JAPANESE AS AN ALTAIC LANGUAGE: AN INVESTIGATION OF JAPANESE GENETIC AFFILIATION THROUGH BIOLOGICAL FINDINGS

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1. INTRODUCTION

Japanese is one of the language isolates (Shibatani, 1990). In the 18th century, however, Sir William Jones hypothesized all languages in the world are derived from a single mother tongue; thus they are genetically related to others (Lamb & Mitchell, 1991). Led by this hypothesis, scholars have engaged in comparing languages systematically to observe their genetic affiliations through the linguistic correspondences between them (Crystal, 1997). The genetic classification of languages in Europe was successfully achieved by their efforts; in addition, they have thought that the methods used to establish the Indo-European language family can be applied to the categorization of other languages (Crystal, 1997; Lehmann, 1992).

Based on this hypothesis, scholars have been searching for the genetic affiliation of Japanese for more than a century (Miller, 1991; Vovin, 1994); however, they have not reached any agreement yet. Fujiwara and Ono compared Japanese to Dravidian languages (Martin, 1991). Maruyama researched the possibility of Japanese genetic affiliation to Malayo-Polynesian (Martin, 1991). Benedict attempted to find evidence for a genetic relationship between Japanese and the Austro-Tai language family (Vovin, 1994). Some scholars such as Chew (1976) and Martin (1996) have explored Japanese genetic affiliation to Korean because they think Japanese is structurally close to Korean.

Korean is considered to be another language isolate (Shibatani, 1990); however, Poppe (1965) is of the opinion that Korean may be an Altaic language because it is structurally similar to Japanese and to Altaic and because many of its vocabularies have been successfully compared with Altaic languages. Martin (1991) strongly supports an idea that Japanese is more likely to be related to Korean than to any other language and that Tungusic languages can be related to Japanese and Korean for their further genetic relationship. Chew (1976) thinks that the ancestor of the Japanese language is somehow related to the ancestors of Korean and the Altaic languages. Led by the thought of these scholars, I regard Korean as an Altaic language, and hypothesize that Japanese is related to Korean and the Altaic languages.

In order to determine whether two or more languages are genetically related, the following aspects are generally examined: 1) whether languages have in common a large number of basic vocabulary items and morphological components through regular phonetic correspondences, and 2) whether there are many examples of identical semantics in lexical comparisons (Vovin, 1994). A method of reconstructing earlier forms of languages, *internal reconstruction,* is employed to determine an earlier stage of development between the languages and to determine their parent language, the language from which related languages are derived (Crystal, 1997). When the parent language does not exist as an actual language any more, a proto language is reconstructed through the reconstruction of forms of its daughter languages (Crystal, 1997; Lehmann, 1992). However, it is difficult to compare languages that are separated by a long period of time because vocabularies of related languages frequently do not look like cognates due to the substantial erosion through time. Languages that have been separated for 8,000 to 10,000 years will not preserve the mutual similarities that are seen among languages that have been separated for fewer than 6,000 years (Lamb & Mitchell, 1991). Martin (1996) describes the difficulty of comparing languages that separated a long time ago as follows:

> Related languages do not become unrelated, but if they are separated by a long period of time they may become unrelatable. Languages, unlike their speakers, do not carry DNA, so that claims of genetic relationship are at best judgments of probability inferred from pieces

of evidence that vary in the value each brings to the proof. To prove a genetic relationship between languages it is not enough to set up a series of phonetic correspondences between words of similar meanings, even an interlocking set such as that in Martin 1966, for the possibilities of chance resemblance and borrowing are not easily dismissed (p. 62).

The time of separation among Altaic languages is deeper than that of Indo-European languages. Indo-European languages have been separated from one another for some 6,000 years; and Latin, Greek, and Sanskrit have been separated from one another for considerably less time than other Indo-European languages (Lamb & Mitchell, 1991). In contrast, proto-Altaic is approximately 8,000 years old, and proto-Korean-Japanese is 5,000 to 6,000 years old, as calculated by means of lexicostatistics by Starostin (as cited in Martin, 1996). Because of this time depth, it is difficult to compare languages in Altaic and to reconstruct proto languages. Therefore, Martin (1996) suggests that biological sciences be used to observe genetic relationships among languages, which he puts as follows:

> The question of monogenesis of languages cannot be answered by the disciplines of linguistics, anthropology, archeology, or psychology. If it is answerable at all (and it well may not be), we will probably have to look to the biological sciences to discover what it is that makes language a compelling and uniquely human trait (p. 62).

Guided by Martin, my aim in this paper is to use biological findings to investigate the relationship between Japanese and the Altaic languages. The use of biological findings is advisable because the time depth of separation among Altaic languages is so deep that the huge erosion in vocabularies is expected, and results acquired by comparing eroded vocabularies are not valid.

Since I have hypothesized that Japanese is related to Korean and to other Altaic languages, this paper focuses on investigating two topics: 1) people living in Japan during the prehistoric period and their language, and 2) the relationship among three groups of language: Japanese, Korean, and the Altaic languages. Human genes become essential in observing the genetic affiliation of the Japanese language. Finally, I will use the information that I introduce in this paper to construct the language family tree which shows how Japanese fits in to the Altaic language family. This paper is composed on the basis of the macro level analysis of languages, not the micro level comparison of linguistic data.

2. BACKGROUND

Before examining the people of Japan and their language, two pieces of information, namely, 1) characteristics of Altaic languages, and 2) similar features between Japanese and Korean; are presented in order to illustrate what kind of Altaic characteristic features Japanese has and how Japanese is structurally similar to Korean.

2.1 Characteristics of Altaic Languages

Altaic languages have some common features which distinguish them from other language families. According to Poppe (1965), the characteristic features of the Altaic languages are

1. Opposition of long vowels versus short vowels
2. Stress and pitch
3. Vowel and consonant harmony
4. Internal sandhi
5. Word-structure
   a. Agglutination
   b. The stem
   c. The suffixes
6. Word categories [verbs, nouns, pronouns, and postpositions] (p. 177)

Korean has most of these features: long vowels, stress and pitch, vowel harmony, internal sandhi, word structure (agglutination and the stem), and the categorization of words (verbs, nouns, pronouns,

postpositions) (see details in Poppe, 1965). Japanese contains long vowels[1] and pitch system (see details in Vovin, 1993). Agglutination and postposition are also shown in Japanese, and the following are examples of agglutination and postposition in two types of Japanese, namely, Modern Japanese and Old Japanese, and in Modern Korean. Old Japanese originates in writings in the late 7th to the 8th century (Shibatani, 1990).

(1) Examples of Agglutination
According to Poppe (1965), the agglutination of Altaic word inflection is characterized by adding suffixes mechanically to the stem, and each suffix has a single function. Both Korean and Japanese show this pattern.

A. Modern Korean (Chew, 1976: 193)[2]

	Puin -i	tayk -ey	**kesi**	**-mni**	**-kka.**
Interpretation:	wife-subject	house-at	**be (humbly)-nonfamiliar-question**		
	'Is your wife home?'				

B. Modern Japanese (Chew, 1976: 193)[3]

	Okusama-ga otaku-ni	**irassya-**	**imas-**	**u-**	**ka.**
Interpretation:	wife-subject home-at	**be(humbly)-nonfamiliar-nonpast-question**			
	'Is your wife home?'				

C. Old Japanese

	Kaze-mo fuka-	nu-	ka	nami	**tata-zu-shite** (Nakada, 1975: 1271)[4]
Interpretation:	wind-also blow-desiderative-but		waves	**rise-negative-condition**	
	'We want to have wind blowing but want to preserve this condition so that we don't have any waves.'				

The bold-typeface cluster in each of sentences A, B, and C shows a verb phrase. The stem is 'kesi- (be)' in sentence A, 'irassya- (be)' in sentence B and 'tata- (rise)' in sentence C, and the components that follow are suffixes. All suffixes are added to a stem, and each suffix has only one function.

(2) Examples of Postposition
The following sentences show another characteristic of Altaic languages, namely, postpositions.

D. Modern Korean (Chew, 1976: 193)[5]

	Puin **-i**	tayk **-ey**	kesi	-mni	-kka.
Interpretation:	wife-**subject**	house-**at**	be (humbly)-nonfamiliar-question		
	'Is your wife home?'				

E. Modern Japanese (Chew, 1976: 193)[6]

	Okusama-**ga** otaku-**ni**	irassya-imas	-u	-ka.
Interpretation:	wife-**subject** home-**at**	be	-nonfamiliar-nonpast-question	
	'Is your wife home?'			

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[1] Although Modern Japanese distinguishes long vowels from short vowels, it is considered to be a later development, since Old Japanese did not have long vowels (Vovin, 1993). Vovin thinks that Proto-Japanese had long vowels because some dialects of Ryukyuan, spoken in Okinawa (the southernmost islands in Japan), have long vowels.

[2] I modified interpretations of each word, and put emphasis in bold typeface.

[3] I modified interpretations of each word, and put emphasis in bold typeface.

[4] The example sentence is taken from Nakada (1975).

[5] I modified interpretations of each word, and put emphasis in bold typeface.

[6] I modified interpretations of each word, and put emphasis in bold typeface.

F.   Old Japanese:

| | Nikitatsu-**ni** | fune nori- semu-   **to** ... (Nakada, 1975: 1270)[7] |

Interpretation: Nikitatsu (place name)-**in**   boat take- going to- **complementizer**...

'In Nikitatsu, I would like to take a boat...'

In sentences (D-F), the subject marker, location marker, and complementizer, which are written in bold typeface, are placed after a head. These markers function as postpositions.

Since Japanese has a few characteristics of the Altaic languages, Vovin (1994) considers Japanese as Altaic and reconstructs sound correspondences of proto-Japanese with other Altaic languages, which demonstrate quite regular sound correspondences to other Altaics. In addition, proto-Japanese has a few common vocabulary items with other Altaic languages, which are shown in Appendix.

2.2 Similar Features Between Japanese and Korean

Japanese has some similar features to Korean. Martin (1991) describes the syntactic similarity between the two languages as follows:

> The syntax is a model example of the object-verb language, with modifier preceding modified, with the predicate at the end, and with the relationship between the adjuncts (the noun phrases) and the predicate shown by postpositional particles, by ellipted postpositions, or (as with adverbs) left unmarked (p. 281).

My following examples demonstrate what Martin describes here.

(1) '(I) bought an interesting book.'
Korean: **Cemiissnin chek-ul han-kwon** sa-ss-ey-yo.
            1   2   3   4   5   6   7 8 9
Japanese: **Omoshiroi hon-o i-ssatsu**   ka-tta-n-desu.

Interpretation: 1. interesting, 2. book, 3. object marker, 4. one, 5. classifier, 6. buy, 7. past-tense marker, 8. polite-style marker (Korean), complementizer (Japanese), 9. polite-style marker

In both sentences (1), the object is indicated in bold typeface, and the rest of the components are constituents of a verb phrase, thus the sentences in (1) show object-verb order. Both sentences also illustrate an example that a modifier (1. interesting) comes before the modified (2. book). Additionally, the object marker (3 in the sentences above) can move its position from after a noun to after a classifier in both languages, which is demonstrated in (2).

(2) '(I) bought an interesting book.'
Korean: Cemiissnin chek han-kwon-**ul** sa-ss-ey-yo.
            1   2   3   4   5   6   7 8 9
Japanese: Omoshiroi hon i-ssatsu-**o**   ka-tta-n-desu.

Interpretation: 1. interesting, 2. book, 3. one, 4. classifier, 5. object marker, 6. buy, 7. past-tense marker, 8. polite-style marker (Korean), complementizer (Japanese), 9. polite-style marker

The examples above demonstrate that it is possible to translate word-to-word and morpheme-to-morpheme between Japanese and Korean. Therefore, Japanese syntax is remarkably similar to that of Korean (Martin, 1991).

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[7] The example sentence is taken from Nakada (1975).

3. PEOPLE LIVING IN JAPAN IN THE PREHISTORIC PERIOD AND THEIR LANGUAGE

This section examines people living in Japan in association with language in the prehistoric period. The Japanese prehistoric period is divided into four eras: the Palaeolithic (prior to 10,000 BC), the Jomon (10,500-300 BC), the Yayoi (300 BC-300 AD), and the Kofun (300 AD-710 AD) (Pearson, 1990). The following illustrates the four eras in the prehistoric period.

The Palaeolithic	The Jomon	The Yayoi	The Kofun
(~10,000BC)	(10,000BC - 300BC)	(300BC - 300AD)	(300 - 710AD)
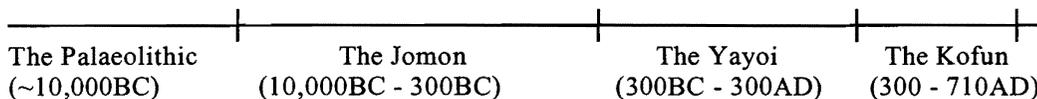
3.1 People in Japan in the Prehistoric Period

By examining East Asians' mtDNA, Horai et al. (1996) have found that there are three genetically different groups of people living in Japan today, namely, the Ainu, the Ryukyuans, and the mainland Japanese. The Ainu and Ryukyuans are direct descendents of the Jomon, and closest to each other in the phylogenetic tree (Horai et al., 1996). The Jomon are people who lived in Japan during the Jomon era. According to Horai et al., the Ainu separated from the Ryukyuans as long as 12,000 years ago, which is around the Jomon era, and the Jomon people constituted at least two genetically different groups, one group was ancestor of the present Ainu and the other that of the present Ryukyuans. The Ainu and Ryukyuans are also closely related with the mainland Japanese and with the Koreans (Horai et al., 1996). Moreover, through the phylogenetic analysis of their samples, Horai et al. found that the mainland Japanese have the closest genetic relation to the Koreans, since the mainland Japanese have up to 65% of the gene pool derived from Korean immigrants, called the Yayoi, who arrived after the Yayoi age. The rest of mainland Japanese genes are derived from the Jomon (Horai et al., 1996). Therefore, the mainland Japanese can be considered as a biologically mixture of the Jomon and Yayoi peoples. In contrast, the Ainu and the Ryukyuans do not have a stronger genetic influence from the Koreans (Horai et al., 1996). The following figure composed by Horai et al. illustrates how the mainland Japanese, the Ainu, the Ryukyuans, and the Koreans relate to each other.
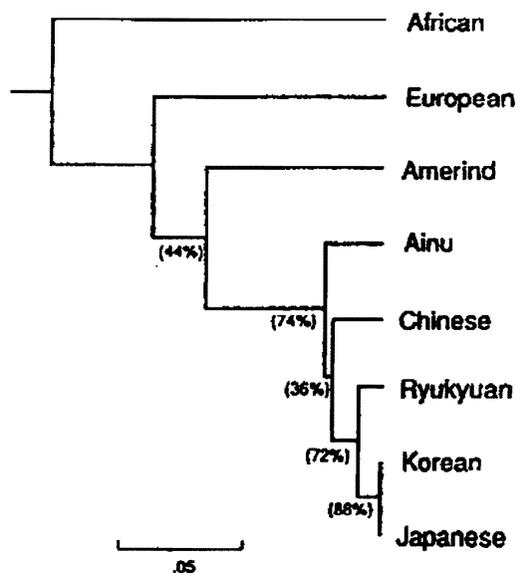
Figure 1. UPGMA phylogenetic tree, showing the relationships of the five East Asian, African, European, and Amerind populations based on *d*A (X100) distances. The number in parenthesis for each interior branch is the bootstrap probability (Felsenstein 1985).[8] (Horai et al., 1996: 588)

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[8] The caption is completely cited from the original.

The following two figures, Figure 2 composed by Tajima et al. (2002) and Figure 3 by Comas et al. (1998), illustrate how the Ryukyuans (JP-Okinawa), Ainu, mainland Japanese (JP-Kyushu and JP-Honshu), and Koreans relate to other Asian populations.
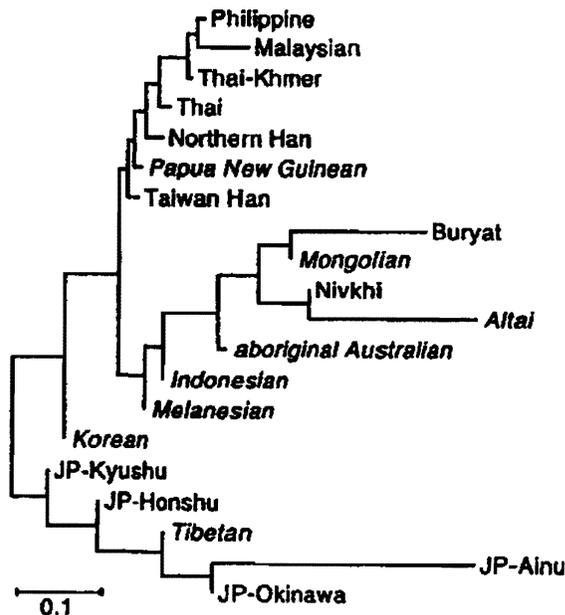
Figure 2. Neighbor-joining (NJ) tree for a total of 20 Asians and Australo-Melaneasian populations on the basis of *DA* distances, calculated from the frequencies of seven Y-haplotypes with six polymorphic sites (*DYS257108*, *DYS287*, *SRY4064*, *SRY10831*, *RPS4Y711*, and M9). The data for the eight populations given in italics are from Karafet et al. (1999). The scale for the distance is shown *bottom left.*[9] (Tajima et al., 2002: 85)
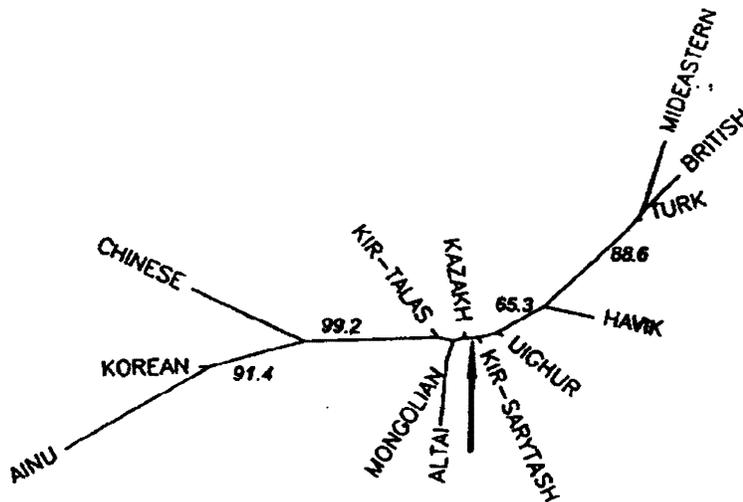
Figure 3. Neighbor-joining tree of several European and Asian populations.... Bootstraps supports >50% are shown in the nodes of the tree. The arrow points to the segment from which an African outgroup (!Kung San) would branch.[10] (Comas et al., 1998: 1829)

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[9] The caption is completely cited from the original.
[10] The caption is partially cited from the original.

The figures above provide the evidence that the Koreans, mainland Japanese, Ryukyuans, and Ainu are genetically the most closely related among Asian populations.

3.2 Languages Spoken in Prehistoric Period in Japan

Based on the genetic observations, three types of people are revealed as people having lived in Japan in the prehistoric period, the Ryukyuans and the Ainu who are the Jomon, and the Yayoi. What language did they speak during the prehistoric period?

The Yayoi people are of Korean origin, and spoke Korean. Korean is divided into three stages: Ancient Korean, Middle Korean, and Modern Korean (Poppe, 1965). Ancient Korean, spoken in Korea and its adjacent parts of Manchuria, lasted until the 10th century AD; Middle Korean was spoken from the 10th to the 16th century; and Modern Korean has been used since the 16th century (Kono, as cited in Poppe, 1965). Ancient Korean is not a single language, but is categorized into two language groups: the Northern (or Puyeo) group is composed of Puyeo, Koguryeo, Okjeo, and Ye; and the Southern (or Han) group is composed of Silla (Lee, as cited in Poppe, 1965). These two groups go back directly to proto-Puyeo-Han, which is equivalent to proto-Korean (Hong, 1994). Koguryeo and Silla were established in Korea (in 37BC and in 57BC respectively) during the Yayoi era (300BC - 300AD) (Hong, 1994). This fact leads to an assumption that Ancient Korean was spoken at least from 57BC. Therefore, it is possible to speculate that, during the period when the Yayoi were migrating to Japan, which started about 2,300 years ago (Nei, as cited in Horai et al., 1996), the Yayoi spoke either proto-Korean or Ancient Korean.

Then, what language did the Jomon people speak? The Jomon people were ancestors of the present Ryukyuans and Ainu people, so the answer will be found by studying the languages of the Ryukyuans and Ainu.

Although the modern Ryukyuans speak predominantly Japanese today, some of them are bilingual in Japanese and its daughter language, Ryukyuan (Matsumori, 1995). On the basis of glotto-chronological studies, Hattori has concluded that Ryukyuan separated from Japanese about 1,450 years ago (as cited in Matsumori, 1995). It seems that the mother of modern Ryukyuan, proto-Ryukyuan, split from Japanese before Old Japanese was used (Matsumori, 1995), at the time when proto-Japanese was spoken. Old Japanese was used during the 7th to the 8th centuries. Because of the time depth of the split between them, Japanese and Ryukyuan have become mutually unintelligible (Matsumori, 1995). The following schema illustrates the relationship between proto-Japanese, Old Japanese, and Ryukyuan.

<u>Proto-Japanese</u>

| |

<u>Old Japanese</u>   <u>Proto-Ryukyuan</u>
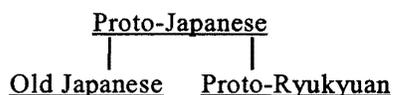
Meanwhile the modern Ainu people have their own language, Ainu, which is a language isolate (Shibatani, 1990). Before the arrival of the Yayoi, the Ainu people existed as a different group from Ryukyuans, according to Horai et al. (1996). Barbujani, Jacquez, and Ligi (1990) have found through their gene observations that "indices of genetic variation in humans correlate widely with measures of linguistic differentiation" (p. 873). In other words, there is a similar pattern between genetic and linguistic differentiation (Barbujani et al., 1990). Thus people who are genetically different from others may have a different language from others. Applying the hypothesis of Barbujani et al. to the Ainu, it is possible that they had already had their own language, Ainu, before the Yayoi era, since the Ainu were genetically different from Ryukyuans at that time.

Therefore, there were two languages in Japan during the Jomon era: one group spoke Ainu, and the other group spoke the mother of Old Japanese, proto-Japanese. The following table summarizes the languages spoken during the Jomon era.

Table 1. *People and Languages in Japan during the Jomon Era*

PEOPLE	ANCESTORS OF MODERN RYUKYUANS	ANCESTORS OF MODERN AINU
Language used in the Jomon	Proto-Japanese	Ainu

Furthermore, the hypothesis by Barbujani et al. (1990) supports my assumption that the Jomon spoke a different language from the Yayoi, since their genetic composition is different from that of the Yayoi (Koreans); however, their languages can be related to each other since their genes are mapped closer than those of other language speakers according to the phylogenetic tree by Horai et al. (1996) (see Figure 1) and neighbor-joining trees by Tajima et al. (2002) and by Comas et al. (1998) (see Figure 2 and 3). Additionally, Barbujani et al.'s hypothesis supports the notion that the Japanese language is closely related to Korean, since Japanese people (the mainland Japanese, Ryukyuans, and Ainu) are genetically closer to the Koreans than to any other Altaic language speakers in the neighbor-joining trees.

4. THE GENETIC RELATIONSHPS AMONG JAPANESE, KOREAN, AND OTHER ALTAIC LANGUAGES

Because of the structural similarity between the Japanese and Korean languages and the biological closeness between the Japanese people and the Koreans, I propose a hypothesis that Korean and Japanese are derived from the same ancestral language. In this section, I examine how Japanese relates to Korean and to other Altaic languages in the Altaic language family tree.

4.1 The Mother of Proto-Japanese (PJ) and Proto-Korean (PK)

What language is the direct mother of proto-Japanese (PJ) and proto-Korean (PK)? Using comparative grammar, Poppe (1965) has organized the following schema to show how Altaic languages relate to one another (see p. 147).

```
              ALTAIC_____UNITY
                 |                     |
Chuvash-Turkic-Mongol-Manchu-Tungus unity      Proto-Korean
     |                      |                        |
Chuvash-Turkic unity   Mongolian-Manchu-Tungus unity   Korean language
     |         |              |              |
Proto-Turkic Proto- Chuvash  Common Mongolian   Common Manchu-Tungus
     |         |              |              |
Turkic languages Chuvash languages Mongolian languages Manchu-Tungus languages
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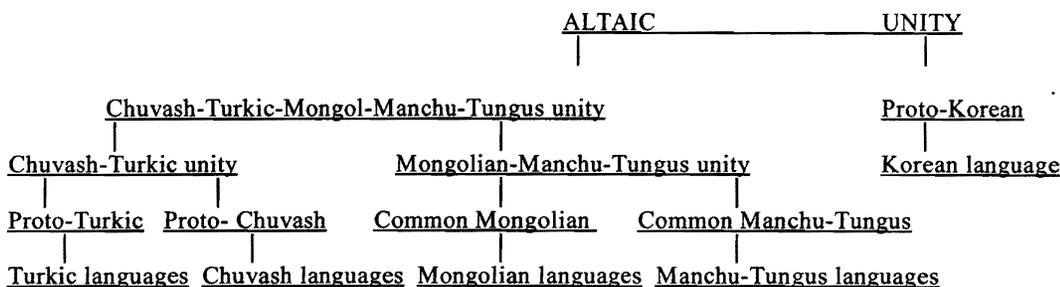
Poppe gives an explanation for this schema as follows:

> Mongolian has more in common with Manchu-Tungus than with any other branch. Therefore, a Mongolian-Manchu-Tungus unity is to be assumed. On the other hand, Turkic has more in common with Mongolian-Manchu-Tungus than with Korean. Consequently, it is to be assumed that Proto-Korean emerged when the Mongolian-Manchu-Tungus-Turkic unity still existed (p. 146).

Then, how does Japanese relate to Korean and to the Chuvash-Turkic-Mongol-Manchu-Tungus unity, which I call proto-other Altaics (POA)? Based on the schema above, two kinds of possible relationships among PJ, PK, and POA are assumed, one is that PJ, PK, and POA are all daughters of proto-Altaic (PA) illustrated in (1); and another, that PJ and PK are sisters under proto-Korean-Japanese (PKJ) in (2).

(1)
```
              ALTAIC              UNITY
                |           |            |
      Proto-Other Altaics  Proto-Korean  Proto-Japanese
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(2)
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              ALTAIC            UNITY
                |                 |
      Proto-Other Altaics   Proto-Korean-Japanese
                              |           |
                          Proto-Korean  Proto-Japanese
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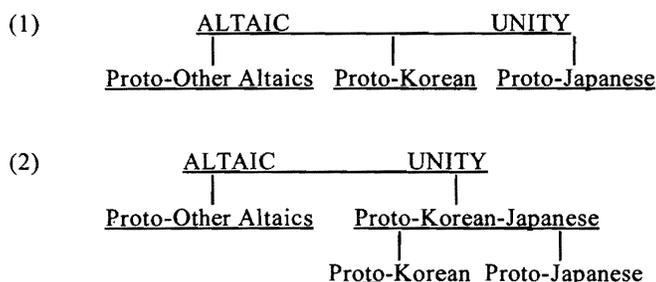
In case (1), PJ, PK, and POA should have much in common if all are daughters of PA. As a matter of fact, Japanese and Korean have less in common with other Altaic languages; thus, they are considered to be language isolates today. On the other hand, Japanese has some structural similarity to Korean, and Japanese people are genetically closer to the Koreans than to any other Altaic speakers. Therefore, the Japanese language should be genetically closer to Korean than to other Altaic languages. PJ and PK should be separated from a group of POA under the Altaic Unity. This suggests that case (1) is a wrong assumption but case (2) is the right one. Thus, PJ and PK are sisters and their direct mother is PKJ.

4.2 Why Does Japanese Have Less in Common With Other Altaics Than Korean Has?

Why does the Japanese language have less in common with other Altaics than Korean does? This can be answered through biological findings.

Two kinds of mongoloids are recognized during the Palaeolithic period in Asia: archaic mongoloids and neo mongoloids (Hanihara, 1986). Neo mongoloids physically evolved to adjust to a severely cold climate in north Asia (Hanihara, 1986). Archaic mongoloids did not have the physical features that the neo mongoloids developed, such as heavy eyelids with narrow eyes (Hanihara, 1986). According to Hanihara, neo mongoloids are evolved from archaic mongoloids. Table 2 illustrates the physical characteristics of archaic and neo mongoloids.

Table 2. *Physical Characteristics of Archaic and Neo Mongoloids*[11]

	Dental complex	Cold climate adjusted physical features	People who have these features
Archaic	Sundadonty	No	Indonesians, Polynesians, Micronesians, Ainu
Neo	Sinodonty	Yes	Chinese (the Anyang population)

The gene map below by Karafet et al. (1999) shows that there are roughly three genetically distinct groups among the Northeast Asian population; the Japanese, the Koreans, and other Altaic people composed of neo mongoloids as it includes some Tungusic language speakers. Tungus language speakers are Even (=Lamut), Nigidal, Evenki, Solon, Orochon, Manchu, Ju-chen, Nanai, Gold, Ulch, Orok, Oroch, and Udihe (Greenberg, 2000). Thus, Eve, Evk, Mev, and Oro are Tungus in Figure 4.

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[11] Data of 'Dental complex' and 'People who have these features' are taken from Howells (1986), and those of 'Cold climate adjusted physical features' are from Hanihara (1986).
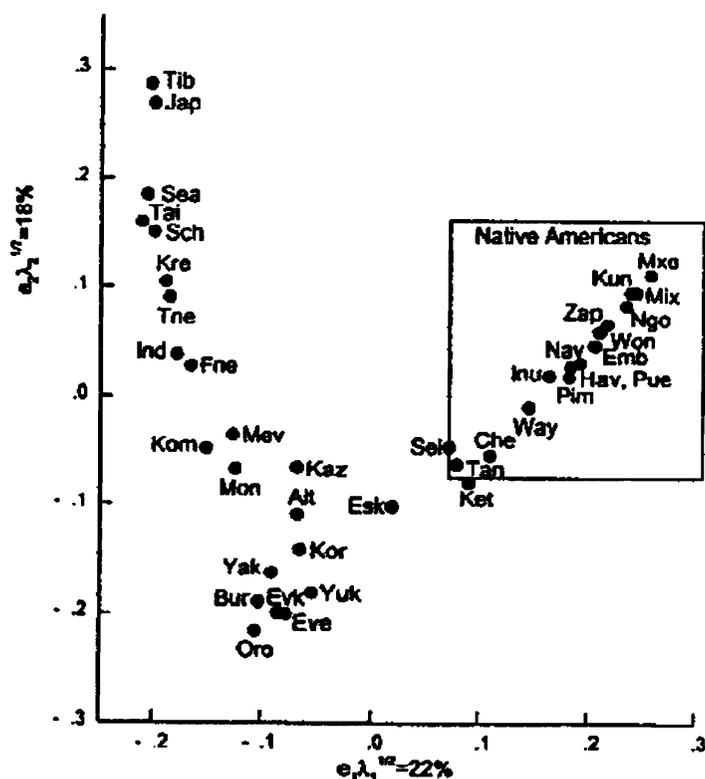
Figure 4. Genetic Map of 38 Native American and Asian populations
The population codes of three letters are Alt=Altais, Bur=Buryats, Esk=Siberian Eskimos, Eve=Evens, Evk=Siberian Evenks, Fne=Forest Nentsi, Jap=Japanese, Kaz=Kazakhs, Kor=Koryaks, Kre=Koreans, Mev=Manchurian Evenks, Mon=Mongolians, Mxe=Mixe, Oro=Oroqens, Sch=South Chinese, Sea=Southeast Asian, Tne=Tundra Nentsi, Yak=Yakuts, Yuk=Yukagirs.[12] (Karafet et al., 1999: 819, 823)

According to Hanihara (1986), it is the Tungus that possess the typical biological characteristics of neo mongoloids. The Japanese are quite distinct from the Tungus people in this map, and this indicates that they do not possess strong biological features of neo mongoloids. Therefore, this map shows that they are archaic mongoloids. The Koreans locate in between the Japanese and the other Altaic groups. This suggests that the Koreans are composed of a biological mixture of archaic and neo mongoloids.

Based on this observation, it is possible to speculate as to why Japanese has less in common with other Altaics than with Korean. PJ speakers settled in the Japanese archipelago, which is isolated from other language speakers. PJ speakers did not have many contacts with other Altaic languages speakers, so they preserved the physical characteristics of archaic mongoloids. Because the PJ language did not have many contacts with other Altaic languages, it developed differently from PK and other Altaics. During its development, PJ lost many of the features that are common to other Altaic languages.

In contrast, PK speakers settled in the Korean Peninsula in the Asian Continent. PK speakers are derived from the same ancestor as PJ speakers, that is, PKJ speakers. PK speakers were biologically mixed with other people; consequently, Koreans have become genetically different from Japanese people in the gene map. The PK language managed to preserve Altaic characteristics by remaining in contact with other Altaic languages; it had more chances to encounter those languages than PJ did, since other Altaic languages speakers settled in PK speakers' neighboring areas. The map below shows locations where other Altaic languages speakers currently reside. Yakut, Tungus, Mongol, and Turkic are Altaic languages in this map.

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[12] The caption is cited from the original. I modified the sentence that explains three-letter population codes.
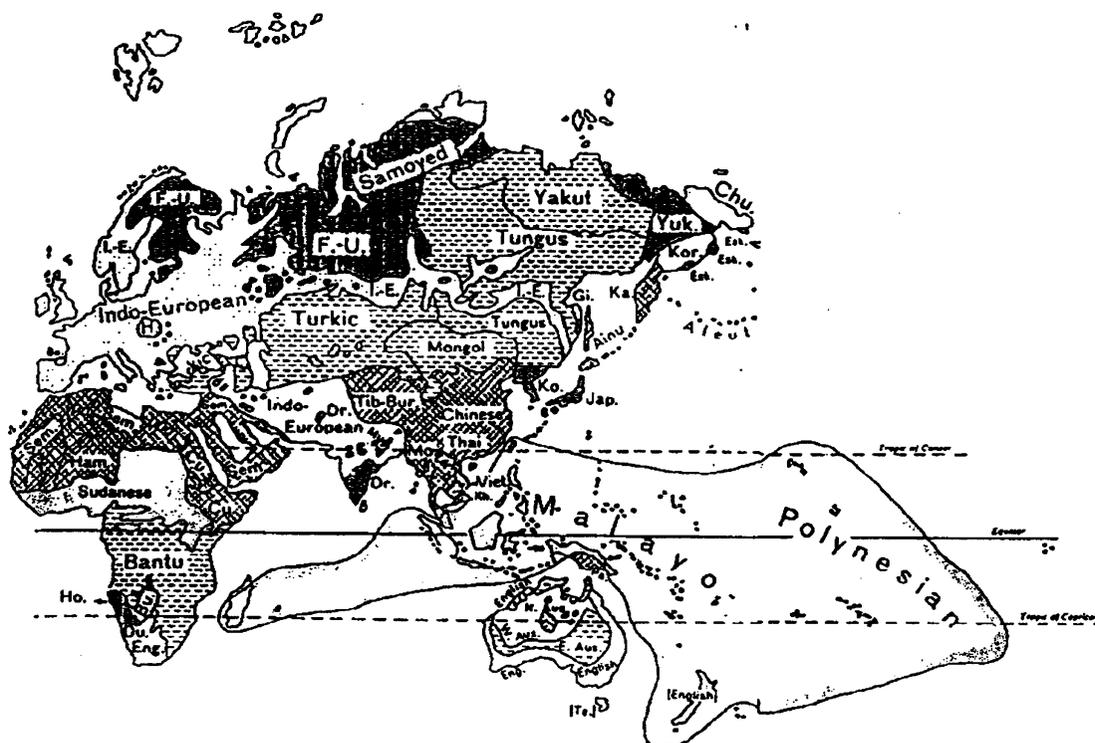
Map 1. Eastern Hemisphere Language Groups[13] (Hjelmslev, as cited in Egerod, 1991: 207-8)

Therefore, Korean has more in common with other Altaics than Japanese has.

5. CONCLUSION

The biological evidence presented in this paper supports my assumption that the Japanese language is genetically related to Korean, since Japanese people are genetically closer to the Koreans than to other language speakers. If Korean belongs to the Altaic language family, Japanese also belongs to it. In order to firmly establish Japanese as an Altaic language, Korean must first be proved to be Altaic.

Once Korean is proved as an Altaic, the following can be assumed. When PA separated into PKJ and POA around 5,000 to 6,000 years ago, other Altaic languages were still united in the Altaic region as POA. After PA split into PKJ and POA, PKJ split into PJ and PK. Since Japanese and Korean separated from POA earlier than the separation of POA into Turkic, Mongolian, and Tungus groups, Japanese and Korean have less in common with POA, but have features in common with each other. However, because of the time depth of the split between Japanese and Korean, their lexicons might have suffered substantial erosion. It is not clear when PKJ actually split into PJ and PK.

This paper focuses on how Japanese relates as an Altaic language to other Altaics, therefore it is unnecessary to explore the relationships between the Japanese language and other neighbouring language families such as Sino-Tibetan. I have made the assumption that Japanese is derived from proto-Korean-Japanese and belongs to Altaic. To determine if this assumption is valid it is necessary to examine how other Altaic speakers and other language families biologically relate to the mainland Japanese, Ainu, Ryukyuans, and Koreans.

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[13] The caption is cited from the original.

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APPENDIX Examples of Altaic Etymology

Table.

PA (Proto-Altaic)	PJ (Proto-Japanese)	PMT (Proto-Manchu-Tungus)	PK (Proto-Korean)	PM (Proto-Mongolian)	PT (Proto-Turkic)	
*$p'\partial r1$	*$p\underline{o}=[C]i$		*pul* (Middle K)		*ört* (Old T)	'fire'[14]
	kata= (Old J)	*kata	*kwut=	*kata-gu	*kat= 'become hard'	'hard'[15]
*$k^h\ddot{\imath}\ddot{\imath}l1$	*ka-Ci	*xil-ŋa	*kal-h 'head hair'	*kilga-sun 'horse hair'	*kïl	'hair'[16]
*ña-n	*ma[-]n	*ña	*nun	*ni[n]-dün		'eye'[17]

Note. A word with * indicates the reconstructed form.

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[14] This vocabulary comparison is taken from Vovin (1994: 101).
[15] This vocabulary comparison is taken from Vovin (1994: 101-2).
[16] This vocabulary comparison is taken from Vovin (1994: 102).
[17] This vocabulary comparison is taken from Vovin (1994: 103).