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PERCEPTION OF POLISH SPEECH VARIETIES

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ABSTRACT

This study shows the perception of speech varieties in Poland and was based on quantitative research conducted in Poznań. The tool used to study perceptions of speech varieties in Poland was based on Dennis Preston's "Draw-a-map" methodology. The results were analyzed and presented as a graphical representation of maps displaying various levels of agreements of the speakers' perceptions. The maps displayed the results in three alternative forms: spreadsheet view, 2D view, and 3D view. The four main epicenters of the greatest agreement appeared in the South, West, North, and East, but they were not equal in size and level. There were only two cities from the original map, Katowice and Poznań, which received scores higher than 50% agreement. The results maps suggest that the participants have created schemas of Polish speech varieties based on limited information and practice with speech.

KEYWORDS: Speech perception; Polish speech; perceptual dialectology.

1. Theoretical background

"In order to more fully understand the words that people actually produce, we need to understand how people perceive those words" (Kretzschmar 2009: 185). In this article, I will examine the perception of speech varieties in Poland using the "Draw-a-map" methodology introduced by Preston (1989). First, I will discuss the approach introduced by Preston (1989) as perceptual dialectology. Second, I will describe how his methodology was used in this present research and highlight the innovations used. Third, I will show the results of the perceptual map task and discuss the implications of the use of different type of approach in the analysis.

Preston (1989) marks the main interests of *ethnography of speaking* as those concerned with speakers' beliefs about people's speech in various places, the *standard* and other varieties of language, respondents' perceptions of the differences in speech between local speakers and other locations, imitations of other's speech, and anecdotal

stories about the reason and origin of those perceptions. He lays down the fundamental distinction between two types of meaning of the notion of perception:

> Perception, of course, might be understood in two ways. First, microlinguistically – i.e. how are linguistic categories (at any level) which demonstrate considerable variation processed at all. [...] Second, macrolinguistically (ethnographically) – i.e. what are the ordinary speaker's understandings of language variation? [...] Where does an ordinary speaker believe language differences exist geographically? [...] It is this macrolinguistic perspective on language perception which is taken in these studies.
>
> (Preston 1989: 2)

We can see here that the study of perception in folk linguistics is not the same as what other linguists might understand this term to mean. What Preston is describing as perception is speakers' beliefs and knowledge about others' speech. It is what the speakers think about the people speaking varieties perceived as similar or different. This definition will be used in the proposed research.

Another important issue that has been discussed by Preston (1989) is the way he developed the methodology of "Draw-a-map":

> Exactly what detail fieldwork map for such a task should contain is difficult to determine. In a trial run using a blank outline map of the entire country, a number of respondents agreed they could not perform the task. The difficulty in determining the proper amount of detail may be further complicated by the general social and educational characteristics of the respondents.
>
> (Preston 1989: 25)

The amount and type of details put on a map are crucial for the study of perceived dialect divisions, as depending on it the outcome of the results might be different. Many of the subjects were not able to differentiate between the state lines and dialect boundaries, indicating that the boundaries are a product of speakers' historical and social knowledge more than linguistic knowledge.

In the research conducted by Preston (1989) using the "Draw-a-map" methodology, he used a map with only state lines on it, to be filled by respondents from Hawaii, Michigan, Indiana, New York, and New York City. The respondents were asked to draw areas of regional speech on the map and label them. In the second part of the task, they were asked to rate speech in individual states with regard to the two features of "Correct" and "Pleasant". The way the individual maps were converted into results maps, with areas of agreement, involved establishing a threshold of how many mentions of a region would make it enough to create a generalization. For example, in the Hawaiian part of the study, the number high enough for an area to show up on the results map was five respondents out of 35 (Preston 1989: 29). When deciding on a generalization of the areas included on the results map, Preston "follows the lines of greatest agreement,

creating bundles of perceptual isoglosses" (Preston 1989:28). So, what he is creating are isoglosses surrounding categorical entities on the map. Let us remember that his study involved 35 respondents; thus, five of them represent only 14% of the data. This means that what the results map shows as salient perceptual areas might be a result of a 14% level of agreement. Of course, in data presentation, we need to make some arbitrary decisions, but in this case the impression is wrongly created that *The South* and *New England* appear as equally salient areas; but the latter was indicated by the respondents six times, and the former 33 times out of 35 possible (Preston 1989: 26).

In a close analysis of the results of the perceptual maps, Preston notices two opposite notions appearing together: the caricaturistic linguistic features which are compelling for the speakers in determining the areas described as having a "dialect", and large areas unaccounted for by any of the speakers. "This space suggests that respondents have no experience with an area, that an area has no caricaturistic linguistic features or stereotypes, or that an area has no popular cultural notoriety" (Preston 1989: 121). His reasoning is interesting, but what if speakers who do not have any experience with a certain place or speech of that location were still able to create very definite perceptions? Preston does not address the nature of the process that could be responsible for those two opposing mechanisms.

As much as perceptual dialectology has furthered the discussion about individual beliefs regarding language, I believe that there are still issues that can be explained in more detail. Preston (2000) describes in detail all the factors that have to be in place and play a role in establishing our perceptions about language. Although it might not be his ultimate goal to explain the origins of our perceptions, I think it is important to note that Kretzschmar (2009) explains in detail how perceptions are created with the use of *gestalt* theory. This concept comes from cognitive science and is a mechanism that can account for the way we create our perceptions. Human mind prefers patterns and complete entities. Thus, one of the mechanisms with which it is processing the information received from the world is by creating cognitive wholes – *gestalts*. We are then able to create a perceptual, finite concept out of interrupted and incomplete information. Such a method explains, for example, why we are able to have an opinion about the speech of speakers that we have never heard or seen before (Kretzschmar 2009: 222). At the same time, we should keep in mind that "lack of information (especially about speech beyond one's local area) and our perceptual habit for making configurational wholes on the basis of incomplete and interrupted information, will constrain the perceptions that speakers report" (Kretzschmar 2009: 199). This statement addresses how we create the perceptions in our minds, and it also opens up a discussion for how to interpret the results of perceptual maps.

Another cognitive mechanism that plays a role in the perceptual model within the linguistics-of-speech approach (Kretzschmar 2009) is *schema*. This concept, known also as a "frame," "scene," "scenario," or "script," has been used for long time. The first mentions of such an idea can be attributed to Kant (1781). More recently, Mandler (1984: 55) described schema as "abstract representations of environmental regularities".

Each experience that we gain in our lives leaves a mark and helps to formulate such a schema. Therefore, we recognize the world in the realm of schemas, and we parse and designate our experiences into a specific ones.

2. Methodology

The research done by Preston (1989, 1997, 2000) and Kretzschmar (2009) was the foundation for the development of a methodology aimed at answering the following question: In what way do the respondents see speech variation in Poland? Therefore, the technique used was based on Preston's (1989) "Draw-a-map". I had to decide how to use this method to best fit Polish data and obtain reliable results. I decided to change and adjust the original shape of the map proposed by him, displayed in Figure 1.

Figure 1. Blank map for Preston's "Draw-a-map" procedure (Preston 1989: 26).

As we can see, the divisions in the map are the state lines, which might be appropriate for US research. As Preston (1989) points out, the amount of information provided on the map is crucial to the type of responses that we want to receive. Some of his respondents were not able to perform the task when the map did not carry any information on it, and on the other hand he reports that many of his subjects could not escape the notion of a state boundary as a speech variety boundary. Therefore, I decided that it might be more useful for the proposed research to indicate cities on the map instead of other administrative divisions. Moreover, as indicated in the previous studies in cultural geogra-

phy by Gould and White (1986) and Zelinsky (1992), cities may be considered as carrying the value of cultural centers and therefore play a major role in spatial perceptions. Another reason for choosing only cities and not other natural features was that I was interested in the perception of the speech of the cities. I put 13 major cities on the map of Poland, as displayed in Figure 2.

Figure 2. The map of Poland used for the "Perceptual map of Poland" task.

The maps were black and white for technical reasons; excessive detail would potentially disrupt the comprehension of the task. I wanted to keep a balance by providing enough detail for easy geographical orientation and not obscure it with too much information.

The instructions used were again adopted from Preston (1989). I arrived at a version appropriate to the type of data that I was aiming to collect. As suggested by Preston (p.c.), I avoided using words like *dialect*, *accent*, *slang*, or others that could trigger negative connotations. As I was not able to project and foresee all possible outcomes of people's perceptions of the given wording, I was aiming at the most neutral way to phrase the instructions.

The task also asked for demographic information. The respondents gave their age, gender, occupation, education, and place of birth. Also, the subjects indicated where they had lived until adolescence.

2.1. Subjects

The informant sample was collected by convenience through snowball sampling. All of the respondents were students at Adam Mickiewicz University in Poznań. The percep-

tual map was sent by email to Poland and printed out. Then, the respondents filled in a paper version of the tasks. This way of conducting and distributing the task proved to be productive, as it resulted in 215 completed perceptual packages. Table 1 shows the distribution of the informants, according to gender and place of upbringing.

Table 1. The respondents.

	Female		Male		Total	
	N	%	N	%	N	%
Poznań residents	32	69	14	31	46	21
Wielkopolska residents	74	69	33	31	107	49
Other residents	38	61	24	39	62	30
Total	144		71		215	

The age group was the same for all respondents, and also the occupation category was composed of either *students* or *white collar workers*. I did not ask for demographic information about their parents. Moreover, the respondents had the same level of education, *high school*, as they were all in the process of gaining their higher education. Thus, the categories of gender and place of birth/upbringing were the only ones that showed variation in the answers.

2.3. Processing

Once I collected the maps from Poland, I processed them so I could observe patterns emerging from my data. I invented an innovative method to transform the data into quantifiable spreadsheets. Most of the process was automated, which allowed for minimal influence from the researcher and thus avoidance of bias. The aim was to achieve a representation of the perceptions of speech varieties with their inherently variable nature.

First, I scanned the maps. In Adobe Photoshop CS2, I colored the circled areas and erased any other information from the scan: for example the cities, administrative divisions, or any comments left by the respondents. Not all subjects actually put circles on the maps; some of them shaded areas or just assigned labels, and sometimes they mixed those techniques. If there were no areas with a line around them, but instead some other technique was used, I decided to color only the areas covered by the other types of information – such as labels or shading. It seems that there was no other way to choose how to do this, since we are not able to tell what area the informant meant to indicate if there were only labels on the map. As the distribution in Table 2 shows, most of the informants used circled areas. However, there were some individuals who put solely labels on the maps, or shading.

Table 2. The distribution of techniques used by the informants to indicate speech varieties.

Type of technique	%	N
Line around an area only	60	130
Label only	25	54
Shading only	7	15
Mix of techniques	8	16
Total	100	215

I used the PICtoASCII program[1] which converts bitmaps into ASCII symbols. This program allows saving such a converted bitmap in a .txt format in which various colors correspond to different symbols, and white space is white space. Then, using the *Find and Replace* function in Microsoft Word, I inserted tab delimitations in order to be able to open such maps in a Microsoft Excel spreadsheet. I used formulas to count all the symbols in the cells. This way, I was able to add all the maps together. This type of formula resulted in a spreadsheet containing numbers distributed within the shape of Poland, in which each number corresponded to how many respondents from a given set indicated some speech variety in that particular cell, corresponding to the respective area on the map. Having data in such a format, I created charts using Microsoft Excel from the sums of maps in both the 3D and 2D configurations. Although the maps smooth the data through the statistics used to create them, I believe that it is still a useful way of displaying the results, as it shows all the levels of agreement.[2] Such a tool brings better results because the agreement levels do not obscure how salient and agreed-upon the areas really are. This method is in opposition to Preston's (1989) method used to display results, in which he made his decisions in a categorical manner as the regions displayed as salient were chosen based on whether at least five respondents agreed upon a region. Such areas are products of generalizations and obscure the real agreement levels between the subjects. Thus, I believe that the method proposed here represents the data in a more accurate manner.

In order to avoid any ambiguity regarding the clarity of the results, I used three alternative views: spreadsheet, 2D, and 3D. On the 2D map, the differences are indicated by the disparities in color: the darker the area, the more informants agreed upon the location. I chose to show the differences between the data at every 10 percent mark, indicated by the color. Although each sample has a different number of subjects, ranges for each of the ten levels use the same color, as indicated in the legend.

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[1] This software is free and it has been developed by Dr. Sefer Bora Lisesivdin at Gazi University in Turkey. The program is available at his home page, <http://sites.google.com/site/sblisesivdin/other-stuff/programs/pictoascii>.

[2] The 2D view used colors as an indication of differences, while the 3D view showed the same results emphasizing the differences through latitude; also, this view allowed to better show geographically restricted areas which were only points in the 2D view.

3. The results

3.1. Combined results for all respondents

Having data prepared in the manner described above, I was able to explore it in depth. I had 215 maps. When I created a formula that added all of the maps, the Microsoft Excel spreadsheet had a distribution of numbers, which is presented in Figure 3.

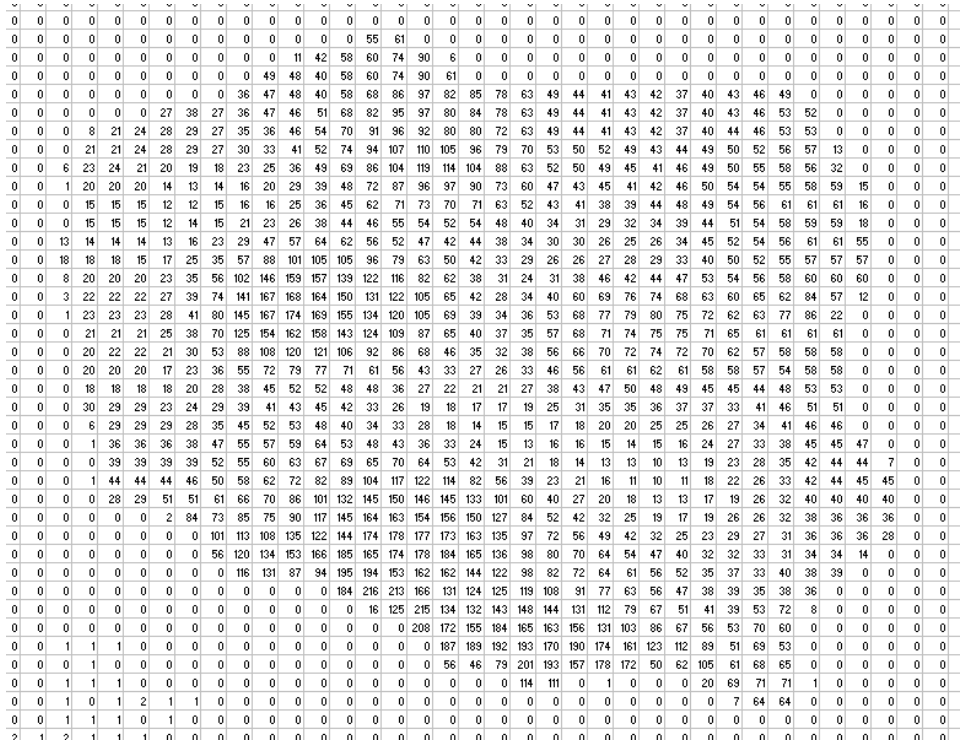

Figure 3. Spreadsheet of all the results.

As a result of this type of processing, we can see that the numbers form a shape of Poland. The cells are not ideal squares, so all the numbers can be visible, which makes the shape of Poland somewhat stretched. However, it is still a good depiction of the original shape. There was no variation in the alignment of the original boundaries when the maps were added together. However, because they were present in every map, the boundaries caused a false "wall" of 100% of agreement around the country. Therefore, in the worksheets for each map, the boundaries were removed. The symbols corres-

ponding to the boundaries are different from any of the symbols indicating colors for the indicated speech areas. Therefore, the area indicated by the numbers corresponds to the surface of the map of the country minus the boundary.

Two points need to be made about the distribution in this map. There are only a handful of cells that carry numbers over 200, indicating areas where almost every informant circled something, with only one cell each with 213, 215, and 216 indications, all close to each other. The number 216 appeared because some respondents indicated a region within a region, in which case the map was treated as two maps, but there were only four instances of that. The other important observation is that there are only a few numbers below 10 on this map that are within the borders of Poland, as determined by the task itself. There are large areas of numbers in the teens, but no zeros and only a few single digits. This observation is very important, as this way of displaying the data makes it visible. The charts below obscure the lowest frequencies because of the fact that there are only ten ranges of data displayed. Furthermore, most of the area is covered by numbers falling somewhere between the highest and the lowest values.

Now, the same data transformed into a chart emphasizes the boundaries within the spectrum more than the spreadsheet view. Figure 4 displays a 2D view of the same map.

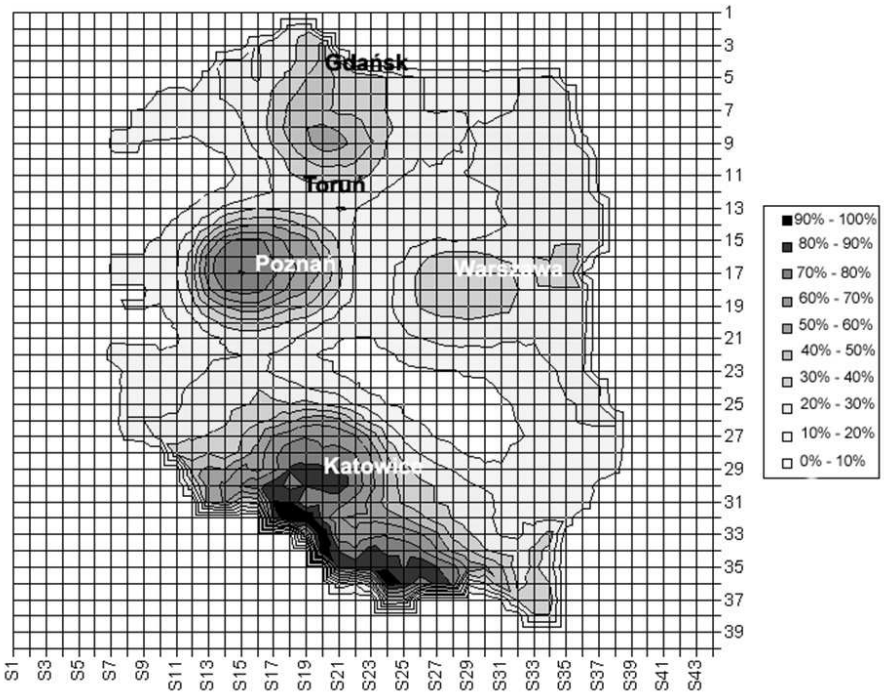

Figure 4. All of the results in a 2D view.

The darkest areas of the map are where the highest numbers were located, and the white areas are where 10% or fewer of the informants indicated anything on the map. We can see that there are four main areas where at least 40% or more of the subjects circled something on the map; the areas are in the North, South, East, and West of Poland. There is a vast surface around the epicenters with less than 30% of the respondents perceiving any speech variety there. The dramatic difference between the small areas that many subjects indicated and the large surface that not many of them agreed upon, is sharpened by this view.

It seems that Poznań, in the eyes of the respondents, has some sort of particular type of speech. Another city clearly pointed out is Katowice in the South. Warszawa, although visible in the East, does not receive the same level of agreement as the previous two. In the North, the situation seems to be different. The area specified the most is not around any major city. It may be an indication of a speech pattern present in the area but not strongly associated with the surrounding towns. A similar situation can be observed in the South, where the mountain region received the most recognition out of all.

Now, if we look at the same map in the 3D perspective, the differences in altitude may reinforce the previous observations. Such a view is presented in Figure 5.

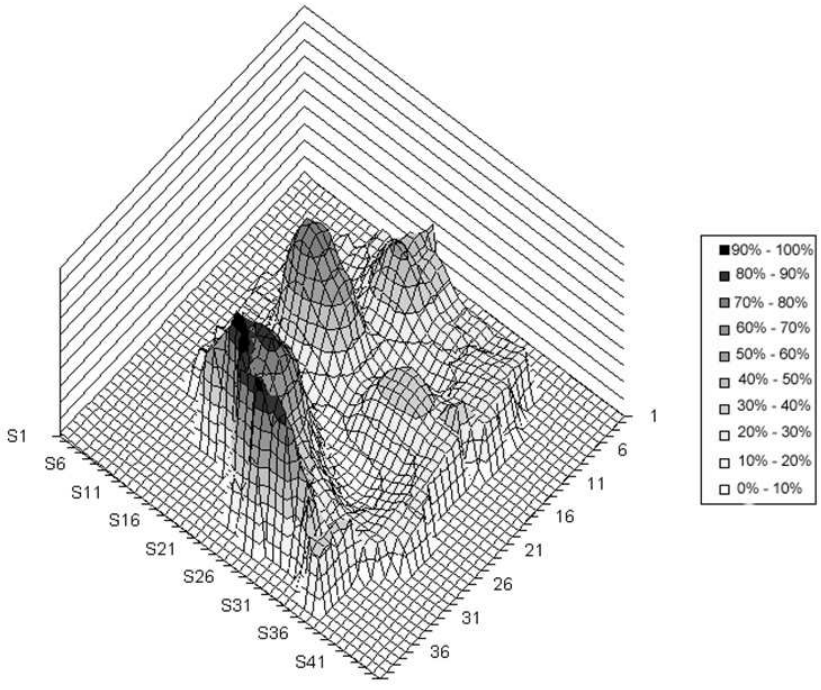

Figure 5. All of the results in a 3D view.

This view emphasizes the differences between the regions dramatically. We can see the peaks of agreement and valleys of lack of agreement. The data portrayed is still the same, but this angle gives insight into how much the opinion of each respondent differs from one another: the mountains do exist but are scarce, and the deepest valleys are in short supply. What prevails the most is the existence of vast plains of low-level agreement.

3.2. Results for Poznań respondents

In the previous study performed in the area of perceptual dialectology, Preston (1989) and Tamasi (2003) have indicated that the subject's place of residence has influence on their views about the speech around them. Moreover, Kretzschmar (2009) explains this

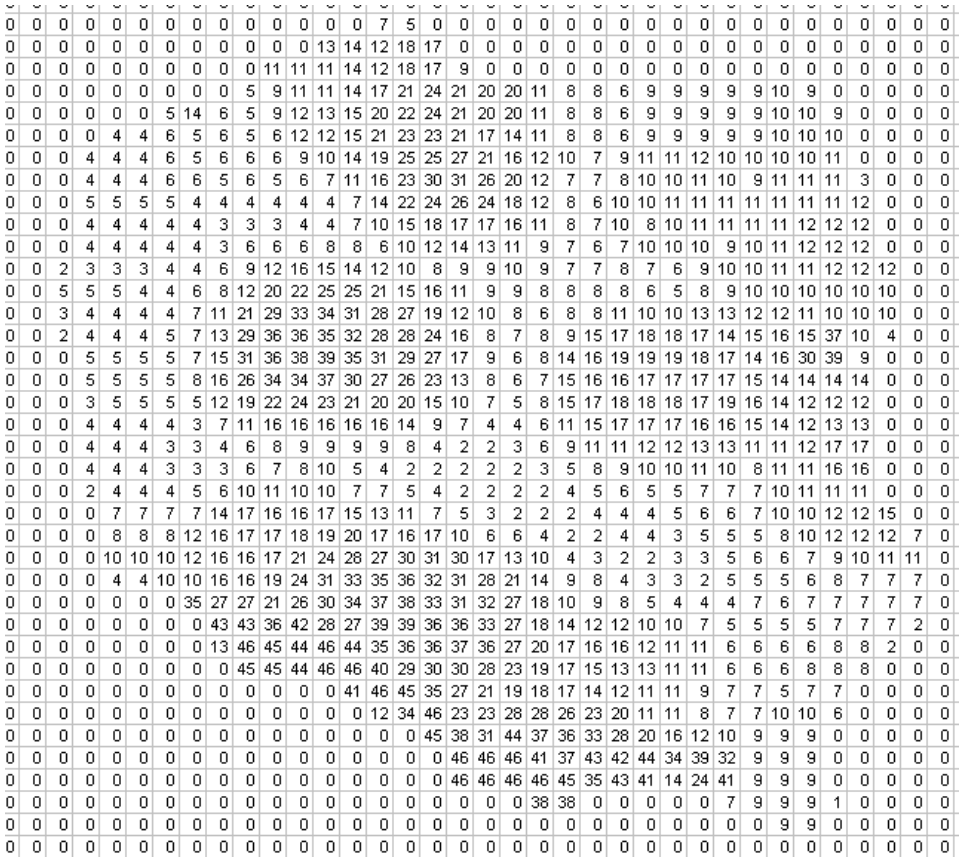

Figure 6. Spreadsheet of Poznań residents' results.

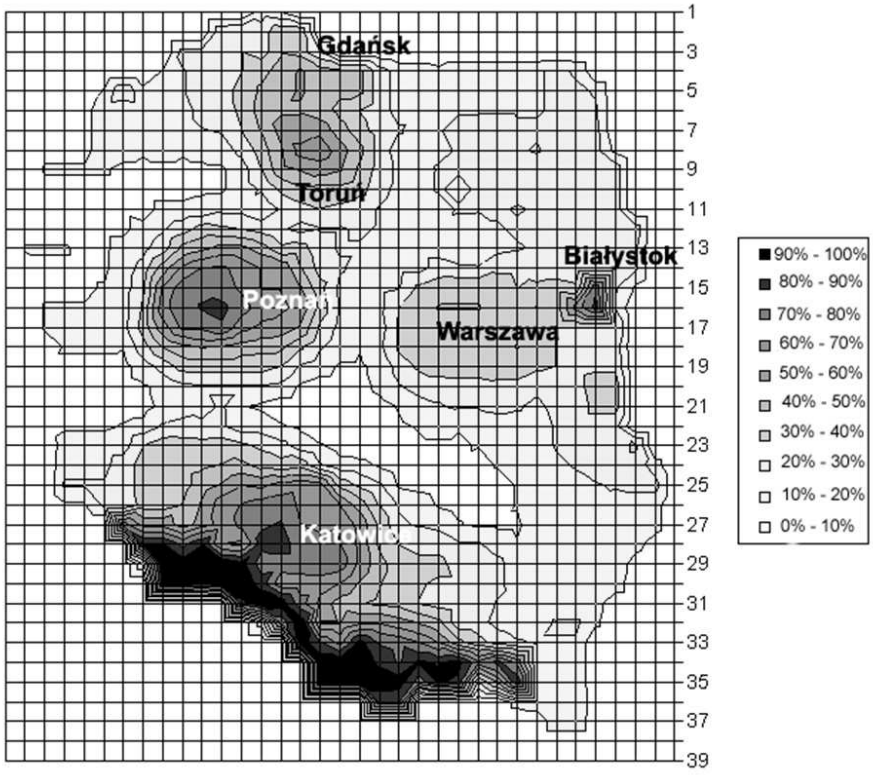

Figure 7. Poznań residents' results in a 2D view.

relationship as having to do with geographical proximity and is a nonlinear function. According to this idea, people know the most about their local surroundings and not as much about places far away from them. This comes from the idea that they have the most information and experience with their locale and less experience or incomplete information about more distant places. Therefore, the place of residence might be seen as playing the main role in a subject's perception of speech close to him and far away from them.

For those reasons, I chose to ask my respondents about their place of birth and residence up through their adolescent years. According to their answers, I divided them into three groups: Poznań, Wielkopolska, and other parts of Poland. We have to keep in mind that except for the schemas created based on their upbringing, all of the subjects are students in Poznań, and this experience might have also triggered new perceptions. The first maps that will be described are those of the Poznań respondents.

Figure 6 presents the Excel spreadsheet with the results of the Poznań residents. This sample contained 46 maps. We can see that there are no zeroes within the country's

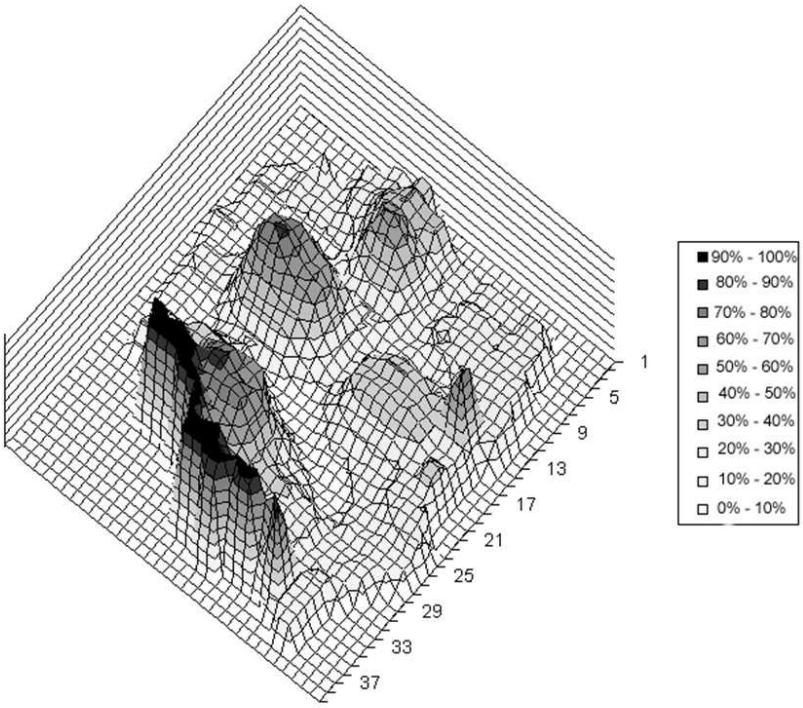

Figure 8. Poznań residents' results in a 3D view.

boundaries. However, there are vast single digit areas and a limited number of values above 40.

This tendency seems to be similar to the results previously seen in the combined results for all respondents in Section 3.1. Figures 7 and 8 show the 2D and 3D view of the data.

A few important notes need to be made about the results. First of all, the South of Poland appears the strongest in the perception of the respondents. It is the biggest area, and it reaches the highest level of agreement, even in the range of 80% to 90%. Second, Poznań shows to be very prominent, but the highest level of agreement covers a very limited area – the further away from the epicenter, the lower the percentages. Thirdly, the shape of the map does not differ substantially from the one displaying all of the results. It has similar areas that stand out. The characteristic in which this map differs concerns the levels of agreement about the perception of those with the highest elevation. Poznań received more attention from the native residents, which confirms the idea that people care more about their own surroundings than distant areas. However, the fact that the speech of people in the South and the area around the city of Białystok re-

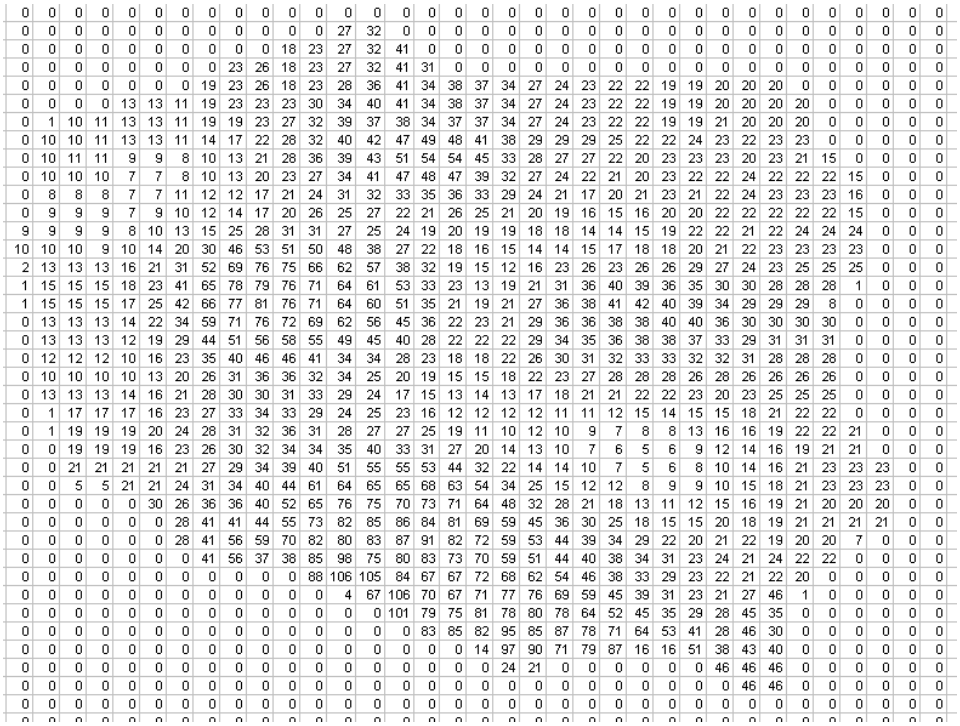

Figure 9. Spreadsheet of Wielkopolska residents' results.

ceived such high scores indicate that, in addition to distance, there are other factors influencing perception. This issue will be discussed further.

3.3. Results for Wielkopolska respondents

The next group that I extracted from the sample was composed of subjects born and raised in the Wielkopolska province, but not in Poznań itself. This sample contained 107 maps. Wielkopolska province is the second largest in Poland in terms of area and the third most densely populated. I wanted to see if there were differences in the perception of Poznań and other areas if the respondents were not native to the area but lived relatively close to it. The numerical map is shown in Figure 9.

This map shows a very limited area with single digit results. The rest of the country is covered with numbers in the mid and higher ranges, with the highest scores' cells most restricted out of all the maps so far. This distribution is seen even more clearly in the 2D and 3D views presented in Figure 10 and Figure 11.

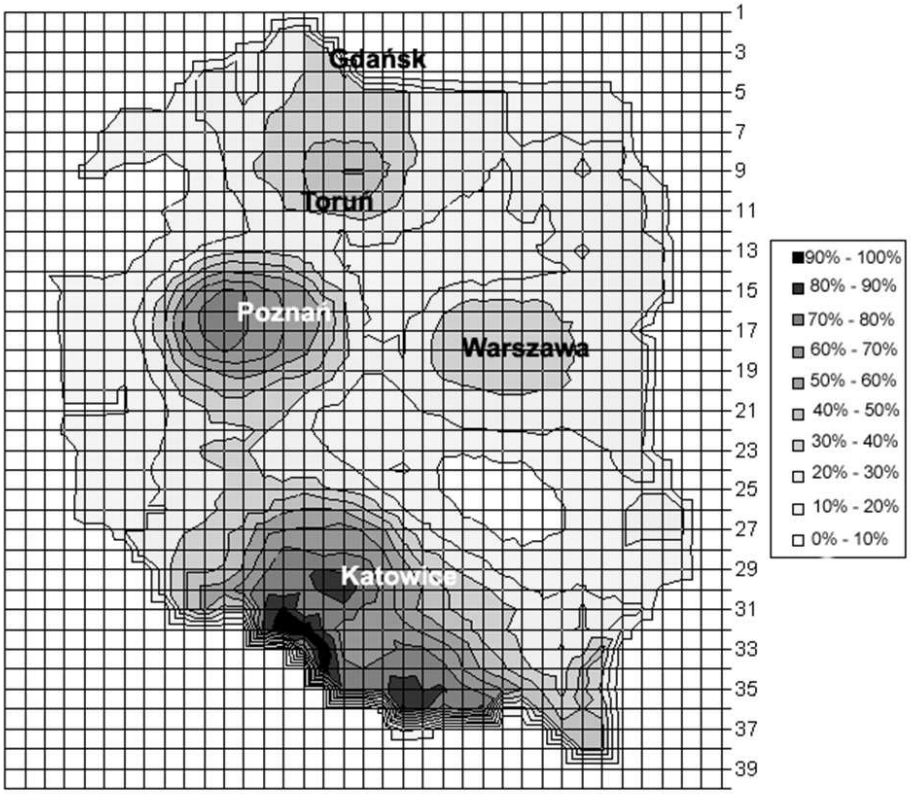

Figure 10. Wielkopolska residents' results in a 2D view.

The two views show somewhat different results than from the previous group. What is immediately noticeable is the fact that the peak around Białystok is not present on this map. Also, the speech variety in the North is not perceived as unanimously as before, even the range in the South is more restricted. However, there is less white space. This may indicate that because the group of subjects was relatively more dispersed in their residence as opposed to the Poznań residents, their perceptions are more dispersed too, and therefore cover more ground. By this token, we can also propose that they have a basis for comparison, as they were born and raised somewhere outside of Poznań, and now they had lived in Poznań for some time. On top of that, the base of the mountain for Poznań is very similar in size to the one designated by native Poznań residents. However, the agreement level never reaches the highest scores and stays in the 70% to 80% range. Just like for the former group, the area around Warszawa received a low to moderate recognition in the range of 30% to 40%. A general observation emerging from

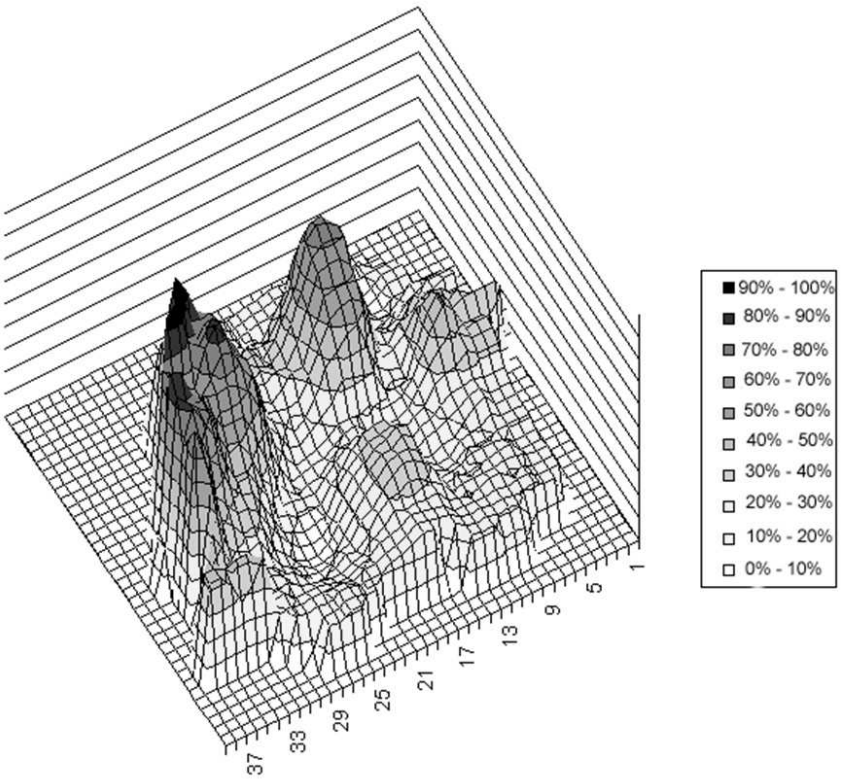

Figure 11. Wielkopolska residents' results in a 3D view.

a comparison of the map by Poznań residents and Wielkopolska residents is that the latter group has a more dispersed perception of speech around the country, and the highly-agreed-upon areas are extremely restricted.

3.4. Results for other respondents

The last group of respondents comprised those raised outside of the Wielkopolska province. The sample contained 62 maps. This group was the most diverse in their residential history, as their native areas varied in distance from Poznań and Wielkopolska from a few miles to a few hundred. Again, all of them were studying in Poznań, so we can assume that their experiences had been at least of a dual nature, as they had been raised in one part of Poland and now they lived in or commuted to another part of the country. Figure 12 shows the number view of the results map.

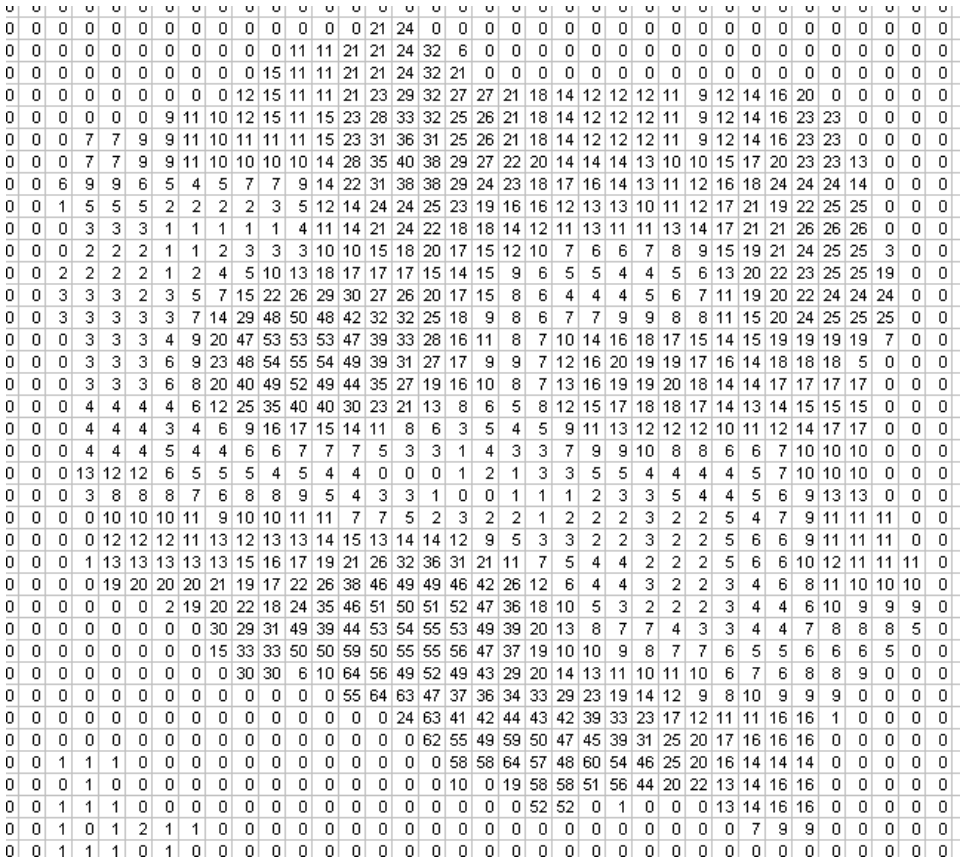

Figure 12. Spreadsheet of the other respondents' results.

In some respects, this map shows a different type of pattern than the other maps. For one, there are large areas covered by single digits and a few zeros, the largest out of all the results maps. Although there are also clusters of the highest scores, as in the previous cases, their distribution is slightly different. The clusters are surrounded by mid-range numbers, but there are fewer clusters embedded in the smaller numbers covering large areas. This distribution can be seen even more clearly in the 2D and 3D views in Figure 13 and 14.

As can be seen from the maps, especially in the 3D view, there is a belt of white space dividing Poland into the North and the South, just below Poznań. Also, there are barely any speech areas indicated to the west of Poznań. It seems that the epicenter in the East is not exactly the same, because the most frequently perceived speech variety has moved upward into the surroundings of Białystok instead of Warszawa, in comparison to the previous maps. The perceptions of the speech in and around Poznań, as well

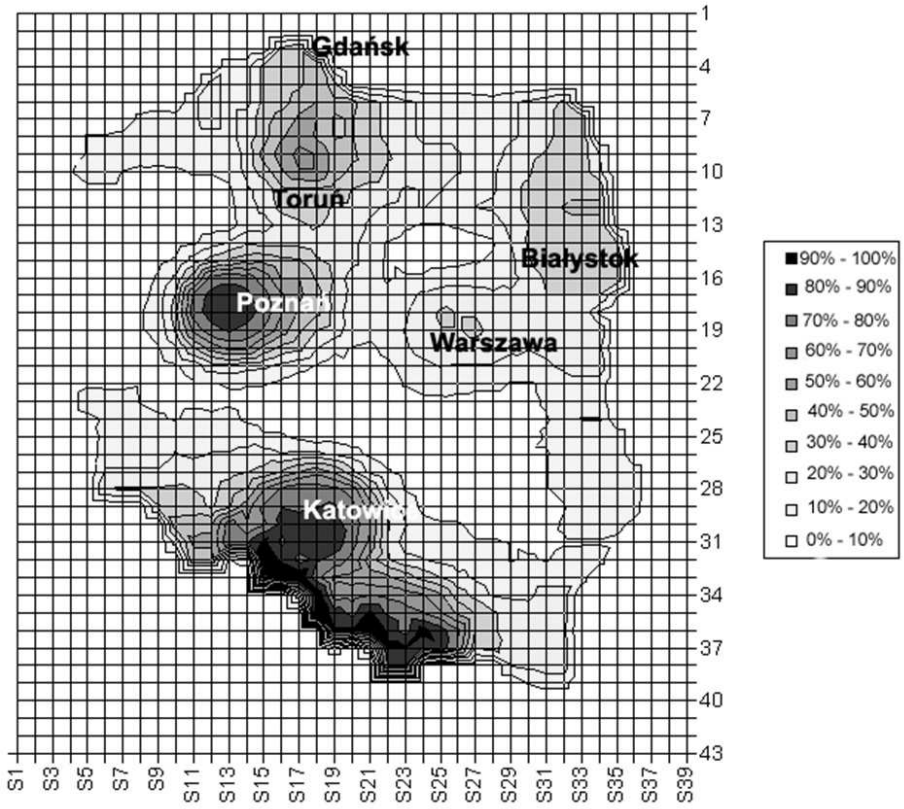

Figure 13. Other respondents' results in a 2D view.

as in the North and South, are similar to those seen previously: Poznań received high scores even into the 80% to 90% range of agreement. This area of high agreement covering Poznań is the biggest out of the three groups of informants. One possible rationale for this observation is that the subjects had recently moved to the city and added some new perceptions about Poznań speech to those they previously possessed. Again, the only area receiving the highest scores is located in the South of Poland.

The darkest region is smaller than in Poznań residents' perceptions but bigger than those of the Wielkopolska province group. Moreover, the area surrounding Katowice is the largest and darkest of all. All of those dark areas can be explained in the framework of the "local dome" by Gould and White (1986), in which the local surroundings and areas with high populations and knowledge about them receive the most recognition from the respondents. One problem is Warszawa. Although it is the biggest city in Poland, it did not receive much recognition. It might be that Warszawa gets any type of

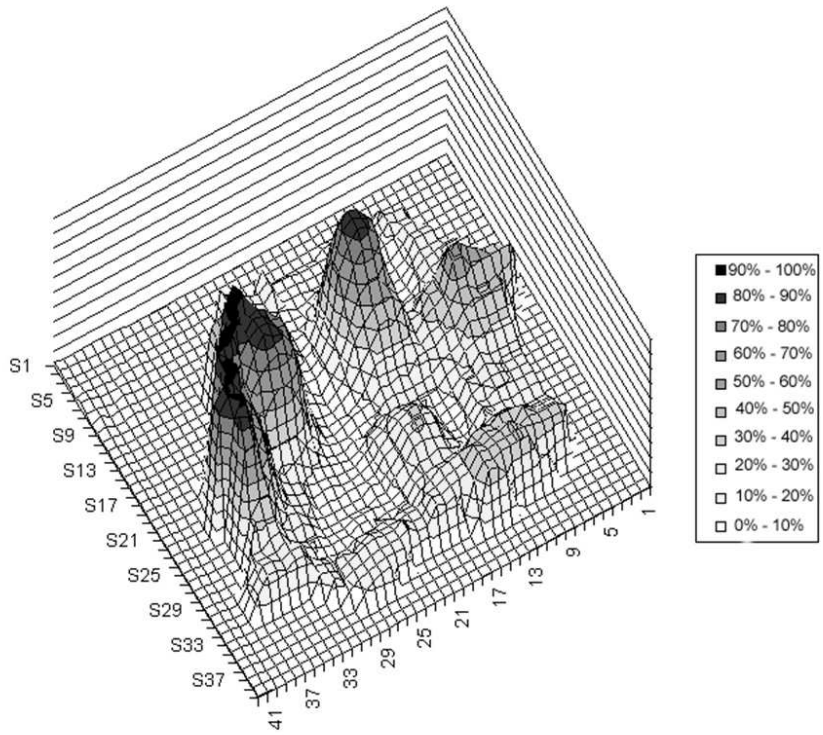

Figure 14. Other residents' results in a 3D view.

recognition at all not so much because people think it has a particular speech variety, but because people believe that such a big city "should" have some sort of special speech patterns.

4. Observations

After completing the analysis and comparison of the maps discussed above, there are a number of more general observations to be made about the nature of these maps. The most general, and maybe obvious, observation is that the maps simultaneously demonstrate similarities and differences. Another general statement can be made that the technical solutions used to analyze the data make a difference in the way the data can be presented and, by the same token, analyzed. As I have shown, if we look at the results maps in the form of spreadsheets filled with numbers, some of the information is harder

to see because we are overwhelmed with information. A good example of this would be that it is hard to clearly see the peak areas of agreement immediately. However, those types of maps show that the low frequency answers are present in the data and that the maps are filled with them. On top of that, the spreadsheets show the background of the study, where the results come from, without obscuring it.

On the other hand, the 2D views show the results in a very clear and appealing way, using color. This way of presenting the data shows gradation, although smoothed and averaged. It is easy to imagine all of the individual maps layered on top of each other with differences translated into colors. Moreover, the white areas are obscuring the view in such a way that they might suggest no data in those areas. The 3D view can reinforce and add a dramatic effect while showing the differences. It also shows restricted peaks, which in 2D view are just black dots, as for example in Figure 7. It is a very clear and straightforward way to look at the variations in the altitude of agreement. I also believe that a topographical representation is easier and more appealing to understand than color gradation. However, the high altitude areas obscure the rest of the view. Overall, the logic behind the use of this sort of methodology and technology was to avoid generalizations and creation of arbitrary perceptual isoglosses. Moreover, using three different views of the data, I was able to emphasize the versatility of the information presented and observe the tendencies in the results. Those trends are presented below.

In their perceptions, the subjects associate speech varieties with geographical region. Although it might sound like stating the obvious, it is important to note that subjects had no problems indicating where they thought various speakers and their speech varieties were located on the map. Such a statement was also asserted in previous research by Tamasi (2003: 133). In fact, the more subjects agreed on a perception of a speech variety belonging on the map, the more geographically restricted such an area was. No matter what type of group of subjects was analyzed, the darkest areas were the smallest ones on the maps. This indicates that subjects are inherently variable and such variability translates into an immense amount of disagreement and very restricted overlapping agreement. The opposite relation is also true: the smaller the level of agreement, the bigger the area indicated on the map. However, this does not mean that the lowest range of 0%–10% is the largest area covered. This observation leads to the next point.

The way the distribution of responses operates is according to the non-linear distribution known as the asymptotic hyperbolic curve, or A-curve (Kretzschmar 2009). The data indicates that people do not agree on a specific area more than they do agree. When their responses are aggregated, the whole map is covered with high, mid, and low numbers. Out of the entire sample, there will be some people who will indicate an area not perceived by somebody else, and vice versa, thereby filling in the gaps between high frequency regions. This way, in the number-filled spreadsheet, we do not get many single digits within the boundaries of the country, and we do not get many high numbers. Moreover, the high frequency areas are an indicator of the shared overlapping cultural schemas.

No matter which way the sample was divided by place of birth, the four main epicenters of highest agreement emerged in the South, around Silesia and the mountain region, the West in the Wielkopolska region, the North close to the seaside, and the East around the capital city, Warszawa. Only in the South and in the West did two major cities, Katowice and Poznań, receive scores higher than an agreement level of 80%. There were 13 cities on the map, and except for Poznań and Katowice, no other city was contained within an area of an agreement level higher than 50%. Most of those cities were located in areas of a 20%–30% range of agreement. The four epicenters emerging from the data did not have the same level of recognition from the respondents, and they were not the same size.

The area that received the highest score, in the 90%–100% agreement range, was a region in the South, attributed to the mountain range where the *highlanders* live. However, there were actually two smaller areas that people identified, and once those groups were put together, it created the long but thin belt of high level of agreement in the South. Therefore, such a pattern indicates that people agreed with each other in smaller areas, but only the aggregation of the results creates the high level area of agreement. The situation in the North was different, since the maximum level of agreement here only reached the 50%–60% range. The epicenter was not located at any major city in the area or any of the cities indicated on the original map.

Surprisingly, in the East, the biggest Polish city and the capital, Warszawa, received the lowest level of agreement out of the four epicenters, only in the 30%–40% range. The respondents only weakly indicated any type of speech specific to Warszawa on the map. In the West, subjects asserted that they do have a definite perception of Poznań speech surrounding the area around the city; the range of agreement oscillated between 60% and 90%. The largest area of highest agreement, in the 80% to 90% range, was designated by respondents born and raised outside of Wielkopolska province, not the native population.

In future research, we definitely need more data from other parts of Poland to see if the perceptions are dramatically different or similar in the minds of people from the other regions. It would also be interesting to see if residents of other cities have perceptions about differences in speech within those cities or smaller regions, especially, those areas that received such high recognition on the map as Katowice or the mountain area. Also, there is the opportunity for research regarding the low dome of agreement around Warszawa, which remains a puzzle at this stage of analysis. It is surprising that this city, the biggest city in Poland, which is closer to Poznań than the mountain region, received such a low level of agreement. The three factors of population size, distance, and information are crucial in establishing the strength of perception of a place (Kretzschamar 2009; Gould and White 1986), but they do not explain why Warszawa was not recognized at least as much as the Kashubian region in the North. Therefore, more data needs to be gathered to see if this tendency is common around the country or not. Venturing into various parts of Poland would allow for a more comprehensive image of speech perceptions in the country and establish a base for comparison, so the following puzzle

could be solved. After the presentation of a paper[3] concerned with preliminary findings from this study, I was approached by Dennis Preston, and he asked me, "Where is the Eastern dialect?[4] I was convinced that people will indicate the Eastern dialect on the map. Interesting". I was too, but it is not there.

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[3] Paper entitled "Perception and production of dialect in Poznań" presented during the 40th Poznań Linguistic Meeting, September 2–5 2009, Gniezno, Poland.

[4] The dialect that he was referring to is perceived as connected with the area of Eastern Poland occupied by the Russian empire in the 18th century. The influence of Russian in that area is perceived to have carried on until the present.