The case particle *ni* and its acquisition

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Abstract

The acquisition of the particles among adult learners of Japanese has been one of the interests among the researchers of Japanese as Foreign Language (JFL). The focus of this study is the case particle *ni* that has many functions and thus shows variations in the acquisition process. In search of a systematic explanation for it, the following issues are discussed in this paper. (1) A comprehensive and objective functional classification of *ni* is pursued on the basis of Muraki's Predicate Model (1986, 1991) which results in thirty-six functions for *ni*. (2) These thirty-six functions are applied to Myers-Scotton's (2002) 4-M model and Abstract Level model to test their hypothesis which states that an early system morpheme is acquired earlier than a late system morpheme. The results of eighty-eight questionnaires support this hypothesis, but the models cannot explain why the acquisition rates form a continuum-like distribution instead of a dichotomy between early and late system morphemes. (3) The Prototype Theory hypothesizes that those parts of speech which are considered prototypical in a target language (TL) are easier to acquire. Theoretical prototypes seem to support the hypothesis, and psychological prototypes are in the process of being studied in order to verify the results of theoretical prototypes.

1. Aim of this present study

Apart from differences in detail, many researchers on particles agree that the process and progress of acquisition vary, depending on the functions of the particles (Ikuta and Kubota 1997; Imai 2000; Kin 1996; Kubota 1993; Nakagawa 1995; Sakoda 1998; 2002; Yagi 1996). That is, even a single particle is acquired differently, if the functions are different, and the case particle *ni* is one of the best examples of this. Even though *ni* is catogorized into various functions from the perspective of syntax (e. g. Muraki 1991; Rickmeyer 1995; Waki 2000), as well as that of cognitive linguistics (e. g. Moriyama 2005; Sugai 2000; Sugimura 2002; Yamanashi 1994), it is still a far cry to say that these classifications are applied to a certain model

or theory in order to unravel the acquisition order of *ni*. That is, analyses of the functions of *ni* in linguistics and research on the acquisition order of the different functions of *ni* in Second Language Acquisition (SLA) are not integrated, except in a few cases (e. g. Moriyama 2005; Wada 2006). Moreover, the classifications of *ni* made by different researchers vary. As a consequence, models and theories in SLA have hardly been tested in the case of *ni*. The purpose of my study is therefore to find a model or theory that can explain the acquisition order of the different functions of the case particle *ni* in SLA. Thus, in this paper, I will test the 4-M model and the Abstract Level model developed by Myers-Scotton (2002) and the Prototype Theory.[1] The former is strongly influenced by semantic syntax, and the latter by cognitive semantics. These models and the Prototype Theory were not developed originally to describe SLA phenomena, but were later applied to them by various researchers. Hence, it is worth testing their applicability by using the particle *ni*. In doing so, the categorization problems or difficulties of *ni* are discussed along the way.

2. CLARIFYING THE FUNCTIONS OF *NI*

To apply *ni* to any model or theory is not at all simple, since there is unfortunately no consensus about how many functions the case particle *ni* has (Sugai 2000: 13).[2] This also leads to difficulties in comparing results of various researchers, because it is often unclear how and why the functions were selected in the way they were. In order to avoid this and to try establishing a functional classification of *ni* as thorough and objective as possible, Muraki's Predicate (*jojutsuso*) Model was chosen (1986, 1991).[3] The basic idea of the Predicate Model is that a predicate (a verb or an adjective) structures a sentence by combining with several actants. The

[1] This part of the paper was made possible thanks to comments from Eric Kellerman, Sugita Yuko and Yoshioka Keiko at the symposium, "Foreign Language Learning in the Age of Globalization" that took place at the University of Duisburg-Essen in March 2006.

[2] It is not correct to say that *ni* itself has a function such as "goal" and "location". Rather, these functions are the result of considering the semantic features of NP *ni* and NP *ga/o* and their relationships, as well as the relationships between them and the verb. The term "function of *ni*" is used for the sake of convenience.

[3] The term, *jojutsuso*, is known as *jutsugoso* in Muraki's article in 1986. Both terms refer to the same concept. This concept, i. e. both terms, is translated into "predicate" in this paper and it strictly refers only to Muraki's *jojutsuso* and *jutsugoso*.

actant has a direct relation to the semantic meaning of a verb, and is usually a noun or its equivalent (Ishiwata 1983). The structure of a sentence is accounted for, therefore, by applying the concept of Predicate. Predicate is the semantic as well as syntactic information that is obtained by considering both the semantic restrictions of nouns and verbs and the case of nouns. The concept was used to make the *Dictionary of Japanese Basic Verbs for Computers IPAL* (Information Technology Promotion Agency 1987a, 1987b, 1997). Since the input has to be very detailed as well as systematic for computers to process Japanese, the following procedures were followed.

Based on four dictionaries, three supra-groups were extracted in order to categorize nouns using syntactic methodologies. These are: "concrete", "abstract" and "diverse". There are eight groups in each of the first two groups. This makes seventeen semantic features of nouns, and all nouns in relation to verbs fall into one of the groups, having that semantic feature that reflects not only syntactic but also semantic elements. Syntagmatic procedures were also followed to extract the semantic features of verbs, and resulted in 24 features. These also reflect both syntactic and semantic elements.

Considering the two aspects above together with nine case particles and sentence structures, 54 predicates were finally sorted out. Of these, 29 are relevant here, since they deal with the particle *ni*.[4] In this paper, they represent 29 functions of *ni*, and using these functions offers two very important advantages. One is that Muraki's categorization of *ni* is, to the best of my knowledge, the most detailed and systematic one, and the other is that the *Dictionary of Japanese Basic Verbs for Computers IPAL* can act as a reference to decide which function a particular *ni* belongs to, since it contains 861 verbs.

The 29 functions of *ni* described by Muraki already seem a large number, but that is not all. There are several other uses noted by Rickmeyer (1995), who treats *ni* based on morphosyntax, and Waki (2000), who also analyses NP-*ni* structures by considering the semantic restrictions of nouns and verbs but deliberately does not deal with several uses. These are the uses of *ni* that occur with a noun independent of a verb, or that are required grammatically, such as in passive and causative constructions. Since the purpose of my study is, as mentioned earlier, to find a model or theory that can explain the acquisition order of the different functions of the case particle *ni*, all possible functions are included. As a result of also taking these aspects into account, therefore, we end up with 36 functions,

[4] For more detailed information about how the 29 functions were decided, see Muraki (1986).

and this extended classification makes it possible to test the models and theories for their applicability more thoroughly, since the more functions there are to test, the more difficult it is for them to be proved positive. Furthermore, this approach can avoid the criticism that the criteria for categorization are not objective enough, because the additional functions are easy to identify based on sentence structure,[5] while the functions named by Muraki have the *Dictionary of Japanese Basic Verbs* as a reference.

The following is the description of the 36 functions, and 34 of them fit into one of the following sentence structures:

(1) N_1 *ga* N_2 *ni* V
(2) N *ga* N_1 *o* N_2 *ni* V

1. Locational Locative: N_2 is the place where N_1 (+con <concrete words>) exists (LL).
1.1[6] LL1 Existence e. g. *aru* [be, exist]
* The numeral 1 means that N_2 *ni* is the second complement in a sentence like (1) above.
1.2 LL1 Phenomenon e. g. *saku* [bloom]
1.3 LL1 Emergence e. g. *deru* [appear]
1.4 LL1 Cognition e. g. *mieru* [can see, be visible]
1.5 LL2 Existence e. g. *nokosu* [leave]
* The numeral 2 represents N_2 *ni* as the third complement in a sentence like (2) above.
1.6 LL2 Possession e. g. *daku* [hold]
1.7 LL2 Emergence e. g. *tateru* [build]
1.8 LL2 Cognition e. g. *hakken suru* [discover]

2. Nonlocational Locative: N_2 is the place where N_1 (-con) exists (NL).
2.1 NL1 e. g. *okoru* [happen]
2.2 NL2 e. g. *miidasu* [find out]

3. Locational Goal: N_2 is the point that N_1 reaches (LG).
3.1 LG1 Movement e. g. *iku* [go]
3.2 LG1 Movement occurring with MT1 (see 9 below) e. g. *iku* [go]
3.3 LG1 Direction e. g. *magaru* [turn]
3.4 LG1 Attachment e. g. *noru* [ride]
3.5 LG2 Movement e. g. *todokeru* [deliver]

[5] For example, if a verb appears in a passive form, N *ni* indicates an agent, and in a causative form, a causee. If N in N *ni* expresses time, it expresses the time of the event described by the verb.

[6] These numbers will be used for reference purposes in the following tables and texts.

3.6 LG2 Direction e. g. *mukeru* [turn, point, direct]
3.7 LG2 Attachment e. g. *tsukeru* [attach]

4. Range: N_2 shows the range in which N_1 carries out the action of the verb (V) (RA).
   4 RA e. g. *katsu* [win]

5. Concern: N_2 is the standard to which N_1 is related (CC).
5.1 CC1 e. g. *niru* [resemble]
5.2 CC2 e. g. *butsukeru* [throw at, knock against]

6. Essive: N_2 exists as the qualification of N_1 (ES).
   6 ES2 e. g. *tsukau* [use]

7. Partner: N_2 is the partner to and from whom things and information move (PT).
7.1 PTn Goal e. g. *ageru* [give]
7.2 PTn Source[7] e. g. *narau* [learn]
   * "n" represents *ni* since there are more particles for this function.

8. Ascriptive: N_2 is the cause of an action of V carried out by N_1 (AS).
   8 AS e. g. *odoroku* [be surprised]

9. Motive: N_2 shows the event after N_1 carried out the action of V (MT).
9.1 MT1 e. g. *iku* [go]
9.2 MT2 e. g. *dasu* [send out]

10. Nonlocational Goal: N_2 is the thing which N_1 (-con) reaches (NG).
10.1 NG1 e. g. *naru* [become]
10.2 NG2 Change e. g. *kaeru* [change]
10.3 NG2 Emergence e. g. *kaku* [write]

11. Attitude: N_2 is the object to which N_1 carries out the action of V (AT).
   11 AT e. g. *amaeru* [get oneself indulged]

[7] With certain verbs, such as *narau* [learn] and *morau* [receive], N *ni* represents the partner from whom things and information move, and is classified as PTn (Partner) Source. That is, even though one of the core semantic functions of *ni* is "goal", this particular *ni* has the contradictory meaning, "source", which is the core meaning of another particle, *kara*. Hence, both *ni* and *kara* in N *kara/ni narau* 'learn from N' have the function of "source". However, Sugimura has another view, saying that N *kara* and N *ni* represent a speaker's different cognitions. The former shows "source" while the latter shows "goal of attachment" (2002). It is an interesting view, but at this point, I will still support the traditional position.

12. Partitive: N_2 is a part of N (PA).
    12 PAgn e. g. *daku* [hold]
    * "g" represents *ga* for N, and 'n', *ni* for N_2.

13. Causative: With causative verb forms and complex causative predicates, N_2 is a causee (CV).
    13 CV e. g. *tsukawaseru* [make someone use something]

14. Passive: in the case of passive verb forms, N_2 indicates an agent (PV).
    14 PV e. g. *nusumareru* [be stolen]

15. Omitted *suru* [do]: when two nominals appear in the form of N_1 *o* N_2 *ni* without being interpreted as valence-conditioned complements to a following verb, *shite*, the gerund of the verb *suru* [do], in adverbial position can be omitted: N_1 *o* N_2 *ni shite* > N_1 *o* N_2 *ni* (OT).
    15 OT e. g. *hyakuman-en o shihon ni (shite) hajimeru* [start something with one million yen as capital]

The following two functions are independent of verbs. Thus, the sentence structure is not limited to (1) and (2).

16. Time: the time of the event described by the verb can be indicated by means of an optional complement, N *ni* (TI).
    16 TI e. g. *nichiyō bi ni* [on Sunday]

17. Semantics of N: the interpretation of an optional complement N *ni* depends on the semantics of the N. Thus, for instance, reason, purpose, condition or general situational descriptions of a verb can be realized as N *ni* (SE).
    17 SE e. g. *sukunaku suru tame ni* [in order to reduce]

The classification of the 36 functions listed above follows in Table 1. Each function itself is already abstracted, but Muraki suggests an even higher level of abstraction, that is, the common attributes shared by certain functions. These are "locative", "goal" and "source", showing the shared semantic functions (Muraki 1991, 2000). Eight Locational Locatives (LL), two Nonlocational Locatives (NL) and Range (RA) belong to the core function of "locative"; seven Locational Goals (LG), Partner (PTn) Goal, two Motives (MT) and three Nonlocational Goals (NG) belong to "goal"; and Partner Source and Ascriptive (AS) belong to "source". Furthermore, "locative" and "goal" are two core semantic functions of *ni,* while the core semantic function of "source" is mainly represented by another case particle, *kara* (Muraki 1991, 2000; Okutsu *et al*. 1986). With this classification of *ni* mainly based on semantic syntax, both the 4-M model and the Abstract Level model and the Prototype Theory are considered.

Tab. 1: 36 functions of *ni*

Numbers	Functions	Core semantic functions
1.1	LL1 Existence (Locational Locative)	locative
1.2	LL1 Phenomenon	locative
1.3	LL1 Emergence	locative
1.4	LL1 Cognition	locative
1.5	LL2 Existence	locative
1.6	LL2 Possession	locative
1.7	LL2 Emergence	locative
1.8	LL2 Cognition	locative
2.1	NL1 (Nonlocational Locative)	locative
2.2	NL2	locative
3.1	LG1 Movement (Locational Goal)	goal
3.2	LG1 Movement occurring with MT1	goal
3.3	LG1 Direction	goal
3.4	LG1 Attachment	goal
3.5	LG2 Movement	goal
3.6	LG2 Direction	goal
3.7	LG2 Attachment	goal
4	RA (Range)	locative
5.1	CC (Concern) 1	
5.2	CC2	
6	ES (Essive) 2	
7.1	PTn (Partner) Goal	goal
7.2	PTn Source	source
8	AS (Ascriptive)	source
9.1	MT (Motive) 1	goal
9.2	MT2	goal
10.1	NG 1 (Nonlocational Goal)	goal
10.2	NG2 Change	goal
10.3	NG2 Emergence	goal
11	AT (Attitude)	
12	PAgn (Partitive)	
13	CV (Causative)	
14	PV (Passive)	
15	OT (Omitted *suru* [do])	
16	TI (Time)	
17	SE (Semantics of N)	

3. About the data

The data analysed consist of a fill-in-the-blank task conducted by 88 native speakers of German who are studying either at the University of Duisburg-Essen or at the University of Düsseldorf in Germany.[8] They are divided into three groups, depending on the length of time they have studied Japanese, that is, the pre-basic stage, the basic stage and the beyond-basic stage.[9] The pre-basic stage group consists of 29 learners who have received instruction in JFL for up to 200 hours (approximately Level 4 of Japanese Language Proficiency Test, JLPT henceforth); the basic stage group has 32 learners with about 360 hours of instruction (approximately Level 3 of JLPT); and the beyond-basic stage group consists of 27 learners with more than 360 hours of instruction (approximately Level 2 of JLPT).

The fill-in-the-blank task used was designed to elicit *ni* in all 36 functions. There are 34 sentences, and each sentence has one to four sets of parentheses for particle(s). In total, there are 78 sets of parentheses, and the subjects were asked to fill them in with appropriate particle(s). The subjects were instructed that it was possible to have more than one particle or no particle at all for a set of parentheses, and that *wa* was not supposed to be used.[10] Each sentence has a verb that is cited as a typical

[8] The question may arise of whether they have yet learned all the items tested for the data. The answer is yes and no. No textbook introduces *ni* in terms of 36 functions. In that sense, the subjects have not learned them. On the other hand, all the vocabulary (especially verbs) and the grammatical structures (causative, passive, etc.) in the task have already appeared in the textbooks, at least for those studying at the University of Duisburg-Essen, and very probably also for those at the University of Düsseldorf, since the selected vocabulary is usually learned at an early stage. The only thing I made sure of for those at the latter university was that they had already learned causative and passive structures, because these structures are usually introduced later in textbooks.

[9] The three level groups, that is, the pre-basic stage, the basic stage and the beyond-basic stage were derived by Klein and Perdue (1993) from their observation of adult learners who learn TLs in natural settings without formal language instructions. These three stages were modified by Wei (2000) to allow for the inclusion of some guided language learning. My classification is based on Wei's adapted version. That is, the level of each stage of Wei's and my classifications is supposed to represent the same or at least similar level.

[10] *Wa* is not a case marker, but a topic marker. In this kind of questionnaire, in which subjects are exposed to only one sentence, its context is not perfectly clear. This may lead to the possibility of the subjects filling in the blanks with *wa* as well as with *ga* and *o*. Since the topic marker *wa* is not the focus of this paper, students were deliberately instructed to avoid its use.

example of each function by Muraki (1991) or Rickmeyer (1995). Based on these verbs, sentences were built using vocabulary that is usually learned in the early stages of learning Japanese. However, since the subjects were from two different universities, and also because further data collection was intended, perfect vocabulary control was impossible. Hence, for each sentence, a matching picture was provided to help the subjects understand the content. All Chinese characters (*kanji*) had their readings provided in the *hiragana* syllabic alphabet. There was no particular time limit for filling in the blanks. Of 78 sets of parentheses, 38 required *ni* as the sole correct particle or as one of the correct particles.[11] The rest, 40 sets of parentheses, required particles other than *ni*, and hence are not the focus of the analysis and are not considered here. However, they played an important role in forcing the subjects to make the correct choice. The sets of parentheses that are correctly completed are considered as evidence of successful acquisition.[12]

4. Testing the 4-M Model and the Abstract Level Model

The 4-M model and the Abstract Level model were developed by Myers-Scotton (2002) along with the Matrix Language Frame model, which was originally designed to explain codeswitching phenomena, but which now attempts universally to explain structural configurations found in language contact situations, such as language attrition, convergence and SLA phenomena. According to these models, conceptually activated early system morphemes are acquired earlier than structurally assigned late system morphemes in SLA. This claim, however, has not been proved by many language pairs apart from English learned by native speakers of Japanese and Chinese; hence, I analysed the corpus of German learners of

[11] Since PTn (goal) and LG1 (Movement) appear twice in the task, the number of sets of parentheses for 36 functions of *ni* becomes 38.

[12] The possibility that students fill in the parentheses with particles randomly and still get them right cannot be ruled out. However, an overview of the data reveals such a risk to be small, since those parentheses for which the students did not know the appropriate particle(s) are left blank. Another point to mention is the effects of the order in which different functions of *ni* are introduced in the classroom. One can naturally assume that, the earlier the items are taught, the earlier their acquisition takes place. Even though this possibility cannot be discarded completely, just a brief look at the data tells us that there must be more to it to describe the different distributions of various functions of *ni*. That is, the percentage order of correctly answered *ni* is not the same as the order in which *ni* appears in textbooks.

Japanese focusing on the particle *ni*. The hypothesis for these models was therefore that *ni* as an early system morpheme is acquired earlier than *ni* as a late system morpheme in JFL.[13]

Out of 36 functions, 16 are early system morphemes, while 20 are late system morphemes.[14] The mean differences between correctly answered early and late system morphemes at each acquisition level are statistically significant: 75 percent and 40 percent, at the pre-basic stage; 78 percent and 47 percent, at the basic stage; and 81 percent and 50 percent, at the beyond-basic stage. It seems safe to conclude that *ni* as an early system morpheme is acquired accurately earlier than as a late system morpheme, and that this holds true throughout the acquisition process.

However, the distribution of the percentages of all *ni* that are correctly answered by the 88 subjects is wide. It does not form a dichotomy between early and late system morphemes, but rather a continuum on which the lowest percentage of an early system morpheme and the highest percentage of a late system morpheme are adjacent to each other. This variation of accuracy rate among the same morpheme groups and the ambiguous border between early and late system morphemes are beyond the scope of the models. That is, the two models lack full explanatory power for the acquisition phenomena at this point, based on the data analysis.

Another finding is that there are four functions whose percentages do not support the acquisition continuum. That is, two of them are late system morphemes stranded in the early system morpheme cluster, while the other two are early system morphemes appearing in the late system morpheme cluster. These four cases were explained by using the concept of transfer from the learners' L1 (first language), German, to L2 (second language), Japanese. Despite the criticism of attributing to transfer those results that do not support a model or a theory, typological differences still need to be considered when dealing with universality.

In the following sections, the Prototype Theory will be considered, which might be able to give a new perspective for interpreting the collected

[13] This terminology is problematic, since the particle *ni* is one morpheme and it cannot be both an early system morpheme and a late system morpheme as if it were two different morphemes (Hohenstein, personal communication). Even though I use the terms when referring to Myers-Scotton's models, therefore, what I mean by them is two different categories.

[14] Since the whole process of testing Myers-Scotton's models is not the focus of this study, the criteria for categorizing the 36 functions into either early system morphemes or late system morphemes, as well as the detailed mechanism of both models and clarification of both early and late system morphemes, are omitted.

data. That is, it may prove not only that the functions which are considered to be prototypical in a TL are easier to acquire (Sugaya 2004: 121), but also that there exists a functional continuity of *ni*, which is causing the continuum-like acquisition rates. Before applying the theory to the acquisition of *ni*, therefore, let us take a brief look at the theory itself.

5. The Prototype Theory

The Prototype Theory is a theory describing human beings' cognition of categories. According to the theory, there are both typical and untypical members within the same category, and the former is a prototype. A category has a radial structure with its centre occupied by prototypical members, and this is called prototype effects (Lakoff 1987). Lakoff also cites Rosch, who did many experiments on prototypes (1987). One such experiment was carried out with Dani (a language from New Guinea) speakers. They have only two basic colour categories: *mili* (dark-cool including black, green and blue) and *mola* (light-warm including white, red and yellow). When they were asked for the best examples of their two colour categories, Dani speakers chose focal (prototypical) colours such as white, red, and yellow for *mola* (Rosch 1973). Furthermore, they were divided into two groups, and one group was taught arbitrary names for eight focal colours, while another group was taught names for eight nonfocal colours. The result was that the names for focal (prototypical) colours were learned more easily (Rosch 1973). This finding has been applied to SLA, and, as stated above, in the Prototype Theory, it is hypothesized that the words' meanings or functions which are considered to be prototypical in a target language are easier to acquire. Hence, defining what constitutes the prototypicality of *ni* and which use is prototypical is the next step to take.

There are two kinds of prototypes. One is a theoretical prototype and the other is a psychological prototype. The former uses linguistic standards such as "concreteness", while the latter uses psychological saliency, called "association arousal", as standards (Tanaka 1990: 101). Tanaka also points out the importance of exploring the overlap between both types, since they are not mutually exclusive (1990: 102). In the following discussion, therefore, the particle *ni* is considered using theoretical prototypes, and the procedures are explained in order to identify psychological prototypes empirically.

To understand Japanese case particles from the Prototype Theory point of view, Yamanashi's concept of the "cognitive" case needs to be introduced (1993, 1995). It is distinguished from the existing deep case.

The deep case reflects factual relations in the world and also those that are based on truth-conditional relations (Fillmore 1968). Muraki's classification is strongly influenced by the deep case. On the other hand, the cognitive case reflects the mental and cognitive processes dynamically and is synthetic, based on multiple points of view (Yamanashi 1995: 164).

One example is the container image schema, originally suggested by Lakoff (1987) and applied to Japanese by Yamanashi (1995). The container schema is one of the kinesthetic image schemas that are present prior to and independent of any concepts (Lakoff 1987: 271). That is, we constantly experience our bodies both as containers and as things in containers. This results in a general cognitive frame in which concrete as well as abstract concepts are captured in the container schema. Let us look at the following six sentences:

(3) LL (Locational Locative) 1 Existence (accuracy rate of 95.5 percent)
*Tēburu no ue **ni** neko ga imasu*. [There is a cat on the table.]
(4) NL (Nonlocational Locative) 1 (accuracy rate of 49.4 percent)
*Moshi nihon to doitsu no aida **ni** sensō ga okotta ra dō shimasu ka*.
[What would you do if war broke out between Japan and Germany?]
(5) LL1 Emergence (accuracy rate of 44.4 percent)
*Sora **ni** tsuki ga demashita*. [The moon appeared in the sky.]
(6) LL1 Cognition (accuracy rate of 44.3 percent)
*Asoko **ni** kōen ga miemasu*. [The park is visible over there][15]
(7) LL1 Phenomenon (accuracy rate of 23.9 percent)
*Ryōshin no ie no niwa **ni** sakura ga sakimashita*.
[The cherry blossom bloomed in my parents' garden.]
(8) RA (Range) (accuracy rate of 7.0 percent)
Doitsu ga sakkā no shiai ni kachimashita. [Germany won the soccer game.]

The core semantic function of *ni* in the six sentences above is "locative", meaning N *ni* shows the place where N *ga* exists. The definition for LL (Locational Locative) in (3) is exactly the same, and it is not at all a problem to perceive *tēburu no ue ni* [on the table] as a container for *neko* [a cat]. A cat exists on the table, which is cognized as a container. For NL1 in (4) as well, *nihon to doitsu no aida ni* [between Japan and Germany] can be perceived as a container in which *sensō* [war] occurs and hence exists. The rest can also be captured in the container schema. *Sora ni* [in the sky] (LL1 Emergence) in (5), *asoko ni* [over there] (LL1 Cognition) in (6), and *ryōshin no ie no niwa ni* [in my parents' garden] (LL1 Phenomenon) in (7) are all containers in which *tsuki* [the moon], *kōen* [the park] and *sakura* [the cherry blossom] exist as a result of appearing, being visible, and blooming, respectively. While the container schema can be applied to all five of them, the concreteness of

[15] This is a literal translation to show the sentence structure. Its more natural equivalent would be "one can see the park over there".

the images differs. As for *ni* of RA (Range) in (8), however, it seems difficult to apply the container schema. With *ni* of RA, N shows the range in which N *ga* carries out the action of the verb. In (8) above, therefore, *sakkā no shiai ni* [the soccer game] shows the range in which *doitsu* [Germany] took the action of *katsu* [win]. My argument is that it is highly abstract, and thus, extremely difficult to perceive *sakkā no shiai ni* [the soccer game] as a container in which *doitsu* [Germany] exists as a result of winning. In short, LL1 Existence is a prototype of *ni* of "locative", and other functions are the category members reflecting the different degrees of concreteness, with RA a very peripheral member if at all. This might have caused the continuum-like distribution of the acquisition rates ranging from 95.5 percent to 7.0 percent instead of a dichotomy, which was beyond the explanatory power of Myers-Scotton's models. However, this needs to be supported by psychological prototypes that are still to be tested in future.

The next example is about another kinesthetic image schema called the source-path-goal schema. It is based on our bodily experience that we start from a place, we end up at a place, and a sequence of contiguous locations connecting the starting and ending points and a direction exist whenever we move anywhere (Lakoff 1987: 275). The following eight sentences have "goal" as a core semantic function.

(9) PTn (Partner) Goal (accuracy rate of 83.3 percent)
Senshū tomodachi ***ni*** *nihon no zasshi o kashimashita*.
[(I) lent my friend a Japanese magazine last week.]

(10) LG (Locational Goal) 2 Movement (accuracy rate of 77.9 percent)
Chichi no obentō o kaisha ***ni*** *todokemashita*.
[(I) took my father's lunch box to the company.]

(11) LG2 Direction (accuracy rate of 74.4 percent)
Otoko no hito wa kao o shita ***ni*** *mukete shinde imashita*.
[The man was dead with his face facing downwards.]

(12) PTn Goal (accuracy rate of 71.4 percent)
Kyōkasho ni machigai o mitsuketa no de sensei ***ni*** *iimashita*.
[Since (I) found a mistake in the textbook, (I) told my teacher (about it).]

(13) NG (Nonlocational Goal) 2 Change (accuracy rate of 63.9 percent)
Isha no yoyaku o getsuyōbi kara suiyōbi ***ni*** *kaemashita*.
[(I) changed the doctor's appointment from Monday to Wednesday.]

(14) LG2 Attachment (accuracy rate of 51.8 percent)
Kanojo wa migi mimi ***ni*** *iyaringu o yottsu mo tsukete imasu*.
[She wears four earrings in her right ear.]

(15) MT (Motive) 2 (accuracy rate of 50.0 percent)
Okāsan wa kodomo tachi o ryokō ***ni*** *dashimashita*.
[The mother sent her children on a trip.]

(16) NG2 Emergence (accuracy rate of 11.9 percent)
Tanoshikatta ryokō no koto o sakubun ***ni*** *kaite kudasai*.
[Please write a composition about a trip that was a lot of fun.]

In (9), it is easy to recognize four structural elements of the schema: "I" as a starting point (source); *tomodachi* [my friend] as an end point (goal); and the movement of *nihon no zasshi* [a Japanese magazine] from me to my friend as a path (a sequence of contiguous locations connecting the source and the goal) and a direction (towards the goal). The same is true with (10). *Chichi no obentō* [my father's lunch box] moves from "me" as a source to *kaisha* [the company] as a goal, and this movement of the lunch box can be easily conceptualized as a path and a direction. In (16), however, the goal that *tanoshikatta ryokō no koto* [a trip that was a lot of fun] reaches is *sakubun* [a composition]. It is even more difficult to perceive someone who will write a composition as a source and the movement of *tanoshikatta ryokō no koto* from him/her to *sakubun* as a path and a direction. While *ni* of PTn in (9) and LG2 Movement in (10) are prototypes for *ni* of "goal", therefore, *ni* of NG2 Emergence in (16) is a peripheral member of the category. Other functions are in between, causing the gradations of accuracy rate that seem theoretically to be acceptable. Empirical support is needed by finding out psychological prototypes.

The third example of the cognitive case is the metaphorical and metonymic expansions of the meanings of the nouns preceding the case particles. *Ni* of Time (TI), for example, indicates the time of the event described by the verb, and it seems to be independent of other functions without sharing any core semantic functions. However, a metaphorical expansion offers another way of looking at it, that is, the semantic expansion from location (space) to time. In expressions such as *nagai aida* [for a long time], *mijikai kikan* [short term] and *jikan no tanshuku* [shorter hours], the adjectives, *nagai* [long] and *mijikai* [short], seem to be used for their literal predication. These adjectives are, however, originally used for expressing location or space and have expanded metaphorically to include the abstract concept of "time" (Yamanashi 1993: 56). In the following sentence as well, the period of time is treated metaphorically as a domain in location or space, and the time, *shichi-ji* [seven o'clock], is situated there as a point.

(17) TI (Time) (accuracy rate of 88.6 percent)
Chichi wa asa shichi-ji ***ni*** *kaisha ni ikimasu*.
[My father goes to the company at 7 o'clock in the morning.]

Hence, *ni* is added to *shichi-ji* to show its location in the period of time. By applying the cognitive aspect, therefore, *ni* of TI has an abstracted core semantic function of *ni*, "locative", qualifying it to be one of the theoretical prototypes of the category that seems to be well supported by the high accuracy rate of 88 percent.

There are several theoretical prototypes of *ni*, proposed by various researchers. According to Sugimura (2002: 41), the prototypes of *ni* are "goal" and "attachment point". Yamanashi's (1994: 106–108) prototypical characteristics of *ni* are "proximity", "reachability", "attachability" and "convergency", and Sugai (2000: 15) sums up the four of these with a superordinate concept of "unification", placing them on a continuum that represents the different degrees of "unification". The degree increases from "proximity" to "convergency" via "reachability" and "attachability". Moriyama offers four functions of *ni*: "goal of movement", "origin of movement", "spatial relationship among entities" and "subject of experience", and each function has a radial structure with its centre occupied by prototypical members (2005: 2–9). "Goal", one of the functions, has "persons" as a prototype, and its extensions are "things" and "places", respectively. The function of "goal" also requires "concrete movement" as a prototype, and "abstract movement" and "metaphorical movement" as its extensions, respectively. Therefore, when N *ni* V expresses a concrete movement and N *ni* represents a person, it is the most prototypical case of the function "goal". When a metaphorical movement is expressed with a place, on the other hand, it is the most extended case.

All of these prototypes are, however, theoretical. Whether or not the psychological prototypes support them is still to be tested.

6. Obtaining psychological prototypes and future perspectives

How can psychological prototypes be obtained empirically, then? There are several approaches: the prototypicality judgement, the free production, the response time experiment, the acceptability judgement, the similarity judgement, and so on (Sugaya 2004: 124–125). As stated earlier, the meanings or functions that are considered to be prototypical in a target language are easier to acquire, or those considered to be prototypical in an L1 are transferred more easily into a target language (Sugaya 2004: 121, 127). In the former case, however, there have not only been few studies in JFL, but those that have been carried out also used only theoretical prototypes (Sugaya 2004). In the latter case, Kato (2005) used a prototypicality judgement in his JFL research, and Kellerman's (1978) similarity judgement is well known. In this study, the latter is preferred, since the card sorting task used by Kellerman (1978) makes it possible to sort various functions of *ni* according to the criterion of similarity and can eventually show the interrelationships of different functions of *ni*.

Reflecting Kellerman's (1978) similarity judgement, an online questionnaire has been developed and awaits its pilot study. In this question-

naire, native speakers of Japanese living in Japan will be asked to sort 38 instances *ni*[16] into groups according to similarity of use. The sentences in which *ni* is put are identical to those for which the 88 German learners of Japanese filled in appropriate particles. Instead of having blanks, the subjects for this questionnaire will see the whole sentences with *ni* in question in the parentheses. They can create as many or as few groups as they like, with as few or as many functions as they choose in each group. The underlying idea is that functions will be sorted together according to shared features, and hence, the features that would normally distinguish one function from another will be overlooked. Paraphrasing what Kellerman (1978: 74) wrote, by pooling data from a number of subjects, the number of times a given pair of functions appear together in the same pile can be seen as a measure of similarity of the two items. The higher the number, the greater the subjects judged the similarity of functions.

The results will be processed statistically to see if the prototypicality correlates to the acquisition of *ni* and if psychological prototypes are identical or similar to the theoretical prototypes. If the former point proves positive, a powerful explanation of the acquisition processes of *ni* can be expected. This would be of great help in reconsidering earlier studies on *ni* and in shedding new light on them with a strong empirical base.

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[16] Since PTn Goal and LG1 Movement appear twice in the task, the number of sets of parentheses for 36 functions of *ni* becomes 38.

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