NEW DIALECT AND OBSOLESCENCE IN HAMAOGI GLOTTOGRAM SURVEY — DIALECT VOCABULARY CHANGE IN 250 YEARS —

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Abstract

In this paper, we analyze the diffusion process of standard and dialectal forms in terms of geography and age distribution based on computational lexicology. The basic data are drawn from large-scale questionnaire surveys. These surveys inquired about words recorded in the dialect glossary *Hamaogi* compiled 250 years ago in Tsuruoka City. MCA (Multiple Correspondence Analysis) was applied to the whole set of data. Eight words were described in detail on the basis of "age pillar maps" and "simplified glottograms". Of the 406 words recorded in *Hamaogi*, many have been replaced by standard Japanese forms, and some by new dialect forms. But analysis of the data required us to additionally deal with the phenomenon of "obsolescence". This is a process over 250 years by which words are forgotten and it applies to standard forms as much as dialect forms. The process of obsolescence seems to govern linguistic change, and even linguistic change in progress now may be influenced by obsolescence.

Keywords: obsolescence, new dialect, regional and age differences, language standardization, multiple correspondence analysis

NOU DIALECTE I OBSOLESCÈNCIA A L'ENQUESTA GLOTOGRÀMICA HAMAOGI — CANVI DE VOCABULARI DIALECTAL EN 250 ANYS —

Resum

En aquest article, analitzem el procés de difusió de formes estàndard i dialectals en termes de geografia i distribució per edats basat en la lexicologia computacional. Les dades bàsiques s'han obtingut

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a partir d'enquestes mitjançant qüestionaris a gran escala. En aquestes enquestes s'han estudiat les paraules registrades en el glossari dialectal que Hamaogi va compilar fa 250 anys a la ciutat de Tsuruoka. S'hi ha aplicat el MCA (Anàlisi de Correspondència Múltiple) a tot el conjunt de dades. Es descriuen en detall vuit paraules a partir de "mapes de pilars d'edat" i de "glotogrames simplificats". De les 406 paraules registrades a Hamaogi, moltes han estat substituïdes per formes japoneses estàndard i algunes per noves formes dialectals. Però l'anàlisi de les dades va obligar a abordar a més el fenomen de la "obsolescència". Aquest és un procés que dura més de 250 anys mitjançant el qual s'obliden les paraules i s'aplica tant a les formes estàndard com a les formes dialectals. El procés d'obsolescència sembla regir el canvi lingüístic, i fins i tot el canvi lingüístic en el curs es pot veure influït per l'obsolescència.

Paraules clau: obsolescència, nou dialecte, diferències regionals i d'edat, normalització lingüística, anàlisi de correspondència múltiple

NUEVO DIALECTO Y OBSOLESCENCIA EN LA ENCUESTA DE GLOTOGRAMA HAMAOGI
— CAMBIO DE VOCABULARIO DIALECTAL EN 250 AÑOS —

Resumen

En este artículo, analizamos el proceso de difusión de formas estándar y dialectales en términos de geografía y distribución por edades con base en la lexicología computacional. Los datos básicos se han obtenido a partir de encuestas mediante cuestionarios a gran escala. En estas encuestas se indagó sobre las palabras registradas en el glosario dialectal que Hamaogi compiló hace 250 años en la ciudad de Tsuruoka. Se aplicó el MCA (Análisis de Correspondencia Múltiple) a todo el conjunto de datos. Se describieron en detalle ocho palabras basándose en "mapas de pilares de edad" y en "glotogramas simplificados". De las 406 palabras registradas en Hamaogi, muchas han sido reemplazadas por formas japonesas estándar y algunas por nuevas formas dialectales. Pero el análisis de los datos obligó a abordar además el fenómeno de la "obsolescencia". Este es un proceso que dura más de 250 años mediante el cual se olvidan las palabras y se aplica tanto a las formas estándar como a las formas dialectales. El proceso de obsolescencia parece regir el cambio lingüístico, e incluso el cambio lingüístico en curso puede verse influido por la obsolescencia.

Palabras clave: obsolescencia, nuevo dialecto, diferencias regionales y de edad, estandarización lingüística, análisis de correspondencia múltiple

1. Language standardization and new dialect

1.1 History of research

First, an overview of research on Japanese dialects will be given in order to theoretically position this paper. Research in the fields of sociolinguistics and linguistic

geography will be surveyed in §1.[1] To review other aspects of research on Japanese dialect history, other books would be useful (Peng 1975, Shibatani 1990, Heinrich & Ohara 2019, Asahi, Usami & Inoue 2022, Inoue & Tanabe 2022). The postwar period saw remarkable development in the field of dialect research, especially after the establishment of the National Institute for Japanese Language and Linguistics (NINJAL) in 1948.[2] Most of the field research was executed on the basis of projects lead by Takesi Sibata[3] (1918 - 2007) as a member of the Institute.

1.2 Language standardization

Language standardization is often associated with the birth of modern society (Heinrich & Ohara 2019; Inoue 2022.4). Standard Japanese has spread rapidly in Japan since its modernization of the Meiji Restoration in 1868. The process has been described making use of widely accepted sociolinguistics concepts in the following ways (Neustupny 1978).

1.2.1 Corpus planning: linguistic system

As for the aspect of corpus planning, surveys of sociolinguistics and linguistic geography have been widely executed after the war, mainly under the guidance of Sibata. Changes in linguistic systems have been ascertained by a variety of descriptive linguistics research techniques, and also by sociolinguistic fieldwork.

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[1] Language standardization and Sibata's contribution on sociolinguistics and dialectology will be the underlying topic or *basso continuo*.
[2] Kokuritsu Kokugo Kenkyujo. Its English name was "Japanese Language Research Institute" until it was changed in 2009.
[3] His name is spelled not using "shi" but by "si", a spelling he adopted when he was interested in the Romanization movement in his student days.

1.2.2 Status planning: social usage

The social positioning of dialects has been investigated making use of the concepts of "dialect inferiority complex" (Sibata 1958), dialect perception (Grootaers 1964; Preston 1989; 1999) and dialect image (Inoue 1997.10. 2012.1. 2019.12. 2022.4. Jinnouchi 2009).

1.2.3 Sociolinguistic surveys

Sociolinguistic empirical research was conducted by NINJAL after the Second World War, and a large amount of interview data was collected and analyzed utilizing statistical methods. Of these, the common language survey in Tsuruoka City, Yamagata Prefecture, yielded beautiful results, so follow-up surveys were planned and four surveys in all were conducted to investigate changes over a 60-year period. Taking into account the year of birth of the respondents[4], differences over more than 100 years can be determined (Yoneda 1997). A survey of the common language in Hokkaido also revealed the formation of a lingua franca among the immigrants in the newly colonized area. This research was later connected to the study of "new dialect formation" in England (Kerswill 2003) and a follow-up study was executed in a new town by Asahi (2008). Three large-scale surveys of honorifics were also conducted in Okazaki City, Aichi Prefecture, covering a time span of a total age difference of more than 100 years when the year of birth is taken into account (Matsuda 2012). Based on these surveys, the concept of post-adult adoption or "late adoption" of honorifics was discovered and advocated for (Inoue 2013.4, 2017.5; Sankoff 2006; Sankoff & Blondeau 2006). Lifetime changes in honorifics were also discovered through panel surveys that tracked the same people as in the previous Okazaki surveys.

Sociolinguistic surveys will reveal processes and universal laws of diffusion even if based on a simple idea of unidirectional change. Such change is characterized by

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[4] The person who fills out the survey form is referred to here as the "respondent". This is to distinguish them from informants, consultants, and subjects, who are survey participants in an interview survey or a face-to-face survey in an experiment.

great variety and by starting from above. However, as will be discussed in §6, the introduction of another standpoint to research methods, another direction of change from below in the form of "new dialect", can offer more accurate insights.

1.2.4 Linguistic geography

The *Linguistic Atlas of Japan* (LAJ) is the result of a linguistic geographical survey conducted by NINJAL, which revealed the status and distribution of dialects throughout Japan (Inoue 2008.5b). Subsequently, nationwide surveys of grammar (GAJ) (NINJAL 1989 - 2006) and vocabulary (NLJ) (Onishi (ed.) 2016, 2017) were conducted and showed the spread of the standard (common) language and changes in dialects over a long period of time. In parallel, linguistic geographical surveys were conducted in small areas such as the Itoigawa region of Niigata Prefecture (Grootaers 1964, Sibata 1969, Kunihiro et al. 1998, Inoue 2019.12). The modest scale of the research area was convenient, so that small scale local linguistic maps and several repeated surveys were published for many regions of Japan. In the survey in Shimokita Peninsula of Aomori Prefecture designed by Sibata (Inoue 2000.2), the distribution of words among different age groups was also studied, and a survey of all the residents of one locality was conducted to determine differences according to age within this locality. These surveys also revealed that age differences do not only lead to the one-direction spread of the standard language. Rather, "new dialect" occurs, as will be described in §2.

Sibata sometimes complained of Western scholars' disregard for the achievements of the Orient[5] (Fukushima 2012). Japanese works were sometimes ignored, and only a few citations were made,[6] though some exceptional scholars began

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[5] Contribution of *Dialectologia et Geolinguistica* (*DiG*) by SIDG (the International Society for Dialectology and Geolinguistics) edited by Viereck and van Nahl is exceptional. Also, conferences of SIDG were often held in Eastern Europe. The title, *Ex Oriente Lux* (Nevaci, Floarea & Farcaş 2022) is symbolic.

[6] A scholar once insisted that researchers should write in English. Since the end of the 20th century, young researchers have been writing about Japanese dialects in English. One researcher has been able to write in English because he has had someone close to him who were willing to undertake native checks (for example, Diane Rimmer, Wayne Lawrence, Daniel Long and Joseph Tabolt worked for Inoue by chronological order).

to pay attention to Japanese studies. For example, Neustupny (1978) highly rated Sibata's contributions. Chambers (1994) quoted one of Sibata's achievements in his book. Later, a group of concerned individuals gathered to honor Sibata, and a translation of his selected papers was published (Kunihiro et al. 1998) on the occasion of his 70th birthday[7].

1.3 New dialect

1.3.1 The concept of new dialect

The concept of NEW DIALECT was proposed as an alternative to standardization (Inoue 1985.2) on the basis of survey results in Shimokita and Itoigawa (Sibata 1969; Inoue 2019.12, 2022.4), and it is a different concept from the British "new dialect formation" (Trudgill 2000, 2004; Kerswill 2003). The concept and the term "new dialect" were based on Sibata's study which was cited in Heinrich & Galan (2010). Although not yet theoretically established, concrete examples of new dialect were found in a survey of Shimokita Peninsula in Sibata's project in 1964 (Inoue 2000.2).[8]

However, the new dialect of Shimokita Peninsula was considered exceptional as will be discussed in §2.3. It was thought that the only direction of change in Japanese after modernization (1868) and especially after the World War II was the standardization of the language. Increased dialectal forms were later found in the report of the 2nd Tsuruoka survey (Kokuritsu Kokugo Kenkyujo 1974, Nomoto 1975), but they were given an explanation by the "spirit of service" (of native Tsuruoka

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[7] A special session of American Dialect Society was held by ADS President Michael Linn in 1992.12, on Sibata's contribution to stimulate the study of dialects in the U.S. The report was published in 1994 (Inoue 1994.2). An international workshop was held in 2018 to commemorate the 100th anniversary of Sibata's birth, and the results of the workshop were published in *Dialectologia: revista electronica* (Inoue 2019.12). The year 2022 is the 15th anniversary of his death, and 2023 is the 105th anniversary of his birth. The birth of the English journal *Language in Japan* at this time is significant, especially if we remember that the English language was oppressed as an "enemy language" when Sibata began his scholarly life during the War.

[8] Sanada advocated for the different term "neo-dialect" (Sanada et al. 2021), a related concept to "new dialect". Long (1996) used the term "quasi-standard". Another related concept of "unnoticed dialect" was inspired by the "Sekundar dialect" of Hard (1966) in Germany. Also, "regional standard" and "dialect levelling" (Hinskens 1998; Kerswill 2003) were discussed by Sibata as early as the 1950s (Sibata 1958).

people) for the field workers who came from Tokyo (to get information on local dialect).

1.3.2 Definition of new dialect

NEW DIALECT can be defined by meeting three conditions (Inoue 1986.6, 2017.8).

It is (1) a non-standard linguistic form, (2) used more among younger people, (3) in informal situations.

In other words, it is a typical linguistic change in progress, and a change from below (Labov 1966, 1972).

Of the three conditions, (1) The difference in linguistic form is obvious. If necessary, a dictionary may be cited (Inoue 2013.12). (2) Differences according to age can be ascertained by field research. (3) Establishing the stylistic treatment of a form is not a problem, especially in the Tohoku dialect. The dialectal system and the standard language system are distinct in usage with stylistic differences in different situations or domains.

1.3.3 New dialect as language change in progress

New dialect is a perennial change and it symbolizes the perpetual change of language.[9] New dialect as language change in progress must have occurred many times before modernization, and is spreading even now. Concrete dialect maps made it possible to observe the change in progress of Japanese dialects prior to modern times. Examples of new dialect were first found as intergenerational differences, and more than half a century has passed since the first attestation of new dialect. New dialect forms which were formed and spread in the past are also reported. They show that dialect change which can be distinguished from language standardization has been in progress since before modernization. Even newer examples of new dialect are

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[9] Heeringa & Hinskens (2011) point out that lexical change is different from morphological and sound change.

reported from all over Japan in the 21st century. In the following sections, many new dialect forms which were created after the compilation of *Hamaogi* glossary 250 years ago will be presented. They are the testimony of perennial linguistic change

1.4 Glottogram

Glottograms [10] are effective in determining age-based differences. The glottogram technique and the concept of new dialect were created and developed in Japan (Sanada 2010, Yamashita & Hanzawa 2010, Inoue 2017.8). The glottogram technique is also applicable and worth extending to other countries. It has already spread to Chinese language research (Li 2014, Ang 2019, Huang 2019, Li & Cheng 2020). The current status of new dialect is also worth following up in other countries.

Despite its many strengths, the glottogram also has limitations. In the past, a glottogram survey was made only once, so the age difference can be determined only for about 60 or 70 years at most (Inoue 2008.5a). Repeated surveys and follow-up studies can reveal age differences over a longer period. Hanzawa conducted a survey about 20 years after the first glottogram survey (Hanzawa 2017, 2018; Inoue & Hanzawa 2017.5), and confirmed that new dialect forms had disseminated and increased in later years (i.e., they were adopted in adulthood) (see §2.2). A repetitive survey with larger time differences was executed recently, as discussed in this article. For the *Hamaogi* glossary in the Shonai region of Yamagata Prefecture (around Tsuruoka City), the usage surveys were conducted twice in 1950 and 2018 (68 years apart), so we were able to observe an age difference of about 140 years in terms of the difference in year-of-birth. We also found new dialect forms since 1767 (about 250 years ago), when the *Hamaogi* glossary was compiled.

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[10] The technical term "glottogram" had been used in phonetics, but the members of Itoigawa survey team (including Grootaers) were not aware of the western research trends of phonetics when Makoto Takada coined the term combining "glotto" and "gram" in 1969 (Sanada 2010). Examples of glottogram surveys will be shown later in this paper.

2. Typical cases of rise and fall of new dialect

In this section several typical cases of new dialect will be discussed to provide concrete examples.

2.1 New adjective *chigakatta* and *chigakute*

As a typical example of new dialect, *chigakute* will be introduced. *Chigakute* is a new adjectival conjugated form and represents one step in the formation of the new adjective *chigai* 'different' (Inoue 1998.1). In standard Japanese, 'different' takes a verb form *chigau*, and its conjugated forms are *chigawa-nai, chigai, chigatte, chigau, chigaeba, chigaou,* etc. However, adjectival forms such as *chigakatta, chigakute, chigai* (*chigee*)*,* and *chigakereba* have emerged and have been spreading recently.

A part of this expansion process was confirmed by a glottogram survey (SF glottogram) in the (linear) areas along the railway leading from the Tohoku region to Tokyo (Inoue 1998.1). In the northern Kanto region, both the elderly and the young use the adjectival past tense form *chigakatta*, while only the young use *chigakatta* near Tokyo, indicating an inflow (reverse flow) from the northern Kanto region into Tokyo Metropolis. The "Tokyo eight localities survey" also confirmed the situation in Tokyo (Inoue 1998.1), with a usage rate of about 20 % among young Tokyoites in the 1990s.

2.1.1 Nation-wide diffusion of *chigakute*

The *Public Opinion Survey on the National Language* has been conducted and published annually since 1996, by the Agency of Cultural Affairs (Bunkacho) with the same questions sometimes repeated from year to year. This repeated survey provides a nationwide picture of language change in real time.

The adjectival form *Chigakute* was surveyed in the *Public Opinion Survey on the National Language* in 2001 and 2022 as shown in Figure 2-1 and Figure 2-2. The 21-

year trend according to the respondents' year of birth, shows that *chigakute* has become even more popular among the younger generation. In addition, the middle-aged in 2001 became older in 2022, slightly increasing the rate of use. In other words, the L<small>ATE</small> A<small>DOPTION</small> of linguistic change was observed (Inoue 2017.5, Inoue & Yamashita 2014).

2.1.2 Regional differences of *chigakute*

The usage of *chigakute* is now spreading from Tokyo to the rest of the country. The process is shown in Figure 2-2. The line graph on the left shows the regional differences (north-south) among the nine regions of Japan, and the line graph on the right shows the differences in city size by population.

In 2001 *chigakute* ▲ was often used in the Kanto and Tohoku regions and in Tokyo, but was less than 10%. In 2022 *chigakute* ● increased in all regions. The Tohoku Region topped the list, with a 40% usage rate. By city size on the righthand side, the rate increased to more than 20% in all regions, led by Tokyo at 30%. The process of the spread of the use of the *chigakute* in Japan, which was created in the northern Kanto Region in the 1980s and has since spread nationwide, can now be observed empirically and visually. There are other similar cases of new dialect which started in Tohoku (Inoue 1998.1; 2000.2; 2003.7), but they are omitted here.
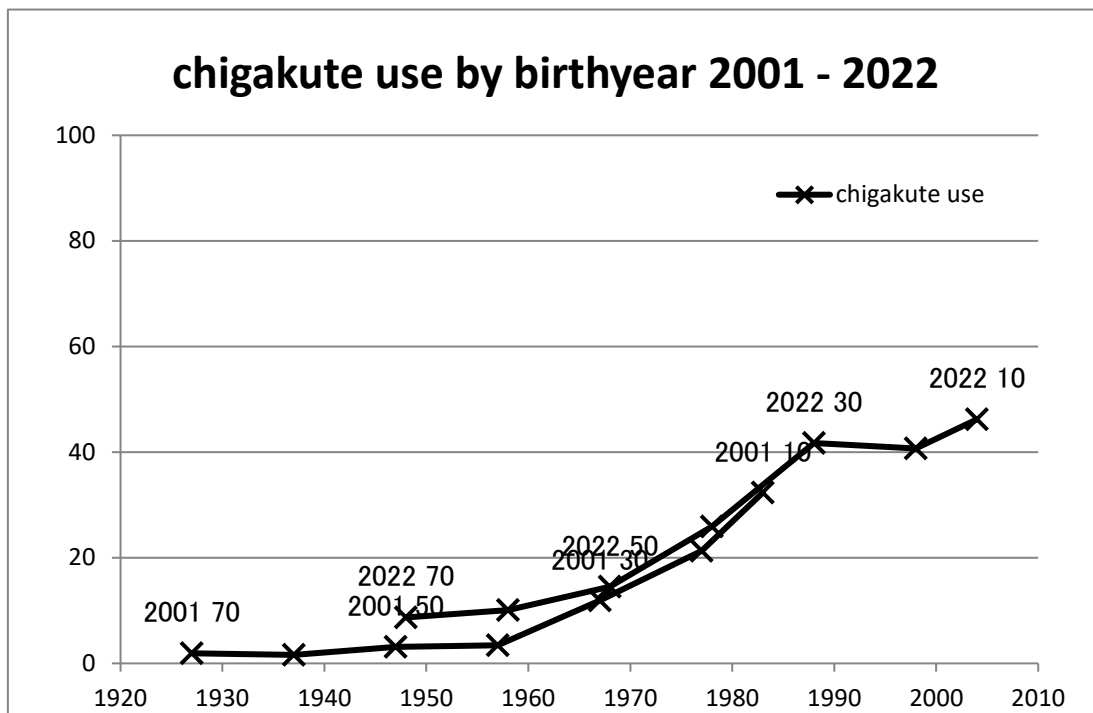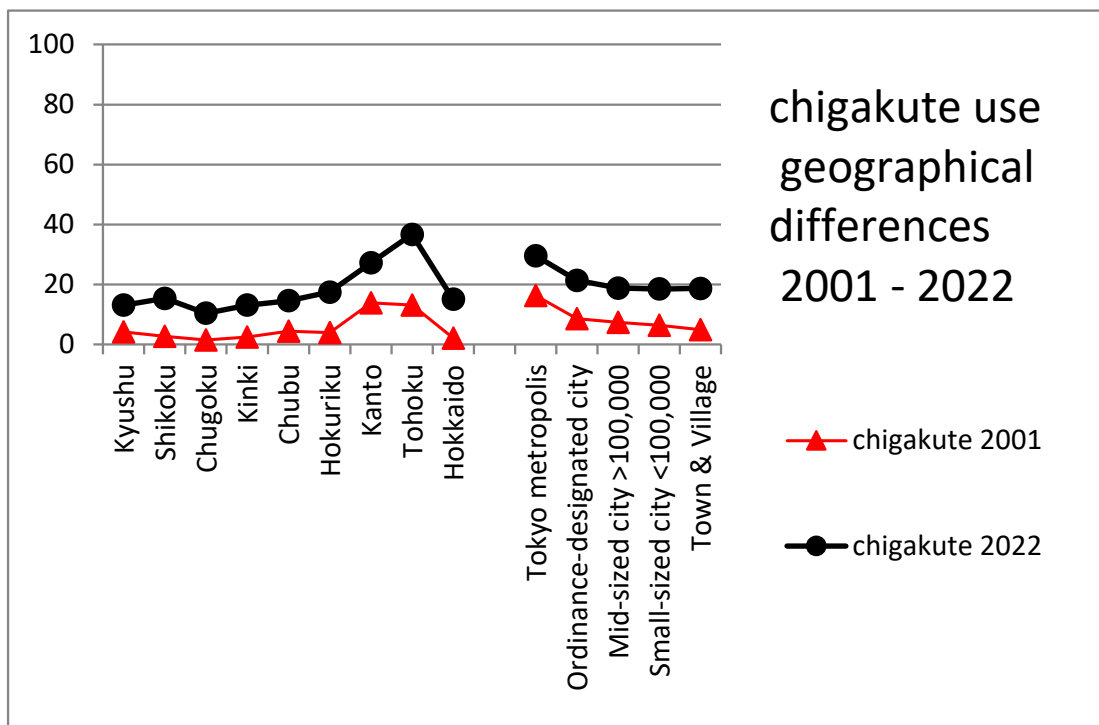
Figure 2-1. *Chigakute* by birthyear (2001 and 2022)

Figure 2-2. *Chigakute* geographical differences (2001 and 2022)

2.2 Increase of -itchi

2.2.1 Increase of *-itchi* in Fukushima

Another new dialect form which was observed in Fukushima Prefecture is noteworthy because it is spreading vigorously among residents in the 21st century. Since the 1980s, a new form of auxiliary *-tchi* (or *-tchii*) corresponding the standard Japanese "*-tai*" (want to) has emerged in the Fukushima dialect,[11] such as *iki-tchi* (*iki-tai* "want to go"), *nomi-tchi* (*nomi-tai* "want to drink"), etc.

The Figure in Inoue & Hanzawa (2017.5) shows the results of two glottogram surveys along the Tohoku Line that runs through the central part of Fukushima Prefecture. In the first survey conducted in the early 1980s (Inoue 1985.3: 73), only a few *-tchi* forms were identified. However, in the follow-up survey conducted in the same area in 2000, *mi-tchi* (and *mi-tche*) (*mi-tai*, 'want to see') have been widely propagated, especially among the younger age groups. Over a period of about 20 years, the newly created dialect form rapidly spread over a wide area.[12] The generation born after the 1950s was young at the time of the first survey and scarcely used the *mi-tchi* form, but later in the second survey, they had become middle-aged and had accepted the new form, showing late adoption (Inoue 2017.5, Inoue & Yamashita 2014).

2.2.2 Reverse current of new dialect

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[11] Phonological simplification *chai > che > chi* after the consonant *r,* spreading later to all verb conjugation systems by analogy.

[12] In the first survey, no localities in Koriyama city were surveyed. In another large-scale survey conducted in the 2000s in Koriyama city, the new form *-tchi* was widespread. If the first survey had been successfully conducted at localities in Koriyama City, it is possible that *mi-tchi* or *mi-tche* would have been identified. It is necessary to take into account these circumstances in order to not overestimate the diffusion speed of the new dialect form *mi-tchi* along the Tohoku Line. However, even if we remove the influence of these factors, the fact that the new forms spread rapidly along the Tohoku Line after the 1980s is still undeniable.

Some of the new dialect forms show a reverse diffusion pattern to the spread of the standard language. Not only do new dialect forms spread from local centers of high cultural prestige to the periphery, reverse flows from the countryside to the city center have been observed in many cases.

However, these two reverse-direction flows had not been theoretically situated as interrelated. Some examples of reverse diffusion and transmission from the countryside to the city center will be discussed below. "Tokyo New Dialect" (Inoue 2011.1; 2022.4) is typical nationwide reverse flow of new dialect from the countryside. Since the geographic directionality of diffusion varies and counterexamples abound, a one-way hypothesis of dialect diffusion cannot be upheld in the case of new dialect.

2.3 Rise and fall of *Mocho-kari* in Shimokita Peninsula

The above are examples of new dialect forms that are still vigorous. However, some new dialect forms have lost their vitality. The first research to have concretely discovered new dialect was in 1964 in the Shimokita survey of linguistic geography.[13] In the first year of the survey, a linguistic geographical survey of the old and young generations was conducted. The next year, an all-resident survey of a locality named Kamitaya was added. In both surveys, the dialectal form *mocho-kari* 'ticklish' showed an exceptional pattern, with this dialectal form increasing among younger respondents near the local cultural center. Because the phenomenon was interesting and stimulating, the all-resident survey at Kamitaya was repeated in 1984 and 2005.

The Figures in Inoue (1993.2, 2000.2, 2021.6) show the results of the first and the third surveys conducted 40 years apart at Kamitaya. *Mocho-kari* is increasingly used by younger respondents. At first, this change was interpreted as a rare exception and its use was explained by folk etymology, as *kari* means 'itchy' in this area. Because of this folk etymology, the new dialect form *mocho-kari* 'ticklish' must have sounded more meaningful than the older form *mocho-koi* where *-koi* is a simple suffix for adjectives.

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[13] Shimokita is the northernmost peninsula of Honshu Island.

In the third survey in 2005, formerly young respondents became older, and more of them had adopted the new dialect *mocho-kari*, showing late adoption of a lexical item. Meanwhile, newer younger respondents rejected this form and adopted the standard Japanese *kusu-guttai*. If there were not a pressure from standard Japanese, the new dialect *mocho-kari* may have spread more widely.

2.4 Tokyo new dialect

Many new dialect forms have been reported from all over Japan, as shown in a dictionary (Inoue & Yarimizu 2002) and in the maps of Inoue (2000.2, 2010.12). Some of the forms were created in the countryside and later adopted in Tokyo. This seemingly opposite direction of diffusion, from the countryside to prestigious Tokyo, has been concretely and definitively observed. Many examples are found in areas with frequent communication with Tokyo[14] (Inoue 2000.2). Linguistic change progresses little by little (Fodor 1965; Wang 1979; Britain 2002), but as an aggregate, the speed of dialect diffusion can be calculated as 1km/year (Inoue 2010.7, 2017.8).

2.5 Old (obsolete) new dialect or middle emerging dialect

Some examples of new dialect forms found in other areas of Japan are in decline, and we can call "old new dialect", which we used to call "middle emerging dialect forms" (*Chuko hogen*) (Inoue 2021.6). The examples of *Hamaogi* word forms discussed below are of value in showing the rise and fall of new dialect forms over the long period of time since the Edo period (i.e., 250 years).

2.6 Examples of new dialect forms abroad

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[14] Influence (via mass media and immigrants) of Kansai dialect to Tokyo symbolizes the reverse flow from olden days (Inoue 2011.1). In particular, expressions related to honorifics have been imported from or influenced by Kansai dialect, including the recent *sasete itadaku.*

Japan is not the only country reporting new dialect forms. New dialect forms are not referred to as such because this term for this concept has not spread to other countries. *Snuck* (sneaked) (Michel et al. 2011) and *'cep'fer* (except for) in North America, for example, are reported by Chambers (1987). Regional differences in the U.S. with regard to modern foodstuffs like *submarine* and *pop*, or *y'all* and *yinz* (you, pl.) have been shown on maps on the Internet. Chinese *taiban* (very) is reported to have spread from Shanghai in the late 20th century,[15] and regional differences within China can still be seen on Google Trends today (Inoue 2021.6).

3. Two *Hamaogi* surveys in 1950 and 2018

3.1 Survey area: Shonai District

§3 explains a lexical survey based on the Shonai dialect glossary *Hamaogi*. Figure 3-1 shows the survey area. Tsuruoka City (and the surrounding Shonai district) is situated in Yamagata prefecture, northern Japan. In 1950, a survey was conducted by NINJAL on the use of words listed in *Hamaogi*, a dialect glossary compiled in 1767. Hanzawa (2020) and Inoue undertook a repetitive survey (Inoue & Hanzawa 2020.12).

The 27 survey points are shown by bold symbols in Figure 3-1. The ● mark is for localities near railway stations, ▲ for localities in the eastern mountainous areas, and ■ for other localities. All the dialect distribution maps were published in DASH (*Dialect Atlas of Shonai Hamaogi*) (Inoue & Hanzawa 2019), with other types of glottogram awaiting publication elsewhere. The relation between the actual geographical position of the survey points in Fig. 3-1 and the order of survey points in the simplified glottograms in the figures in §5 is shown by connecting lines in Figure 3-1.

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[15] Years have passed since its appearance, and now it has lost its freshness and impact.

3.2 Hamaogi survey 1950 and 2018

The first survey was conducted in 1950 by NINJAL on male and female respondents from 3 generations in 27 localities.[16] The second survey was conducted in 2018 on male and female respondents from 4 generations at the same 27 localities. The following *Hamaogi* data is for 7 generations each about 20 years apart. This data enables us to continuously study vocabulary changes over a long period of time. The usual age difference in one glottogram survey was at most 60 or 70 years, but this time a 3-generation survey in 1950 and a 4-generation survey in 2018 were conducted, each generation about 20 years apart, so a 140-year age difference was observed[17], which is about twice that of ordinary glottograms. In addition, by examining the vocabulary in the dialect glossary which was compiled in 1767, language changes over 250 years can be examined. The seven generations are classified as in Table 3-1.

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[16] The respondents include NORM (Non-mobile Old Rural Male) (Chambers & Trudgill 1980), but MYUF (Mobile Young Urban Female) (Heeringa & Hinskens 2011) are not included. A portion of informants of Tsuruoka standardization survey by NINJAL from 1950 to 2010 are MYUF, and various people of social strata between these two extremes are included.

[17] In some remote localities including Tobishima Island, no (native) residents under 30 were found. In Tsuruoka city more respondents (including former *Samurai* warrior class) answered, and they were shown side by side in DASH.
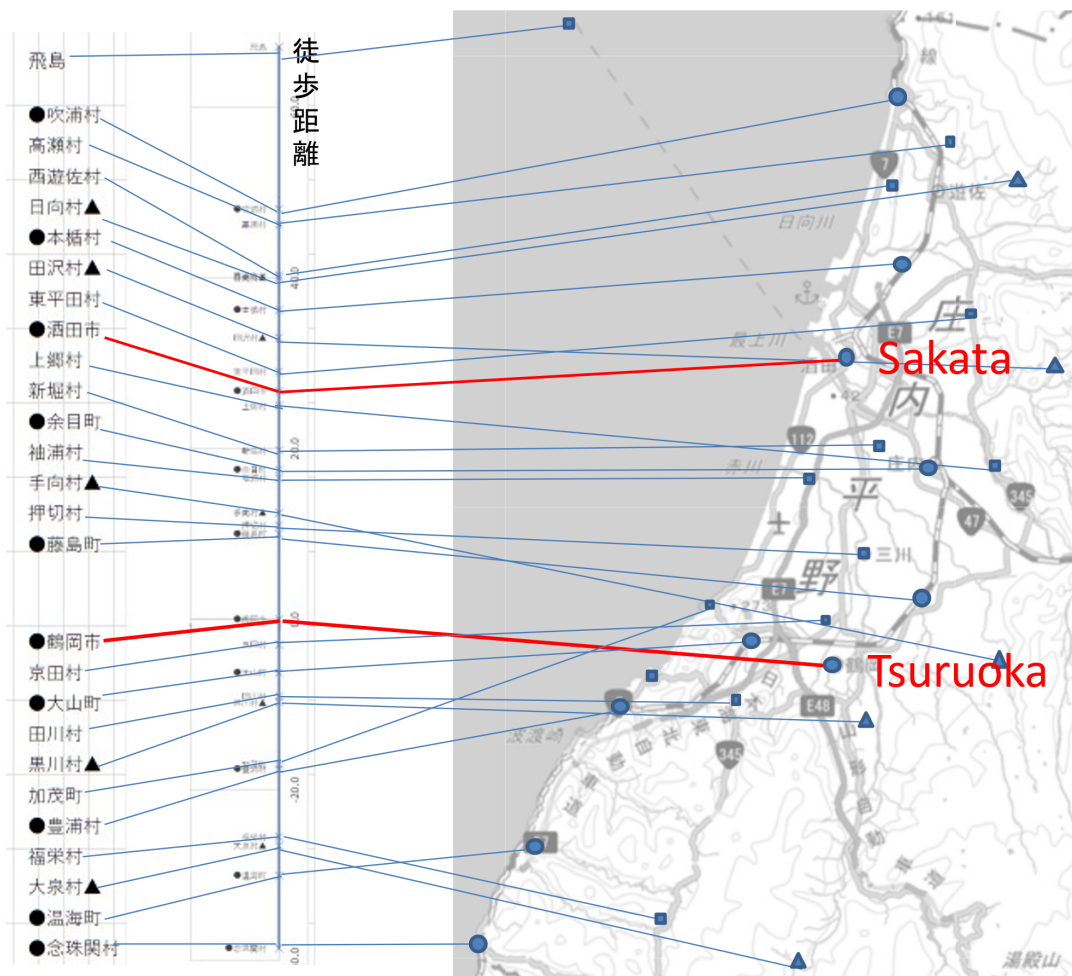
Figure 3-1. Research area map and walking distance

Former (first 1950 survey) respondents

1st generation:

born in 1890 (average), born in 19th century

1st survey former old

2nd generation:

born in 1910 (average), born in beginning of 20th century

1st survey former middle (aged)

3rd generation:

born in 1925 (average), born in early 20th century

1st survey former young

Present (second 2018 survey) respondents

4th generation:

born in 1944 (average), born during the War

2nd survey old

5th generation:

born in 1962 (average), born in mid-20th century

2nd survey middle (aged)

6th generation:

born in 1982 (average), born in late 20th century

2nd survey young

7th generation:

born in 2002 (average), born in 21st century

2nd survey student

Table 3-1. Seven generations and birthyear

3.3 Column 1: Remnant rate of Hamaogi *forms*

The 1950 survey and the 2018 survey have different questionnaire formats (Hanzawa 2021), but both formats have two types of queries: (1) Yes or No choice and (2) selection of word forms from list of candidates (free description added if they use different forms). In the 1950 survey, (1) the respondents were asked if they use the *Hamaogi* words as they were written.[18] (2) There is another column for other word forms, but it was in a blank, free-fill format, which is time-consuming, and few people filled it out. In the 2018 survey questionnaire, the columns were clearly divided into two, with Column 1 asking respondents to indicate whether they use *Hamaogi* forms[19] or not, and Column 2 asking them to choose from a list of expected word forms (candidates). The results of the 1950 survey were used to select expected word forms to maximize the number of people who could select from among the candidates rather than (not) use the free description column. The data from Column 1 are easy to process for statistical analysis and have been reported previously (Inoue & Hanzawa 2020.12, 2021.4, 2021.9, 2022.9), and will be presented in the first part of §3 and §4.

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[18] These are written in old *kana* spelling of premodern ages.
[19] These are written in new *kana* spelling of postwar ages.

The data from Column 2 needed to be carefully processed before statistic methods could be applied to them. They will be presented later in §4 and §5.[20]

3.4 Column 2: Two cases of decline of Hamaogi *forms*

Column 2 of the 2nd questionnaire asks precisely which are used by choosing among candidate forms, and free description is added if different forms are used. In Column 2 of the questionnaire, two patterns of decline of *Hamaogi* forms can be distinguished. One is mainly replacement by standard forms and by new dialect forms, and the other is obsolescence or forgetting (no response) the forms, which will be discussed in §6.3.

3.4.1 Structure of Column 2 of the 2nd questionnaire

Rather than a simple decline of the *Hamaogi* forms, there seemed to be five main types of change, which can be distinguished as shown in Figure 3-3a.

(1) The typical pattern is replacement by alternative forms, most of which are standard language forms (standardization).

(2) In many cases the *Hamaogi* forms are retained.[21]

(3) Replacement by new dialect forms is also observed.[22]

(4) Alternative dialect forms were sometimes retained.

(5) There were also cases of no choice, which suggests vanishing without alternatives: e.g., words for pre-modern tools and customs (obsolescence).

---

[20] This paper builds on the analysis in Inoue & Hanzawa (2021.9), where Column 1 of the second questionnaire was analyzed.

[21] *Hamaogi* forms are sometimes used vigorously because of coincidence with Tokyo colloquial forms (Inoue & Hanzawa 2021.4).

[22] Before the overwhelming power of the standard language, regional dialect forms were powerless, but also new dialect forms were born, even after modern times (Inoue 1993.2, 2016.8).
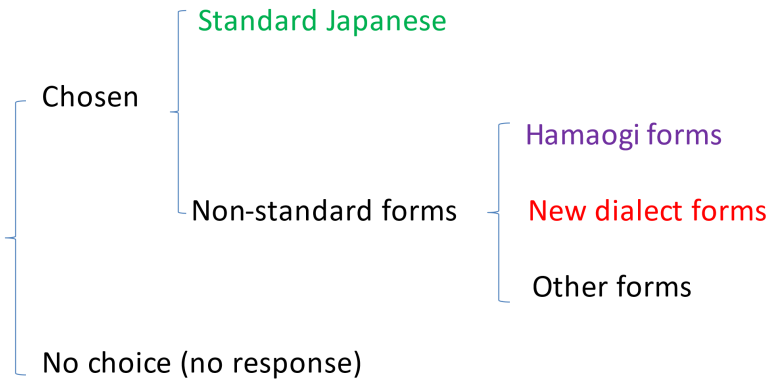
Chosen
— Standard Japanese
— Non-standard forms
— Hamaogi forms
— New dialect forms
— Other forms

No choice (no response)

Figure 3-3a. Structure of acquired forms

3.4.2 Another structure of Column 2 of the 2nd questionnaire

A different classification is possible as Figure 3-3b. *Hamaogi* forms can be identified with certainty, and non-*Hamaogi* forms can be divided into three types: standard Japanese, new dialect forms, other forms.
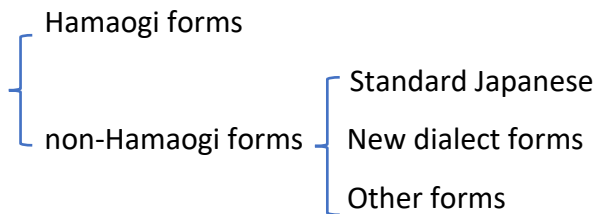
Hamaogi forms

non-Hamaogi forms
— Standard Japanese
— New dialect forms
— Other forms

Figure 3-3b. Structure of acquired forms

3.5 Hamaogi *form remnant rate and actual usage*

An integrative analysis of the whole data set according to generation is shown in the line graph in Figure 3-4. This graph shows the *Hamaogi* forms in the two columns of the questionnaire.

浜荻語形○× Hamaogi Yes / NO
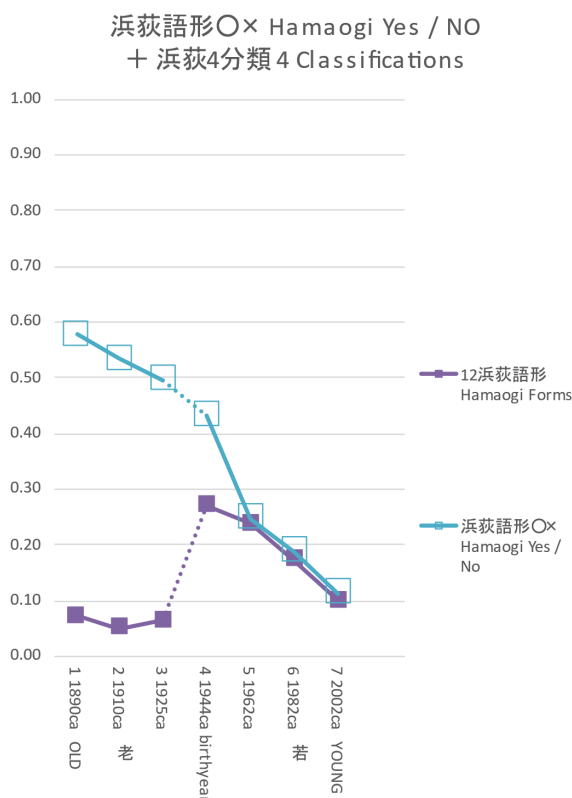十 浜荻4分類 4 Classifications

Figure 3-4. *Hamaogi* forms

(1) *Hamaogi* forms from Yes / No selection

The pale straight line with □ shows the results of Column 1, Yes / No selection in two surveys in 1950 and 2018.[23] A steady decrease in usage and a sudden fall after the fourth generation (born in the 1940s) are shown. The border is not between the first 1950 survey and the second 2018 survey but before and after the War (in birthyear).

(2) *Hamaogi* forms selected

The dark straight line with ■ shows Column 2, selection of *Hamaogi* candidate forms as actual usage. The two lines mostly coincide in the second questionnaire in 2018, where a larger number of selections are observed than the first questionnaire. The rates of two (pale and dark) lines are the same or similar to the Yes / No question, showing the credibility of answers. One of the reasons why Yes / No selection is slightly higher than the dark lines of candidate forms is due to the tendency to encircle "use"

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[23] The detailed plot graphs for respondents were analyzed in Inoue & Hanzawa (2020.12) and compared with S-shaped curve of the Tsuruoka standardization survey (Yoneda 1997).

even if the word form is slightly different from that of the Edo period. For example, a person who normally uses *mengoi* may circle *megoi* in *Hamaogi* (because of the similarity).[24]

3.6 Actual usage of four groups of forms

The graph in Figure 3-5 shows a four-way grouping (or analysis) of forms in Column 2 of actual usage. Straight dark lines with ■ show again the selection of *Hamaogi* forms among actual usage. The small numbers in the first questionnaire are due to the filling out being optional, while the second survey had more selections made than the first survey, because checking among candidates was easy. The overall tendency is the same or similar to the Yes / No choices, and the youngest generation in the 2018 survey shows less, because they have many possibilities The pale lines with ○ show standard Japanese forms with small generational differences, as they are used as bidialectalism according to domains and situations. The lines with ▲ show other dialectal forms, including dialect forms created over the past 250 years. These forms correspond to one third of all forms selected in the first survey and, because of ease of selection in the questionnaire, more than half of all forms were selected in the second survey. The decrease among the recent 6th and 7th generations is perhaps because of language standardization.

The black lines with ― show no answer[25] or no selection of other forms. These correspond to about half of the responses in the first survey because open-ended responses were optional. Thirty percent of the older people in the second survey (4th generation) made no selection because they knew and remembered older dialectal forms, and more than 50% of the younger people in the second survey made no selection because they seemed to have forgotten or lost usage of nonstandard forms. This is a reflection of obsolescence, which will be discussed in §6.3.

---

[24] In order to estimate the range of tolerance (acceptance of *Hamaogi* forms), we have separated (1) the Yes / No choice and (2) candidate forms (open-ended) columns. We also took into account the advantage that the Yes / No choices can be immediately converted to electronic data, charted, and subjected to multivariate analysis.
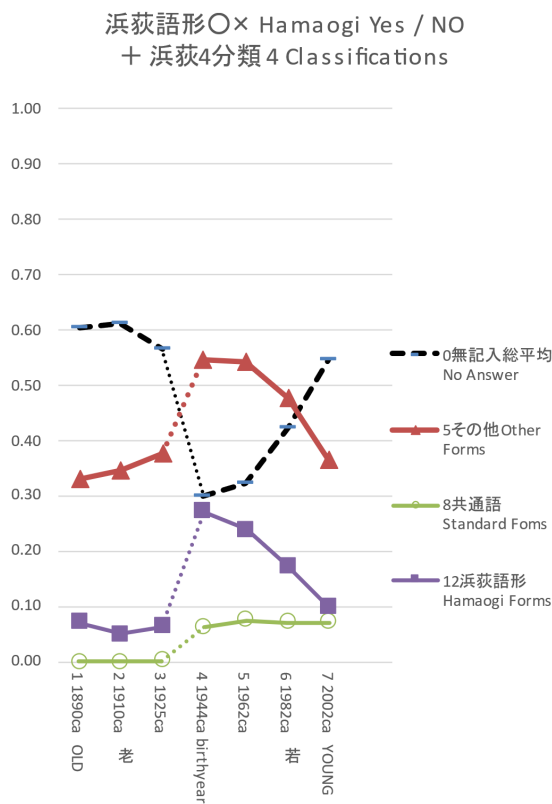[25] NR or No Response.

Figure 3-5. Four forms

These graphs concisely exhibit overall tendencies of language change in the modern age, like standard Japanese, *Hamaogi* forms or other dialectal forms. Complementary distribution between new standard (lingua franca) and old *Hamaogi* word forms (= old dialect) is expected by the simplistic classical idea of language standardization, but actually, new dialect forms were amply found and declining new dialect forms, which may be called "old new dialect" (Inoue in press), were also found. This relation between new dialect forms and standard forms can be explained by the triangle diagram in § 6-2 (Inoue 2021.6).

4. MCA and new dialect in Hamaogi

In §4, new dialect forms will be theoretically positioned with *Hamaogi* forms, standard language and old dialect, based on the results of multivariate analysis MCA (Multiple Corresponding Analysis).[26]

4.1 From individualistic to integrative analysis

New dialect has great implications for the theoretical treatment of linguistic change. Dialect geography was once denounced as atomistic, as researchers were interested in individual phenomena in the study of traditional linguistic geography based on the doctrine: "Each word has its own history" (Jaberg 1908, Bloomfield 1933, Malkiel 1983). We have tried to escape from individual and atomistic treatment. The ultimate solution was obtained by applying multivariate analysis to all the data as a whole. This allowed us to successfully grasp the overall tendency of new dialect forms.

The vocabulary as an aggregate was processed. Aggregate data analysis is called "dialectometry" or "computational dialectology" (Viereck 1985; Kumagai 1993, 2013; Inoue 1996.3, 1996.10; Heeringa & Nerbonne 2001; Heeringa 2004; Nerbonne et al. 2005; Nerbonne 2010; Wieling 2012; Modroño et al. 2016). This trend has increased the momentum of research aimed at regularity, lawfulness, generalization and universality. Attempts to apply quantitative methods to analyze large amounts of data appeared in the last quarter of the 20th century (Goebl 1993, 2010; 2020; Inoue 1996.3, 1996.10; Nerbonne 2009; Ueda & Perea 2014). This paper is one stage of an attempt to further develop quantitative dialectical research. The multidimensional analysis MCA adopted in this paper is effective for theoretical generalization of dialectology. By simplifying complicated phenomena related to dialect, general principles can be uncovered.

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[26] MCA is essentially the same technique as Hayashi's Quantificational Theory Type 3 (Hayashi 1954, 2004) which has been widely applied to Japanese dialects partly because it was adopted in the Japanese version of SPSS (Inoue 1996.3, 1996.10, 2001.2, 2004.7).

4.2 Multiple Correspondence Analysis of usage of Hamaogi *forms*

The data of Column 1 was easier to process in MCA, because the data type is Yes / No, "free check" or (1,0) type (Inoue & Hanzawa 2021.9). The data in this section are from Column 2, and many word forms were obtained for each item. The numerous word forms were classified into several groups. The forms for the 406 entries can be classified into at least 3 (possibly 4) categories (*Hamaogi* forms, standard forms, new dialect forms, and other dialect forms) as discussed in § 1.1. There is usually only one standard and one *Hamaogi* form for an item, and they are easily identified, either based on dictionaries or the *Hamaogi* glossary. However, other dialect forms are sometimes numerous, and new dialectal forms had to be selected from among them based on their (age) distribution pattern.

MCA results show similarities among users (commonality is found in age and region). Those who answered at least one standard form (or its opposite, the old *Hamaogi* form) also answered similarly for the other items. But other dialectal forms are not distinguished, because they are too many and various[27]. *Hamaogi* forms and standard forms have been analyzed already (Inoue & Hanzawa 2021.9). We focus on the new dialect forms here, but plan to analyze other dialectal forms in more detail at a later date.

4.3 Meaning of the dimensions of MCA: regional difference and age difference

This study started from a research question of which is larger, the difference within one district (with north-south distance of 80 km) or the difference of 140-year span of respondents' age.

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[27] We put word forms that are distributed only in the north or in the south in one category in the next section.

dimension	correlation coefficient	function eight words	tendency
dimension 1	0.397	age	increase among youth
dimension 2	0.276	area	concentric distribution
dimension 3	0.180	area	north vs. center
dimension 4	0.174	area	north vs, south

Figure 4-1. Meaning of four dimensions of MCA

As shown in Figure 4-1, as a result of MCA of all the data, the age difference was confirmed to be larger, appearing in Dimension 1. Then, regional differences appeared as Dimension 2. On Dimension 2, the remnant rates of *Hamaogi* forms in the north end, south ends and the eastern mountains are conspicuous. In other words, a regional concentric distribution was captured. It was found that there is a large regional difference in the north-south direction on Dimension 3 and Dimension 4[28]. The graph showing age differences of all the data is omitted because it is the same as that shown in Inoue & Hanzawa (2020.12).

4.4 Interpretation of MCA: **DIM 1,2**

In a preliminary analysis, potential new dialect forms were found in 38 items or nearly 10% of the 406 items.[29] This shows that creation of new dialect forms happened often in the past. Among them, eight clear items were selected here to grasp the general tendency in the form of age pillar maps and simplified glottograms, and MCA (multivariate analysis) was applied. For each item, typical forms were selected and assigned symbols (marks) as follows.

---

[28] The overall results of MCA application to Column 2 for the eight words (at least 32 word forms, counting forms belonging to the same item in the other categories of word forms) show almost identical patterns to the results of MCA application to all 406 items in Column 1 (Inoue & Hanzawa 2021.9). In other words, the results of this paper are considered to reflect well the general distribution pattern of dialects in the Shonai district.

[29] Potential new dialect forms were selected from among "the other dialect forms" when more answers were obtained from younger respondents.

Hamaogi forms	■
new dialect forms	◆
other dialect forms	—
standard Japanese forms	S

Figure 4-2 shows the result of Dimensions 1 and 2. The distribution was governed by a few *Hamaogi* forms ■ as the graph shows.[30] *Jonameku* and *megoi, oeru, tekinai* are plotted in different quadrants, because they were selected by a small number of respondents and reflected geographical distribution patterns either in the north or in the south. The remaining *Hamaogi* forms ■ are plotted near the origin, but the new dialect forms ◆ and the standard Japanese forms S are also plotted near the origin, making them difficult to distinguish[31]. This reflects a similar age-area distribution for them (mainly among young respondents in the central area).

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[30] As per Figure 4-1, Dimension 1 reflects age differences and Dimensions 2 to 4 reflect geographical differences.

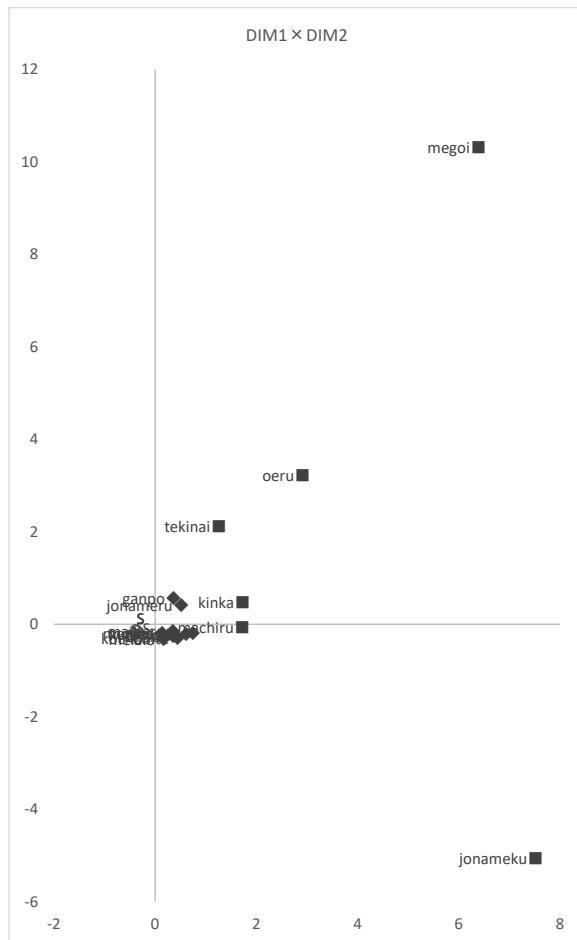[31] It is statistically almost meaningless to separately show word forms with small value differences.

Figure 4-2. MCA Dimensions 1 and 2

4.5 Interpretation of MCA: DIM 3,4

When Dimensions 3 and 4 were taken into consideration in Figure 4-3, new dialect forms ◆ were clearly separated from the old *Hamaogi* forms ■. To add to this, new dialect forms were separated from the standard Japanese forms S, and new dialect forms born near Tsuruoka were separated from the other new dialect forms. Thus, the MCA was useful to grasp the overall tendency of age-area distribution.
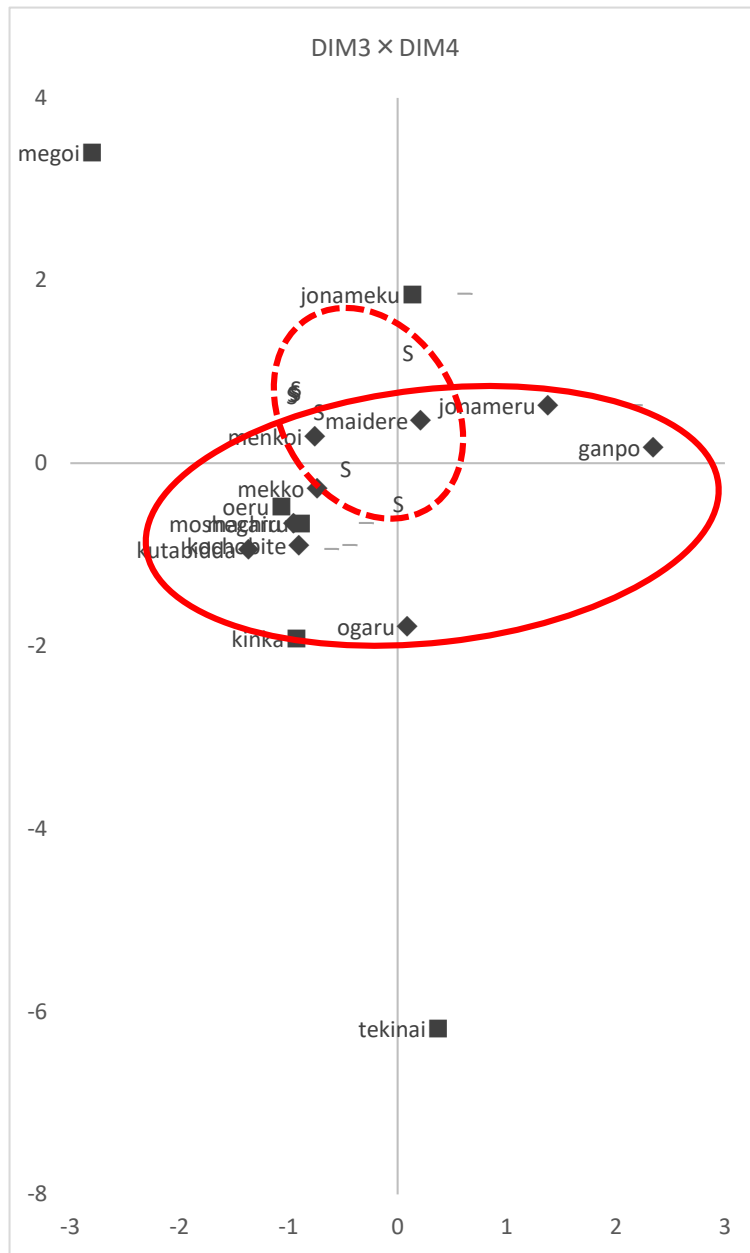
Figure 4-3. MCA Dimensions 3 and 4

New dialect forms, surrounded by a red circle in Fig. 4-3, can be ordered by the value of Dimension 3 (horizontal axis), as follows[32]. They are almost distributed clockwise. This order will be adopted in the description of §5.

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[32] The status of new dialect being 3rd dimension shows that new dialect forms are not powerful at present. Other multivariate analyses of glottogram data have shown that geography and age are the first and second important factors.

1st quadrant	1 ganpo◆	
	2 jonameru◆	
	3 maidere◆	
4th quadrant	4 ogaru◆	
2nd quadrant	5a menkoi◆	
3rd quadrant	5b mekko◆	
	6 kochobite◆	
	7 moshegaru◆	
	8 kutabidda◆	

Table 4-1. List of new dialect forms

5. Eight examples of new dialect forms in maps and glottograms

In this section, the process of diffusion of new dialect is shown through concrete examples. Various forms were obtained from Column 2 of the second questionnaire in 2018. They have been classified as shown in Figure 3-3a. The distribution and history of eight selected (clear and typical) examples of new dialect will be described in the set of maps and glottograms below.[33]

5.0 Display system: age-pillar maps (a) and simplified glottograms (b)

First, the basics of the display system for §5.1 through §5.8 will be explained. The results of Column 1 are displayed in *age pillar maps*. The figure number is appended with "*a*". The maps were extracted from *DASH* (Inoue & Hanawa 2019). The word

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[33] There are other word forms that may be identified as new dialect forms, but a final decision will be made after all word forms are subjected to multivariate analysis. This paper will provide reliable examples of new dialect in order to ascertain the extent to which there is diversity in geographic and age patterns. In Inoue & Hanzawa (2021.9) eight maps were presented which exhibited representative items of age and area (retreating, remaining and diffusing) distribution of *Hamaogi* remnant forms (these are opposite tendencies against eight forms this time which generally show remnant distribution).

forms listed in *Hamaogi* are indicated by ■ in Figure 4-3,[34] and in many age pillar maps, they are distributed in the older age groups of the 1950 survey respondents and in the periphery of Shonai district. In these age pillar maps, only whether the word form listed in Hamaogi was used, heard, or unknown was differentiated, so it is not possible to know if standard and new dialect forms are used instead.

The results of Column 2 are then displayed in *simplified glottograms*. The figure numbers are appended with "*b*". The correspondence of survey locality has been shown in Figure 3-1. Figures of "*b*" series shows the pillars tilted horizontally, 90 degrees to the left relative to those in Figures of "*a*" series, with the younger generation on the right side, and the survey localities aligned north-south. All seven generations are plotted according to the actual year of birth as shown in Table 3-1.[35]

The horizontal axis represents age, and the vertical axis represents geography. In terms of geographical differences,[36] the survey points are arranged from north to south according to the walking distance from central Tsuruoka city according to an old map from about two hundred years ago (Inoue & Hanzawa 2021.9).

The left-most two small cells for Sakata and Tsuruoka are information from 250 years ago, and the word forms in *Hamaogi* are marked with ■. All the word forms of Column 2 are classified into broad categories, and the new dialect forms are marked with ◆. Thus, the simplified glottograms marked with "b" show the diffusion of newly appearing forms. The distribution areas of the new dialect forms are delineated by red straight lines. The new dialect forms are mostly found among the present (second 2018 survey) younger respondents and in the central part of the region, indicating the expansion process from the central part to the periphery. The comparison of two types of data from Columns 1 and 2 reveals the word history of individual items.

The *general tendency* will be presented beforehand. Application of MCA was effective: the eight items which showed clear new dialect forms have similarities. MCA

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[34] Not to be confused with ■ in the a-series maps, where it denotes that the respondents use the Hamaogi form.

[35] This is in order to avoid confusion when follow-up surveys are conducted at later dates, 20 or 40 years later.

[36] This simplified glottogram is a novelty of our research in which trends can be easily observed and indicated as will be shown concretely in §5.

dimension 3 showed they were continuous, divided almost between the Tsuruoka City center and the northern Sakata City center, with some in between. Word forms that spread outward from the northern end were considered to be the reverse flow of the new dialect forms in this region. Linguistic reasons (simplification and rationalization) can explain the reason why reverse flow occurred. There were also some new dialect forms with an older date of appearance, estimated to have appeared in the 18th century.[37] The simplified glottograms adopted here were useful and powerful to show the patterns of age-area distribution,[38] because linguistic change and diffusion could be visually indicated utilizing lines.

When compared to the MCA results for the *Hamaogi* word forms in Column 1 (Inoue & Hanawa 2021.9), commonalities were found to some degree among the eight items. The old *Hamaogi* word forms and the new dialect forms are theoretically expected to show complementary distribution, but this is not always the case for these eight items. They all have *Hamaogi* forms as remnant forms in the peripheral areas. Remember that for many other items, *Hamaogi* forms had nearly completely disappeared in the first survey in 1950 and have completely disappeared in the 2018 survey.

5.1 ganpo *(deaf/hard of hearing)*

One of the words surveyed in our research was 'deaf' or 'hard of hearing' which is situated at the rightmost position in Figure 4-3, due to having the largest value in Dimension 3 of MCA. Figure 5-1a is from the Column 1 data, asking whether *Hamaogi* form is used or not. So far, most of our research data has been analyzed in graphs focusing on age differences and ignoring geographical differences (Inoue & Hanzawa

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[37] This contrasts with the previous Shonai Glottogram Survey (Inoue 2016.8; 2000.2), which showed that many new dialect forms originated recently from Tsuruoka City. This may have something to do with the fact that the difference in generation was only about 60 years in the previous Shonai Glottogram Survey in the middle of the 20th century.

[38] In the simplified glottograms used in this article, age is shown faithfully, though actual geographical positions are not reflected. In the traditional glottograms surveyed along linear areas like railways, age and distances were indicated only approximately. Minute patterns of diffusion can be exhibited when both age and (railway) distance are shown faithfully. This was corroborated in revised graphs of Tokaido glottogram survey (Inoue, Hanzawa, Tanabe & Yamashita 2022).

2020.12; 2021.2; 2021.4; 2021.9; 2022.9). Here in Figure 5-1a, geography is shown by the map and age differences are shown by pillars on each survey locality.

Kinka ■ was recorded in *Hamaogi*, and remained common among the 1950 respondents, but is now retreating as the solid blue circle indicates. *Kinka* is abundant in the north and south, and almost absent in the central region. This sharp regional contrast differs from the overall tendency of standard language forms, where regional contrasts were not noticeable.
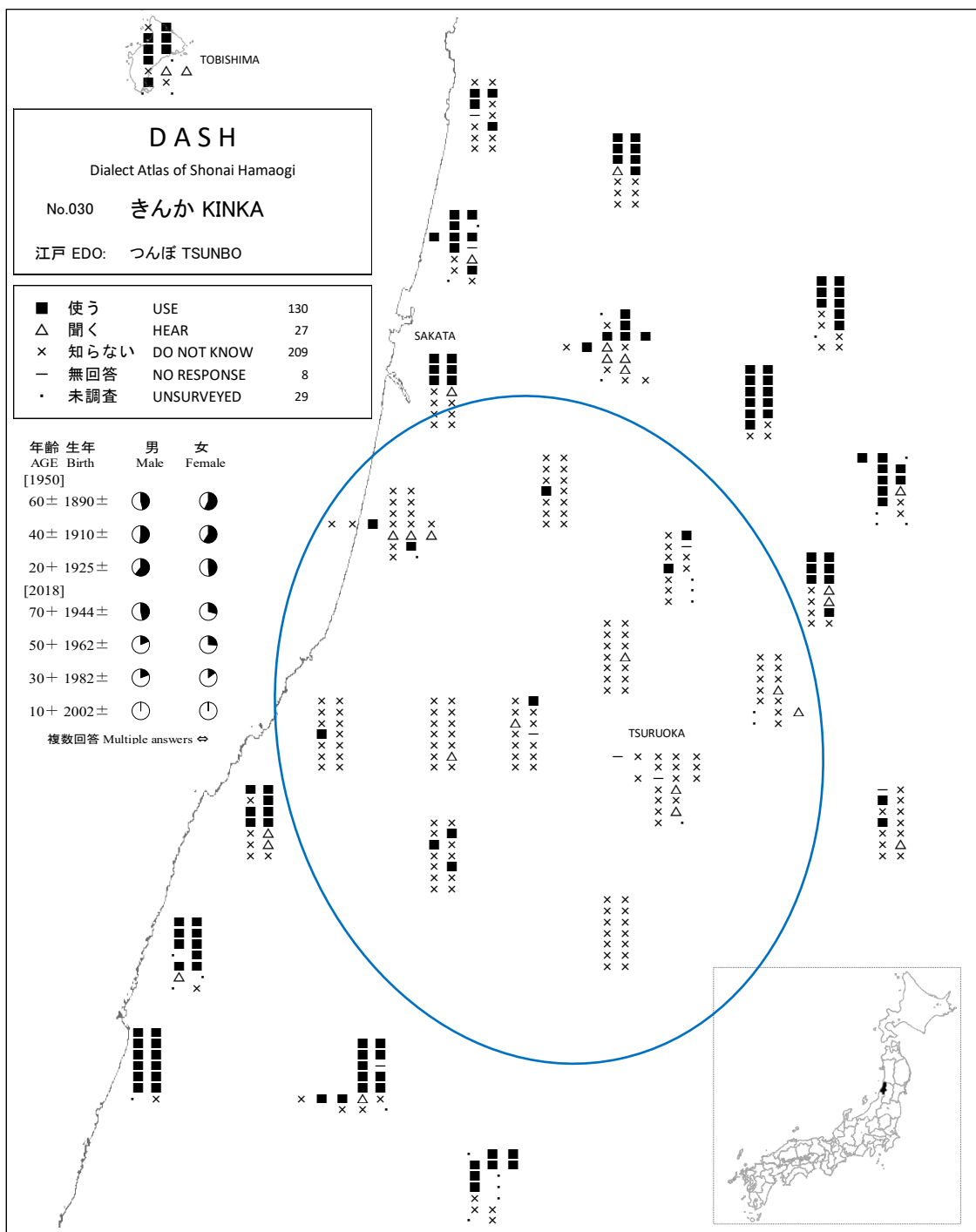
What spread instead can be found in Column 2 of the questionnaire, which asks respondents to choose specific forms they use. In Figure 5-1b the newer form *ganpo* was reported around Tsuruoka City by elderly informants born in the 19th century. It is spreading among younger informants, born in the 20th century. This is a typical new dialect form. The change must have occurred in Tsuruoka sometime before the late 19th century.

In Figure 5-1b, the age difference is easier to see: in the 7th generation which was born in the 21st century, *ganpo* is decreasing and "no response" (marked by .) is increasing instead. The spread of the standard language has caused the obsolescence of the new dialect form, which has fallen into the category of "old new dialect", to be mentioned in §6.

Using dialect data from the past can allow us to deduce the absolute year of change. Fortunately, a dialect dictionary published in 1891 in Tsuruoka recorded the new dialect form *ganpo.* Thus, the change must have occurred between 1767 and 1891.[39] We have conducted several other glottogram surveys in this Shonai area. They showed differences according to age in many places of Shonai district.

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[39] The related graph can be found in Inoue & Hanzawa (2021.9). In Figure 12 in Inoue & Hanzawa (2021.9), the time dimension is shown by the horizontal axis, and geographical distribution is indicated by the vertical axis, simplified as north to south.
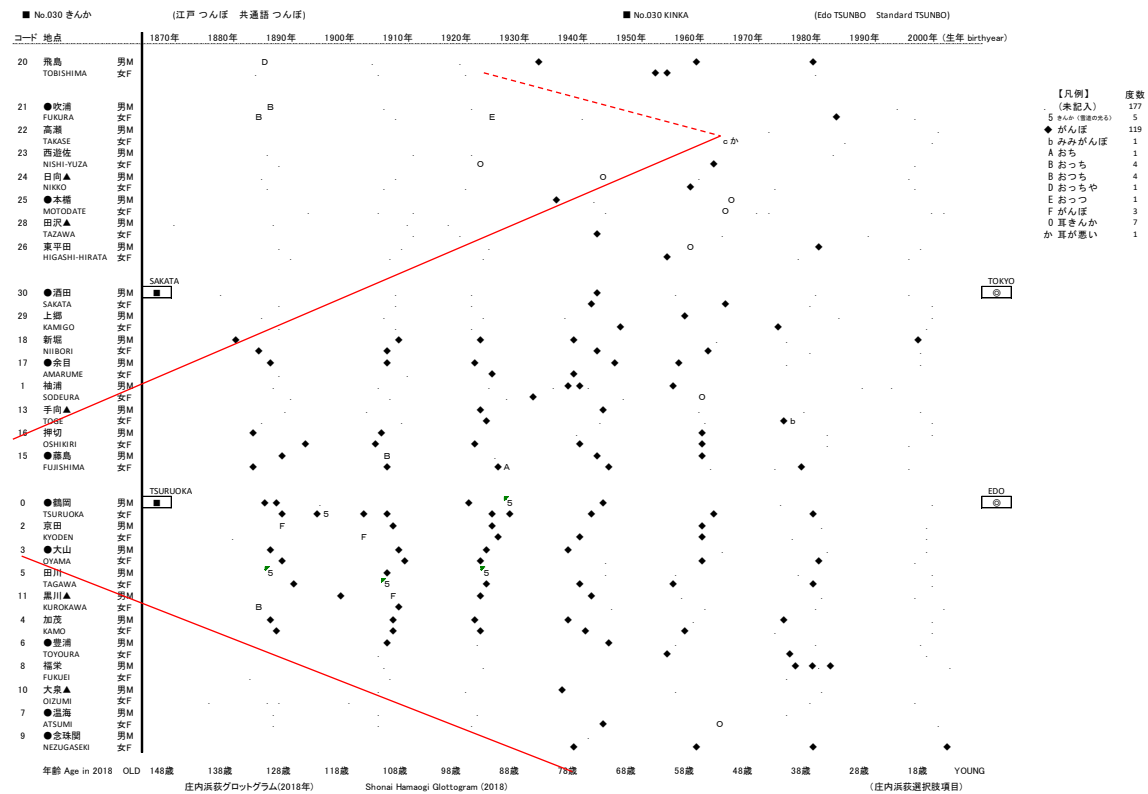
Figure 5-1a. *kinka* ■ DASH[40]

Figure 5-1b. *kinka* ■ → *ganpo* ◆

5.2 jonameru (dress up)

Likewise, let us look at the other items in the order of MCA dimension 3 value in Fig. 4-3. For the meaning 'dress up', the word form listed in *Hamaogi* was *jonameku* (verb) or *jabena* (adjective in Sakata)*.* Figure 5-2a shows the results of the question asking whether *jonameku* ■ was used. The age difference is noticeable, with *jonameku* being used more often by the 1950 respondents. There are also regional differences, with *jonameku* being used less frequently in the northern part of the region.
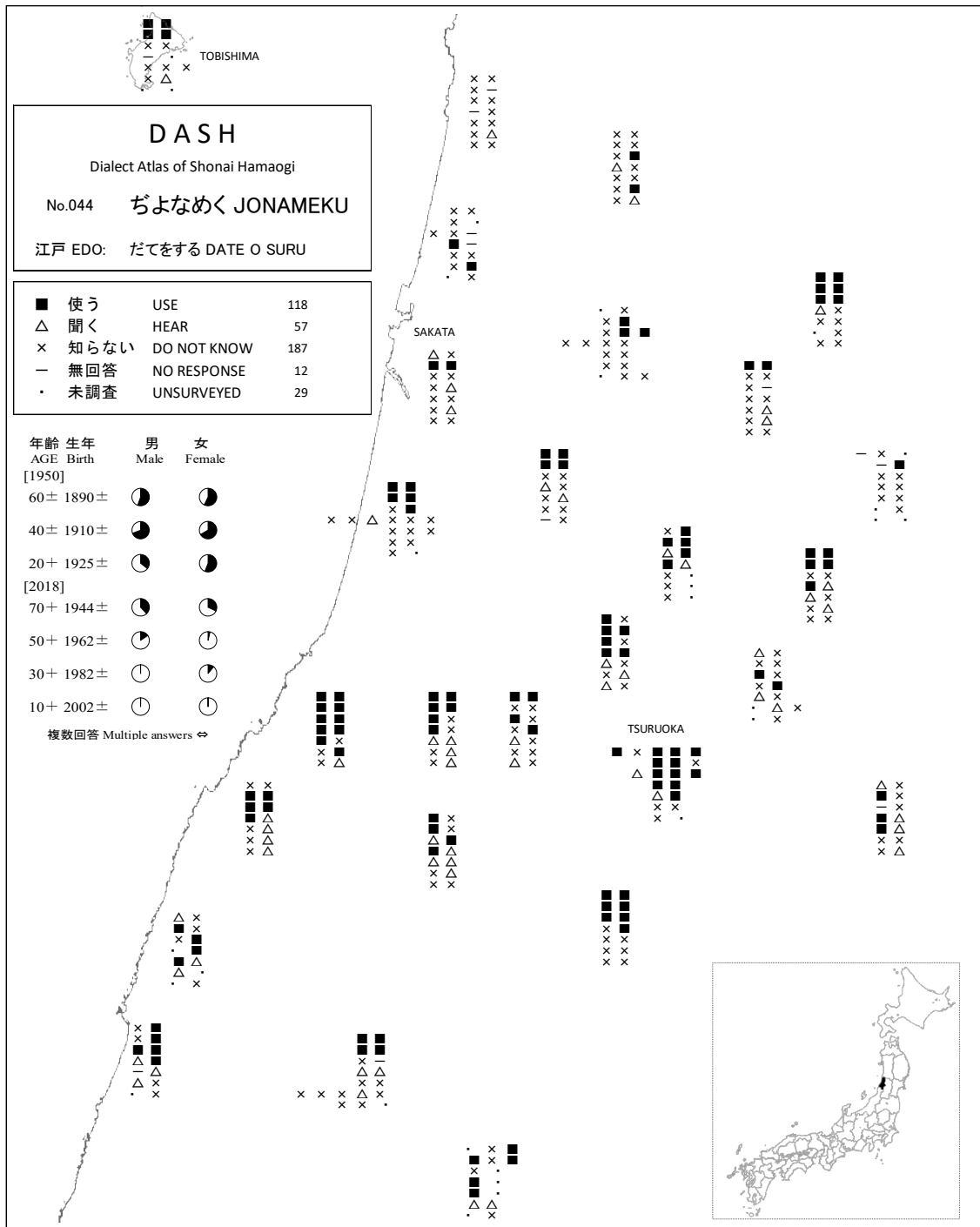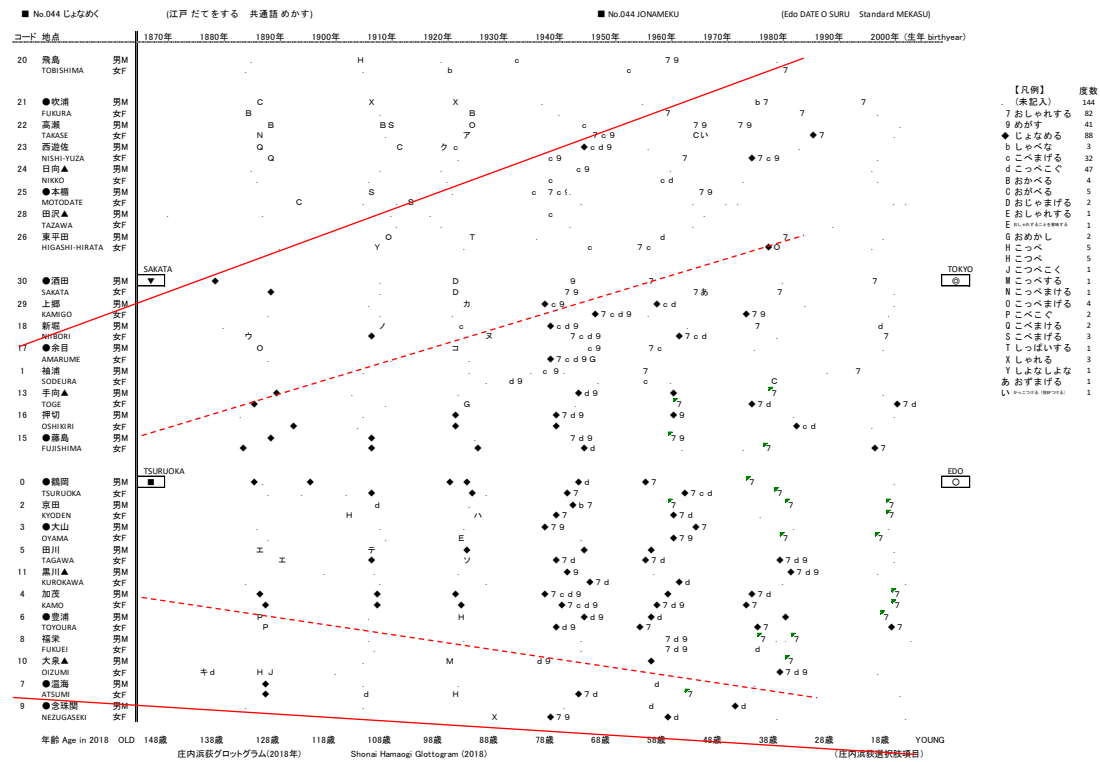
Figure 5-2a. *jonameku* ■ DASH

Figure 5-2b. *jonameku* ■ → *jonameru* ◆

Looking at age differences in Figure 5-2b, the number of *jonameru* ◆ increased at the end of the 20th century and the number of no-answers increased for the younger generation born in the 21st century. More people do not (or cannot) fill in the appropriate standard word form. The language is moving toward the abolition or obsolescence of the term, which will be commented on in §6.

5.3 maidere (wait!)
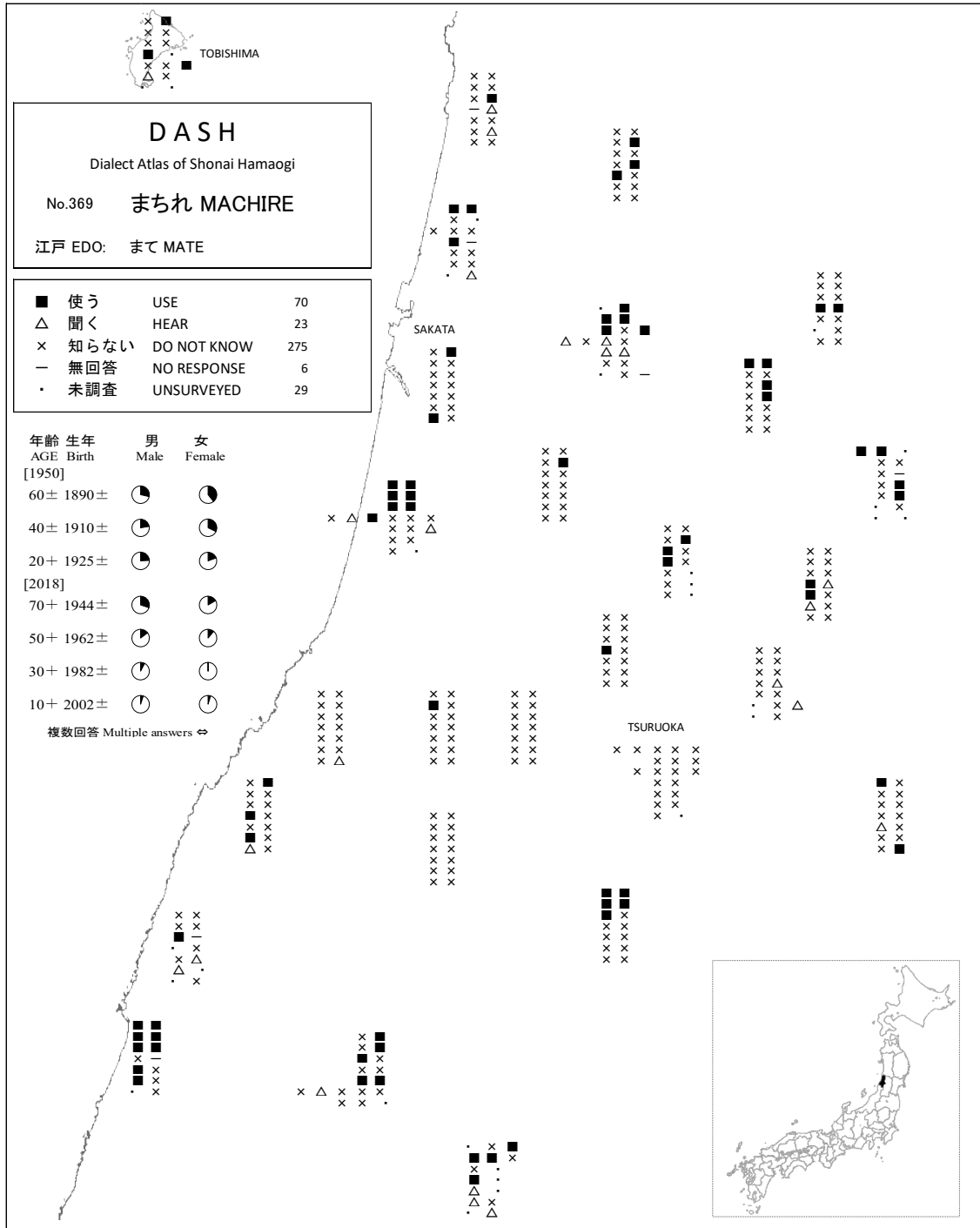
『庄内浜荻』方言地図 （国立国語研究所 NLRI 1950; 井上・半沢 Inoue & Hanzawa 2018）
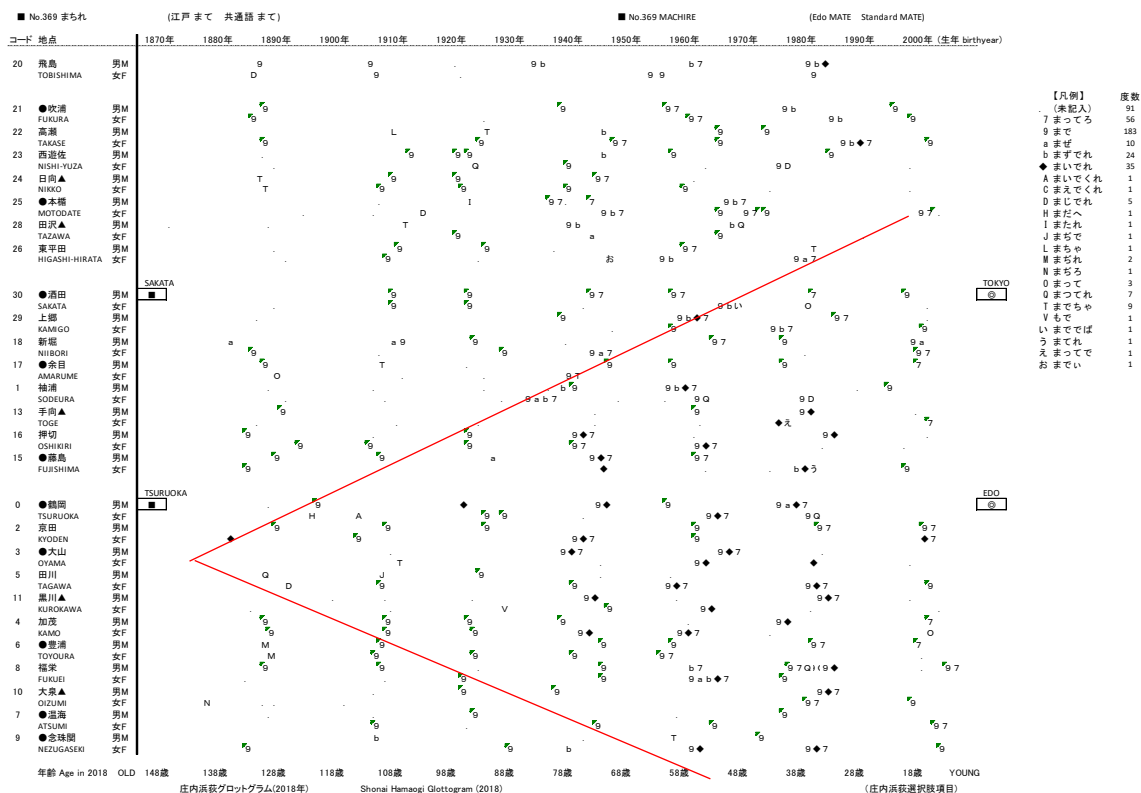
Figure 5-3a. *machire* ■(wait!)　DASH

Figure 5-3b *machire* ■ → *maidere* ◆ (wait!)

Figure 5-3a shows the use of the *Hamaogi* form *machire* ■. It is more common among the 1950 respondents in the north and south, and less common in the central region. The form recorded in *Hamaogi, machire,* was retreating. It is a conjugated form of *machi-ru*[41] which is found in many parts in Japan.

According to Figure 5-3b, the new form *maidere* ◆ is another typical example of a new dialect form. It appears to have originated about 150 years ago in the vicinity of Tsuruoka City and spread to the surrounding area. *Maidere* was created as a simplification of *mazi-de-re,* which corresponds to the former local standard *machi-te ire*.[42] A further sound simplification occurred and *mazi-de* became *mai-de*. Fig. 5-3b shows the age difference between the two groups. Namely, the occurrence of the local standard expression *made* (marked by c) (corresponding to standard *mate*) is growing

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[41] Vowel-stem verb or *ichidan katsuyo* verb. *Machi-ru* is reported in many areas of Japan.

[42] This is part of a process of the spread of subsidiary verbs (*hojo-doshi*) in modern Japan (Watanabe 2013).

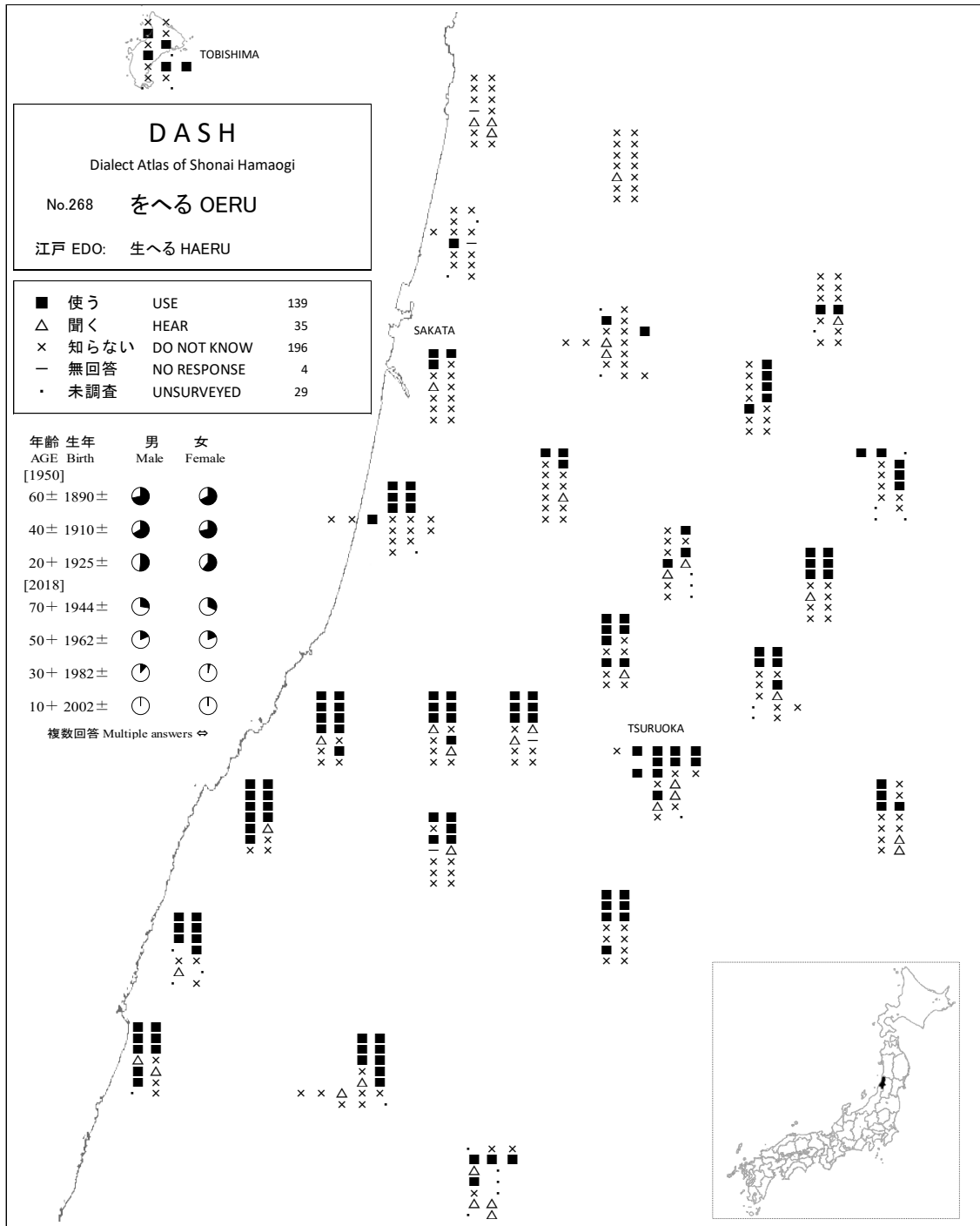prevalent while *maidere* ◆ is decreasing in the group born at the end of the 20th century.
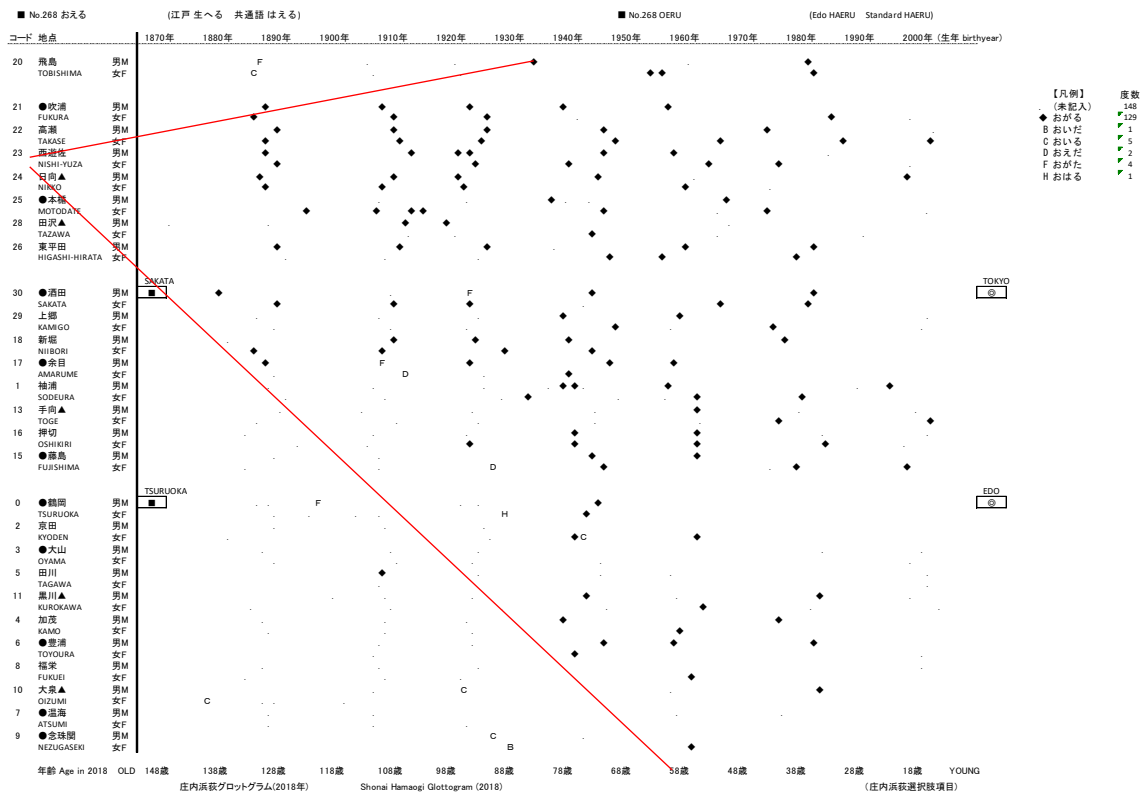

Figure 5-4a. *oeru* ■ DASH

Figure 5-4b. *oeru* ■ → *ogaru* ◆

5.4 ogaru (grow)

Figure 5-4a shows the use of the *Hamaogi* form *oeru* ■ (to grow). It is more common among the 1950 respondents in the south and less common in the north and central regions. Figure 5-4b shows that *ogaru* appears to have originated in the north and spread to the south. A map in LASD (Inoue 2009) also shows north/south contrast. In this case a new dialect form with the meaning 'grow' spread from northern part to southern part, that is, *ogaru* became popular in place of *oeru*[43]. Fig. 5-4b also shows that *ogaru* ◆ is decreasing and the number of "no response" (marked by .) is increasing in the generation born at the end of the 20th century, indicating that the new dialect forms that emerged in the 19th century are now losing their vitality.

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[43] *Oeru* had both the meanings of sprouting and growing, but *ogaru* specialized in the meaning of growing.

This item (word) is plotted in the fourth quadrant of Figure 4-3, separated from the other seven items. This is a reflection of its geographical distribution, being centered in the north of the area.

5.5 menkoi and mekko (cute)

DASH
Dialect Atlas of Shonai Hamaogi
No.070 めごい MEGOI
江戸 EDO: かはいゐ KAWAII

■	使う	USE	201
△	聞く	HEAR	85
×	知らない	DO NOT KNOW	81
－	無回答	NO RESPONSE	7
・	未調査	UNSURVEYED	29
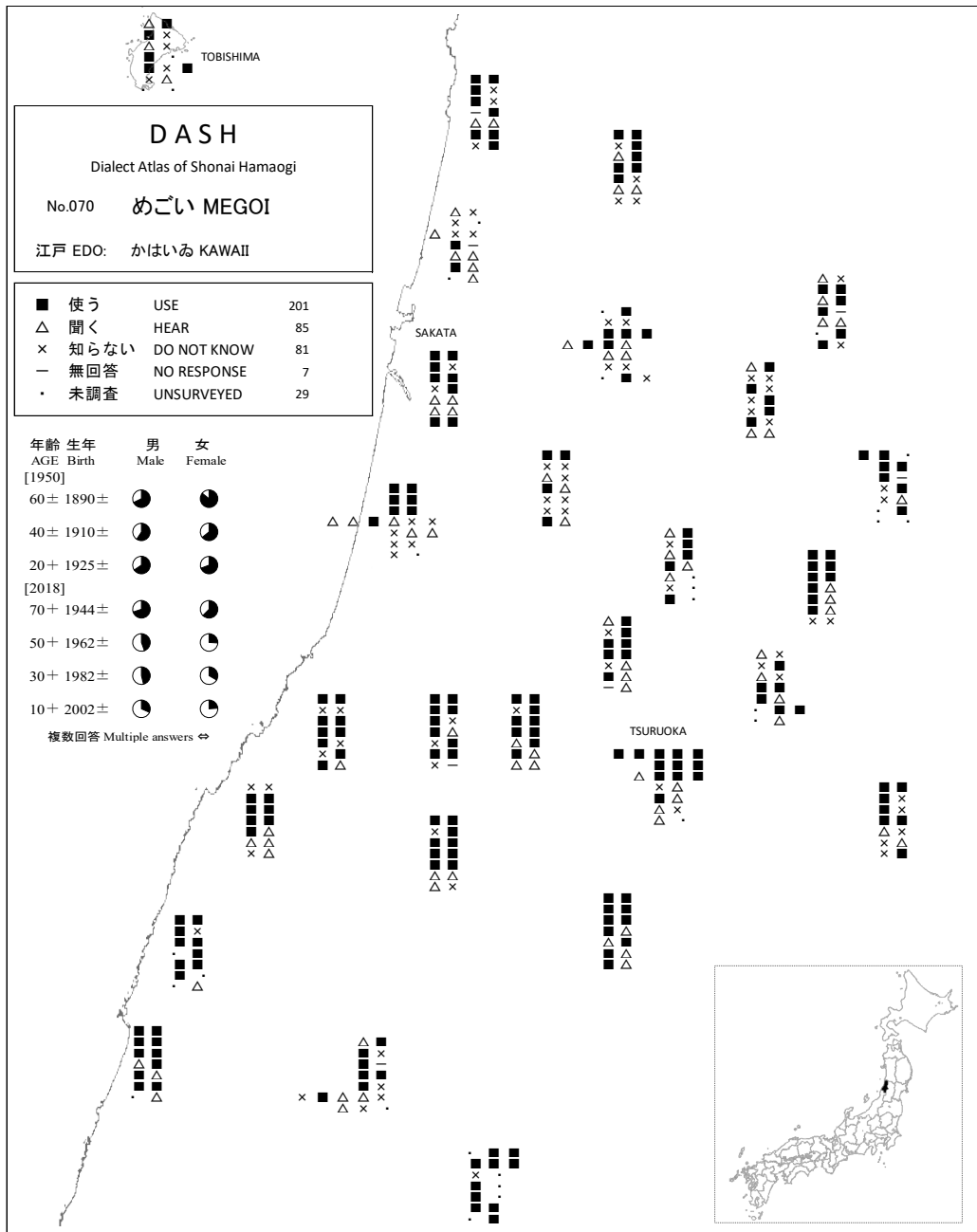
『庄内浜荻』方言地図 （国立国語研究所 NLRI 1950; 井上・半沢 Inoue & Hanzawa 2018）
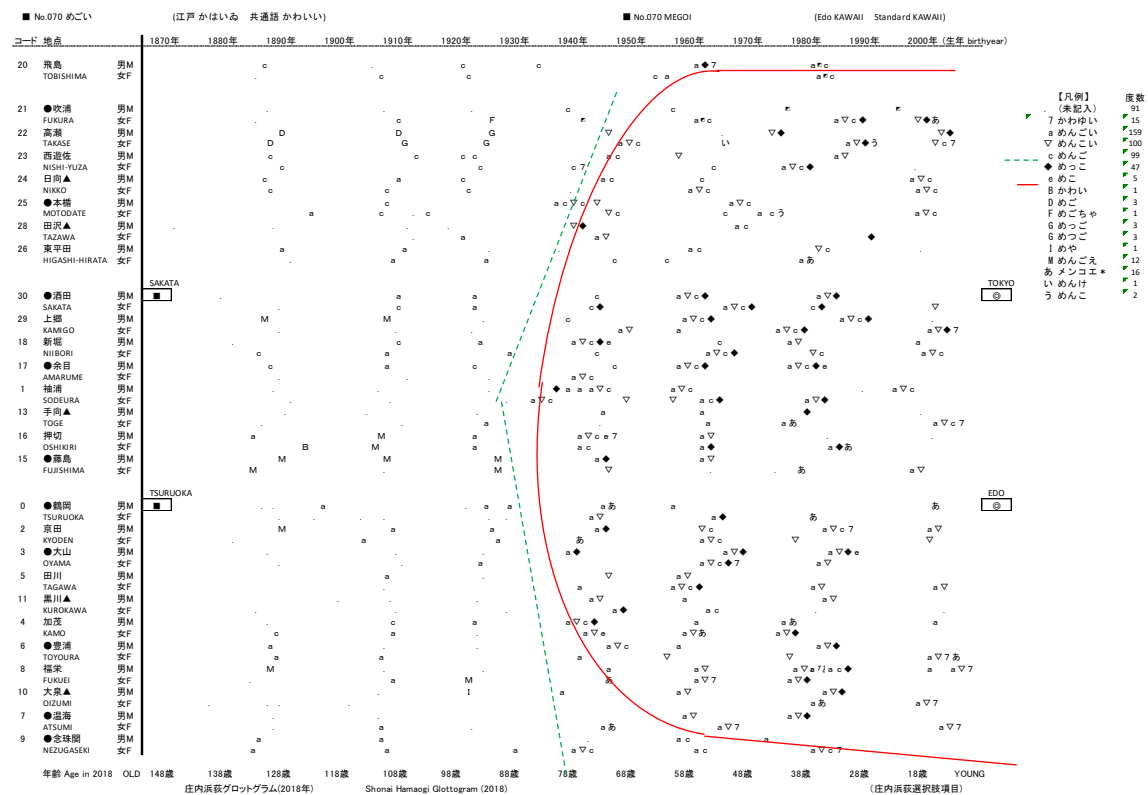
Figure 5-5a. *megoi* ■ DASH

Figure 5-5b. *megoi* ■ → *menkoi* ▽ and *mekko* ◆

Figure 5-5a shows the use of the *Hamaogi* word form *megoi* ■ (cute, *kawaii*). It is used throughout the region, but is less common in the central region; and is more common among the 1950 respondents and the elderly among the 2018 respondents. This word is well-known as being derived from the 8th-century classical-literary Japanese adjective *megushi* (lovable). Linguistic change of this item is interesting but also complicated. This item was discussed in Inoue (2021.6).

Figure 5-5b shows that *menkoi* ▽ and *mekko* ◆ spread rapidly during the period covered by the 2018 survey. These two forms suddenly appeared in the second survey. These new dialect forms are common near Tsuruoka City, but are also scattered throughout the area. *Menkoi* spread a little earlier in the central part of the survey area. *Menkoi* is a well-known dialect form of northern Japan partly because of the song "*Menkoi kouma*" (cute pony) which was taught nationwide in schools in the first half of the 20th century. In contrast, *mekko* was created by "-*i* deletion" in the adjective conjugation (a simplification) in northern Shonai. *Mekko* in the meaning of 'cute' or

89

'*kawaii*' (standard Japanese) spread to the southern part of the survey area quite recently according to the 2018 survey.

The diffusion process can be shown more precisely. Inoue (2021.6) gives a dialect distribution map of elderly informants in 1969 (born in 1890 -1910), which is omitted here. The map shows that *mekko(i)* was comparatively wide-spread in the center and the north, and sporadically distributed in the south. Inoue (2021.6) also shows the age difference in the subregion (Yamazoe, a suburb of Tsuruoka City) during the interveing period, which revealed the gradual spread of *mekko(i)* among younger generations. Repeated surveys, discussed in Inoue (2021.6), later showed further increase of new *mekko-i*.

Looking at the age difference in Fig. 5-5b, *menkoi* ▽ and *mekko* ◆ have not lost much of their vitality among the generation born at the end of the 20th century. The standard language form *kawaii* has spread abroad as a "*gaikogo*" (lendword or exported Japanese) (Cannon 1996; Long 2007; Inoue 1994.2, 2019.12, 2022.1; Daulton 2022), but domestically regional dialects have retained their value.
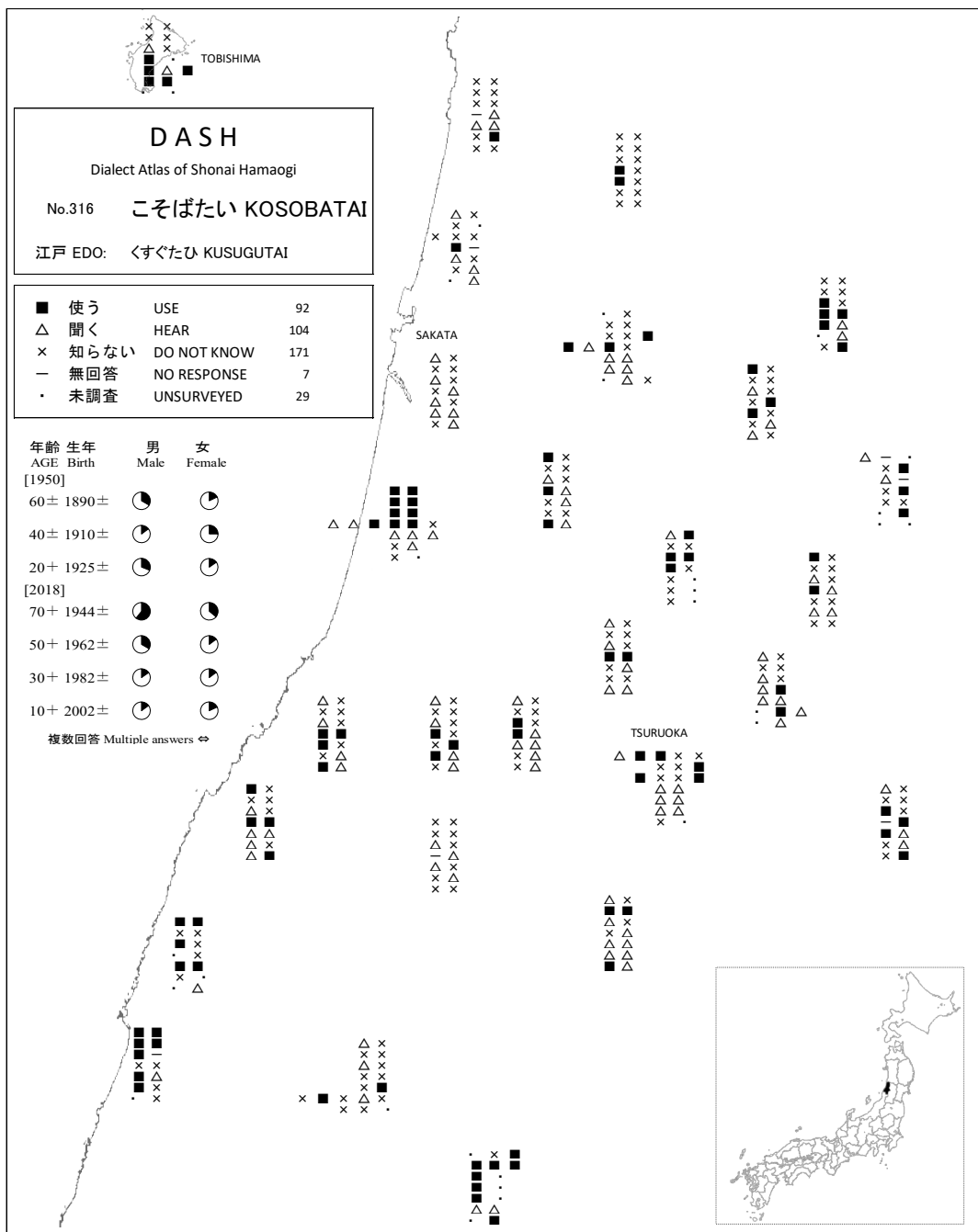
5.6 kochobite (ticklish)
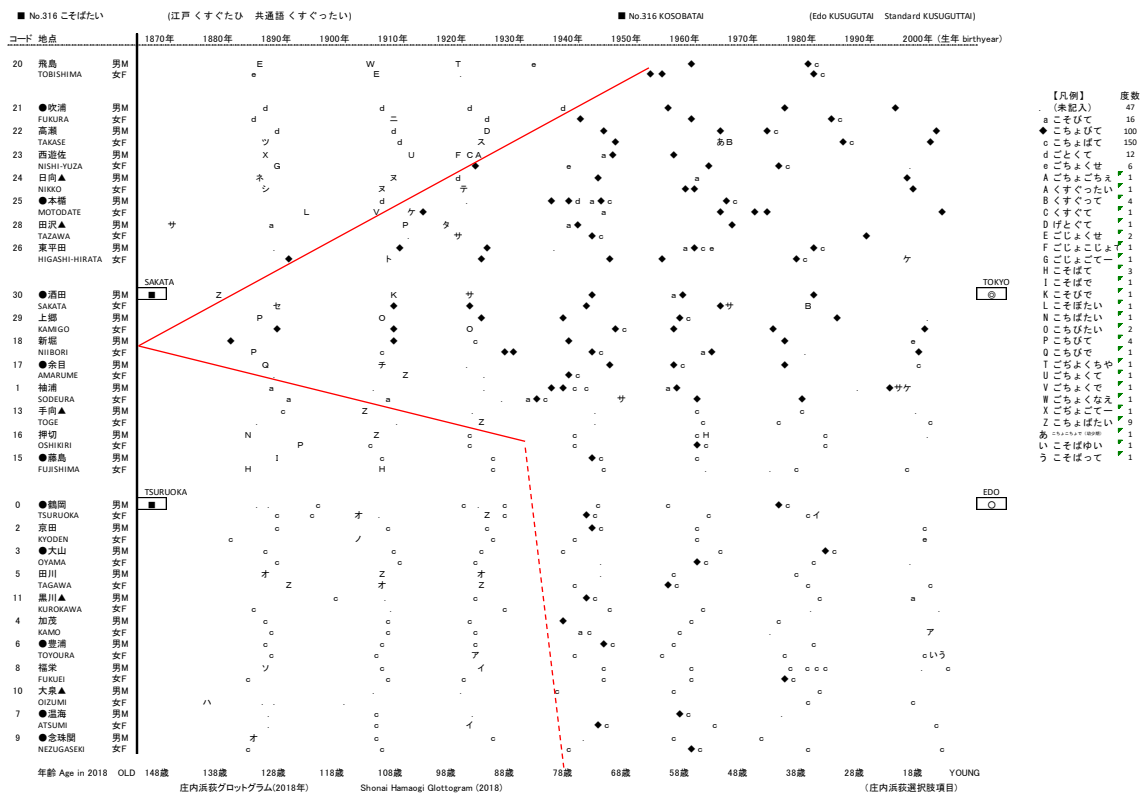

Figure 5-6a. *kosobatai* ■   DASH

Figure 5-6b. *kosobatai* ■ → *kochobite* ◆

Figure 5-6a shows the use of the *Hamaogi* word form *kosobatai*. *Kosobatai* ■ is scattered throughout the region, but is most common in the southern or coastal villages. The younger generation tends to use it less, but this is not only because of the standard form *kusuguttai*. It is noteworthy that many respondents answered "hear" △, suggesting the form is at an intermediate stage heading toward obsolescence.

According to Figure 5-6b, considering actual usage, the respondents' response pattern is varied. The new dialect form *kochobite* ◆ appears to have originated in the vicinity of Sakata City and spread to the surrounding area and then to the whole area. *Kocho-* is etymologically derived from onomatopoeic *kochokocho,* which is used to describe the act of tickling*. Batai* and *bitai* are affixes for adjectives. In the southern part near Tsuruoka, *kochobate* (marked by c), which sounds similar to the *Hamaogi* form *kosobatai*, was used by the earlier generations. Figure 5-6b shows that, in addition to *kochobite* ◆, *kochobate* c, which was created and spread in the south, is still strong among the generation born at the end of the 20th century. The common language form *kusuguttai* is not so widespread.

5.7 moshegaru (enjoy)
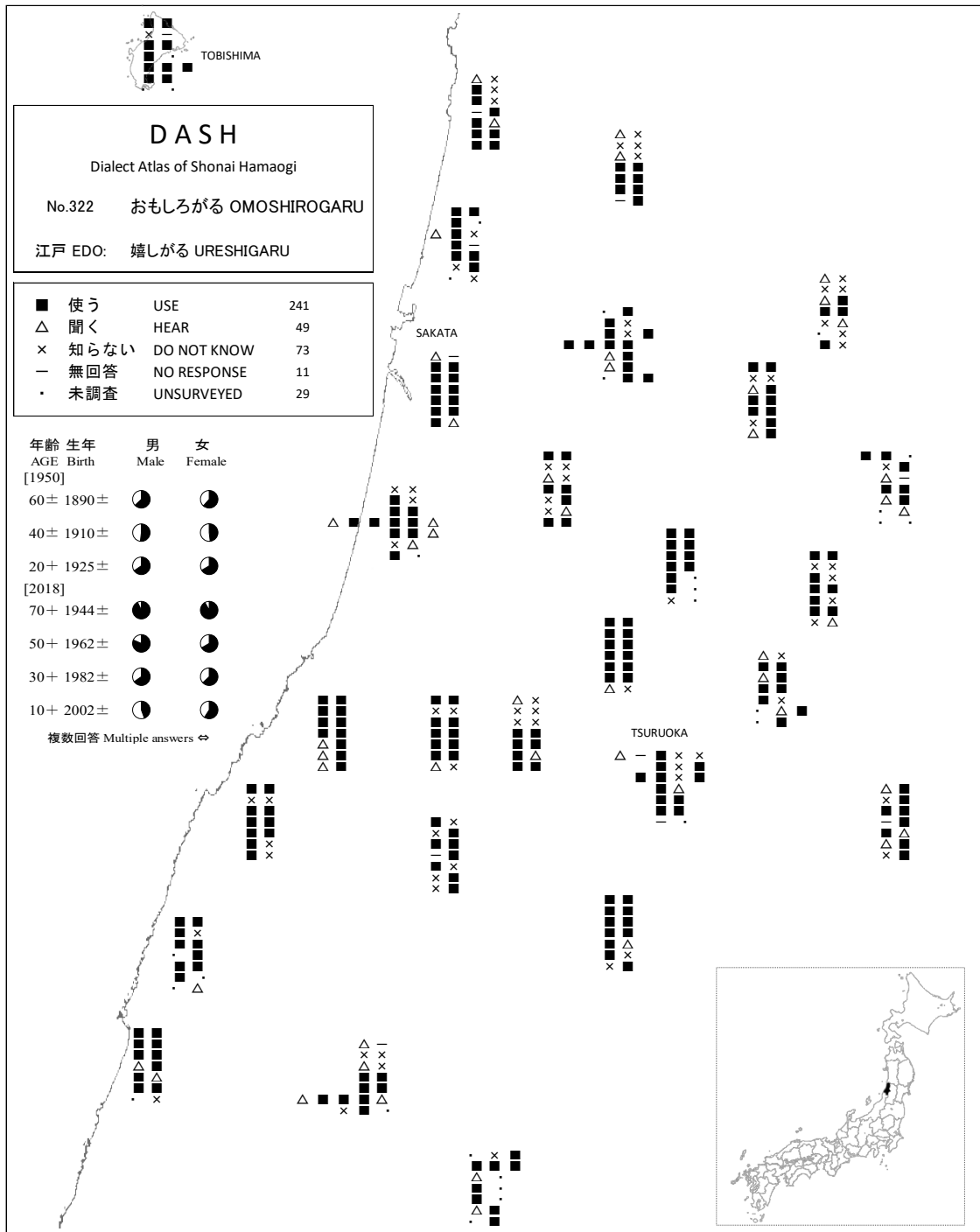
Figure 5-7a. *omoshirogaru*■　DASH
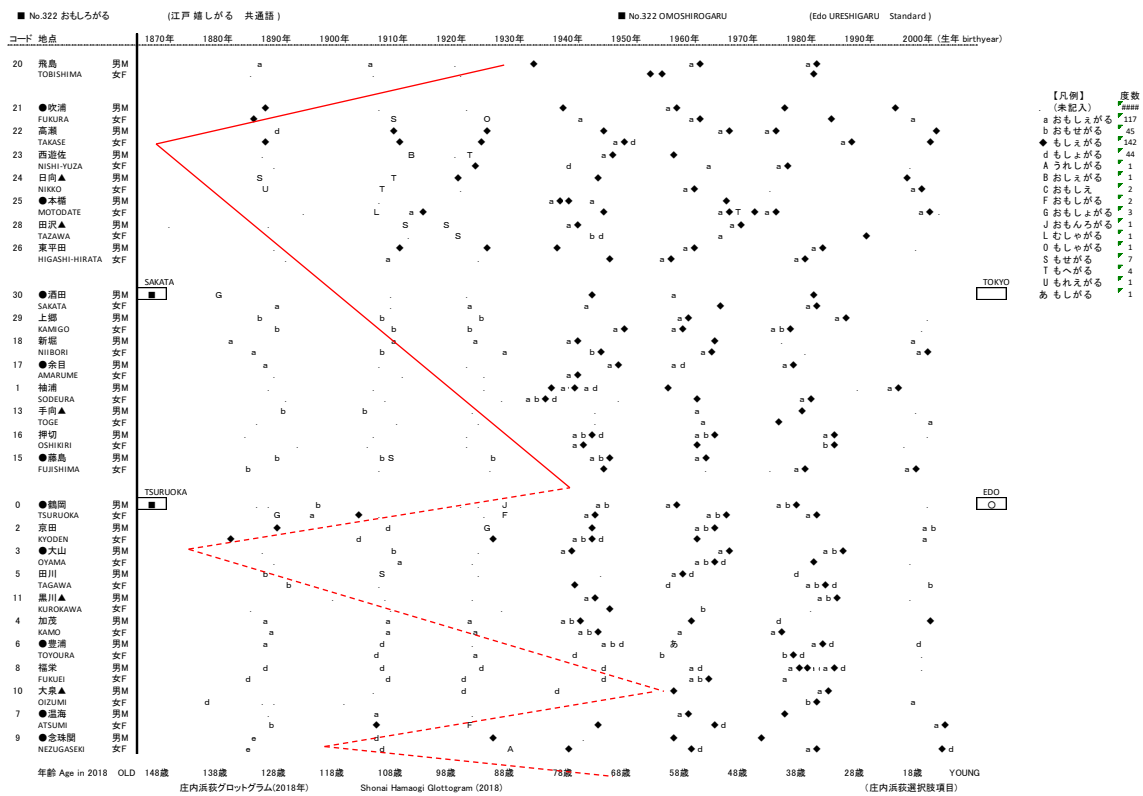
Figure 5-7b. *omoshirogaru* ■ → *moshegaru* ◆

Figure 5-7a shows the use of the *Hamaogi* word form *omoshirogaru* ■. It is well preserved throughout the regions and generations. A new, derivative form has also come into being. *Omoshirogaru* in the meaning of 'enjoy' has lost its first vowel and also the conjugation pattern has been simplified. The resulting *moshegaru* seems to have been independently created in many areas more than a century ago.

Figure 5-7b shows that *moshegaru* ◆ appears to have originated in the north and spread to various locations. Omission of *o-* is not a phonological change but a sporadic change, and simplification of conjugation occurred. Fig. 5-7b shows the age difference between the two forms. In addition to *moshegaru* ◆, *omoshegaru* (marked by a), which is close to the standard form, remains strong among the generation born at the end of the 20th century. The standard form *omoshirogaru* has not expanded much.

5.8 kutabidda (tired)

Figure 5-8a. *tekinai* ■   DASH

■ No.303 てきない　　　（江戸 くたびれた　共通語 つかれた）　　　　　　■ No.303 TEKINAI　　　（Edo KUTABIRETA　Standard TSUKARETA）

コード 地点　　　　1870年　1880年　1890年　1900年　1910年　1920年　1930年　1940年　1850年　1960年　1970年　1980年　1990年　2000年（生年 birthyear）

【凡例】　度数
（未記入）　103
6　くたびれだ　108
◆　くたびっだ　105
b　がおた　73
D　くさびれた　1
E　くたびえる　2
F　くたびっじゃ　2
G　くたびった　4
K　くだびっだ　3
N　くだびれた　2
O　くだびれた　1
Q　くだびれる　8
R　せっない　1
S　せっね　1
T　たわつと　1
V　てきね　1
W　てぎね　2
X　できね　2
Y　ふたびれだ　1
あ　がおった　2
い　がおる　1
う　つかった　1

年齢 Age in 2018　OLD　148歳　138歳　128歳　118歳　108歳　98歳　88歳　78歳　68歳　58歳　48歳　38歳　28歳　18歳　YOUNG
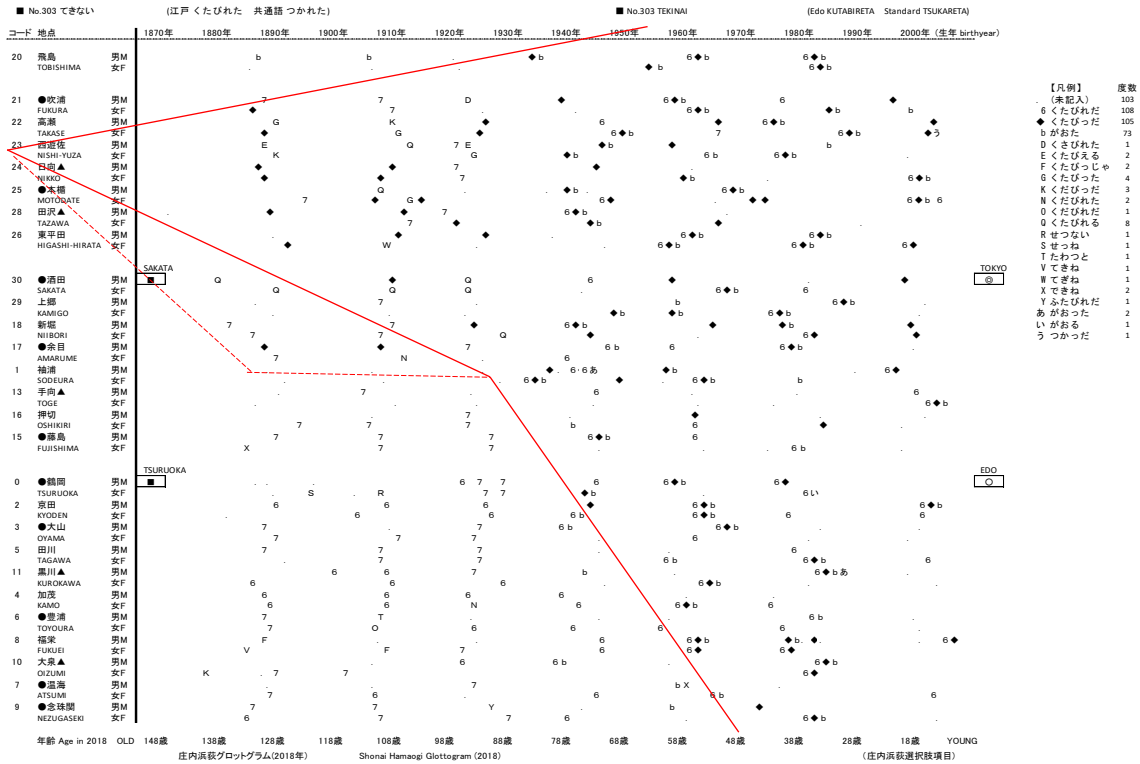庄内浜萩グロットグラム(2018年)　　Shonai Hamaogi Glottogram (2018)　　　　　　（庄内浜萩選択肢項目）

Figure 5-8b. *tekinai* ■ → *kutabidda* ◆

Figure 5-8a shows the use of the *Hamaogi* word form *tekinai* ■ (tired). It was most common in Nezugaseki[44] at the southwestern end of the region and is scattered among the elderly in various areas. The elderly around this region responded that they used this adjective form, but usage was rare in other regions and among younger generations.

Figure 5-8b shows that another type of spread occurred in the new dialect form of *kutabidda*. The newer expression with the verb *kutabidda* ◆, which means 'to be tired', appears to have originated in the north, and it spread south among younger speakers.[45] This new form had been used in the eastern adjacent *Nairiku* (inland) area

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[44] Although urbanized now because of a railway station, the southwestern village of Nezugaseki was a remote settlement in the past (Inoue & Hanzawa 2020.12).

[45] *(kuta)bidda* which means 'to be tired' was already widely used in the northern part of the survey area. A similar form *kutabitcha* is reported in nearby Fukushima Prefecture. This is one example of the process of r-deletion, which is widespread in eastern Japan. The spread of *(kuta)bidda* might be explained in many ways. Examples of its use appear in the inland region including prefectural capital, so it may have entered the Shonai region later. Its relationship with Fukushima prefecture deserves more consideration.

of the same prefecture where the prefectural capital Yamagata City is situated, suggesting that this form spread due to influence from the eastern regions[46].

Figure 5-8b shows the recent age difference: *kutabidda* ◆ has lost its power in the generation born at the end of the 20th century except in the north, while *kutabire-,* which is closer to the standard form, has spread in the south.

5.9 Short summary of age and change

This section summarizes the analysis of the eight representative words highlighted in §5. These new dialect forms are diverse in their place and time of creation, but there is a certain degree of common tendency in their diffusion patterns. The meanings of the MCA dimensions were found in the dialect distribution maps of the eight words discussed above. Thus, the validity and effectiveness of the multivariate analysis MCA was demonstrated. Extrapolation allows us to estimate that new dialect change has been occurring since before modernization. The change is continuous from the Edo period.

Ideally, we are planning to apply multivariate analysis to all word forms individually (without grouping them into categories) in the future. This would allow us to understand the long-term changes (nearly 140 years). 250 years have passed since the compilation of the *Hamaogi* glossary in 1767, and 150 years have passed since modernization began. The Meiji Restoration in 1868 was interpreted as a turning point from premodern to the modern age, and it was believed (without secure proof) that only language standardization as a unification movement (convergence) has occurred since then. But diffusion from Tsuruoka and many places in Shonai region shows that new dialect (that is diversification, divergence) also appeared both before and after 1868. The change in vocabulary has been in constant progress since the Edo period.

Several social factors might have operated in the appearance and propagation of new dialect forms. The establishment of Yamagata Prefecture at the beginning of the

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[46] There are abundant examples of influence from inland area including prefectural capital Yamagata city as shown in Inoue (2000.2, 2016.8, 2021.6).

Meiji Era and the setting of the prefectural capital in Yamagata City exercised its influence several decades later (Inoue 2000.2).

Further analysis of new dialect forms is in progress. At the moment, (7+20+6+7 =) 40 potential new dialect forms from different points over the last 250 years have been found. That is nearly 10% of the dialectal words recorded 250 years ago. This shows that the standardization or centralization (convergence) of language is not the only direction of change. Dialects maintained vitality of their own and produced their own new descendants. When large scale field investigations began after the World War II in Japan, new dialect forms seemed to be a rare exception. However, as is shown in the lexical changes observed in the *Hamaogi* glossary, many new dialect forms have appeared. New dialect forms represent a long linguistic history, and the change continues to occur throughout history. The changes given reflect the long dialectal history of Japan, but new dialect is a universal phenomenon which can be found in any language with a sufficiently long history.

New dialect is not an exceptional phenomenon. It is constantly occurring in many places. Age differences in glottograms of b-series figures show that, in several items, the new dialect form is losing vitality in the young generation born at the beginning of the 21st century. In some cases, it is replaced by the standard language form, and, in others, there stops being any appropriate response (i.e., it is obsolete). This situation will be discussed in §6.3.

6. Discussion: Significance of new dialect

6.1 Double umbrella model

In the past, an umbrella model was constructed to explain the mechanism of linguistic changes from below and from above (Inoue 1998.1, 2010.12, 2011.1; Coulmas 2022.4), based on the standard and new dialect forms. The discussion above has shown that local cities have their own prestige or power of diffusion. This suggests that the umbrella model should be supplemented with small umbrellas in various

places. The revised DOUBLE UMBRELLA MODEL[47] is shown in Inoue (2016.8: Figure 14) and Inoue & Hanzawa (2021.9: Figure21).[48]

DOUBLE UMBRELLA MODEL illustrates the following tendencies. Standardization works as a pressure from above to all areas of Japan. Meanwhile, new dialect forms are created and adopted independently in many places in Japan. At the colloquial level, daily speech in Tokyo has the same status as other local dialects. Like rain drops moving at the rim of a tilted wet umbrella, Tokyoites and local people exchange new dialect forms.

The basic idea of an umbrella model is similar to Yanagita's "concentric distribution theory" (*hogen shukenron*) (Yanagita 1943), the "cascade model" of Labov (2003), and the "Wellentheorie" (wave theory) by Schmidt (1872). It is a similar idea to that of Thünen's "Isolierte Staat" (Von Thünen 1966), the "central place theory" of Christaller (1933) and the "innovation diffusion theory" of Haegerstrand (1967) in geography.

6.2 Bi-directional triangular model of change

This section introduces bi-directional change, or a triangular model (Inoue 2021.6). The triangular diagram shows that there are two distinct routes of change.[49] It is commonsense that language standardization progresses during the process of modernization and urbanization. As such, sociolinguistic surveys will reveal processes and universal laws of diffusion even if based on a simple idea of unidirectional change. Such change is characterized by great variety and by starting from above. However, the introduction of another standpoint to research methods, another direction of change

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[47] The double umbrella model was given the same name for the model with two peaks in Tokyo and Kyoto (Inoue 2008.5c, 2009.11, 2010.2, 2017.8). It can be newly called the "Tale of Two Cities" model in order to distinguish the two. This model has been inverted and changed to the "limestone cave model" (Inoue 2020.2).

[48] Inoue & Hanzawa (2021.9) Fig. 21 is easily accessible on the internet.

[49] This model is similar in concept to that of convergence and divergence of Dutch dialects presented by Buurke et al. (2022).

from below, can offer more accurate insights. To this extent, new dialect forms are indicative and stimulating.

6.3 Two directions of new dialect: *obsolescence and language change*

To describe the overall conclusion, first, not all new dialect forms continue increasing forever; they each have their own destinies.

6.3.1 Increase

New dialect forms of Japan as a whole have been collected and compiled into a dictionary (Inoue & Yarimizu 2002). The work is still in progress, and a newer, expanded dictionary is available digitally. For example, new exaggerating expressions meaning 'very' have been created and adopted in many areas of Japan, like *metcha* in Osaka, *dera* in Nagoya and *iginari* in Sendai. These and other examples are diffusing throughout Japan vigorously even now (Inoue 2012.1; 2021.6; 2022.4; in press).

6.3.2 Decrease

Recent field survey results including younger respondents show that some new dialect forms are in retreat. For these forms, the respondents belonging to today's young generation tended to select a standard language form or no answer at all. As we saw in the glottograms of the b-series of figures in §5, the age differences show that, in addition to some cases where the new dialect forms retain their power in the generation born at the end of the 20th century, there were also cases of decline where they lose their power and are replaced by standard forms or become obsolete (Anderson 2014). The overall picture can be shown as in Figure 6-3.
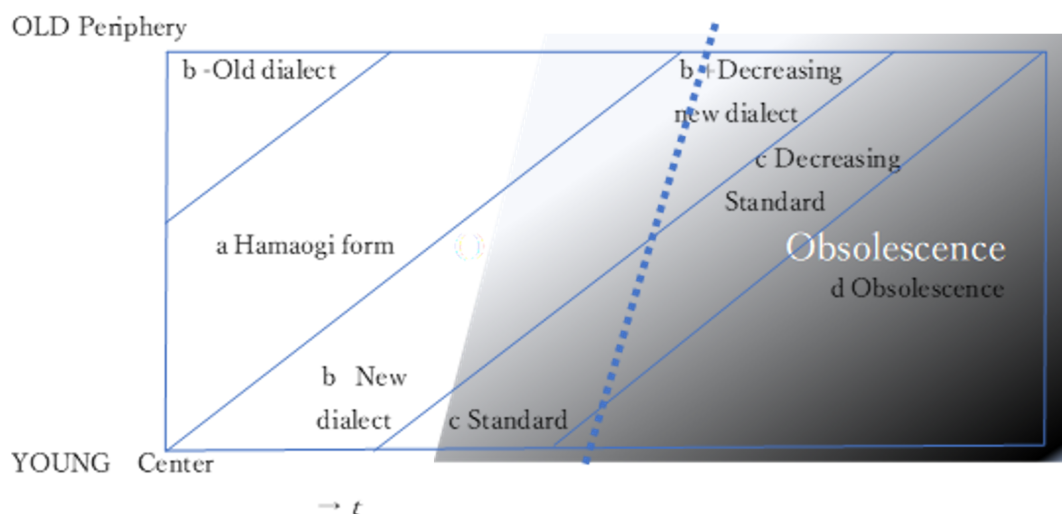
Figure 6-1. Obsolescence and language change

Figure 6-1 summarizes the general pattern of change.[50] Historical trends are shown from the upper lefthand side.

(b -) In the past, forms older than the *Hamaogi* forms had been used and some were kept in the countryside

(a)*Hamaogi* forms appeared and spread

(b) New dialect forms appeared later

(c) Standard forms spread mainly over the past one hundred years

(d) Obsolescence is observed among words connected with old lifestyle

New dialect forms contribute to historical linguistics by serving as an observatory or laboratory. Language change and standardization have progressed steadily for many years now. However, the future of Japanese dialect is not bright. As this figure shows**,** *a black wave of obsolescence* conceals the recent process on the righthand side. The lifestyle has changed and many lexical items are undergoing obsolescence. Young people do not learn or inherit traditional words and even the elderly forget words they

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[50] First presented at METHODS Congress in 2022 in Mainz.

had used in the past (Inoue & Hanzawa 2021.9). Traditional dialect seems to be retreating and is on the path to die out in the future, taking a path to dialect in danger.

However, there is still hope. Some new dialect forms are steadily spreading even now. In Figure 6-1 the obsolescence of a word is indicated symbolically by a dotted line and not by a single line. The process of word obsolescence is gradually covered, as shown in the gradation. Different words progress through obsolescence at different times and places.

In the results of the quantitative treatment of the geographic and age distribution of standard and new dialect forms in the Shonai Glottogram Survey of the 1970s (Inoue 2016.8), almost no decline or forgetting was observed even among teenagers (junior high school students). In the present survey executed in 21st century, though there was still some selection of old dialect forms among junior high school students, there was a decline, represented in "no response". It is possible that the old dialect forms have been gradually forgotten after the beginning of the 21st century. Considering the rapid progress in the standardization of phonological items revealed in the Tsuruoka survey (Nomoto 1975; Yoneda 1997; Inoue 2000.2; Inoue & Hanzawa 2020.12, 2021.9), it is possible that dialects are losing their vitality and becoming endangered. However, it is also possible that dialects are acquired in adulthood as another process of late adoption (Inoue 2013.4, 2017.5).

6.4 Age as apparent time and memory time

In conclusion, lexical change over a long historical time span has been observed in Inoue (2020.2). A dialect glossary compiled 250 years ago was the starting point of the change observed. Thanks to the two surveys (by repetition in real time) in 1950 and 2018, apparent time changes nearly 140 years by birth-year were observed. MCA was useful to capture the general trends. The graphic techniques of scattergram and approximation lines were useful to grasp the general trends. Simple straight lines were applicable and they ultimately seemed to form an S-shaped curve (Aitchison 1991,

Inoue 2010.1). More than 300 years seem to be necessary from the beginning to the end of lexical change (Inoue 2010.1).

As a conclusion for diffusion according to age and area, the concepts of real time, apparent time and "memory time" are useful (Inoue, Hanzawa, Tanabe & Yamashita 2022). This paper has so far highlighted the effectiveness of the glottogram technique. Glottograms as age-area graphs offer information on history and geography at the same time. Utilization of the age dimension is a clue for apparent time (Boberg 2004). Comparison of glottograms using data collected in different years can offer information on real-time change. Labov (1966) has shown that ongoing language change can be observed in the field, right in front of our eyes. The timespan of new dialect can be extended utilizing repetitive surveys, and long-term geographical processes of diffusion and transmission can be observed. Obsolescence and language change have both been observed as prominent trends in the 21st century.

The direction of change of new dialect is governed by covert prestige. This change is not specific to the modern world or urbanization. It is a continuation of natural linguistic change which has always been occurring over the long history of languages. Results of surveys taking this direction of change into account will correspond with the change in pronunciation in New York pointed out by Labov (1966). Basic mechanisms may be more complex; social network, small group, solidarity, and consciousness of companionship may be crucial in the adoption of new dialectal forms. Whole populations should be classified not into two extreme groups of old and new, but into three groups of old, new High and new Low. By dividing the population into three, the basic mechanism of change and the basic structure of the members of the populations will become clearer.

Backward or reverse propagation of new dialect forms in linguistic geographical distribution can be partly explained by the mechanism of covert prestige in the new Low group. The triangle model or bi-directional model is more productive and more informative than a simple mono-directional model of change (Inoue 2021.6: Figure 1, Inoue 2023.9: Figure 3-2). In order to capture this useful information, it is necessary to

include linguistic research items intended to represent anti-standardization. Intentional search for new dialect forms is necessary.

Simple mono-directional change sometimes reveals disappearance of traditional life and the decline of old customs. However, triangular bi-directional change reveals the birth of new active lifestyles among younger people. This symbolizes hope for a bright new society for dialect.

The triangle of standard, new dialect, and old dialect can be graphically related to Bourdieu's achievement (Bourdieu 1979). Bourdieu's structure of French social stratification can be reorganized as a tripolar structure (Inoue 2023.1, 2023.10) with hobbies as a clue, for example. Economic, cultural and other capital are often handed over (reproduced) to the next generation. The intellectual class, the bourgeois class, and the poor class can be characterized each with the following capital: cultural capital (→ children have high education in urban environments), economic capital (→ children have skills, a job in hand, urban training, and a middle school education), little capital (→ children have low education, stay local, small investment). These correspond to the urban orientation, U-turn orientation, and local orientation of middle school students in the Japanese countryside (Inoue 1985.2).

7. Conclusions: Glottogram and new dialect

The glottogram, also known as the "geography x age graph", originated in Japan and developed on two dimensions. In terms of *geography*, distances, the number of points and the density of points they covered increased. In addition, studies were conducted not only on linearly-determined regions, but also on two-dimensional geographic surface. In this paper, two-dimensional geographical surface was represented in a simplified glottogram, making use of walking distance from a (cultural) city center. In terms of *age*, repeated surveys have allowed us to exceed the 60 to 70 year limit of what can be captured in a single survey. In this paper, combining two surveys conducted 68 years apart allowed us to chart an age difference of 140 years.

Glottograms allowed us to observe the ongoing linguistic changes in a visible way. By focusing on new dialect forms, this paper confirms that change has been ongoing for more than 140 years. Counting from the birth year of the author of *Hamaogi*, HORI Tokikatsu (1734 - 1786), we have seen continuous changes over a time span of nearly 300 years since before the Modernization up to the present. We were also able to confirm the process of obsolescence (Anderson 2014), in which what was once a "new" dialect form later declined. The geographical distribution of lexical items tends to differ from word to word, but by applying multivariate analysis to a large aggregate of items, we were able to determine the regularity of the distribution. The estimated average velocity of 1 km/y for the rate of diffusion (Inoue 2003.7) was also confirmed to be appropriate. Sixty years have passed since the existence of new dialect form was confirmed, and more than 50 years have passed since the birth of the glottogram technique, and with this paper we have reached a new level of understanding of both ideas. Of course, research is still in progress. Further research will overcome the restrictions in this paper.

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