

# An Ontological Analysis of Japanese and Chinese Kinship Terms\*

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**Abstract.** Most languages have some expressions to refer to family members (e.g., those referring to ‘father,’ ‘brother,’ ‘uncle,’ etc.). In this paper, we will provide an analysis of Japanese and Chinese kinship terms, under a framework whose representational system has an ontological nature. It will be shown that this framework is effective not only in figuring out similarities and differences among the kinship terms of a particular language, but also in comparing the kinship terms of different languages.

**Keywords:** Kinship terms, Ontologies, Japanese kinship terms, Chinese kinship terms.

## 1 Introduction

In a previous work (S Baik and H-R Chae 2010), we tried to provide an ontological analysis of Korean kinship terms. We dealt with about 200 Korean kinship terms extracted from the *Yonsei Korean Dictionary*, under a framework comprising a simplified family tree and some features. We have shown that the framework is effective in defining Korean kinship terms explicitly and comprehensively. In addition, as the framework was designed to be language neutral, the possibility was open that it could be used in analyzing the kinship terms of other languages.

In this paper, we will first introduce the framework of S Baik and H-R Chae (2010). Then, we will provide an ontological analysis of Japanese and Chinese kinship terms. We will deal with all the Japanese and Chinese kinship terms in *Kodansha's Furigana Japanese Dictionary* and *A Chinese-English Dictionary* (by Learning Express). We will see that the framework is very effective in dealing with the Japanese and Chinese data. This will show that the ontological framework has advantages over previous ones. Most of all, the framework makes it easy to capture similarities and differences between kinship terms in various languages.

The organization of this paper is as follows. Section 2 provides an overview of some previous studies on kinship terms. In section 3, we will introduce an ontological framework for the analysis of kinship terms, together with actual analyses of Japanese and Chinese data. Section 4 concludes the paper.

## 2 Previous Studies on Kinship Terms

Previous studies on kinship terms were carried out by anthropologists as well as by linguists. Some of them have attempted to show properties of kinship terms by using such analytical mechanisms as “componential analysis” (Wallace & Atkins 1960), “algebraic analysis” (Romney & D’Andrade 1964), and “morphemic or morphological analysis” (H-K Kim 1967, 1983). Although these mechanisms are based on convincing assumptions on kinship terms, they are often too complex and too restricted to deal with kinship terms comprehensively. In this

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\* Hee-Rahk Chae was supported by a 2010 research grant from Hankuk University of Foreign Studies.

section, we will briefly observe some systems implementing the three mechanisms mentioned above.

Wallace and Atkins (1960) try to represent the conceptual meaning of kinship terms, using the mechanism of the componential analysis. They assume that each kinship term can be decomposed into a set of primitive kin-types and their combinations. The primitive kin-types are represented as features. They claim that their analyses focus on the conceptual or psychological meaning of kinship terms. According to them, the best analysis is the one which is the most proximate to psychological reality. However, it is difficult to define psychological reality/validity under their framework.

In contrast, Romney and D'Andrade (1964) introduce a set of 10 features, some of which are listed in the following:

- (1) a. "m/f": male/female      b. "a": either sex      c. "=": marriage bond  
d. "0": sibling link      e. "+/-": parent link / child link

Their basic strategy is to represent kinship terms as a combination of these features. They analyze, for example, *grandfather*, *brother*, *uncle* and *nephew* as follows (p. 148):

- (2) a. Grandfather: a+m+m / a+f+m ("/'": 'or')      b. Brother: a 0 m  
c. Uncle: a+m 0 m / a+f 0 m      d. Nephew: a 0 m-m / a 0 f-m

In the notation [a+f+m] for *grandfather*, [a] represents the ego (either a male or a female), [+f] represents a woman in the parent link, and [+m] represents a man in the parent link. That is, a reading of *grandfather* is 'an ego's mother's father.' The notation [a 0 m-m] for *nephew* indicates 'an ego's male sibling's son.' Although this framework is helpful in identifying a limited set of kinship terms, it cannot cover terms which mark such relationships as 'younger/older than' and such information as 'the order between siblings.' Hence, it is not an adequate framework to deal with all kinship terms.

H-K Kim (1967, 1983) provides a framework employing the morphemic analysis mechanism. He claims that most Korean kinship terms are complexes of smaller morphemic units. Combining the mechanisms of the morphemic analysis and the componential analysis, he introduces the following features:

- (3) a. "<+>": a person older than the person represented by the preceding term  
in sibling relations  
b. "<->": a younger person in the relation in <+>  
c. "<+H>": a term of honorific sense  
d. "(1)": a sibling link (a reduced form of +a-)  
e. "&": a procedure of addition  
f. "A": either + or - symbol

Employing these features, H-K Kim (1983: 6-14) analyzes *oppa*, *nwuna* and *imo* as follows:

- (4) a. *oppa* (a female's older brother): f(1)m<+>  
b. *nwuna* (a male's older sister): m(1)f<+>  
c. *imo* (an ego's mother's female sibling): a+f(1)f

This approach also has some limits in representing kinship data comprehensively, because it requires complex features and rules. For instance, he introduces 23 features and 5 rules to analyze 234 Korean kinship terms in 14 morphemic groups. Moreover, the system became unnecessarily complex, partly because he incorporated some words which are not kinship terms,

like *nammay* ‘brothers and sisters,’ *hyengcey* ‘brothers’ and *camay* ‘sisters.’ These words are not kinship terms because they do not indicate a relationship between the ego and the addressee.

### 3 An Ontological Analysis

In this section, we will provide an “ontological” framework to analyze Japanese and Chinese kinship terms. In general, “ontology” is defined as follows (Gruber 1995):

- (5) An explicit specification of a conceptualization.

That is, ontology is a formal (tree) structure which contains nodes of (language-neutral) concepts. These nodes are related to each other in various ways: the type-subtype relation, part-whole relation, synonymic relation, antonymic relation, etc.

Our approach is ontological in the sense that the most important part of the system is a (family) tree of nodes including the ego and the addressee (S Baik and H-R Chae 2010). The tree can be regarded as (a part of) an ontology. Its basic units are nodes based on which various kinship relationships can be represented. The nodes form a hierarchical structure. Kinship terms can be represented with reference to the tree and a set of features. The features are used to encode additional information on the nodes when they are required by the kinship terms concerned. We will show that the system is very effective not only in representing Japanese and Chinese kinship terms but also in capturing the similarities and differences among Japanese and/or Chinese kinship terms.

In section 3.1, we will introduce two main components of our framework: a simplified family tree and three features. Based on this framework, we will analyze Japanese and Chinese kinship terms in sections 3.2 and 3.3, respectively. Our data consists of 100 Japanese kinship terms collected from the *Kodansha’s Furigana Japanese Dictionary* and 170 Chinese kinship terms collected from *A Chinese-English Dictionary* (by Learning Express). To keep a balance on the amount of data to be considered between the two languages, we chose dictionaries of approximately equal size, both containing about 50,000 lexical entries.

#### 3.1 The Framework: A Simplified Family Tree and Analyzing Features

Several family tree models (e.g., Hawaiian system, Iroquois system, and Eskimo system) have been proposed by anthropologists. These models are designed to analyze kinship terms of a particular culture/language. Hence, when we need to compare kinship systems of different languages, they often fail. For this reason, we devised a simplified family tree to reflect the properties of various kinship systems. Basically, this simplified family tree represents three different types of kinship relationships:

- (6) a. — : Direct descendant/antecedent of (e.g., son — father)  
 b. ↔: Sibling of (e.g., father ↔ father’s female sibling)  
 c. ---: Married to (e.g., father --- mother)

Incorporating these relations, the simplified family tree can be represented as follows:



ORDER features. For example, the term *oyhalmeni* ‘maternal grandmother’ in Korean is represented as <00, 10[SEX: F], 20[SEX: F]>. Under this representation, it is interpreted as ‘ego’s mother’s mother,’ which fits with our intuition.

### 3.2 Japanese Kinship Terms

Now we have the framework to analyze Japanese and Chinese kinship terms. As for the Japanese kinship terms, we extracted about 100 kinship terms from *Kodansha’s Furigana Japanese Dictionary*, which contains around 50,000 lexical entries. Then, focusing on each sense of the kinship terms, we considered which nodes the ego and the addressee of the sense belong to in the family tree, and checked whether these nodes and those in between them need to be specified with any features. Finally, we encoded each sense of the terms into the ordered n-tuple format. Following this simple procedure, we could deal with the extracted kinship terms without any difficulties. Some of the analyses are shown below:

**Table1:** Analyses of some Japanese kinship terms

Kinship terms		Notations in the n-tuple format
terms	definitions	
<i>oba</i>	aunt	<00, 10, 11[SEX:F]>
<i>obasann</i>	aunt	<00, 10, 11[SEX:M], 12[SEX:F]>
<i>ata</i>	older brother	<00, 01[SEX:M, AGE:O]>
<i>otouto</i>	younger brother	<00, 01[SEX:M, AGE:Y]>
<i>kyodai</i>	male siblings	<00, 01[SEX:M]>
<i>girinoani</i>	brother-in-law	<00, 01[SEX:F, AGE:O], 04[SEX:M]>
<i>girinoani</i>	brother-in-law	<00, 02, 03[SEX:M, AGE:[O:02]]>
<i>girinoani</i>	brother-in-law	<00, 02, 03[SEX:F, AGE:[O:02]], 07[SEX:M]>
<i>gikei</i>	brother-in-law	<00, 02, 03[SEX:M]>
<i>girinootouto</i>	brother-in-law	<00, 01[SEX:F, AGE:Y], 04[SEX:M]>
<i>girinootouto</i>	brother-in-law	<00, 02, 03[SEX:M, AGE:[Y:02]]>
<i>girinootouto</i>	brother-in-law	<00, 02, 03[SEX:F, AGE:[Y:02]], 07[SEX:M]>
<i>gitei</i>	brother-in-law	<00, 02, 03[SEX:M]>
<i>otousann</i>	dad	<00, 10[SEX:M]>
<i>okaasann</i>	mom	<00, 10[SEX:F]>
<i>oetoutyann</i>	father	<00, 10[SEX:M]>
<i>okaatyann</i>	mother	<00, 10[SEX:F]>
<i>musume</i>	daughter	<00, -10[SEX:F]>
<i>ozyousann</i>	daughter	<00, -10[SEX:F]>
<i>tyouzyo</i>	eldest daughter	<00, -10[SEX:F, ORDER:Ft]>
<i>zizyo</i>	second-born daughter	<00, -10[SEX:F, ORDER:Sec]>
<i>yome</i>	daughter-in-law	<00, -10[SEX:M], -11[SEX:F]>
<i>oyomesann</i>	daughter-in-law	<00, -10[SEX:M], -11[SEX:F]>
<i>titioya</i>	father	<00, 10[SEX:M]>
<i>tousann</i>	father	<00, 10[SEX:M]>
<i>girinotiti</i>	father-in-law	<00, 02, 13[SEX:M]>
<i>syuuto</i>	father-in-law	<00, 02, 13[SEX:M]>
<i>mago</i>	grandchild	<00, -10, -20>
<i>magomusume</i>	granddaughter	<00, -10, -20[SEX:F]>
<i>sohu</i>	grandfather	<00, 10[SEX:M], 20[SEX:M]>
<i>soba</i>	grandmother	<00, 10[SEX:M], 20[SEX:F]>

<i>sohuba</i>	grandparents	<00, 10[SEX:M], 20>
<i>magomusuko</i>	grandson	<00, -10, -20[SEX:M]>
<i>otto</i>	husband	<00[SEX:F], 02[SEX:M]>
<i>hahaoya</i>	mother	<00, 10[SEX:F]>
<i>okaasann</i>	mother	<00, 10[SEX:F]>
<i>giba</i>	mother-in-law	<00, 02, 13[SEX:F]>
<i>syuutome</i>	mother-in-law	<00, 02, 13[SEX:F]>
<i>ata</i>	older brother	<00, 01[SEX:M, AGE:O]>
<i>ane</i>	older sister	<00, 01[SEX:F, AGE:O]>
<i>oya</i>	parent	<00, 10>
<i>kyoudai</i>	male or female siblings	<00, 01>
<i>simai</i>	sister	<00, 01[SEX:F]>
<i>kyoudai</i>	male siblings	<00, 01[SEX:M]>
<i>imouto</i>	younger sister	<00, 01[SEX:F, AGE:Y]>
<i>gisi</i>	sister-in-law	<00, 01[SEX:M], 04[SEX:F]>
<i>girineane</i>	sister-in-law	<00, 01[SEX:M], 04[SEX:F]>
<i>girineane</i>	sister-in-law	<00, 02, 03[SEX:F, AGE:[O:02]]>
<i>girineane</i>	sister-in-law	<00, 02, 03[SEX:M, AGE:[O:02]], 07[SEX:F]>
<i>gimai</i>	sister-in-law	<00, 01[SEX:M, AGE:Y], 04[SEX:F]>
<i>girinoimouto</i>	sister-in-law	<00, 01[SEX:M, AGE:Y], 04[SEX:F]>
<i>girinoimouto</i>	sister-in-law	<00, 02, 03[SEX:F, AGE:[Y:02]]>
<i>girinoimouto</i>	sister-in-law	<00, 02, 03[SEX:M, AGE:[Y:02]], 07[SEX:F]>
<i>musuko</i>	son	<00, -10[SEX:M]>
<i>tyounann</i>	eldest son	<00, -10[SEX:M, ORDER:Ft]>
<i>zinann</i>	second-born son	<00, -10[SEX:M, ORDER:Sec]>
<i>muko</i>	son-in-law	<00, -10[SEX:F], -11[SEX:M]>
<i>haiguusya</i>	spouse	<00, 02>
<i>ozi</i>	uncle	<00, 10, 11[SEX:M]>
<i>ozi</i>	uncle	<00, 10, 11[SEX:F], 12[SEX:M]>
<i>tuma</i>	wife	<00[SEX:M], 02[SEX:F]>
<i>kodomo</i>	child	<00, -10>

As we can see above, Japanese kinship terms can be defined concisely and explicitly, under the present framework.

### 3.3 Chinese Kinship Terms

The number of Chinese kinship terms is larger than that of Japanese. In this section, we will show the analyses of Chinese kinship terms. We extracted Chinese kinship terms from a dictionary of largely the same size as the Japanese dictionary: *A Chinese-English Dictionary*. Eventually, we gathered about 170 Chinese kinship terms and analyzed them as follows:

**Table2:** Analyses of some Chinese kinship terms

Kinship terms		Notations in the n-tuple format
terms	definitions	
<i>bómǔ</i>	aunt	<00, 10[SEX:M], 11[SEX:M, AGE:[O:10]], 12[SEX:F]>
<i>érxí</i>	daughter-in-law	<00, -10[SEX:M], -11[SEX:F]>
<i>érzi</i>	son	<00, -10[SEX:M]>

<i>fùqīn</i>	father	<00, 10[SEX:M]>
<i>gāozǔfùmǔ</i>	great-great-grandparent	<00, 10[SEX:M], 20, 30, 40>
<i>gōnggong</i>	father-in-law	<00[SEX:F], 02[SEX:M], 13[SEX:M]>
<i>gūfu</i>	uncle	<00, 10[SEX:M], 11[SEX:F, AGE:[O:10]], 12[SEX:M]>
<i>mǔqīn</i>	mother	<00, 10[SEX:F]>
<i>nèidì</i>	brother-in-law	<00[SEX:M], 02[SEX:F], 03[SEX:M, AGE:[Y:02]]>
<i>nǚ'ér</i>	daughter	<00, -10[SEX:F]>
<i>nǚxū</i>	son-in-law	<00, -10[SEX:F], -11[SEX:M]>
<i>qīzi</i>	wife	<00[SEX:M], 02[SEX:F]>
<i>wàicéngzǔfù</i>	great-grandparent	<00, 10[SEX:F], 20, 30>
<i>wàijiùzǔmǔ</i>	granddaughter	<00, 10[SEX:F], 20[SEX:F], 21[SEX:M], 22[SEX:F]>
<i>wàishēng</i>	nephew	<00, 01[SEX:F], -12[SEX:M]>
<i>wàishengnǚ</i>	niece	<00, 01[SEX:F], -12[SEX:F]>
<i>wàishēngsūnérnǚ</i>	grandnephew; grandniece	<00, 01[SEX:F], -12, -21>
<i>wàishēngzēngsūnérnǚ</i>	great-grandnephew; great-grandniece	<00, 01[SEX:F], -12, -21, -31>
<i>wàisūnér</i>	grandson	<00, -10[SEX:F], -20[SEX:M]>
<i>wàisūnnǚxū</i>	grandson-in-law	<00, -10[SEX:F], -20[SEX:F], -22[SEX:M]>
<i>wàisūnxífù</i>	granddaughter-in-law	<00, -10[SEX:F], -20[SEX:M], -22[SEX:F]>
<i>wàiyízǔfù</i>	granduncle	<00, 10[SEX:F], 20[SEX:F], 21[SEX:F], 22[SEX:M]>
<i>wàizhísūnér</i>	grandnephew	<00, 01[SEX:M], -12[SEX:F], -21[SEX:M]>
<i>wàizhísūnnǚ</i>	grandniece	<00, 01[SEX:M], -12[SEX:F], -21[SEX:F]>
<i>wàizhísūnxi</i>	grandniece in-law	<00, 01[SEX:M], -12[SEX:F], -21[SEX:M], -23[SEX:F]>
<i>wàizhízēngsūnér</i>	great-grandnephew	<00, 01[SEX:M], -12[SEX:F], -21[SEX:M], -31[SEX:M]>
<i>wàizǔfù</i>	(maternal) grandfather	<00, 10[SEX:F], 20[SEX:M]>
<i>wàizǔmǔ</i>	(maternal) grandmother	<00, 10[SEX:F], 20[SEX:F]>
<i>wàizúzēngzǔfù</i>	great-granduncle	<00, 10[SEX:F], 20, 30[SEX:M], 31[SEX:M, AGE:[O:30]]>
<i>xiǎoshēn</i>	sister-in-law	<00[SEX:F], 02[SEX:M], 03[SEX:M, AGE:[Y:02]], 07[SEX:F]>
<i>xiōng</i>	brother	<00, 01[SEX:M, AGE:O]>
<i>yuèmǔ</i>	mother-in-law	<00[SEX:M], 02[SEX:F], 13[SEX:F]>
<i>zhàngfu</i>	husband	<00[SEX:F], 02[SEX:M]>
<i>zhínǚxū</i>	nephew-in-law	<00, 01[SEX:M], -12[SEX:F], -14[SEX:M]>
<i>zhíxífù</i>	niece-in-law	<00, 01[SEX:M], -12[SEX:M], -14[SEX:F]>
<i>zhízēngsūnnǚ</i>	great-grandniece	<00, 01[SEX:M], -12[SEX:M], -21[SEX:M], -31[SEX:F]>
<i>zǐ</i>	sister	<00, 01[SEX:F, AGE:O]>

<i>zǔfù</i>	(paternal) grandfather	<00, 10[SEX:M], 20[SEX:M]>
<i>zǔmǔ</i>	(paternal) grandmother	<00, 10[SEX:M], 20[SEX:F]>
<i>zúzēngzǔgū</i>	great-granddaughter	<00, 10[SEX:M], 20, 30[SEX:M], 31[SEX:F]>

There are some differences between Japanese and Chinese kinship terms. First of all, the information about sex (i.e., male or female) is required far more in Chinese kinship terms than in Japanese kinship terms. For instance, such Chinese kinship terms as *yuèmǔ*, which mean ‘ego’s mother-in-law,’ is analyzed as <00[SEX:M], 02[SEX:F], 13[SEX:F]>. In this format, each node (i.e., 00, 02, and 13) requires information about sex. Japanese does not have corresponding terms. It has only *giba/syutome*, <00, 02, 13[SEX:F]>, which does not have any information about sex on the nodes 00 and 02. Secondly, the Chinese kinship system tends to cover broader range of kinship relations. For example, in Japanese, there are not any kinship terms which indicate a relation between the ego and its great-grandniece or between the ego and its great-granddaughter.

#### 4 Conclusion

In this paper, we have provided an ontological framework to deal with Japanese and Chinese kinship terms. Based on the framework consisting of a simplified family tree and some features, we could analyze all the kinship terms in a Japanese dictionary and in a Chinese dictionary. Most of all, by using the same framework for the two languages, we could capture the similarities and differences between the two kinship systems effectively. In addition, as the Japanese and Chinese kinship systems are different from that of Korean, and the Japanese and Chinese systems are not the same either, we have shown that the framework can handle the kinship systems of several different languages.

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