

Is Japanese an Isolated, or Altaic Language?

著者	Sakiyama Osamu
journal or publication title	日本人の起源：学際的展望
volume	.011-B
page range	281-291
year	1999-03-31
URL	http://doi.org/10.15055/00003395

Is Japanese an Isolated, or Altaic Language ?

Osamu Sakiyama

National Museum of Ethnology, Osaka

Japanese is a “mixed language” formed by the creolization of Tungusic languages with Austronesian languages. This process probably began during the late Jomon period, before 4000 years BP, and in the next Yayoi period, the proto-type of the present-day Japanese was already established.

Formation of Ancient Japanese

Although Japanese shares many similar typological features with Korean and so-called Altaic languages, the lack of clear phonological correspondences is a fundamental weakness for the Japanese-Altaic, or Japanese-Korean hypothesis.

This lack must have been one of the important reasons why Japanese has long been considered as isolated, and this has encouraged people - linguists and amateurs alike! - to seek the origin of Japanese in arbitrary directions just as one likes. Most recently, a Japanese scholar has been trying to look for its origin in the Tamil language of Sri Lanka, or southeastern India, but how can we explain, in that case, the migration process into Japan?

A famous Japanese linguist, Kindaichi says that, together with languages such as Basque, Burushaski, Andamanese, Ainu, etc., Japanese seems like a one-man party occupying alone a corner of an assembly hall, and that such an isolated condition is something very rare for a language of civilized people [1978: 33]. However, the reason for such difficulties in finding the origin is attributable principally to the length of history following the formation of Japanese.

According to Ruhlen [1987], Japanese is audaciously classified into Altaic language family! But, in the present situation, the notion of the Altaic seems to have become problematic, as some scholars of comparative linguistics such as G. Clauson, G. Doerfer, have doubts about the existence of a big language family.

Therefore, let's examine the formation of Ancient Japanese (further-AJ) based upon the following assumptions:

Key Words: comparative linguistics, Austronesian, Tungusic, mixture, borrowing

First, the present-day Japanese (further-MJ) is a language inherited from that of the Jomon period. It means that the proto-type of Japanese was almost completely established in the Yayoi period. It can be said that the difficulties in finding the origin of Japanese themselves prove the point. In addition, supposing that the proto-type of the Modern Korean had also been formed in the Korean Peninsula in the Yayoi period of Japan, direct comparison of Japanese with Korean would be fruitless methodologically, and none of the attempts to confirm their original relationship are convincing. In fact, with regards to the genetic affiliation, Japanese and Korean show great antiquity as well as some kind of mixture or hybridization, as each language is usually classified as 'isolated.'

Second, there has been no large-scale replacement of peoples or languages in the Japanese Archipelago since the Jomon period. In other words, there has been no attack by external people forcing language substitution. Furthermore, it has become clear that there is no genetic connection between the Japanese language and the language of Ainu, one of the oldest peoples of Japan, except for word-borrowing. The Ainu language, despite its geographical proximity, has a linguistic structure quite distinct from those of Japanese, Tungusic, or Austronesian languages.

It has been so far considered that, from the ethnological point of view, the Jomon culture could have been most affected by the northern culture, in particular by the Paleo-Asiatic elements but not the Altaic, if the hunting rituals are taken into account. However, the trace of the Paleo-Asiatic languages can hardly be recognized in Japanese. Expansion of the so-called different Altaic peoples, especially including Tungus is thought to have occurred in a further later period.

Japanese as Mixed Language

Several linguists put into question if a language is formed only by the monogenesis, as researches on Papuan and Australian languages, located in the limited area and between which genetic relationships are not clear, go on [Wurm 1982: 66]. Similarly for the Japanese Archipelago, discussing the history from the Jomon period to the present day from the point of view of pure-bloodism can not make any satisfying progress. In other words, mixture of several languages resulted in the modern Japanese.

The methodology used for the research of Indo-European languages has been effective only when dealing with the period of the last few thousand years. We must rather seek more realistic or cautious approaches to investigate a language with a history often longer than a thousand years, than adhere to the old-fashioned genetic model. But, current practice in historical linguistics must change, as linguists reluctantly admit that the language mixture is usual in most

times and most places. However, Bakker and Mous, in their recent book, give a new definition of a mixed language by proposing the term 'language intertwining' showing a combination of the grammatical system - phonology, morphology, syntax - of one language with the lexicon of another. They distinguish language with extreme borrowings and mixed language, based upon the proportion of foreign lexical items, the former never exceeding 45% of the lexicon, whereas the latter being closer to or exceeding 90% [1994: 4-5]. By referring to this criterion, is it adequate to consider that Japanese belongs to a mixed language, for words borrowed from Chinese come up to 51% to 65% in Japanese newspapers [Shibatani 1990: 143]? As a rule, word-borrowing of itself does not disturb the essentials of the language. Consequently, when there are comparatively more contributions to the original mother tongue, the true ancestor is outweighed by the invader (*sic*) in lexicon *and structure* (the italics are mine), and it would be rather correct to speak of a mixed language [Capell 1976: 529]. Tok Pisin of Papua New Guinea as well as Bislama of Vanuatu are typical examples of language mixture, where the grammar comes neither from one language nor from any other single language [Thomason and Kaufman 1988: 204].

It was E.D.Polivanov who considered Japanese as a 'hybrid' language for the first time in 1924. He argued that Japanese consists of elements characteristic to Austronesian and Altaic (*sic*) languages. Recently, Bickerton claimed that Ancient Japanese, as well as Germanic or Egyptian may owe some of its features to creolization, resulting from contacts between typologically different languages which set into motion extreme change processes in one party or the other [1981: 293].

As languages for reconstructing AJ, Tungusic from the north and Austronesian from the south are the best candidates. Although Tibet-Burman languages also played important roles in relation to *shoyo-jurin-bunka* (East-Asian-evergreen-forest-culture) since the late Jomon, it is difficult to find clear phonological links between them. And I also doubt P.K.Benedict's Japanese/Austro-Tai hypothesis, concerning the method of comparing and semantic treatments, as criticized by Miller [1991] and Vovin [1994].

The Austronesian homeland is supposed to be located in the inland of the Asian Continent. It is estimated that several thousand years ago they began to migrate towards the open sea in the south. Especially on their way to the east, i. e. present Melanesia, their subgroups containing sister languages of Austronesian, who migrated to the north, left influence over the Ryukyu-Japanese Archipelago. This happened in the middle Jomon or later in Japan. I have so far argued that the oldest Austronesian reached the Japanese Archipelago in the late Jomon, based on the distribution of the word *hai/hae* 'south, southern wind,' which is

derived from the Proto-Austronesian (further-PAN) **paRi* 'sting ray,' meaning metaphorically 'Southern Cross.' The area where this word is used is limited to the west of the border, from the root of the Noto Peninsula to the southward Shima Peninsula extending to Izu Island of Pacific Ocean [Sakiyama 1996: 350-352]. It is not accidental that the *hai* area on the west side of the Noto-Pacific Ocean line overlaps on the whole with other cultural elements such as *bunto* type houses with 'separate type of main and cook houses' and *totsutaimon* pottery area of western Japan facing the *kamegaoka* pottery area of eastern Japan in the late Jomon.

With regard to the secondary introduction of rice agriculture into Japan, contrary to archaeological prejudice [Hudson 1996], there is persuasive evidence that the oldest type of rice found in Japan had its root in the southern region, including the Austronesian-speaking Inland Southeast Asia, while tropical (*javanica*, or *bulu*) type rice moved north in the terminal Jomon, as confirmed one after another by the results of various scientific detections : phenol reaction [Watabe 1990], plant opal [Fujiwara 1994], DNA [Sato 1992], etc. Sahara admonishes that the founder of Japanese folklore K. Yanagita's famous but archaeologically hitherto unaccepted hypothesis, that the introduction of rice agriculture into Japan has been from the islands of the southern sea, will be able to retrieve honor [1996: 63-66]. Obayashi, a senior anthropologist of Japan, also has the same view [1996: 174-177]. Against Vovin's negative claim about rice agriculture brought to Japan [1994: 385-386], the beginning of rice agriculture can be shown by a metaphorically named *yona/yone* 'rice,' which comes from the PAN **henay* 'gravel' in the second stage of the terminal Jomon [Sakiyama 1996: 352-358].

Austronesian and Tungusic Elements in Japanese

One method for reconstructing AJ of the Jomon period is, as described above, to find possible old forms phonologically and etymologically, using Old Japanese of the Nara period (further-OJ) as a clue. Present Japanese dialects should be referred to as well.

The following are some of Austronesian-Japanese correspondences (S : Shuri dialect of Okinawa, K : Kyoto dialect, A : Aomori dialect of Tohoku, I : Ishigaki dialect of Okinawa) :

PAN	> AJ	> MJ
(Accent in penult)		
* <i>d/Dángaw</i> 'hut'	> * <i>daa</i> /* <i>da-</i>	> <i>yaa</i> (S) 'house'/* <i>ya-(kata)</i> 'mansion'
* <i>tángan</i> 'hand'	> * <i>taa</i> /* <i>ta-i</i> >* <i>tée</i>	> <i>tee</i> (K), <i>tii</i> (S) 'hand' / <i>ta-(motsu)</i> 'to hold'
* <i>máCa</i> 'eye'	> * <i>maa</i> /* <i>ma-i</i> >* <i>mêe</i>	> <i>mee</i> (K), <i>mii</i> (S) 'eye'/* <i>ma-(moru)</i> 'to watch'
* <i>ngájan</i> 'name'	> * <i>naa</i> /* <i>na-</i>	> <i>naa</i> (K,S) 'hand' / <i>na-(zuku)</i> 'to name'
* <i>áku</i> /* <i>a-</i> 'I'	> * <i>a</i> -/* <i>wa-</i>	> <i>waa</i> (S), <i>wa-(tashi)</i> (K) 'I'
* <i>siDa</i> /* <i>si</i> 'they'	> * <i>si</i>	> <i>si</i> (OJ) 'demonstrative pronoun, they'
(Accent in final)		
* <i>tuwák</i> 'coconut toddy'	> * <i>waa</i> /* <i>wa</i>	> (<i>mi</i>)- <i>wa</i> (OJ) 'sacred sake'
* <i>babúy</i> 'boar'	> * <i>bui</i> / <i>béi</i>	> (<i>w</i>)- <i>i</i> -(<i>no-shishi</i>) 'wild pig'
* <i>kamí</i> /* <i>méy</i> 'we (ex.)'	> * <i>méy</i>	> <i>mii</i> (K) 'body, oneself'
* <i>inúim</i> 'to drink'	> * <i>nom-</i>	> <i>nomu</i> 'to drink'
(Irrelevant accent)		
* <i>ayaq</i> 'father'	> * <i>aya</i>	> <i>aya</i> (A,I) 'father'
* <i>iwak</i> 'fish'	> * <i>iwa</i>	> <i>iwo</i> 'fish'/* <i>iwa-(shi)</i> 'sardines'
* <i>suwan</i> 'digging stick'	> * <i>suwa</i> -/* <i>uwa-</i>	> <i>suwu</i> 'to put' / <i>uw-u</i> 'to plant'
* <i>bakul</i> 'woven basket'	> * <i>baku</i>	> <i>hako</i> 'box'
* <i>INusung</i> 'mortar'	> * <i>usu</i>	> <i>usu</i> 'mortar'
* <i>qumbi</i> 'yam'	> * <i>umo</i>	> <i>umolimo</i> 'tuber'

As seen from these examples, the final consonant of PAN is dropped in AJ as a rule to have an open syllable. This is a common phonological phenomenon found in Austronesian languages which expanded in the surrounding areas such as Madagascar, and in Oceanic languages, especially Polynesians. Additionally, the former element of polysyllables in Proto-Austronesian often remains as an element of compounds in OJ or MJ. This may be related to the accentuation of PAN, and the long-vocalization lengthening to compensate monosyllabification, or the appearance of the pitch accent in the subsequent formation of Japanese.

Although this date is on the margin for valid application of comparative linguistic methods, I suggest that the formation of Japanese language began around this time, inheriting grammatical characters from two principal languages.

Bakker states that two languages may produce a new, mixed language according to the following pattern [1992]:

- (1) bound morphemes are in language A.
- (2) free lexical morphemes are in language B.
- (3) free grammatical morphemes can be in either language.
- (4) syntax is that of language A.

Equally in the formation of AJ, let's refer to this model:

Elements		Origins	Ancient Japanese	
			Tungusic	Austronesian
(1)	conjunctive particles		auxiliary verbs	(a little)
(2)	vocabularies		(not many)	(many)
(3)	affixes		suffixes nominal particles	prefixes linker
(4)	word-order		S-O-V modifier-noun	(AN ₂ : S-O-V) noun-modifier

In (4), Japanese has two modification patterns, which folklore-oriented Japanese literary scholar S. Origuchi named *gyaku-gojo* (reverse word-order), suggesting that each of them comes from different sources.

sudare-sita 'lit. silk curtain-under' / *sita-sudare* 'under silk curtain'

oka-kata 'lit. hill-sloping' / *kata-oka* 'sloping hill at one side'

Suffixes versus Prefixes

Austronesian grammatical structure is prefix-centered, which differs basically from Tungusic languages. Among others, I have already pointed out pronominal prefixes common to PAN and AJ [Sakiyama 1990].

AJ had more prefixes than the Japanese language of the later periods, but in OJ almost all of which are now explained were employed simply to stress the meaning or to condition the word-tone. Nonetheless, original functions in Austronesian can still be recognized in some usages of OJ.

PAN **ma-* means 'to become, to bear something implied by the base-word' [Sakiyama 1974: 266]. This function can be seen in *ma-* of sentences like:

a. *Okite-ika-ba imo-wa ma-kanasi.* (*Man'yōshū*)

'Since I leave my wife, she BECOMES SAD.'

Furthermore, considering **ta-* which denotes the ideas of 'affected by, reached by, involuntarily being in a situation' about the concept expressed by the base-word [Gonda 1952: 22-23], the interpretation of phrases like:

b. *Tama-pökō-nō miti-wo ta-töpō-mi.* (*Man'yōshū*)

will be read as 'because the road WAS GOT FAR.'

And **ka-* which means 'suffering from, overtaken by an event (accident,

natural phenomenon)' [Gonda 1952: 25-27] will be maintained in many examples:

- c. *ka-suru* 'to graze, to squeeze' opposed to *suru* 'to rub, to chafe.'
- ka-pusu* 'to be get covered' opposed to *pusu* 'to turn over, to cover'
- ka-mira/nira* '*Allium tuberosum*, leek'
- ka-mina/mina/nina* 'snail, spiral shell'

In addition, for *i* which is seen in phrases like:

- d. *Kena-no waku-go i pue puki-noboru.* (*Nihon-Shoki*)
'A young prince of *Kena*, HE is going up (a river) by blowing a flute.'

It has not been determined decisively whether this *i* is a case-marker or an adverbial particle in the Japanese grammar. However, taking *i* as a conjunction for a singular subject accompanied by a predicative verb, the grammatical composition is similar to typical Oceanic languages. The OJ *I* has an usage as a 2nd person pronoun, which appears in sentences such as:

- e. *I-ga tukuri-tukapêe-tatematureruöpö tönö-nö uti.* (*Kojiki*)
'the Imperial Court, which YOU have made effort to build'

Lastly, it is likely that such *i* came to form a verb stem (conjunctive form of the 3rd Group verb) by being postpositioned after a base-word (See below). The *i* appearing as prefix in the word-initial is same as this, indicating 'an object to which an action is directed'

- f. *i-nori* 'to pray for' versus *nori-to* (<*nori-koto*) 'a *Shinto* prayer'
i-kari 'anchor' versus **kari/ka-kari* 'to be caught'

It is unreasonable to consider these Austronesian grammatical elements as merely due to borrowing, despite Miller's [1980: 159] and Hudson's [1996] claims that Austronesian elements should be attributed to borrowings.

In Tungusic languages, there are plenty of elements corresponding to the postpositions functioning grammatically as an auxiliary to main verb or auxiliary verb. AJ inherits most of such elements.

	<i>Ren'yo-kei</i> (Adverbial)	<i>Mizen-kei</i> (Irrealis)	<i>Izen-kei</i> (Hypothetical)	<i>Shushi-kei</i> (Conclusive)
<i>Yodan</i> (1st Group)	* <i>nag-ri</i> > <i>nagi-</i> OJ>MJ <i>naki-</i>	* <i>nag-ra</i> > <i>naga-</i> <i>naka-</i>	* <i>nag-re-</i> <i>nake-</i>	* <i>nag-u</i> 'to cry' <i>naku-</i>
<i>Ichidan</i> (2nd Group)	* <i>mi-ri</i> > <i>mii-</i> OJ>MJ <i>mi-</i>	* <i>mii-</i> <i>mi-</i>	* <i>mi-re-</i> <i>mire-</i>	* <i>mi-ru</i> 'to see' <i>miru-</i>
<i>Nidan</i> (3rd Group)	* <i>suwa-i</i> > <i>suwêe-</i> OJ>MJ	* <i>suwa-i</i> > <i>suwêe-</i> <i>suwe- suwe-</i>	* <i>suw-u-re-</i> <i>suwure-</i>	* <i>suw-u</i> 'to put, to plant' <i>suwu-</i>

With regard to the vowel realization of **-êe-* of the 3rd Group, which arose from the *a-i* sequence and became *-we-* in OJ, there is some possibility of having PAN **-i* suffix here. Taking these grammatical features in AJ into account, it can be understood that it is justified to consider Japanese as a mixed language, formed by hybridization of grammatical elements of several languages.

Finally, it is worth mentioning here the recent view summarizing that the origin of Japanese can be reconciled in terms of a mixture of Altaic (*sic*) and Austronesian elements [Comrie *et. al.* 1996: 54].

Reconstructed Ancient Japanese

The following are the sentences tentatively reconstructed as AJ, Proto-Tungusic (further-PTS) referring basically to [Murayama and Obayashi 1973] and [Ikegami: 1978], and PAN to [Wurm and Wilson 1975] and [Blust 1980-89].

- a. *Asu ine-ba baku-bô taa-ni dama-du kuri-bô i*
morning mother-TOP basket-ACC hand-LOC hill-LOC chestnut-ACC she
piri-p-ra-mu.
gather-stem formative-IRR-DEC
'In the morning a mother gathers chestnut with a basket in hand at the hills.'
- b. *Kara-ba saba-ni umo-bô si suwêe (<suwa-i), usu-du*
awa-bô
family-TOP swamp-LOC yam-ACC they plant-ADV mortar-INSTR
millet-ACC
si tuk-ri-bu-mu.
They hull-ADV-be-DEC
'Relatives plant tubers in the swamp, and they hull millet in a mortar.'
- c. *A-ba, ôtô-nga nag-ri-bu-duwêe, i-bô mên-dak-ri-bu-mu.*
I-TOP brother-NOM cry-ADV-be-because him hold in the arms-ADV-be-DEC

'I cuddle my brother, because he cries.'

Lexicon

- asu 'morning, tomorrow' < PAN *qa(n)so 'sun, light'
awa 'millet' < PAN *zawa 'millet'
-ba/-bô (TOP=topic/ACC=accusative) < PTS *-ba/*-bê (accusative, exclamative)
-bu- 'be' < PTS *-bu- 'to be'
dama 'mountain' < *damban < PTS *daban 'mountain pass'
dak(ê)- 'to hold in arms' < PAN *mên-dakêp/*dakêp 'to embrace'
do/du, do-ri/du-ri, du-wêe 'INSTR=from, with, because' < PTS *-du/*-dü, *-dulii/*-dülii (prolative)
i (predicate linker for singular subject) < PAN *i (directive)
-i (ADV=adverbial) < PAN *-i (objective, transitive) or PTS *-i(noun stem formative)
ine 'mother' < PAN *ina 'mother'
kara 'household' < PTS *kala 'lineal relative, blood relation'
kuri 'chestnut' < PTS *kuri 'grey, parti-colored'
-mu (DEC=suppositional, declarative) < PTS *-mê/*-êm (future negative)
nag(ê)- 'to cry' < PAN *mê-nangis/*tangis 'to cry'
-nga (NOM=nominative) < PTS *-ngii < *-nggai (genitive)
-ni (LOC=locative) < PAN *n-i (genitive, dative, locative)
ötö 'younger sibling' < PAN *ê(N)Tik 'little' or PTS *ötel 'below, behind'
-p(ê)- (verb stem formative) < (unexplained)
piri-'pick up' < PAN *piliq 'to choose'
-ra- (IRR=irrealis) < PTS *-ra (imperfect)
-ri- (adverbial) < PTS *-ri/*-rii (continuous)
saba 'swamp, valley' < *nsabaq < PAN *sabaq 'swamp, rice field'
si (predicate linker for plural subject) < PAN *siDa/*si 'they'
tö 'and' < PTS *tê 'and'
tuk(ê)- 'to pound' < PAN *TukTuk 'to peck, to beat'

References

Bakker, P.

1992. *A Language of our Own. The Genesis of Michif - the Mixed Cree-French language of the Canadian Métis*. Ph.D.Dissertation, University of Amsterdam.

Bakker, P. and Mous, M. (eds.)

1994. *Mixed Languages*. Amsterdam : Institute for Functional Research into Language and Language Use.

Bickerton, D.

1981. *Roots of Language*. Ann Arbor : Koroma.

Blust, R.

1980-89. Austronesian etymologies I - II. *Oceanic Linguistics* XIX:1-181, 22/23:29-149, 25:1-123, 28(2):111-180.

Capell, A.

1976. General picture of Austronesian languages, New Guinea Area. In S.A.Wurm (ed.) *New Guinea Area Languages and Language Study*, vol.2, pp.5- 52. Canberra : Australian National University.

1976. Austronesian and Papuan "mixed" languages: general remarks. In S.A.Wurm (ed.) *New Guinea Area Languages and Language Study*, vol.2, pp. 527-579. Canberra : Australian National University.

Comrie, B., Matthews, S. and Polisky, M.

1996. *The Atlas of Languages. The Origin and Development of Languages Throughout the World*. New York: Facts On Files, Inc.

Fujiwara, H.

1994. Inasaku no kigen o motomete [Looking for the origin of the rice cultivation]. In M.Tanaka and M.Sahara (eds.) *Hakkutsu o Kagakusuru* [Applying Science to the Excavation], pp.81-92. Tokyo : Iwanami-shoten.

Gonda, J.

1952. Indonesian linguistics and general linguistics II. *Lingua* 3:17-51.

Hudson, M.J.

1996. Japanese and Austronesian : an archaeological perspective on the proposed linguistic links. Paper prepared for the Conference on Interdisciplinary Perspectives on the Origin of the Japanese, International Research Centre for Japanese Studies, Kyoto. 25-28.

Ikegami, J.

1978. Arutaigo no keitoron [The theory of Altaic origin] In *Nihongo no Keito to Rekishi* [Origins and History of the Japanese Language], pp.35-98.Tokyo : Iwanami-shoten.

Kindaichi, H.

1978. *The Japanese Language*. Rutland,Vermont and Tokyo : C.E.Tuttle.

Miller, R.A.

1980. *Origins of the Japanese Language*. Seattle : University of Washington Press.

1991. Japanese and Austronesian. *Orientalia*, vol.52, pp.148-168.
- Murayama, S and Obayashi, T.
1973. *Nihongo no Kigen* [Origins of the Japanese Language]. Tokyo : Kobundo.
- Obayashi, T.
1996. *Umi no Michi, Umi no Tami* [The Sea Route and the Sea People]. Tokyo : Shōgakkan.
- Ruhlen, M.
1987. *A Guide to the World's Languages*. Stanford : Stanford University Press.
- Sahara, M.
1996. *Shoku no Kokogaku* [The Archaeology of Food]. Tokyo: University of Tokyo Press.
- Sakiyama, O.
1974. *Nantogo Kenkyu no Shomondai* [Problems of Austronesian Linguistics]. Tokyo : Kōbundō.
1990. Kodainihongo niokeru Osutoroneshiagozoku no yoso [Austronesian elements in Ancient Japanese]. In O.Sakiyama (ed.) *Nihongo no Keisei* [The Formation of the Japanese Language], pp.99-122. Tokyo : Sanseido .
1996. Formation of the Japanese language in connection with Austronesian languages. In T. Akazawa and E.J.E.Szathmáry (eds.), *Prehistoric Mongoloid Dispersals*, pp.349-358. Oxford: Oxford University Press.
- Sato, Y.
1992. *Ine no Kita Michi* [The Paddy Road]. Tokyo: Erimo-Shobo.
- Shibatani, M.
1990. *The Languages of Japan*. Cambridge : Cambridge University Press.
- Thomason, S.G. and Kaufman, T.
1988. *Language Contact, Creolization, and Genetic Linguistics*. Berkeley and Los Angeles : University of California Press.
- Vovin, A.
1994. Is Japanese related to Austronesian? *Oceanic Linguistics* 33(2): 368-390.
- Watabe, T.
1990. Homan-jinja no akagome to toko - Osutoroneshiateki inasaku no hokujo [Red (*bulu*-type) rice and cattle-trampling in the Homan shrine : A northward movement of rice cultivation]. In T. Obayashi (ed.), *Hayatosekai no Shimajima* [The Islands under the Hayato World], pp.378-404. Tokyo: Shogakkan.
- Wurm, S.A. and Wilson, B.
1975. *English Findex of Reconstructions in Austronesian Languages (Post-Brandstetter)*. Canberra : Australian National University.
- Wurm, S.A.
1981. *Papuan Languages of Oceania*. Tübingen : Gunter Narr Verlag.