Chapter 1

Introduction

1.1 Background of the Study

The study of spatial relations as expressed in languages is an attempt to understand how the location of an item with respect to other items situated within its vicinity is expressed. The identification in a language of the location of an object known as figure or trajector (the referent object or the object we want to locate it in space) in reference to other object known as ground or landmark (the object which is used as a reference point for locating the referent object in space) is called spatial reference. It has been confirmed in many pieces of research works that spatial reference varies among people of different cultures and is linguistically realized by adpositions, verbs, or prefixes, depending upon the frames of reference [1] or the patterns for locating the referent object in space, which are adopted by a particular language for spatial description. (Miller, and Johnson-Laird, 1976; Svorou, 1994; Bowerman, 1996; Grabowski and Weiss, 1996; Levinson, 1996; Neumann, 1996; Bernd, 1997 among others)

Since spatial reference is realized by these spatial morphemes, existing studies of the spatial frames of reference by most linguists and scientists in other related fields center on the use of these morphemes; for example Miller and Johnson-Laird (1976) and Herskovits (1987), who deal with prepositions, Regier (1996: 19), who argues that prepositions or verbal prefixes have more semantic status in indicating spatial relations than nouns or verbs, and Bierwisch (1996: 31-32) who shows that some verbs can convey spatial situations.

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[1] This and other technical terms are explained in section 1.7 on page 10.

Spatial descriptions are not pervasive merely in linguistic expressions, but also in non-linguistic situations, as proved by many anthropologists, psychologists and cognitive linguists. For example, the use of frames of reference observed in nonverbal tasks have been tested to see whether non-linguistic coding employs the same frames of reference as used in verbal tasks. Many researchers also confirm that human beings acquire non-linguistic coding of space prior to linguistic spatial knowledge. Many studies thus focus on the frames of reference used in locating an object in space. Most of them center on the orientation of the reference object or the landmark, such that if the landmark has a clear orientation partitioned into the regions of front-back, left-right, and top-bottom, it is likely that people who want to locate the object or the trajector will be able to precisely identify the regions at which the trajector is, using the spatial orientation of the landmark. This is called an intrinsic frame of reference, using the intrinsic properties of a landmark that shows apparent orientation to specify the location of a trajector in respect to such a landmark. However, if the landmark or the reference object does not possess any orientation that shows clear axes of front-back, left-right, or top-bottom, people can still identify the location of an object in space by imposing either their own body coordinates on the reference object or simply figuring out the location of the object in space using the direction of motion of a dynamic object. This is called a relative frame of reference, in which people relate their own location to the location of an object in space. In addition, in some cultures, there is another frame of reference more pervasive than either intrinsic or relative frames of reference. This frame of reference is culture-specific and it seems possible only for people of such particular cultures to obtain a good grasp of such a system, called an absolute frame of reference.

Since the time when the spatial frames of reference were first introduced, more and more attention has been devoted to studying these non-linguistic perceptions through the encoding of linguistic expressions. An example of the study of non-linguistic perceptions on frames of reference is a study by Grabowski and Weiss (1996). They studied two frames of reference: intrinsic and relative as used by the speakers of Dutch, German, French, Italian, and English. They aimed at finding the factors or determinants that caused these speakers to use either intrinsic and/or relative frames of reference. They did this by making up two different situations, a formal and a non-formal situation, and asked their subjects to imagine to drive a toy car and park it in front of or behind two reference objects, a Volkswagen beetle (representing an object with clear front-back orientation) and a tree (representing an object without front-back orientation). In the first informal situation, their German subjects used an intrinsic frame of reference but they did not show consistency when the reference object was intrinsically oriented because the subjects parked the car in different areas with respect to the Volkswagen beetle even when they heard similar instructions asking them to park the car *in front of* or *behind* the beetle. The relative system was predominant when the reference object was changed to be a non-oriented tree. Consistency was observed in the case of the tree.

When they changed to test a similar group of subjects using a formal situation, inconsistency arose in the case of the tree being the reference object. The subjects used an intrinsic system in relation to both the oriented reference object and the beetle. So they concluded that social situation and the orientedness of the reference object were the factors that governed the subjects' decisions. The results of the experiment leads to the question whether the relationship between spatial and temporal locative markers is also responsible for the inconsistency found during the

experiments. Grabowski and Weiss began to do similar experiments with four more languages: French, English, Italian and Dutch with instructions being given in the native languages of the languages examined. They found that German and Dutch were languages which had three prepositions. German shares a spatial and temporal *vor* (*in front of* or *before*), and has *hinder* (*behind*) and *nach* (*after*) used in spatial and temporal senses, respectively. Similarly, Dutch has *voor* (*in front of* or *before*) that shares spatial and temporal senses, *achter* (*behind*) and *na* (*after*) as a spatial and temporal markers, respectively. It appears that two factors, being the social situation and the clear orientation of the reference object, were significant in these three-preposition languages. In four-preposition languages like Italian, French, and English, on the other hand, the orientation of the reference object was the only significant factor because consistency took place only when a non-oriented tree was used as a reference object. Subjects of these languages used only intrinsic frame of reference when the reference object was a car, which shows clear orientation.

The researcher did not agree with Grabowski and Weiss that social situations accounted for the inconsistency of the data in three-preposition languages. They also considered it was likely that there was consistency where the reference object in space was the tree or the object without spatial orientation, which was hardly agreeable. The researcher thus conducted a pilot study in which 10 native Thai subjects and 10 native Japanese subjects were involved. The researcher chose the Thai and Japanese languages because these two languages are also three-preposition languages. Using the two different situations, formal and informal, as designed by Grabowski and Weiss, the researcher found opposite results to those found by Grabowski and Weiss, namely (1) that there was no inconsistency taking place in both informal and formal situations, and (2) that there was inconsistency in the case of the tree reference object. A

follow-up project was conducted a few weeks later, in which the researcher tested only the informal situation used in the Grabowski and Weiss study but using only 11 Thai male speakers and 10 female Thai speakers. This time the researcher found inconsistency arising in the case of the non-oriented reference object while there was no difference between male and female groups when the reference object was changed to the beetle. Only 4 out of 11 male subjects (36.37 %) and 7 out of 10 female subjects (63.64 %) parked the car in a position located between where they were seated and the reference tree when they heard the instruction to park it *in front of* the tree. However, there was a big difference between both sexes in the case of a non-oriented reference object. This result leads to the question of whether gender is a factor that affects the choice of frames of reference.

The pilot study the researcher had done inspired to ask a question that if social situation did not account for the results obtained, then did gender?. The researcher then designed an experimental study to see how Thai and Japanese subjects of both sexes interpreted the meaning of the spatial markers of FRONT and BACK in their languages in respect of a reference object both with and without spatial orientation. The researcher used both non-oriented and oriented objects as reference objects.

Non-spatially oriented objects are entities with symmetrical configuration. Some of the non-spatially oriented objects or entities are completely or purely symmetrical, such as balls and many round-shaped objects, in that they do not reveal their clear axes in any plane. Viewed horizontally they do not possess a front and back or a left and right, while, in a vertical plane, they do not have a top part and a bottom part. Some objects are regarded as partly symmetrical, such as wheels, because they can be partitioned into, say, front and back, in a certain spatial arrangement such as when they move. The tree is also considered partly symmetrical

because its top and bottom parts are evident but not the front and back or left and right.

Intrinsically oriented objects, on the other hand, are objects with asymmetrical orientation having exterior regions with asymmetrical properties. They must possess explicit inherent properties which may be differentiated into several parts according to the axis along which they are distributed. Their inherent properties are responsible for their distribution along vertical or horizontal axes. Some asymmetrical objects, such as bottles, trees, high buildings, refrigerators, and candles are only distributed along a vertical axis or are explicitly separated by their bare top-bottom regions when they are reference points in a spatial situation, so they can be called partly symmetrical objects. Some asymmetrical objects such as cars, houses, televisions, and table fans are distributed along a horizontal axis. Accordingly, these objects are separated by front-back or/and left-right regions. To avoid ambiguity, the researcher, in this study, which focuses only on the front-back regions will call the example of the fully asymmetrical object used as a reference object (a beetle car) an intrinsically oriented object, and the example of a symmetrical object (the tree) the non-oriented object because it is not clear for both Thai and Japanese subjects how to define its front and back regions.

The researcher believed that there are differences between people of different cultures regarding conceptualization of front-back in space in relation to reference objects. The researcher wondered if there was any difference between Thai and Japanese subjects since both were Asian languages of two very distinct societies, which may not share the same spatial and temporal markers for front and back. In Thai, the preposition naa is used for the concept BACK in both spatial and temporal senses while the temporal kon in used to replace naa in the spatial sense. In

Japanese, however, only the postposition maɛ is used to describe situations spatially and temporally. For a clearer distinction, the postpositions uʃiro and ato are used to mean *behind* and *after* in English. Interestingly, the spatial and temporal markers of Thai and Japanese are similar to German and Dutch.

What Grabowski and Weiss had done was to compare various languages from the western world. The researcher wanted to adapt their approach for Thai and Japanese speakers using the prepositions naa (in front of) and laŋ (behind) in Thai and the postpositions maɛ (in front of) and uʃiro (behind) in Japanese and to make the study a cross-gender study as well as a cross-language analysis. This study follows Grabowski and Weiss (1996) to study spatial reference for two Thai spatial prepositions, naa (in front of) and laŋ (behind), and the Japanese postpositions, maɛ (in front of) and uʃiro (behind) through the experiment using both *intrinsic* and *relative frames of reference.*

1.2 Objectives

The purposes of the study are to:

1. Analyze the choice of spatial frames of reference used for intrinsically-oriented reference object by male and female speakers of Thai and Japanese.

2. Analyze their choice of spatial frames of reference used for non-oriented reference object by male and female speakers of Thai and Japanese.

3. Analyze the locative markers in Thai and Japanese languages to see whether the sharing of spatial and temporal meanings in both languages is related to the choices of frames of reference used by their speakers.

1.3 Hypotheses

This study is based on the following hypotheses.

1. Intrinsic spatial frame of reference will be adopted by both Thai and Japanese male and female speakers in a situation with an intrinsically oriented object used as a reference object.

2. With non-oriented object as a reference object, a relative frame of reference will be used by both males and females, both Thai and Japanese, with Thai-speaking females taking the side of the reference object that faces towards them as the front and Thai males taking the side that faces away from them the front, and vice versa for Japanese subjects.

3. The choices of frames of reference will be related to locative markers in both designated languages.

1.4 Scope of the Study

In this study, the spatial markers in Thai: naa (in front of) and lan (behind) , and those in Japanese: mae (in front of) and uʃiro (behind) are investigated and tested out with native speakers of Thai and Japanese. This study will test note only intrinsic frame of reference and relative frame of reference employed by Thai and Japanese speakers using Grabowski and Weiss's informal situation, *giving a friend a ride home* situation.

1.5 Contribution

This study will, it is hoped, be useful for further study in the fields of spatial semantics, psycholinguistics, and human perception as well as in the teaching of Thai and Japanese as foreign languages.

1.6 Variables Used in the Study

There are three types of variables referred to in the study: social variables, linguistic variables, and variables concerning reference frames.

1.6.1 Social Variables

As mentioned earlier in the pilot study the researcher conducted with Thai subjects, there tended to be a male-female difference concerning spatial frames of reference. The findings supported the cliche that "females lack sense of direction" which implies that men were more consistent in using a frame of reference even with the non-oriented objects. So one of the purposes of this cross-gender study was to find some answers or some explanations for this statement.

1.6.2 Linguistic Variables

Grabowski and Weiss compared five different western languages in their study of the spatial frames of reference. The researcher, following their methods of study, hypothesized that eastern languages like Thai and Japanese used a different frame of reference. In this study, the researcher used the Thai language, using Thai native speakers on the one hand, and Japanese, using Japanese native speakers, on the other hand. Heine (1997: 14) notes that, "human conceptualization, like the way it shapes language structure, is far from uniform across cultures." Neumann and Widlok

(1998) also confirm that "comparison is the major tool for any research into the universality and diversity of how space is conceptualized in languages." So the researcher considered it would be very interesting to compare the Thai and Japanese languages.

1.6.3 Variables on Spatial Reference

These variables deal with whether the perception of the subjects in both Thai and Japanese languages in different situations with intrinsically oriented and non-oriented reference object can be interpreted into using the intrinsic frame of reference or the relative frame of reference. Intrinsic frame of reference is expected to be adopted when intrinsically oriented object is the reference point. For example, in this study the area beyond the part of the beetle Volkswagen with the headlights (which will later be called Subspace 3) is considered to be the front part as it is usually intrinsically conceptualized as the front of the car. The area the subjects will reach (which will later be called Subspace 1) before the beetle reference object is thus a back part in terms of the spatial orientation of the intrinsically oriented reference object. In contrast, a relative frame of reference is expected to be adopted in the case of a reference object that is non-oriented. In this case it is very difficult to assign which area will be the front or the back of the non-oriented object as front can be assigned to a part. This is why inconsistency is expected to take place.

1.7 Definitions of Difficult Terms and Abbreviations

1. A frame of reference is a frame or a pattern in locating an object (referent) in relation to another object (reference object) in a spatial description. Frames of reference are defined according to what people depend on in locating objects. They might use a reference object's internal

properties or simply impose their bodily coordinates as the factors designating a frame of reference, or depending on fixed bearings to determine the location of a referent.

2. Intrinsic / Relative / Absolute These are the names of three types of frames of reference created by anthropologists who study the relation between language and space. The intrinsic frame is the frame where the reference object is used as the determiner of the location of the referent. The relative frame is the frame where a speaker or a viewer, or even a listener, being involved in a speech situation imposes canonical points of their language as the factors determining the location of the referent. Absolute frame is a frame that is fixed and cannot be changed. This frame does not depend on the internal properties of the object, nor can a speaker who uses this frame impose his or her body parts involved in his or her decision in locating the referent.

3. Trajector (TR) versus Landmark (LM)

Trajector (TR) and Landmark (LM) are terms used to determine the location of items in a spatial situation. In this study, TR is used to refer to the car the subjects imagine they are driving, or the referent, and LM is used to refer to the beetle Volkswagen or to the wooden tree.

4. FRONT versus BACK

FRONT and BACK refer to the concepts of front and back as tested in two languages; Thai and Japanese. FRONT refers to naa (in front of) in Thai and mae (in front of) in Japanese, respectively. BACK refers to lan (behind) in Thai and uʃiro (behind) in Japanese, respectively.