

## THE “GLOTTOGRAM”: A GEOLINGUISTIC TOOL DEVELOPED IN JAPAN

Shinji SANADA

Nara University

sanadas@daibutsu.nara-u.ac.jp

### Abstract

Glottogram is the term for a graph which crosses speakers' ages with geographical factors. Glottograms were conceived and developed in the realm of Japanese geolinguistics. The first collection of multiple glottograms appeared in the 1980s. By the 1990s, there was a significant increase in the production of glottograms for various regions of Japan. Glottograms can show us the dynamics of language contact and language change, in great detail. Although in Germany generational differences in dialects have been presented in map form, in general the concept of a “location X age” graph does not exist in the West. In fact, in the West little value seems to be placed on Japanese glottograms. But it was out of dissatisfaction with the limitation of maps only being able to represent data on a plane, that glottograms were conceived of in the first place, and this led to their use as a supplementary tool to maps, and as a model for construction theories.

### Key words

Linguistic map, Glottogram, Geolinguistics in Japan

### 1. Introduction: Language Atlas

The primary goal of linguistic geography lies in the premise that language, in general, diffuses both geographically and socially. Even so, in recent years some movements have been undertaken to propose a new discipline called ‘geolinguistics,’ which incorporates both urban linguistics and human geography. Linguistic geography provides geographical and sociological explanations for linguistic phenomena using linguistic atlases, diagrams, and graphs; the explanation aims to demonstrate the process

of how innovative forms expand their areas, and shows results which are usually expressed as contact, change, and attrition.

One of the most primary patterns in language diffusion is called ‘crawl-type diffusion,’ similar to a stain on a blotting paper. This type of diffusion, in some cases, is hindered by steep mountains and or rapid streams, thus proving that the expansion of geographical areas of new expressions does not always expand smoothly. The existence of such deep mountains as the Japan Alps, and lakes and rivers as Lake Hamana, and the Kiso Rivers, clearly contributes to the East-West Japanese dialect division. However, the cause of this distinction is not restricted to the natural boundaries which either prevent or promote linguistic diffusion. In fact, one of the primary factors is human-geographical environment, which is determined by social, cultural, or psychological filters such as economic bloc, political bloc (e.g. nation, community, etc.), and identity.

Some distributions of linguistic forms are considered to be established through ‘steppingstone-style diffusions.’ This type of diffusion can be observed in immigrant communities or in the communities on the sea traffic route. What should be noted here is that the geographical distribution of new linguistic forms today shows ‘diffusion from the air.’ This diffusion, also defined as an ‘inter-city diffusion,’ is emphasized by the limit of the ‘crawl-type’ diffusion.

Linguistic maps explicitly depict the spatial relationship of each linguistic form. However, they also have a certain number of indications, which cannot be observed on the superficial level.

What should be noted at the beginning is that linguistic maps are drawn on the basis of survey results, which target particular social variables. It is useful to know the geographical distribution of a certain linguistic variable in, for instance, a different age group. The diachronic change of linguistic forms can be abstracted through the linguistic maps of the older generation in comparison with those of the younger generation. In the same way, gender differences can be extracted through gender-oriented linguistic maps. The same thing can be applied to varieties due to social class.

Linguistic geographical surveys focus on a certain sociolinguistic setting so as to obtain the expected linguistic form in the most effective way. However, the problem is that the speaker does not always use the expression in all levels of formality. It is rather natural to assume that he/she employs a variety of expressions based on the

sociolinguistic situations, the addressees, and so forth. Generally speaking, settings encompass both casual and formal situations, and they are realised as a continuum. Linguistic maps of both casual and formal settings would provide us with the ability to observe stylistic differences, or both frequency and the comprehensibility of each expression.

In addition, linguistic geographical surveys specify the sociolinguistic context (meanings, usage) of the survey words. In other words, survey questions do not cover the entire sociolinguistic contexts of the linguistic form. In fact, the pragmatic usage of the linguistic form elucidates some meanings and usages which slightly differ from the survey data.

Unfortunately, it is not possible to introduce language maps one by one. However, a number of linguistic maps, dealing with a wide-area linguistic map (or *Großraum atlas*) and with a narrow-area linguistic map (or *Kleinraum atlas*), have been published on the basis of various viewpoints. Examples can be found in Sanada (2002).

The publication of linguistic atlases can be traced back in history. The oldest publication of the linguistic atlas was made in 1905 (Kokugochosa Iinkai 1905, 1906). This publication marks the very beginning stage in the development of linguistic atlases.

## 2. Birth of the ‘glottogram’

‘Glottogram’ refers to a graph that is drawn by an X-axis of geographic relationship and a Y-axis of age. It was created and coined in the field of Japanese linguistic geography. Amongst numerous other social variables, it is ‘age’ that demonstrates the strongest relationship with Japanese language variation. This became a true colour to establish ‘locality and age’ graph. The meaning of the term, ‘glottogram’ can be explained by ‘glotto-,’ meaning ‘linguistic,’ and ‘-gram,’ meaning ‘drawn picture.’ The rest of this section explores the birth of the glottogram model, along with my personal academic activities.

It was towards the end of the 1960s, when I graduate student. I was involved in drawing *Kleinraum atlas* in various parts of Japan. During the completion of my fieldwork, I began to have doubts about the maps’ effectiveness. That is, data plotted on the linguistic maps simply represent the linguistic situation in the survey locality, which

is a restricted scope of the issue. The data in the linguistic map that I was working captured only the data of the elderly men. My research interest came to focus on other aspects: how about the data of the elderly women, or the younger generation in particular? This research question provided me with an opportunity to pay close attention to the linguistic variation not only in the sense of geographical space, it also examined the correlation between survey locality and age. In those days, a neighbour in my accommodation majored in physics. I would intentionally go to his room to make arguments on various topics in linguistic geography, and from him, learned mathematical methodology. From these arguments, I began to understand that the correlation shown between age and locality based on each survey word can be illustrated as a function. By doing so, the typology of the semantic relationship of the survey words would be possible. In this way, Togadani (Toga valley) of Gokayama in Toyama Prefecture was chosen for my study.

While I was doing the survey in Toyama Prefecture, I heard from my supervisor Masanobu Kato that researchers at the National Language Research Institute were conducting an intriguing survey in Hayakawadani (Hayakawa valley) of Itoigawa in Niigata Prefecture, in order to verify the survey results in the ‘Linguistic Atlas of Japan.’ I decided to visit Itoigawa, where the survey was conducted, on the way back from Sendai to Toyama, my hometown. I went into a tavern where a group of the researchers stayed in the early evenings. It was the very moment when Father Grootaers was talking about the survey result of the Hayagawadani with a locality-age graph in front of Professor Munemasa Tokugawa, Ryoichi Sato, Makoto Takada, and others. To be honest, I even felt depressed with the fact that their idea was similar to my idea, but this incident also made me feel confident in what I was doing at that time. It was the very day when the terminology, glottogram, was coined.

Regarding the very birth of this terminology, glottogram, Professor Munemasa Tokugawa cited a diary of Father Grootaers to check the date:

I remember the day when we first used the word ‘glottogram’ at Yamakawa Tavern in Ara-machi of Itoigawa-city on the morning of the 27<sup>th</sup> of March, 1969. We were working with survey data from the fieldwork. As far as I remember, it was Makoto Takada who first started the discussion. It was also when all of us were putting data onto the large paper, which was to be used at the Grootaers’s lecture at Rotary Club

in Itoigawa city. The lecture would report the tentative data of the Itoigawa survey.

*(Omitted)*

I also remember the day when we were conducting our survey at Hayakawadani. Shinji Sanada, a graduate student at Tohoku University at that time, made an unexpected visit at the tavern on his way back to his hometown. This day was the very first occasion for me to make a fruitful discussion over ‘sukiyaki’ with Sanada at a room of the Yamakawa Tavern in Ara-machi (Tokugawa 1993).

According to my research diary, it was the night of March 26<sup>th</sup>, 1969, when we had a ‘sukiyaki’ party. I still remember that I raised this topic with Takada late in the evening that day; we talked about the interesting relationship between ‘glo’ in glottogram and ‘gro’ in Grootaers (disregarding the distinction between ‘L’ and ‘R’). At any rate, it was such a pleasure for me to witness the very place where the term ‘glottogram,’ was coined.

At that time, there was a large paper posted in a room of the tavern with the linguistic map for ‘*kanshoku*’ (snack). I still remember so clearly the geographical distribution of the form ‘*nakama*,’ where a bright red paper was pasted. Therefore, we can conclude that the emergence of the terminology, ‘glottogram,’ was in 1969.

Results of the Hayakawadani survey were reported at the spring meeting of the Society for Japanese Linguistic in Kyoto on May 24<sup>th</sup>, 1969. During the report, a group of the researchers presented the results of nine out of 40 survey items. The title of the paper was ‘Rise and Fall of the Words,’ and it was Professor Munemasa Tokugawa who presented this paper. The publication of the report was in 1985 (National Language Research Institute 1985).

After the birth of the term glottogram, several pilot surveys of glottograms were conducted in some localities in Japan. However, no reports were published with illustrations in the 1970s. It was in the 1980s when the publications surfaced with illustrations of the glottogram. Fumio Inoue made it his initiative to publish the glottogram report. However, at the beginning, he himself did not name this type of illustration as a ‘glottogram.’ He began naming this style as ‘glottogram’ in 1985, when the Hayakawadani survey report was officially published (Inoue 1985). Since the 1990s, publications with glottograms have become very common. Although the number of publications declined in the late 1990s, glottogram surveys were started by a

dialectological circle of the Konan University, and the surveys were still in process so as to publish the large illustration, which required a large amount of time and painstaking work (Tsuzome 2007).

Let me move back to my survey conducted in the late 1960s. The purpose of the survey was to realize the geographical distribution of the variation of accentuation patterns in the South-Western part of Toyama Prefecture in Hokuriku Region. Figure 1 illustrates the quantitative variation based on the speaker, focusing on certain word groups of the two mora nouns.

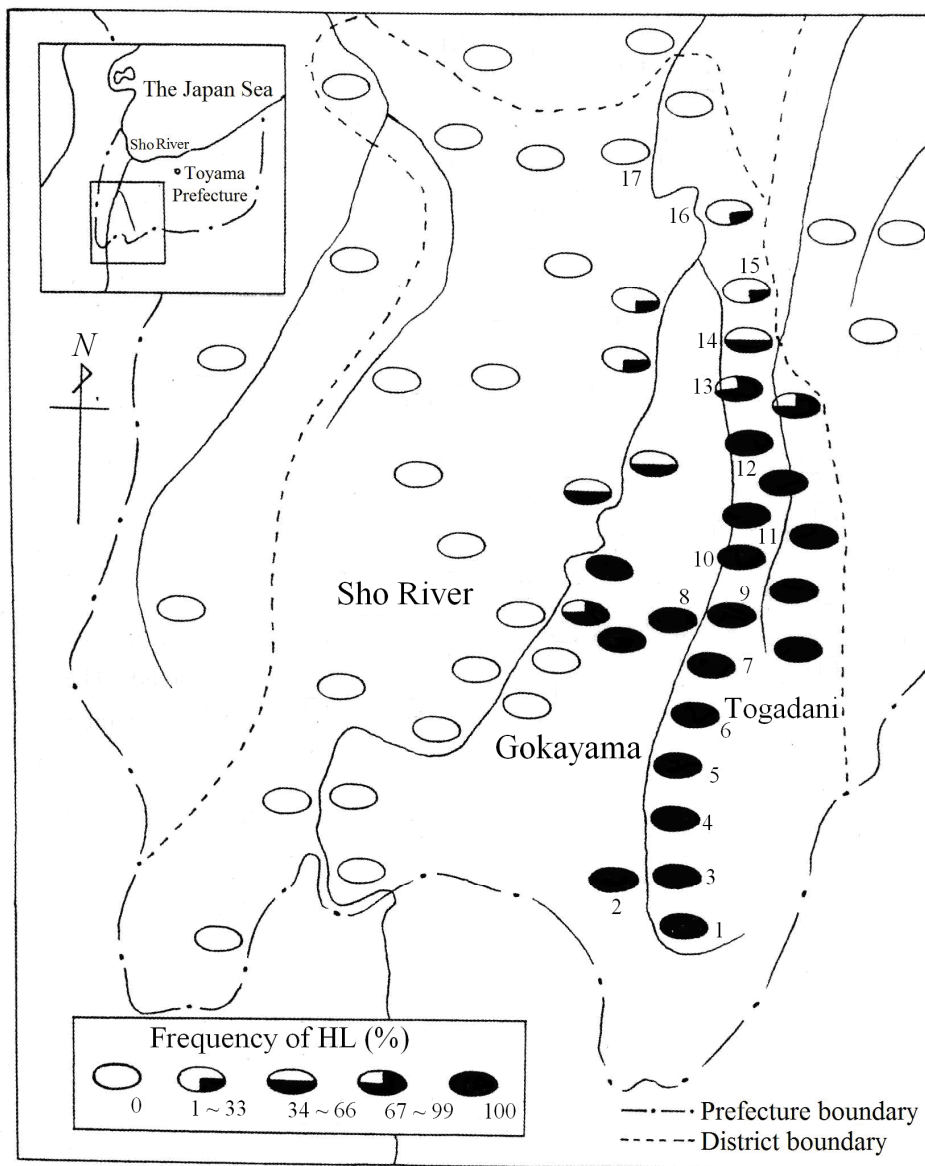


Figure 1. Distribution of the Accentuation Pattern

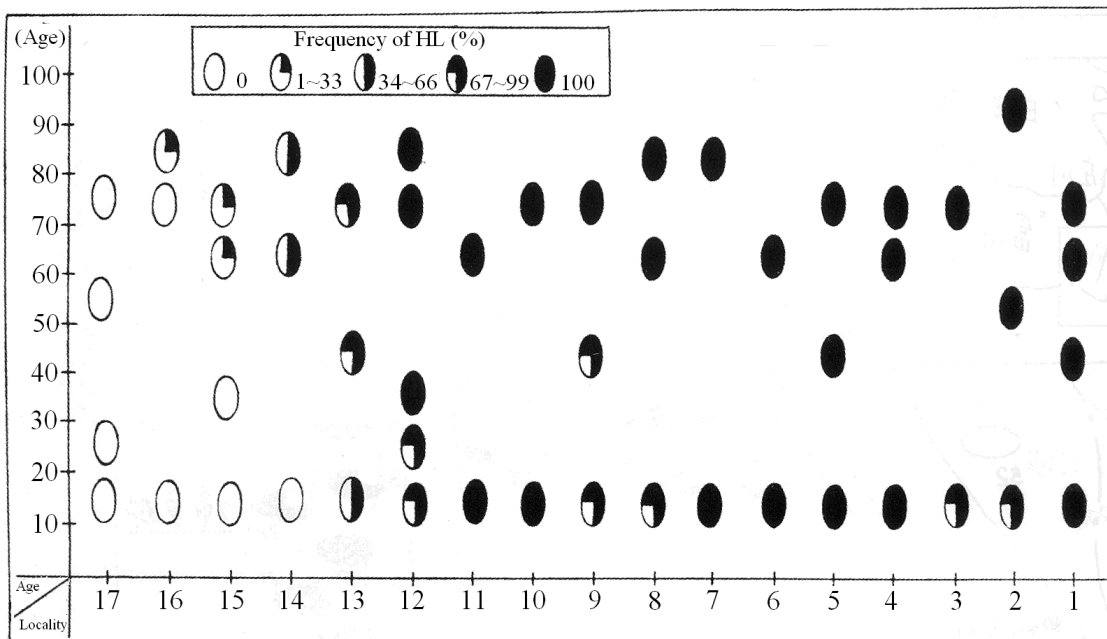


Figure 2. Geographical and Age Difference

Figure 2 is an example of the glottogram. It demonstrates both temporal and spatial aspects of language use. As mentioned earlier, the glottogram here plots speakers' ages, the temporal aspect, on the vertical axis and their locations, the spatial aspect, on the horizontal axis.

According to Figure 1, the use of a certain pitch accent (in a specific group of lexical items surveyed) is spreading geographically. The circles on the graph represent the pitch accents used for these groups. The more words informants pronounced with the "new" accent (LH), the greater the amount of white in the circle. Conversely, a large degree of black in the circle indicates the informant used the "old" accent (HL) in a large number of the words surveyed.

Figure 2 shows that the geographical points chosen for a glottogram survey lie along a single line. This survey was conducted at 17 locations, plotted in order along the horizontal axis. We see that at the left-most point (location 17), all of the informants, from the oldest in his or her seventies to the teenager, use only the LH accent. Informants at location 1 at the far right likewise use HL accent exclusively. At location 12 through 16, however, we see age differences in the usage of the accent which may be interpreted as reflecting a language change in progress in these areas.

The pattern of this change process can be identified with what is called an ‘S-shape Curve’. This figure is the very illustration which will be called a ‘percentage glottogram’ in more recent years. This survey in Togadani started in July 1969, although the report itself was published in 1971 (Sanada 1971).

### 3. Restrictions on ‘glottogram’

Let us have a look at a comment from Yoshio Ebata, who may have provided the most important criticism towards the glottogram:

It appears to me that the significance of the glottogram can be attributed to the age-based linguistic change, which is realised as linear linguistic diffusions in an idealistic manner. What has been done so far, however, is that this glottogram methodology has been carelessly applied to the regional environments of the plain areas to which the glottogram cannot be applied. The same thing can be said even to the *Tokaido* and the *Sanyodo*, both of which have been major routes in the Surely enough, age-based linguistic change itself made a tremendous contribution in that it argues against the general understandings in geolinguistics that the linguistic maps of the old-age generation would account for any kind of linguistic changes. However, why did not those who employed the idea of glottogram, consider that the perspectives on the age-based differences cannot be described entirely only on the linear relationships when the perspectives focuses on ‘geography.’ (*Omitted*)

Most glottogram-based studies dealt with linguistic changes which are realised as if the language changes occurred only on the linear relationship. The area itself is so wide that a larger number of possible linguistic changes can be proposed. However, no one, in fact, puts any comments on this condition. The situation completely differs if a number of other paths are prepared in the glottogram-based studies.

This methodology is said to be peculiar to Japanese geolinguistics, and it has been widely advertised. How about the assessment mainland Japan. (*Omitted*) towards glottogram in Europe or the United States? I am very much afraid to say that I do not know about this (Ebata 2001).



What Ebata stated above might be correct for the time being. It is true that glottogram has a large amount of restrictions. It does not demonstrate the linguistic change on the basis of ‘space’ in a geographical sense. However, it is necessary to stress that glottogram itself was originally proposed in response to the dissatisfactions towards the linguistic map, which pays primary attention to geographical ‘space.’ Moreover, the glottogram was designed as a supplemental tool, to help dialectologist to construct the linguistic theories, not as a primary source.

Theoretical topics dealt with in Japan arose from the study of language phenomena here in Japan, and there is no necessity to discuss Japanese phenomena within a theoretical framework constructed from a Western perspective, or to only evaluate these phenomena according to Western criteria. What we need is to be armed with methods of evaluation that differ depending on the object of study, and to use those which are most suited to vividly illustrating those objects. For this reason, Yoshio Ebata proposed the ‘Chronological Study of Linguistic Atlas’ (Ebata 2007).

#### **4. Concluding remarks – linguistic map as a tool –**

One of the first theses in linguistic geography in the Japanese context is *Kagyuko* (On *Kagyu*) by Kunio Yanagita in 1927. *Kagyu* literally means ‘snail.’ Yanagita discovered that a group of words which correspond to the meaning ‘snail’ are distributed throughout Japan. The distribution pattern was in the shape of a ring, whose centre was in the Kinki Region. He found that as new forms emerged in the cultural centre, Kinki region, the older forms were gradually pushed outward to the peripheral areas of Japan. Therefore, he speculated that the language forms in peripheral Japan would be older than in central Japan.

When Yanagita wrote a book out of this thesis, he proposed the notion of ‘dialect radiation theory.’ However, it is clear that he learned the idea from the European geolinguistics. Later on, Father Grootaers asked Yanagita, ‘Do you ever feel that your idea is more or less influenced from either French or Swiss geolinguistics when you wrote *Kagyuko*?’ He certainly said, ‘Yes. When I was in Geneva to work for the League of Nations Mandate committee between 1922 and 1923, I went to listen to a lecture on

anthropology by Professor Pital. Prof. Pital in his lecture talked about the book by Dauzat ('La Géographie Linguistique,' 1922), I did read his book there.'

However, when Yanagita wrote on his impression he had when he made a visit at Shiiba village in the mountainside of the Miyazaki Prefecture in his book 'Nochi no karikotoba no ki' (1909), he said:

When I am in the mountains, I cannot help feeling as if I am so distant from the modern world. I think that the history itself is not displayed by a pole which stands straight. Pole should be rather laid down on the ground, and the head of the pole is directed towards mountains. This is what our country is like.

This comment is extremely remarkable in the sense that Yanagita suggests that historical change can be captured in a strong correlation with geographical variation. Therefore, through his work, it is possible to assume that he established his own view towards linguistic geography, which could reflect what he learned through his study-abroad experience.

'Dialect radiation theory' proposed in the first edition of *Kagyuko* by Yanagita in 1930, made tremendous contributions to the field. Unfortunately, this theory ended in creating misunderstandings amongst some dialectologists. They believed that dialect radiation theory was an ultimate tool, and that it can explain any kind of geographical distributions. On the contrary, some studies started denying any advantages of the dialect radiation theory by raising some counter-examples. However, this incidence should be attributed to, as far as I am concerned, the fact that Yanagita did not clearly state that the dialect radiation theory was merely one of the formulations. He himself recognised this fact. Therefore, his second edition of *Kagyuko* published in 1943, he explained his idea:

Discovery is nothing but a fussy formulation. I simply intended to speculate some possibilities to employ this formulation in order to make a general account of prominent cultural phenomena, especially dialect.

What is more, in the second edition, he decided to delete the dialect distribution map of *Kagyu* (snail). He mentioned that the reason to delete this map was the difficulty of the printing technique, however, I am very doubtful about this statement. I assume

that he wanted to avoid the misunderstanding of the geographical distribution of *Kagyu*, that the language map of *Kagyu*, whose geographical distribution holds true of dialect radiation theory, would be understood in a different manner from what Yanagita expected. The purpose of the *Kagyuko* in the second edition shifted smoothly to emphasize the creation of the new words. Yanagita stated that the purpose of this book was to render a description of the two facets; the power to promote the language change of the school students, and the demand for songs and lyrics as opposed to national language.

I would like to conclude this paper by stressing that even though a language map is a tool in linguistic geography, a tool itself, in some cases, becomes an ‘edged tool.’

## References

- EBATA, Yoshio (2001) ‘Nihon no Shakaichirigengogaku notameni’ (For Japanese Socio-geolinguistics), *Yamagata Hogen*, 33, 1-8.
- EBATA, Yoshio (2007) ‘Junen Kankaku Gengochizu o mochiita ‘Gengochizu Nendaigaku’ no hakken.’ (Discovery of ‘Chronological Linguistic Geography’ by a ten-year interval language maps’), *Kokugo Kyoiku Kenkyu*. 48, 1-20.
- GROOTAERS, W.A. (1976) *Nihon no Hogen Chirigaku notameni* (For Japanese dialect geography), Tokyo: Heibonsha.
- INOUE, Fumio (1985) *Kanto Tohoku Hogen no Chiriteki/Nenreiteki Bumpu (SF Glottogram)*. (Regional and age distribution of Kanto and Tohoku dialects.), Tokyo: Language Research Centre, Tokyo University of Foreign Studies.
- KOKUGOCHOSA IINKAI (Language Research Commission) (1905) *Onin Bumpuzu/ Onin Chosa hokokusho* (Phonetic Dialect Atlas).
- KOKUGOCHOSA IINKAI (Language Research Commission) (1906) *Kogohochosa Hokokusho/ kougoho bunpuzu* (Grammatical Dialect Atlas).
- NATIONAL LANGUAGE RESEARCH INSTITUTE (1966-75) *Linguistic Atlas of Japan*. (Vol. 1- Vol. 6), Tokyo: National Language Research Institute.
- NATIONAL LANGUAGE RESEARCH INSTITUTE (1985) *Hogen no Shoso –‘Nihon Gengochizu’ kensho chosa hokoku*. (Diversity in Dialects: An Inquiry into the Reliability of the Linguistic Atlas of Japan.), Tokyo: Sanseido.
- OEBEL, Guido (ed.) (2006) *Japanische Beiträge zu Kultur und Sprache*, Munich: Lincom Europa.

- SANADA, Shinji & Daniel LONG ( eds.) ( 1997) *Japanese Sociolinguistics Illustrated*. Tokyo: Akiyama Shoten.
- SANADA, Shinji (1971) “Toyamaken Togadani niokeru Akusento no Dotai” (Dynamism of the accentuation pattern in Togadani, Toyama Prefecture.), *Bugei Kenkyu*, 68, 39-45.
- SANADA, Shinji (2002) *Hogen no Nihonchizu Kotoba no Tabi*. (Japanese map of dialect –a trip of dialects.), Tokyo: Kodansha.
- TOKUGAWA, Munemasa. (1993) *Hogen Chirigaku no Tenkai*. (New development of dialect geography.), Tokyo: Hituzi Shobo.
- TSUZOME, Naoya (2007) Glottogram sakusei notameno hogen chosaho –Konan daigaku deno jissenrei wo motoni- (Survey methods for Glottogram: an evidence from survey activities at Konan University), *Bulletin of Konan Univeristy: Literature department*, 148. 1-36.