map and – for practical reasons – uses the names

of the larger territorial units established by Balassa. Horger republishes the map in black and white, presenting only the big dialect areas, thus without subclasses.

Balassa's classification method and his map remain a reference for further attempts at dialect classification. The key features he identified are fundamental to the classification and characterisation of Hungarian dialects even today.

2.3 Gyula Laziczius (1936)

In his work entitled *Hungarian Dialects* (*A magyar nyelvjárások*, 1936) Laziczius gives an overview of previous works concerning the spatial variation of Hungarian and attempts to develop a set of accurate, phonologically based criteria for classifying Hungarian dialects. His work is an early example of the application of structural phonology for the classification of dialects. Laziczius built his classification purely on the phonemic system of dialects, because, as he states it, no major or more important differences can exist between dialects than phonological ones (1936: 49).

2.3.1 Framework: Isoglottic dialectology

Laziczius distinguishes triangle-shaped and square-shaped types of the Hungarian short vowel and long vowel systems.

In the dialects of the square-shaped short vowel system there is a phonemic opposition between /e/ and /ɛ/, while other dialects, those of a triangular system, lack such distinction. Those dialects that make a distinction between /eː/ and /ɛː/ have a square-shaped long vowel system, while those that do not, have a triangular one. The two subsystems might form a total of four kinds of vowel systems. But Laziczius makes two further distinctions resulting in two kinds of short vowel triangular systems (depending on the replacement of /e/ with /ø/) and two kinds of long vowel triangular systems (one of them is the subsystem where /eː/ is replaced with /iː/). Finally, he defines a total of nine dialects resulting from the combination of these rectangular and triangular vowel systems.

2.3.2 Classification of dialects

Gyula Laziczius distinguished nine types of dialects, but he did not attempt to define dialect areas geographically (1936: 56-57). Although he did not draw up a map, he gave detailed examples of dialects belonging to each dialect type. Dialects that fall into one type are not necessarily related and may belong to completely different groups according to all other classifications.

Right in the first group there are the central part of the Paloc region, the central part of Székelyland and part of the area inhabited by the Moldavian Csángós. Székely and Palóc dialects are very distant from each other not only in space, but also phonetically, thus they are never classified in the same group in other classifications.

The classification made by Laziczius had little impact on Hungarian dialect research, as the system of criteria he developed for classifying dialects proved inadequate according to his successors.

2.4 Béla Kálmán (1966)

In 1966 Béla Kálmán wrote a textbook on Hungarian dialects, mainly for university students. In his work he could use the datasets of *The Atlas of Hungarian Dialects* which had just reached the stage of publication, so beside the map of Hungarian dialect areas, he also published maps of dialect features. In the short presentation he gives about his classification map, he insists that he will apply the term "dialect type" (*nyelvjárástípus)* instead of the old term "dialect area" (*nyelvjárásterület*) (Kálmán 1966: 68), but on the map itself "area" appears instead of "type". He built his classification on the one given by Balassa (1891) and distinguished eight dialect types (Kálmán 1966: 68-69). Beside these types he also named some subtypes on the map (Map 3). Even though Kálmán's map might not be considered as the result of a well-documented original classificatory process, it became the most influential representation of the classification of Hungarian dialects. Kálmán's textbook was reprinted several times and remained in Hungarian linguistic education for nearly

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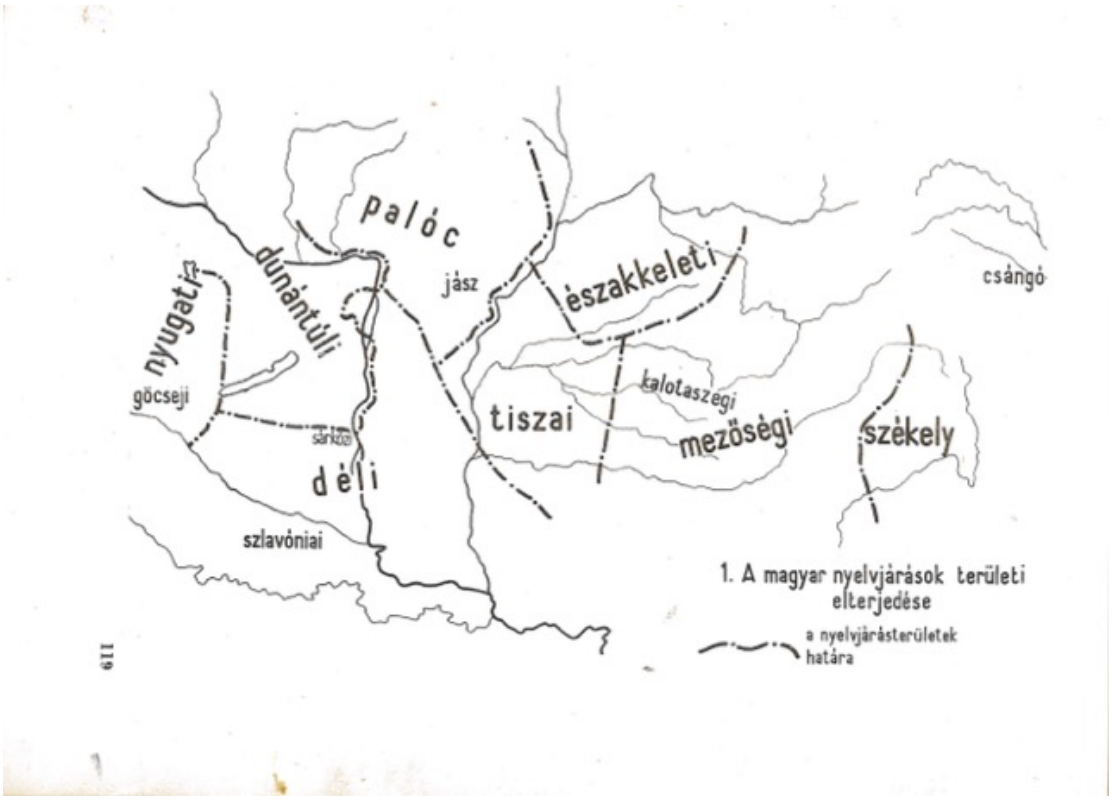
forty years. Even today, it is often cited in scholarly work, mainly by non-dialectologists.



Map 3. Balassa's classification map as revised by Béla Kálmán (1966)

2.5 Samu Imre (1971)

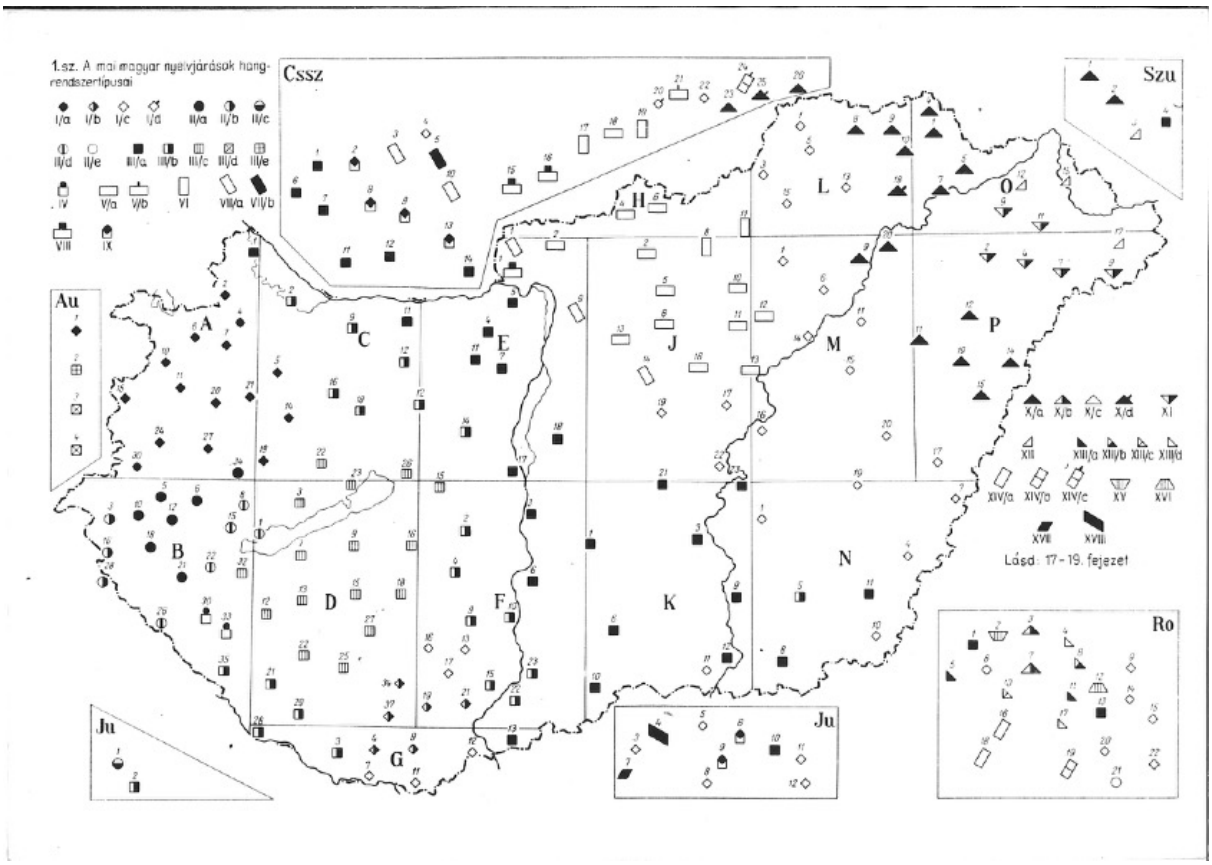
Samu Imre was editor of *The Atlas of Hungarian Dialects* (Deme & Imre 1968-1977). Data collection begun in 1950 and the last volume was published in 1977. The atlas, published in six volumes, contains more than half a million data instances in narrow phonetic transcription, from 495 locations. Imre's detailed quantitative analyses were based on the atlas data in the process of being published. This way he reviewed much more data for his classificatory work than any other researcher, covering the whole Hungarian language area. The spatial variability of phonetic, phonological, and morphological phenomena was in the centre of his interests.

The Atlas of Hungarian dialects has only 22 investigation sites in Romania. Imre involved these sites in his study but deemed the density of locations in Romania insufficient to classify eastern Hungarian dialects. Nevertheless, his picture of

Hungarian dialects is nearly complete, moreover, his work is the most important source of the recent, standard classification (that of Juhász 2001).

2.5.1 Framework: Isoglottic dialectology

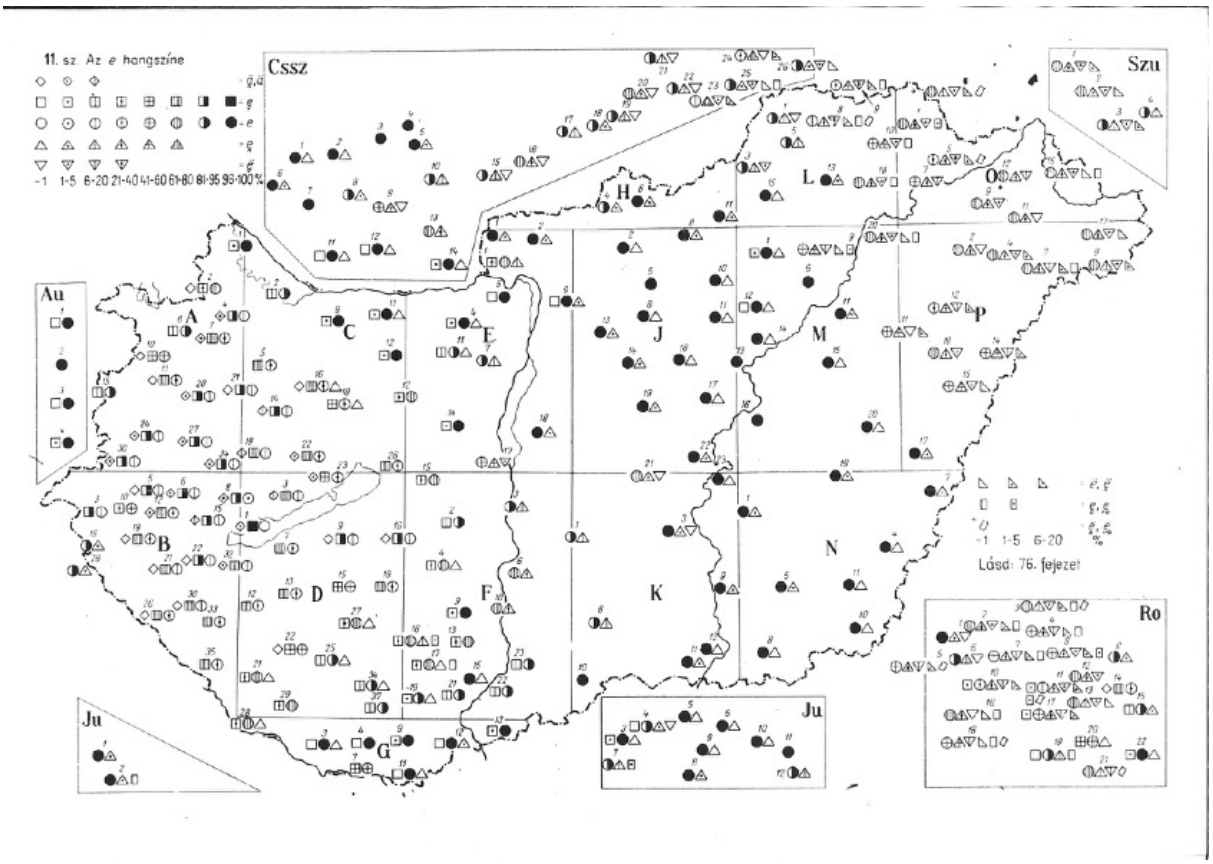
When classifying dialects (in Imre's words determining dialect types) Imre tries to develop further the method of Laziczius, including several new criteria in the analysis. Among these the most relevant are the maintenance of /ʎ/ in the consonant system, the absence of long closed vowels in some dialects and the presence of long [ɛː] and [aː] with polyphonemic value. The result of his classification is a map of the different sound system types of Hungarian dialects (Map 4). But this map is only a starting point for him to classify dialects.



Map 4. Sound system types of Hungarian dialects (Imre 1971: 73)

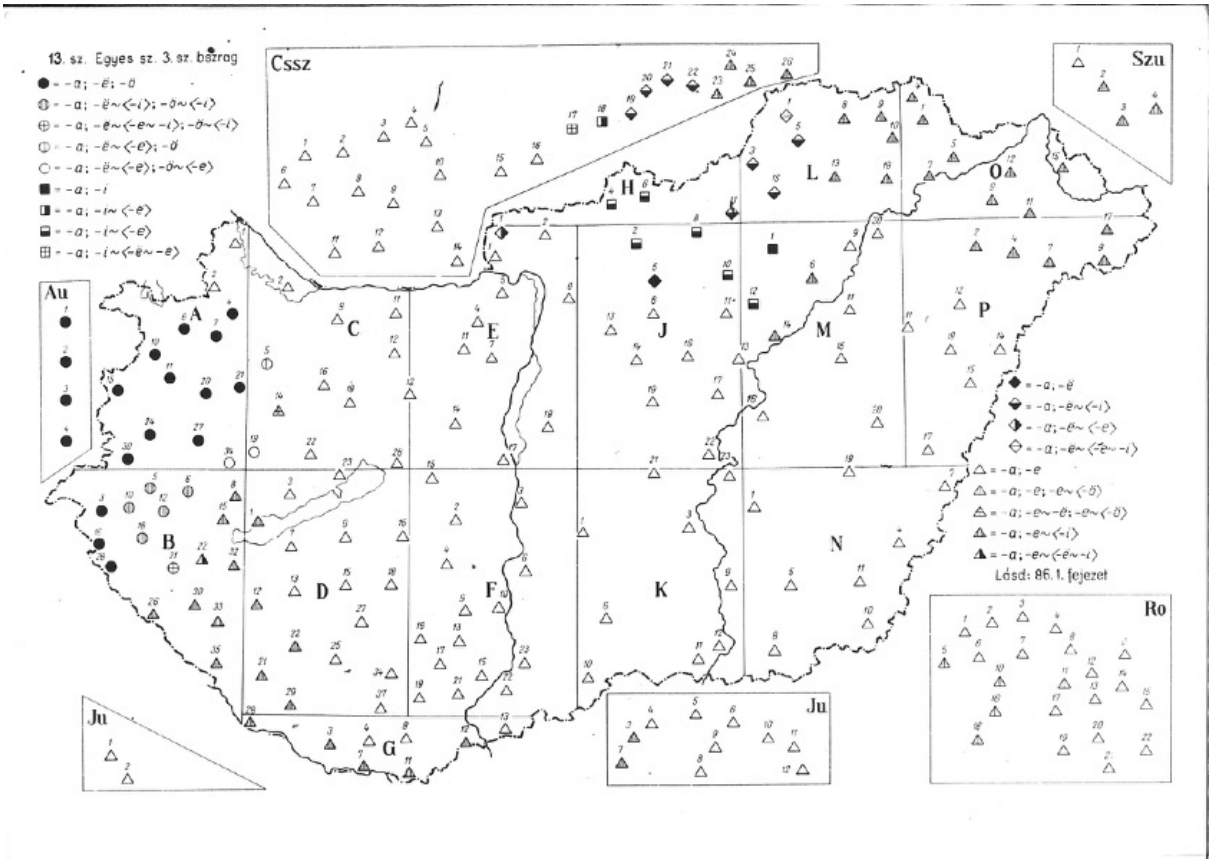
Dialectologia. Special issue, 12 (2024), 237-272.
ISSN: 2013-2247

To further analyse spatial differences Imre made statistical maps of the presence and frequency of the different realizations of certain vowels. The map bellow (Map 5) shows, as an example, the different pronunciations of /ɛ/ and their frequency in the atlas data.



Map 5. Frequency of the different pronunciations of /ɛ/ in The Atlas of Hungarian Dialects (Imre 1971: 292)

Apart from these quantitative analyses of certain vowels, he also takes into consideration some morphological or morphophonological phenomena when determining dialect types. One such phenomenon concerns the third person singular possessive suffix (Map 6).



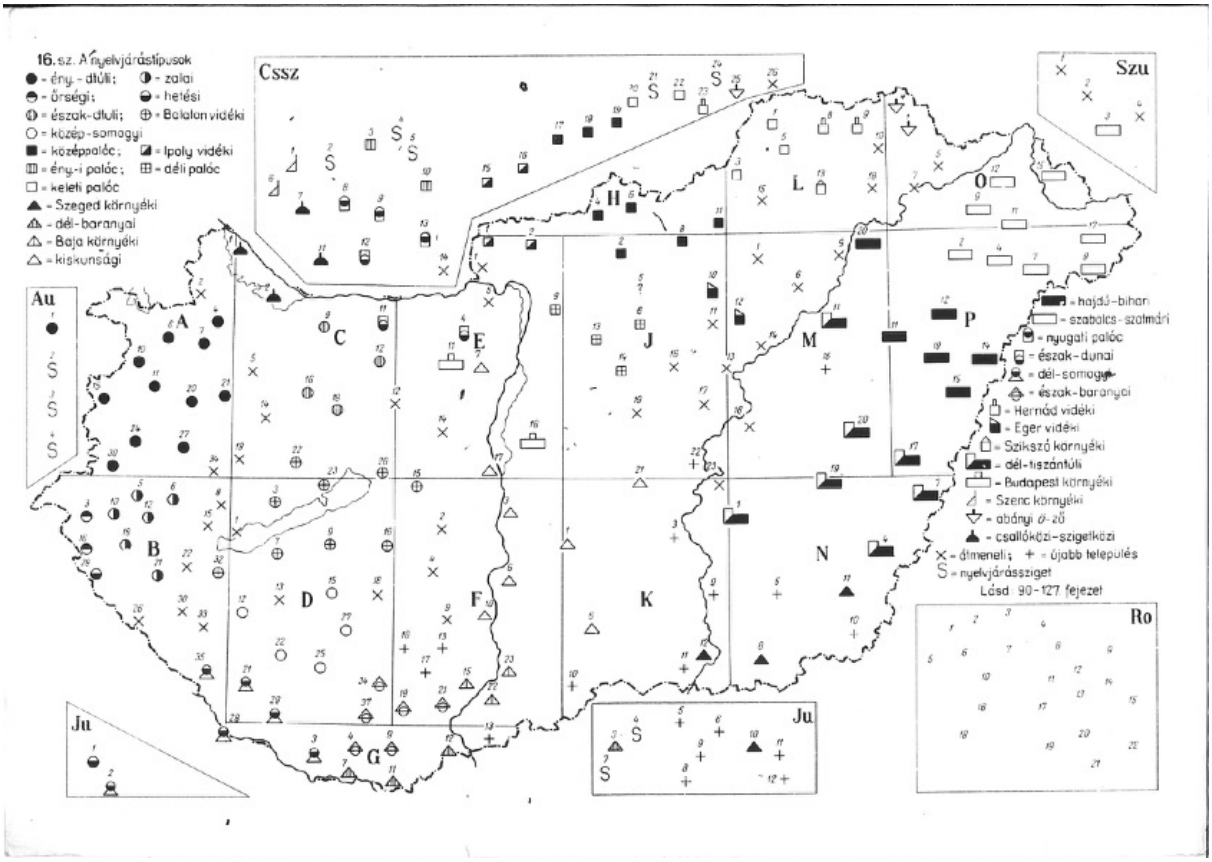
Map 6. Spatial variation of the third person singular possessive suffix (Imre 1971: 312)

He could not consider any syntactic features, as these are absent from *The Atlas of Hungarian Dialects* (the first attempt to map syntactic features of Hungarian is Hegedűs 2012).

2.5.2 Classification of dialects and subdialects

Imre does not define dialects, but dialect types (Map 7). Dialect types are linguistic sub-systems that he considers as autonomous units, but their spatial delineation can usually only be done with approximate accuracy, and most often only core dialect areas can be identified (1971: 332). He also does not group these dialect types into larger categories, such as dialect regions or areas. He does not include every location in a particular dialect type, he marks instead some places as transitional (marked with an X on the map). He also identifies dialect islands (as well as Hungarian

language islands in non-Hungarian environments) that are marked with the letter S on the map.



Map 7. Hungarian dialect types (Imre 1971: 333)

Imre distinguishes 30 dialect types, two of which are divided into two subtypes. He describes all of them and even reviews the characteristics of the dialect and language islands. The investigation points belonging to the same dialect type are marked with the same symbol on the map (Map 7). In his quantitative analyses, he also covers the Hungarian dialects of Romania (see Map 4, 5 and 6), but he deems the 22 atlas locations there insufficient to identify dialect types in that area.

Despite having previously argued strongly against establishing larger dialect groups or dialect areas, he still classifies some dialect types into larger units (371-373). However, he considers these to be highly hypothetical and does not show them on the map.

2.6 Dezső Juhász (2001)

In 2001, Dezső Juhász prepared a classification map of the entire Hungarian language area for the *Hungarian Dialectology* textbook, synthesizing previous classificatory attempts. His work is widely regarded as the standard classification of Hungarian dialects. As a general observation, he seems to return to the concept of József Balassa (1891), the first detailed classification of Hungarian dialects: he defines larger units composed of smaller ones. But he mainly builds on Imre's dialect types that he adopts as dialect groups, nearly without exception for all areas west of the Romanian border. In classifying the Hungarian dialects of Romania, Juhász relied on the literature and on his own experience as editor of *The Atlas of Hungarian Dialects in Romania*.

2.6.1 Framework: Isoglottic dialectology

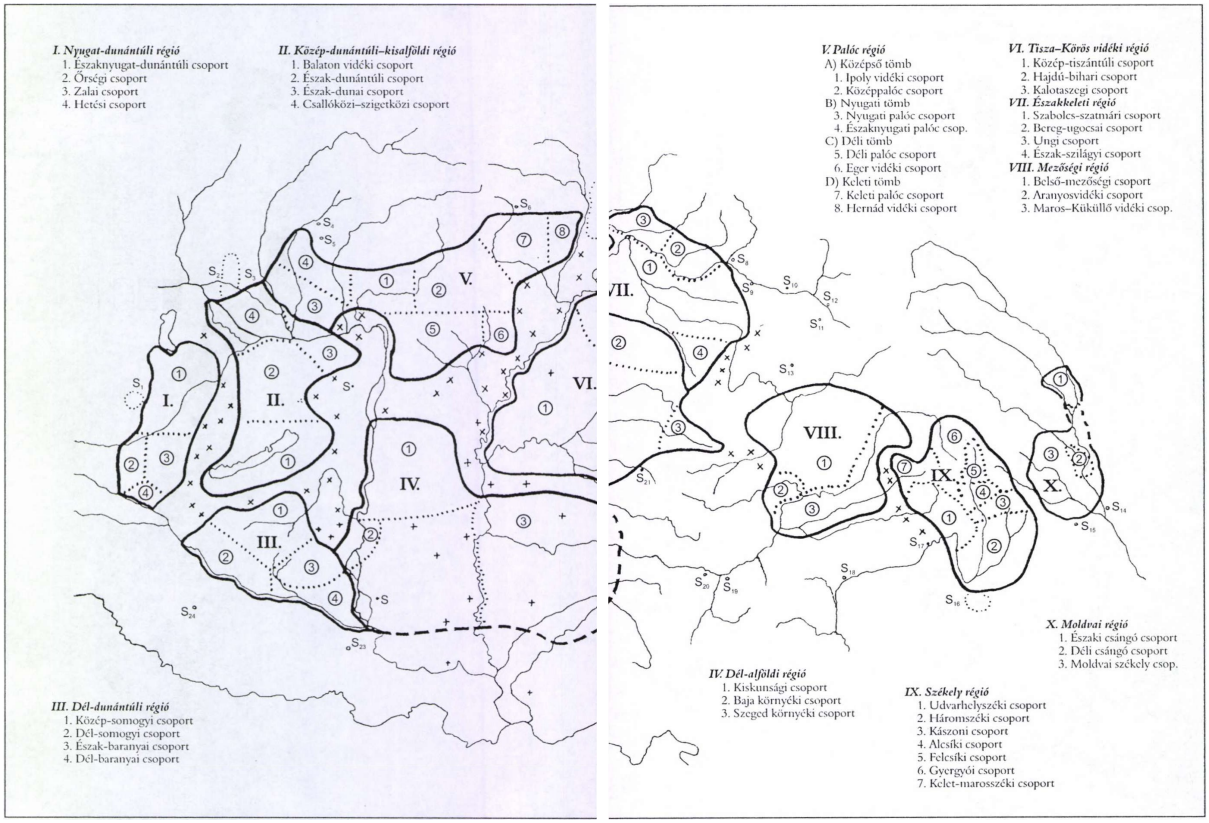
Juhász carefully reviews the literature and the previous classifications that inspired his work. As he relies on previous works, his classification also focuses on phonological and phonetic variability. The key features underlying the delimitation of the dialect regions and smaller units can be found in the detailed descriptions in the relevant chapter of the textbook. These features include vocalic quality and quantity, as well as a number of morphological variables. His description of the different units is rather exhaustive, he also lists characteristics that do not necessarily have a differentiating effect (Table 3).

Grammar field	Features
Phonetics and phonology	- The phonetic quality of /ɒ/ and /aː/. - The presence of the opposition between short /e/ and /ɛ/. - The frequency of [ø] at the expense of [e] or [ɛ]. - The existence of the palatal lateral /ʎ/ in the consonant system and its absence and substitution with [l] or [j] as in the word *király* (‘king’) pronounced as [kiraːʎ], [kiraːl] or [kiraːj] in different dialects. - The presence or absence of long closed vowels in the vowel system or their reduced frequency. - The presence of diphthongs and their type according to the movement of the tongue. - The more open or more closed pronunciation of certain vowels compared to other dialects or the standard.
Morphology	- The suffixes *-nál, -tól, -hoz* (e.g. *at* the Potters, *from* the Potters, *to* the Potters) have special variants in some dialects: *-nott -nól -ni.* - The verbs ending in *-t* in some dialects have different forms in imperative mode while in other dialects the imperative and the indicative verb forms coincide. - The different ways of conjunction of verbs that take an *-ik* suffix in S/3.

Table 3. Main features used by Juhász

2.6.2 Classification of dialects and subdialects

Compared to Balassa’s map, the main difference is that instead of 8 larger units, Juhász distinguishes 10: Moldova (the easternmost Hungarian dialect region) is presented as separate from the Székelyland, and in contrast to the three middle and southern dialect areas of Balassa’s map Juhász distinguishes four dialect regions. Concerning the demarcation of areas, Juhász does not always draw sharp dialect borders but adopts instead Imre’s concept about transitional zones.



Map 8. Hungarian dialect regions (Juhász 2001: 460-461)

In his classification Juhász calls the major units "dialect regions" and all dialect regions are composed, in general, of dialect groups. The Palóc dialect region (in the north) is an exception: it is divided into four blocks, each consisting of two dialect groups. Juhász classified the dialects as follows (you can find the original Hungarian names on Map 8):

I. Western Transdanubian region

1. Northwestern Transdanubian group
2. Group of Őrség
3. Group of Zala
4. Group of Hetés

II. Central-Transdanubia-Kisalföld region

1. Balaton area group
2. Southern Transdanubian group
3. Northern Daube group
4. Group of Csallóköz and Szigetköz

III. Southern Transdanubian region

1. Central-Somogy group
2. Southern Somogy group
3. Northern Baranya group
4. Southern Baranya group

IV. Southern Great Plan region

1. Group of Kiskunság
2. Baja area group
3. Szeged area group

V. Palóc region

A) Central block

1. Ipoly area group
2. Central Palóc group

B) Western block

3. Western Palóc group
4. Northwestern Palóc group

C) Southern block

5. Southern Palóc group
6. Eger area group

D) Eastern block

7. Eastern Palóc group
8. Hernád area group

VI. Tisza-Körös region

1. Central group
2. Group of Hajdú-Bihar
3. Group of Kalotaszeg

VII. Northeastern region

1. Group of Szabolcs-Szatmár
2. Group of Bereg-Ugocsa
3. Group of Ung

4. North-Szilágy group

VIII. Region of Mezőség

1. Group of Central-Mezőség
2. Aranyos area group
3. Maros-Küküllő area group

IX. Székely region

1. Group of Udvarhelyszék
2. Group of Háromszék
3. Group of Kászon
4. Group of Alcsík
5. Group of Felcsík
6. Group of Gyergyó
7. Group of the eastern part of Marosszék

X. Region of Moldova

1. Northern Csángó group
2. Southern Csángó group
3. Moldavian Székely group

2.7 Balázs Borsos (2011, 2017)

The nine volumes of *The Atlas of Hungarian Folk Culture* (Barabás 1987-1992) contain ethnographic data from 417 locations presented on 634 maps. Each map illustrates variables of a cultural trait. Data collection begun in 1959 and the last volume was published in 1992. In his monumental work on the spatial patterns of Hungarian folk culture, Borsos (2011, 2017) carried out a computational ethnographic analysis of the atlas with the aim of mapping Hungarian cultural regions. Although the atlas aims to show the variability of folk culture, it contains 180 maps that also have a linguistic dimension. The computational analysis of this subgroup is briefly presented here.

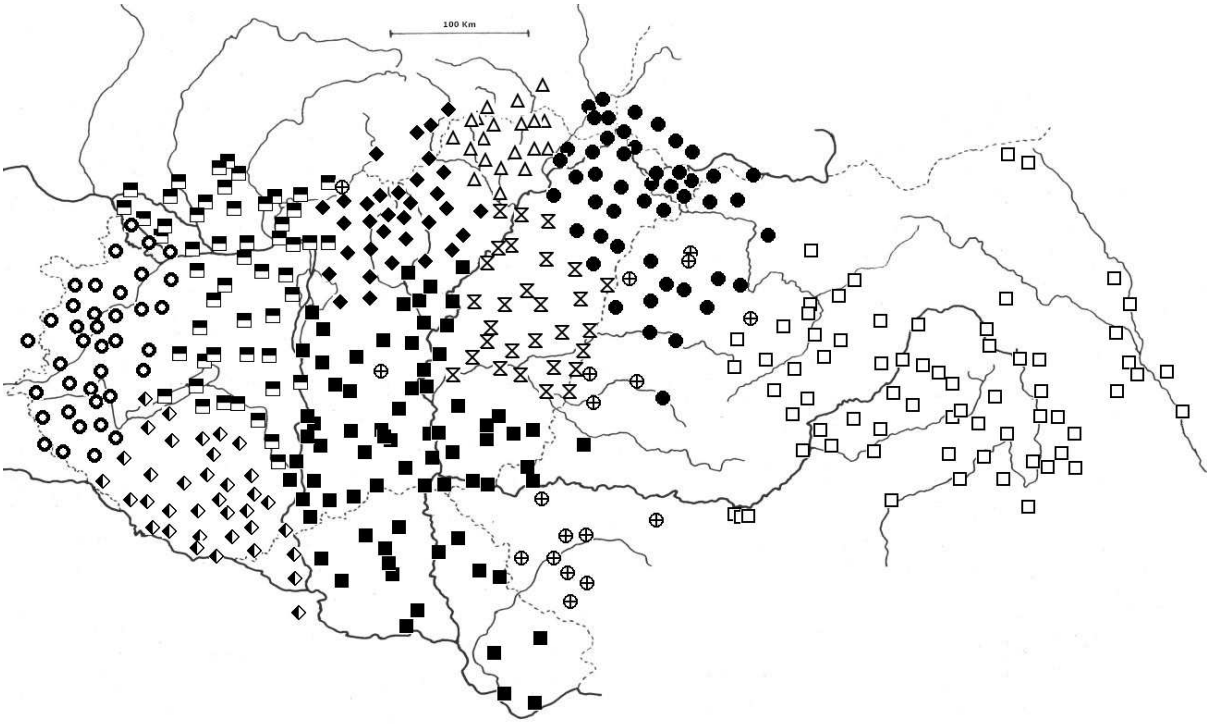
2.7.1 Framework: Dialectometry

The Atlas of Hungarian Folk Culture presents data with symbols, thus already giving a classification within each map. In the computerized version of the atlas, each variant is represented by a number, starting from 1 for each map. A dedicated application has been developed for the computerization process and for the mapping and further clustering of the dataset.

Borsos opted for cluster analysis to determine cultural regions. He applied Ward's minimum variance method, that is the most commonly used clustering procedure in dialectometry (Nerbonne & Heeringa 2001: 9). While presenting the results on cluster maps, he uses symbols to represent the different groups. As the number of clusters displayed on the map is arbitrary, Borsos has produced several maps based on the same clustering procedure. In addition to examining the entire dataset, he also created sub-corpora, which he analysed separately. One such sub-corpus consists of 180 so-called linguistic maps (Borsos 2017: 136-141). In the practice of the ethnographic atlas, a linguistic map represents the spatial variation in the naming of objects, terms referring to relatives or terms related to animal husbandry. Phonetic and often even phonological variation in maps is ignored. Therefore, unlike all other classification attempts presented here, this analysis is mainly based on lexical and, to some extent, phonological variation.

2.7.2 Classification of dialects and subdialects

Borsos created several classification maps by changing the number of clusters (298-300, Appendix). With fewer clusters larger dialect areas can be depicted, while with a larger number smaller areas can be found.



Map 9. Cluster map of the linguistic maps of the *Atlas of Hungarian Folk Culture* (Borsos 2017: 269)

Borsos's map showing 9 groups (Map 9) is the most comparable with the standard dialect classification map counting 10 dialect regions (Juhász 2001, cf. Section 8 above). Beside similarities (the Western Transdanubian region, the Southern Great Plan region, the Tisza-Körös region and the Northeast region all have a corresponding cluster) there are also striking differences between the cluster map and the standard linguistic classification. On the cluster map Transylvania emerges as one group while Palócföld (Palóc region in Juhász's classification) is segmented in three. Even the blocks of dialect groups identified by Juhász within the Palóc region do not coincide with the clusters.

The nature of the ethnographic data might explain the considerable differences between the maps. As mentioned above, while phonetic differences are behind Juhász's classification of dialects, especially in the case of the Palóc region, this information is missing in the ethnographic data.

Dialectologia. Special issue, 12 *(2024), 237-272.*
ISSN: 2013-2247

2.8 Zsuzsanna Kocsis – Fruzsina S. Vargha (2016, 2017)

The study of the whole Hungarian language area can be more accurate with the inclusion of two datasets, *The Atlas of Hungarian Dialects* (Deme & Imre 1968-1977) and *The Atlas of Hungarian Dialects in Romania* (Murádin & Juhász 1995-2010). In the first quantitative project on Hungarian dialect similarity patterns (led by Fruzsina S. Vargha, with the participation of Zsuzsanna Kocsis, 2013-2016), an integrated corpus of 482 maps coming from these two atlases have been created and investigated from several aspects.

2.8.1 Framework: Dialectometry

According to the method developed in Salzburg (Goebl 2010a, 2011), atlas data are classified map by map, creating so called working maps along one criterion (phonetic, morphologic, lexical, etc.). Based on these working maps, each location is compared to every other, computing a linguistic similarity (or linguistic distance) matrix. Data classification requires the involvement of a trained dialectologist, only the computational phase can be made automatically.

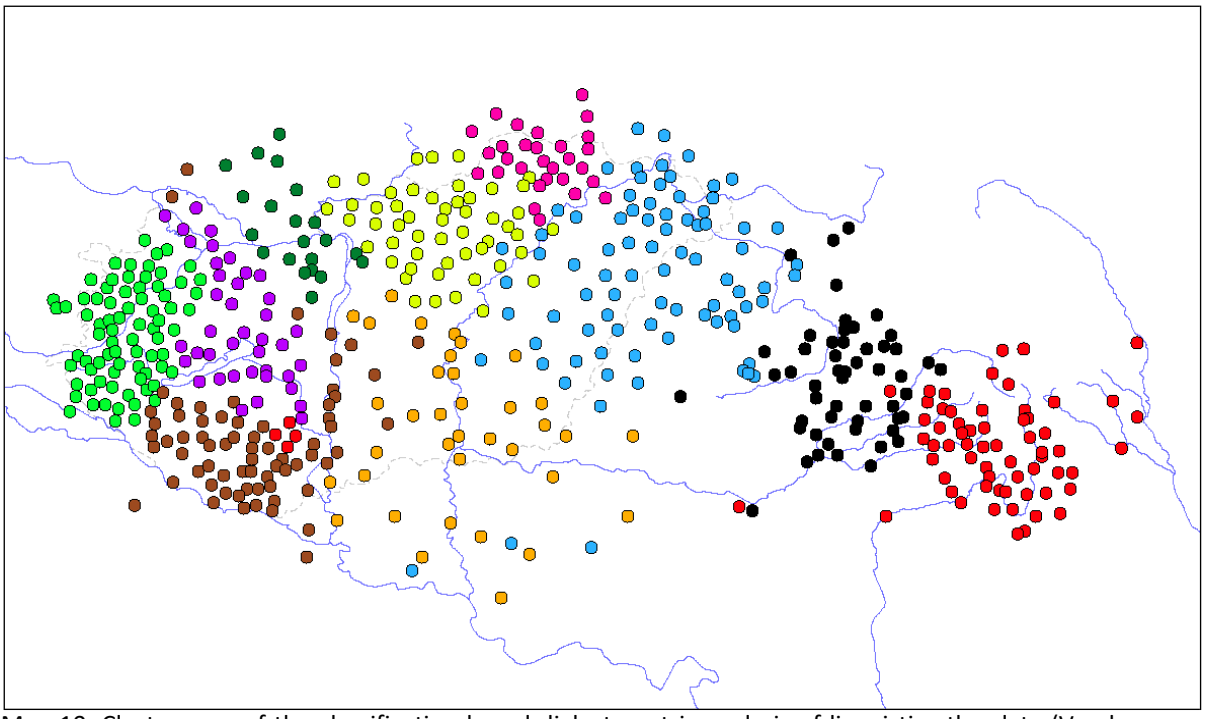
Following Goebl's "taxatation" method, Zsuzsanna Kocsis and Fruzsina S. Vargha (2016) created 245 working maps from 127 chosen map sheets coming from the integrated corpus of the two atlases. Of these working maps, 197 are phonetic, 16 morphologic/morphophonologic and 32 lexical. The linguistic phenomena chosen as classification criteria were similar to those involved in previous research on dialect classification and comparison. However, the study did not take into account the frequency of each variable in the integrated atlas. A linguistic similarity matrix was computed on the basis of the data classification.

Later Vargha (2017) made classification maps from the matrix with Ward's minimum variance method. This is a generally used clustering technique in dialectometry (Goebl 2010b: 71-73).

2.8.2 Classification of dialects and subdialects

When plotting cluster maps, the number of clusters displayed on the map can be set arbitrarily. In Vargha (2017: 111-119) maps showing two to ten clusters are published. Here I refer to the one showing 10 groups (Map 10) as this is the most comparable representation with the latest standard classification (Juhász 2001).

The most striking difference between the two maps is that the cluster map does not depict the Palóc region (in the north). There are three clusters instead of one, and these three clusters do not form one even if fewer groups are shown on the map. In fact, the delimitation of the Palóc region in Juhász's classification can be traced back to the pronunciation of two vowels. These vowels are very frequent in Hungarian, that is why they strongly determine this regional accent. During the selection of atlas maps and the data classification, Kocsis and Vargha aimed at involving most of the linguistic variables that had emerged as classification criteria in the past, but they did not consider the frequency of the investigated phenomena.



Map 10. Cluster map of the classification based dialectometric analysis of linguistic atlas data (Vargha 2017: 119)

There are two other significant differences between the cluster map and Juhász's classification. On the cluster map, the dialect region of Moldova (represented by the four easternmost investigation sites in *The Atlas of Hungarian Dialects in Romania*) and the Székely region are merged. Furthermore, the Tisza-Körös and the North-Eastern regions, as defined by Juhász, also belong together on the cluster map.

2.9 Fruzsina S. Vargha (2017)

In her monograph about the dialectometric study of Hungarian dialect atlases Vargha publishes cluster maps and MDS-maps for the entire Hungarian language area. These maps are based on an integrated dialectometric analysis of the two main atlases, *The Atlas of Hungarian Dialects* (Deme & Imre 1968-1977) and *The Atlas of Hungarian Dialects in Romania* (Murádin & Juhász 1995-2010). Vargha attempts to classify Hungarian dialects objectively, using a method based on automatic comparisons of data instances.

2.9.1 Framework: Dialectometry

As mentioned in the previous section, the integration of the two main Hungarian dialect atlases is ideal for the study of the entire Hungarian language area. Data from all (482) integrable map sheets from both datasets were used for the analysis.

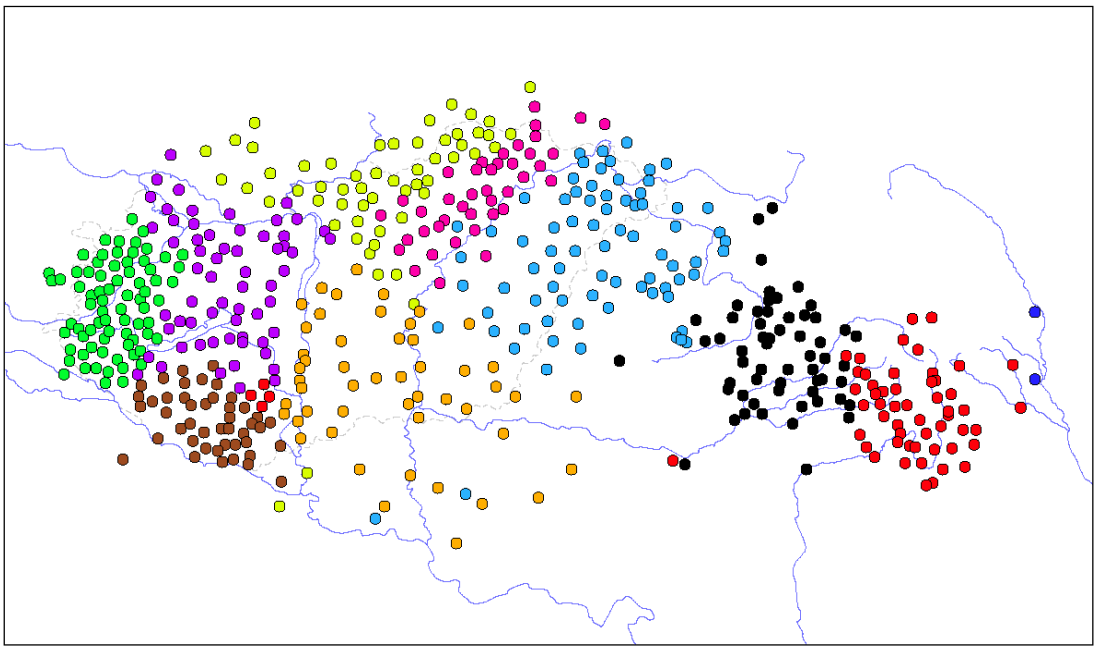
Levenshtein distances of data instances were calculated in a pairwise, map-by-map comparison of the investigation sites, creating a similarity matrix. With this approach, no prior analysis or manual classification of the data is required, but computerization of linguistic data is a precondition. Brett Kessler (1995) was the first to use the Levenshtein algorithm in dialectometric research, investigating Irish dialects. Scholars from the University of Groningen have further tested and refined the method (e.g. Heeringa 2004; Heeringa & Nerbonne 2001, 2013; Nerbonne et al. 1996). A peculiarity of the analysis presented here is that narrowly transcribed data of the dialect atlases were used, so that even minor phonetic differences reflected in the

transcriptions affect the results (Vargha 2017, 2018). Again, Ward's method was used for the automatic classification of dialects.

The same similarity matrix was also mapped using multidimensional scaling, showing the dialect continuum (see Heeringa 2004: 156-163) about the advantages of the application of this method in dialectology).

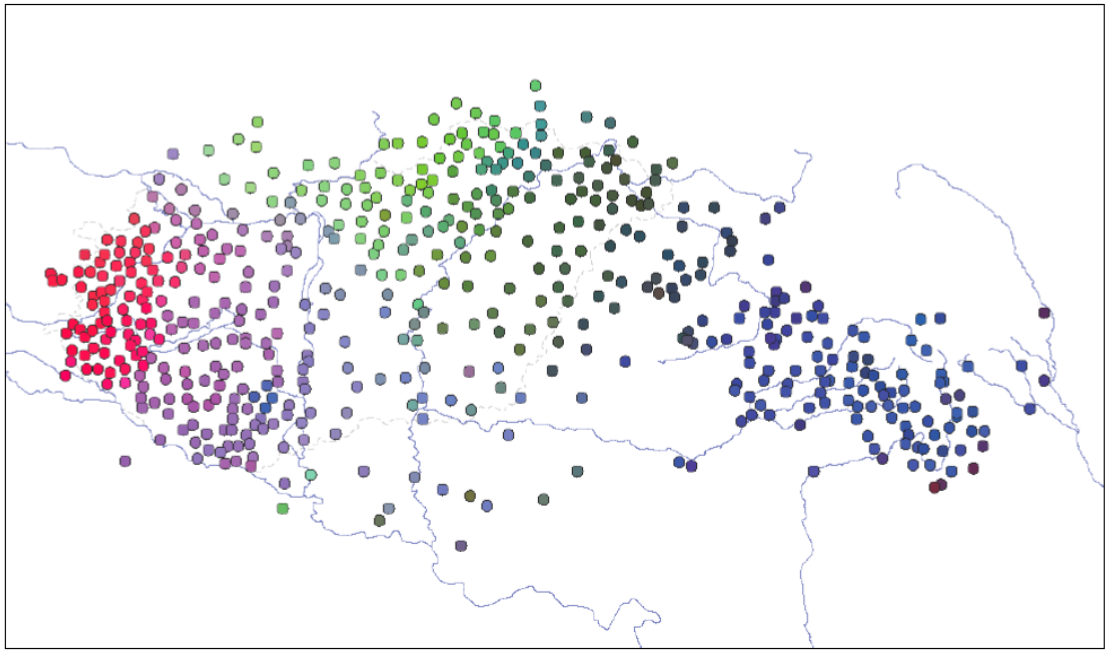
2.9.2 Classification of dialects

The cluster map of 10 groups (Map 11) based on the automatically measured string edit distances appears to be more similar to the standard classification of Juhász (2001) than the outcome of other computational studies presented in sections 8 and 9 above. The comparison of the corresponding data instances is sensitive to all phonetic differences marked in the transcriptions. Therefore, this analysis is more likely to reflect the same patterns as the standard classification (presented in section 7) that is also based predominantly on phonetic features. Moreover, being automatic, the present analysis is also sensitive to the frequency of all linguistic variables in the data sets, thus achieving a degree of objectivity unmatched by methods based on manual classifications.



Map 11. Cluster map of the Leveshtein-based dialectometric analysis of linguistic atlas data (Vargha 2017: 119)

The cluster map and the standard map of dialect regions (Juhász 2001) are broadly similar. There are three major differences that merit mention. The territory at the eastern border of the Palóc region appears as a new, distinct group on the cluster map, while two of Juhász's regions, the Tisza-Körös region and the North-Eastern region, form one single group, just as on the cluster map based on the classification method, presented in the previous (9.) section. The investigation points that belong traditionally to the region of Moldova are split in two groups: the locations that belong to the Moldavian Székely dialect group on Juhász's map are clustered to the Transylvanian Székely settlements, while the two other locations form one distinct cluster.



Map 12. MDS-map of the Leveshtein-based dialectometric analysis of linguistic atlas data (Vargha 2017: 120)

The MDS-map (Map 12) based on the same dialectometric analysis may provide an impression of the abrupt or rather transient nature of the group borders presented on the cluster map (Map 11). Only two of the groups shown on the cluster map seem

to be clearly emerging on the MDS-map. These two groups correspond to the Western Transdanubian and the Palóc regions, respectively.

3. Discussion

Two main trends can be identified in the attempts to classify Hungarian dialects: first, the amount of data examined and analysed is increasing, and second, the quest for objectivity is also growing. The emphasis on phonetic and phonological phenomena has been present in almost all classifications since the very beginning.

The first attempts to classify Hungarian dialects date back to the turn of the 18th and 19th centuries. These pioneering works could not rely on dialect materials or descriptions of regional varieties, so they are based on impressions or fragmentary observations of the authors.

The systematic comparison and classification of dialects, based on their characteristics, began in the last decades of the 19th century. The second classification, made by József Balassa in 1891, already became the most influential one and remains a key reference point even today. In this first attempt, the classification of dialects was already based primarily on phonetic and phonological features, as in most of the later studies.

Balassa's map, and its subsequent slightly modified versions, remained the only reference for the spatial distribution of Hungarian dialects until the publication and quantitative analysis of the *Atlas of Hungarian Dialects*. Imre (1971), denying the existence and scientific relevance of large dialect areas, defined dialect types with smaller geographic scope and introduced the concept of transition areas into Hungarian dialectology.

Based on Imre's classification, case studies published in the second half of the 20th century, and his own editorial experience in publishing the *Atlas of Hungarian Dialects in Romania*, Juhász created a detailed map of Hungarian dialect regions in 2001 for the textbook entitled *Hungarian Dialectology* (Kiss 2001). His classificatory

work, which is also a synthesis of previous studies on dialects, is regarded as the standard classification.

More recent classification attempts are characterized by a search for objectivity, which requires the analysis of large amounts of data. In the context of computational ethnography and computational dialectology, more complex and computationally demanding processes have become possible. These studies (Borsos 2011, 2017, Kocsis-Vargha 2016, Vargha 2017) are data-driven and rely exclusively on the analysis of specific corpora or sub-corpora. Automatically generated classification maps can confirm, refine, or in some respects challenge previous classifications. Since different corpora and methods with different focus lead to different classifications, these studies also highlight the relativity of all classificatory attempts.

Hungarian dialect classification has focused mainly on phonetic or phonological differences, considering some morphological or lexical features, but syntax is almost completely neglected even in most dialect atlases or datasets. The analysis of syntactic features could be a possible new direction for Hungarian dialect classification research.

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