Where Does a Translation Come From?:

Presenting a Case Study for Lexical Collocation-based Analysis of Translation[*] [†]

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1. Introduction

It is often said that translation is almost tantamount to interpretation of source text and there is no practical difference between interpretation and translation (Namekata 2003, for example). If this is the case, it follows that one can always predict what expressions will be used in a target sentence only from the meaning of a source sentence, which is supposed to be gained by interpreting it.

This paper will reveal, however, that such a predication is not necessarily successful. Semantic information gained by interpretation of source text can only be used as a *criterion* by means of which proper translation is performed, not as a *source* of a translation from which target texts are derived. This paper assumes, instead, a translation model which regards translation as *pairing of sentential meanings*, that is, a kind of comparative verification (or rather, similarity judgement) process in which one compares the meaning of the source sentence with the meaning of the target sentence. If we define the form of a source sentence as *F(s)*, that of a target sentence (to be) as *F(t)*, the meaning of source sentence as *M(s)*, and the meaning of target sentence as *M(t)*, this process can be explained as follows: in translation, while reading *F(s)*, translator starts with an interpretation of *M(s)*, and then, creates a certain sentence in target language as *F(t)*. After that, he/she compares *M(s)* with *M(t)*. If *M(t)* is considered as almost equivalent to *M(s)* under the circumstance, then *F(t)* is accepted as a translation of *F(s)*. At this time, *M(s)* and *M(t)* are paired.

Under this assumption, translations are not thought to be created from the meaning of source text, but be derived from another source. Then, where does a target sentence come from? What is a *formal*, as opposed to *semantic*, source of a target sentence? To answer the

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[†] The content of this paper is largely based on that of a verbal presentation performed by this author at the 20th meeting of *The Japanese Association of Sociolinguistic Sciences* on September 16, 2007, titled "Hon-yaku wa Doko kara Kuru-no-ka: Nichi-ei Taiyaku-bun Taiou-duke Deeta ni Miru 'Yaku-go no Chikara' [Where Does a Translation Come From?: To see 'how powerful conventional translations are' by means of analyzing English-Japanese Translation Alignment Data]."

question, we prepare the following two devices: that is, *Bilingual Lexical Network* and *Lexical Collocational Information* in target language. It is assumed that by means of *Bilingual Lexical Network* (BLN, hereinafter), one can gain lexical items[1] of target language from a source sentence, and, by means of *Lexical Collocational Information* (LCI, hereinafter) associated by the lexical items gained through BLN, he/she can construct a target sentence.

To take an example, if one translates an English sentence *She let the water out of the bathtub* (=S_1*(s)*), he/she first employs BLN in order to find out lexical items such as *kanojo wa/ga*, *sase-ta*, *sono N*, *mizu wo V*, *N kara*, *sono N*, and *basutabu (kara)*, which correspond to the items in S_1*(s)*, that is, *she*, *let* (past tense), *the*, *water* (accusative), *out of*,[2] *the*, and *bathtub*, respectively[3]. After that, translator employs LCI in order to construct a target sentence. For instance, the lexical item *kara* (out of) associates a kind of outward movement in which something moves from the place represented as a noun preceding *kara*, and, therefore, *kara* often collocates with such words as *nuku* "to drain," *dasu* "to put out," *deru* "to go out," *okuru* "to send" and so on. In this case, because the sentence S_1*(s)* represents a "caused-motion" scene as a whole and the object of it is *mizu* (water), a Japanese verb *nuku* is thought to be selected as a main verb in a target sentence. (Note that a verb *saseru*, which is a literal translation from the English verb *to let*, is not thought to be selected because of the lexical context around it.) It is thought that through the process described above, such a target sentence as *kanojo wa mizu wo basutabu kara nui*[4]*-ta* (past tense form of *nuku*) is constructed.

2. Background Assumptions

In this section, a number of assumptions behind the theses of this paper are described before the main part. First, we will ascertain the root cause of the misinterpretation about the

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[1] They are probably the same as *equivalences*, assumed in *formal equivalence theory* (Nida 1959).

[2] For convenience sake, we here treat the word *cluster* "out of," not *individual* word "out" or "of."

[3] Here, each of them not only has semantic and morphological information (such as "denoting one female" and "third person, singular") but also has *syntactic* information, such as "nominative" and "modifying noun in order to construct definite noun phrase," which is also used to construct a target sentence. As will be explained in later section, these pieces of information are *redundant* to moderate extent. Because of such redundancy, translator can construct target sentence only from the lexical items.

[4] "nui" is the special form of *nuk* (the root of *nuku* "to drain"), which appears in the context in which it precedes the kind of auxiliary or particle starting with the sound /t/.

translation process by means of reviewing the previous studies. Second, considering that historical review, a seemingly valid assumption about the translation process will be presented.

2.1. Problem in the History of Translation Theory

Considering the characteristic of translation, the first thing you think of as a mechanism of it is probably the process of *meaning transfer* (e.g. Mandelblit 1997; Nida & Taber 1969), which denotes the process in which, briefly speaking, the meaning of a sentence written in a language A, $S_1(a)$, is transferred into a sentence written in another language B, $S_1(b)$. This process assumes that transferred meaning in translation is language-universal and can be shared between $S_1(a)$ and $S_1(b)$. It is widely accepted as a translation mechanism, as if self-evident.

However, that process is only an assumption and needs to be empirically demonstrated. It is true that what we call the studies of *translation process* have been conducted especially in the fields of psychology and psycholinguistics (Danks, Shreve, Fountain, & McBeath 1997; Kiraly 1995, to name but a few), but it is undeniable that all of them took the process of *meaning transfer* for granted. Therefore, the very process of translation has not been looked into. Then, why does it remain unquestioned?

The problem is that translation has been regarded as a matter of *meaning* since *formal equivalence theory* (Nida 1959) was denied. Probably, translation theorists have assumed that translation theory is sufficient if only one can successfully deal with the semantic aspect of translation. This paper takes a critical stance toward this assumption and it is rejected as a naïve and primitive ideal.

2.2. What Decides the *Form* of Target Text

Since it cannot be the case that target text appears out of nowhere, there is indeed a valid part in the *meaning transfer* model. However, that validity is literally *partial*, and therefore it is thought to be almost impossible that the model alone explains the whole process of translation. Although translation is a matter of meaning, a product of translation is finally represented as *linguistic form* and, consequently, what should really be discussed is the very matter of *form*, that is, the matter of *lexical selection*[5]. The *formal* source from which target

[5] This kind of problem is, somewhat unexpectedly, discussed in the field of *Machine Translation*, which is the applied field of translation theory (e.g. Ikehara 2004; Nobiyama 1991).

text is derived is not the *semantic* structure of source text. It cannot decide the *form* of target text.

Word (or rather, morpheme), a minimal meaningful unit, is thought to have its own *syntax* (such as what is called "selectional restriction") as well as *semantics*[6], and, because of this, lexical selection has a primal and critical effect on the construction of a target sentence. From this view of language, translation theory must be able to deal with an *individual* semantic unit such as word[7].

3. Reviewing a Previous (Problematic) Study of Translation Theory

Here, we take up one previous study which obviously seems to regard translation as a process of *meaning transfer* and attribute the formal source of target text to the semantic structure of source text. After examining the analysis performed by that previous study, problems in it will be pointed out.

3.1. Overview

Nili Mandelblit (Mandelblit 1997) conducted an experimental research in order to clarify the cognitive process of translation. The subjects in this experimentation are eight Israeli native Hebrew speakers, all fluent in English as a second language. Thirty-five English sentences were provided as a list with no contextual settings. Each subject was given the same set of thirty-five sentences but the order was different. Twenty out of thirty-five sentences were *caused-motion construction*, which is discussed in *Construction Grammar* (Goldberg 1995). The subjects were allowed to spend as much time as they wanted to complete the task (on average, the subjects completed the translation of thirty-five sentences in about a week) and to use dictionaries or any other reference books to perform the task, but "they were asked not to consult with each other, or discuss problems they encountered in the translation process (Mandelblit 1997: 198)."

Some of English caused-motion sentences used in this experiment are displayed below:

(1) a. The audience laughed the poor guy out of the room.
b. She trotted the horse into the stable.

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[6] This view of language is embodied by *Word Grammar* (Hudson 1984, 1991, 2007) or *Patter Matching Analysis* (Kuroda 2000, 2001), which has an aspect of the applied and modified version of *Word Grammar*.

[7] In this sense, *formal equivalence theory* is valid and therefore should be revaluated.

c. Rachel helped him into the car.
d. She threw the ball into the basket.

Each of them is characterized as a different kind of caused-motion construction. In the *Construction Grammar*'s term, caused-motion construction represents a sequential physical event in which "an agent [...] does something, and that act causes an object to move (Fauconnier & Turner 2002: 370)" in some direction. This caused-motion event contains three kinds of "movement" (in a very broad sense), that is, agent's *action*, object's *movement* in some direction, and *causal link* between the former two (Mandelblit 1997). In the sentence (1)-a, the main verb *laugh* only marks the agent's action; in (1)-b, the verb *trot* marks the object's movement; in (1)-c, the verb *help* marks the causal link; and in (1)-d, the main verb *throw* marks the whole sequence of a caused-motion event, that is, all the three "movements". The last kind of verb such as *throw* is referred to as an "integrated" verb hereinafter. This difference causes the difference of construction used in translations, as Mandelblit (1997) reveals.

To put it shortly, from the results of the experiments, Mandelblit (1997) draws a conclusion that :

(2) a kind of caused-motion construction which contains integrated verb as its main predicate is translated into a caused-motion construction in any language,

and sentences with another three types of verb is not necessarily so.

3.2. Problem

Is that conclusion Mandelblit (1997) draws valid? In order to verify the validity of it, this author retrieved English sentences which contain the form of "*X throw Y into Z*" with the use of *English-Japanese Translation Alignment Data* (Utiyama & Takanashi 2003). As a result, 37 pairs of translations were gained.

Interestingly, the gained translated data showed no consistent construction shared by all of them. Moreover, according to the definition of Japanese caused-motion construction by Nakamoto, Lee, & Kuroda (2006: 338-339), a selection of caused-motion construction was made, but only 24 out of 37 Japanese translations were recognized as containing

caused-motion construction[8]. Therefore, when English caused-motion sentences including a typical caused-motion verb such as *throw* are translated into Japanese, they are, on the contrary to Mandelblit's generalization (2), not necessarily translated into Japanese caused-motion sentences, and, even if translated so, we cannot find out any consistent structure among them.

What is it that this result implies? Is Japanese so unique that the generalization (2) doesn't apply to it? And if so, is this only the problem lying in the matter of translation of caused-motion construction? Answers to both questions are probably "no." The reason for this will be described in detail in the next section.

4. Hypothesis

In this section, first, the gained 37 pairs of translations are examined statistically, then, based on the result from the examination, the most radical problem in the meaning transfer model of translation is pointed out, and finally, a hypothesis is presented in order to solve the problem.

4.1. Examining the Data

Statistically speaking, the most frequent constructional pattern found in this research was:

(3) (X ga/wa) Y wo Z (no naka) ni nage-komu.
(X NOM/TOP) Y ACC Z (GEN inside) DAT throw-into[9]

The total number of sentences including the form (3) obtained from the data was 7, which accounted for 19% of all. That number is, to say the least, too few to entitle (3) to the translation patter of "*X throw Y into Z*".

Other than (3), several verbs were accompanied by the construction schema *X ga/wa Y wo Z ni V*. The verbs were as follows:

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[8] Note that Mandelblit (1997) adds a few provisos to the conclusion. One of the provisos is, for example, that "metaphorical" caused-motion sentence is not necessarily translated into caused-motion sentence in target language, event if the main verb used in that sentence is "integrated" type (Mandelblit 1997: 236-243). However, considering these provisos, the conclusion Mandelblit (1997) draws is, at the very least, insufficient.

[9] Notations: "NOM" means that the noun preceding it is *nominative* case; "TOP" means that the noun preceding it is marked as *topic*; "ACC" means that the noun preceding it is *accusative* case; "GEN" means that the noun preceding it is *genitive* case; "DAT" means that the noun preceding it is *dative* case.

(4) *yudaneru* "to leave"
toujiru "to throw"
nagedasu "to cast out"
oku "to put"
kuberu "to feed (to the flames)"
suteru "to throw away"

These verbs and the verb *nage-komu*, shown in (3), probably belong to the integrated type, such as *throw* in English, because they seem to represent all the following three: agent's action, object's movement, and causal link between them.

4.2. Problem, Again

Here, if they are actually integrated caused-motion verbs, one large problem arises. That is, when one translates "*X throw Y into Z*" into Japanese, he/she is allowed to select any of the verbs in (3) and *nage-komu* as a main predicate. Whichever verb is selected, the generalization (2) is not violated. It is thought that this is the largest problem of (2).

In other words, (2) does not provide a satisfactory answer to the question which arises from above consideration:

(5) although the verb used in the source sentence is simplex, why verbs in target sentences are so various?

As is stated in the section 2.2, lexical (syntactic) information is assumed to largely contribute to constructing a sentence, and therefore a translation model which brings the variability in the verb employed in a target sentence, that is, which cannot expect the exact *form* of a target sentence unambiguously, is not sufficient.

It is thought that this is not the problem unique to Mandelblit's model of translation, but a universal one which arises in all the models viewing the meaning of source text as the only source of target text. Then, why does it arise in such models? The apparent reason for this has not been cleared so far.

4.3. Meanings Cannot Be Counted, While Forms Can Be

The variability of translation found in the *semantic* models of translation probably stems from the simple fact that *meaning cannot be counted, while forms can be*. This means that if a target sentence was derived from the meaning of a source sentence, which is uncountable, the

possible forms the target sentence can take would be also uncountable, but in fact forms can be counted.

As a corollary to this, semantic models are restricted to the *abstract* approach, in which a completely concrete parameter such as lexical selection is not dealt with. They can only deal with a *countable* aspect of meaning, i.e. semantic type, and an *uncountable* aspect of form, i.e. abstract structure. An example of the former is "denoting *caused-motion*"; and that of the latter "being *caused-motion construction*.[10]" Therefore, the variability problem is inevitable in the semantic models of translation.

4.4. Presenting an Alternative Hypothesis

Instead of those problematic models, this paper presents an alternative hypothesis. The main theses taken by the hypothesis are as follows:

(6) a. it is LCI in target language that decides the form of target text.
b. LCI is associated by lexical items obtained through BLN.

If we assume these, the question (5) can be answered naturally.

If we suppose that "*X throw Y into Z*" is typically translated into (3), that is, without any problem it is translated into (3), then it can be thought that it is because something wrong with the use of the verb *nage-komu* that verbs listed in (4), not the verb *nage-komu*, are employed. We can also suppose that, without assuming such a two-stage process, several candidates compete with each other and then one of them is selected. At any rate, since either supposition leads to the same result, we here assume that (3) is the "*typical* translation of '*X throw Y into Z,* '" and:

(7) it is because for any reason any verb other than *nage-komu*, the typical form, is considered as more appropriate than it that verbs listed in (4) are used in Japanese translation from "*X throw Y into Z*".

Hereinafter, the hypothesis (6) and the supportive assumption (7) are illustrated by means of the data gained by searching *English-Japanese Translation Alignment Data* (Utiyama & Takanashi 2003).

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[10] Probably, the construction in the sense of (especially, Goldberg's) *Construction Grammar* (Goldberg 1995) denotes the pairing of the semantic type and the abstract structure mentioned above.

5. Case Study

In this section, a number of translation pairs gained by the research are displayed and the reason for the verb selection is examined in each case, from the collocational point of view.

5.1. Translations Containing the Typical Pattern (3)

First, translations containing (3), the typical pattern as a translation from "*X throw Y into Z*", are examined. The data displayed below represent the following: in the first line, a Japanese translation; in the second line, a word-to-word translation of Japanese sentence into English; in the third line, a literal back translation into English from the Japanese; and in the forth line, the source sentence in italic within parenthesis. The middle two are created by this author, while the first and the last ones are gained by the research. The verb *nage-komu* is enclosed by rectangle, and the schema "*X throw Y into Z*" is underlined in each source sentence.

(8) sarani kami-kire wo hito-tsu ni nage-kon[11]-de-miru to, ...
moreover a-piece-of-paper ACC one-of-them DAT try$_{pres}$throwing-into and[12]
"Moreover, someone tries throwing a piece of paper into one of them, and..."
(*Further, I threw a scrap of paper into the throat of one*, ...)

(9) otoko wa...onaji kawa no yodomi ni wazato ono wo nage-kon-da.
man TOP same river GEN backwater$_{dat}$ intentionally axe ACC throw-into$_{past}$[13]
"the man threw the axe into the backwater of the same river."
(*He ... threw his axe on purpose into the pool at the same place,*)

(10) meneraaosu wa...kabuto wo girishia-gun no tai-retsu ni nage-kon-da.
Menelaus TOP helmet ACC Greek-army GEN array DAT throw-into$_{past}$
"Menelaus threw the helmet of the Greek army into the array."
(*Menelaus ... threw the helmet into the ranks of the Greeks*)

(11) onna...wa...sore wo hi no naka ni nage-kon-de-shima-tta no deshi-ta.
woman TOP it ACC fire GEN inside DAT have-thrown-into
"the woman has thrown it into inside the fire."
(*She ... threw it into the fire.*)

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[11] "nage-kon" is the special form of *nage-kom*, the root of the verb *nage-komu* "to throw into," which appears in the context in which it precedes the kind of auxiliary or particle starting with the sound /d/.

[12] Notations: "$_{pres}$" means that the verb attached by it is *present tense* form.

[13] Notations: "$_{past}$" means that the verb attached by it is *past tense* form.

(12) naito wa ko-bako wo ... masani shigemi ni nage-komo-u-to-shi-ta...
knight TOP small-box ACC just bush DAT be-going-to-throw-into$_{past}$
"the knight was just going to throw the small box into the bush..."
(*He ... was just going to throw it into the bushes ...*)

(13) okona-shi wa tabako no sui-gara wo hi ni nage-komi-nagara ...
Mr. O'Connor TOP cigarette GEN butt ACC fire DAT while-throwing-into
"while throwing the cigarette butt into the fire, Mr O'Connor..."
(*...Mr. O'Connor, throwing the end of his cigarette into the fire,*)

In each translation, the object noun filling the slot *Y* (in *X ga/wa Y wo Z ni nage-komu*) denotes a *concrete object*, such as a piece of paper, an axe, a helmet, and so on. In addition, the locative noun filling the slot *Z* denotes the *physical place* which is open and has expanse to some extent. These are probably the *necessary* conditions for the use of the verb *nage-komu*. It is thought that when all the collocating lexical items meet the conditions, the verb *nage-komu* can be employed, and, since using the verb *nage-komu* as a main verb is the typical pattern of a translation from "*X throw Y into Z*," in such a case *nage-komu* is normally selected[14] as a predicate.

5.2. Translations Not Containing (3), Instead Containing the Verbs Listed in (4)

Second, we look into the translations which do not contain the typical translation pattern (3) but instead contain any of the verbs listed in (4). The (vertical) alignment and notations are the same as the quotations number (8)-(13).

(14) ... kare wa ... gai-koku-jin no te ni mizukara wo yudane-ta no desu.
he TOP foreigner GEN hand DAT oneself ACC leave$_{past}$
"He left himself to the foreigners' hands."
(*... he ... threw himself entirely into the hands of the foreigners.*)

(15) ...atene-jin wa...itsumo karui hou no hakari-zara ni mi wo touji...
Athenians TOP always light side GEN scale DAT body ACC throw-and
"...Athenians always throw their body to the lighter side of the scale and..."
(*the ATHENIANS ... always threw themselves into the lighter scale, and ...*)

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[14] Cases where *nage-komu* is not used in spite of meeting the condition will be examined in section 5.2.

(16) isu ni mi wo nage-dasu you-ni shi-te koshi wo orosi, ...[15]
chair DAT body ACC cast-out as if do-and berry ACC seat-and
"someone does something as if he casts his body and seats his berry and ..."
(*then he threw himself into a chair, ...*)

(17) hoomuzu wa watashi no hiza no ue ni taduna wo oi[16]-te,...
Holmes TOP me GEN laps GEN top DAT rein ACC put-and...
"Holmes puts the rein on the top of my laps and ..."
(*Holmes threw the reins into my lap and ...*)

(18) ...sono-uchi-no hitori ga...noko-tta mono wo hi no naka ni kube-ta
of-them one NOM which-remained staffs ACC fire GEN inside DAT $feed_{past}$
"... one of them fed the staffs which remained into inside the fire."
(... *one of them ... threw what was left into the fire*.)

(19) ... foggu ga satsu-taba wo umi ni sute-naku-tta-tte,...
Fogg NOM a-roll-of-notes ACC ocean DAT even-if-not-throw-away
"... even if Fogg doesn't throw away a role of notes into the ocean, ... "
(...*even if Mr. Fogg did not throw some handful of bank-bills into the sea*...)

In (14), it is thought that the noun *mizukara* "oneself" and *te* "hand(s)" conflict with the verb *nage-komu*. That is, such a sentence as

(20) *gaikoku-jin no te ni mizukara wo nage-komu[17]
foreigner GEN hand DAT oneself ACC $throw\text{-}into_{inf}$[18]

is thought to be ungrammatical. This inappropriate collocation probably prevents the use of the verb *nage-komu*.

As for (15) and (16), it is assumed that the noun *me* "body" and either *hakari-zara* "scale" in the former or *isu* "chair" in the latter are incompatible with the verb *nage-komu*. In fact, such expressions as

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[15] In this case, it might be more natural to think that "nage-dasu you-ni shi-te koshi wo orosi" is the verb phrase.

[16] "oi" is the special form of *ok* (the root of the verb *oku* "to put"), which appears in the context in which it precedes the kind of auxiliary or particle starting with the sound /t/.

[17] It has to be said that the judgement of acceptability is based on this author's intuition.

[18] Notations: "$_{inf}$" means that the verb attached by it is the *infinitive* form.

(21) *hakari-zara ni mi wo nage-komu
scale DAT body ACC throw-into$_{inf}$

(22) ?*isu ni mi wo nage-komu
chair DAT body ACC throw-into$_{inf}$

are highly likely to be unacceptable.

As for (17), the noun *hiza* "laps," or the noun phrase *hiza no ue* "the top of the laps" probably conflict with *nage-komu*. In this case, as well as the above cases, such a phrase as:

(23) *hiza (no ue) ni nage-komu
laps GEN top DAT throw-into$_{inf}$

is also thought to be unacceptable.

In the case of (18), it seems that the noun *hi* "fire" *requires* the verb *kuberu* "to feed," but not that the noun *conflicts* with *nage-komu*, because it is thought that such an expression as below is an acceptable one:

(24) noko-tta mono wo hi no naka ni nage-komu
which-remained stuff ACC fire GEN inside DAT throw-into$_{inf}$

This is the case where the verb *nage-komu* is not employed although the use of it is not problematic. Therefore, in this case the selection of a verb *kuberu* as a main predicate is due to mere *preference*, not to *necessity*. That preference can be shown, albeit informal, by making a statistical survey. This author gained, for example, statistical data from a web database, *Aozora Bunko* (http://www.aozora.gr.jp/), which includes Japanese literary texts and essays whose copyright has already expired. Everyone can access the database and retrieve all the data for free.

In order to look into the strength of collocation between *hi* "fire" and *kuberu* "to feed," the phrase "hi ni [into the fire]" was initially searched on the database. As a result, 383 cases were gained. After that, the phrase "hi ni kube[19] [feed into the fire]" was searched, and the result was that 14 cases were obtained, which accounted for about 3.6% of all the 383 cases. At the same time, as to the phrase "hi ni nage-ko (the root of *nage-komu*) [throw into the fire]," only one case was obtained, which accounted for about 0.2%. This probably means

[19] "kube" is the root of the verb *kuberu*.

that when collocated with the noun *hi* "fire", the verb *kuberu* is much more preferred than the verb *nage-komu*. In addition to this *negative* reason, there is also one *positive* reason for the use of the verb *kuberu*: that is, the occurrence rate of the verb, 3.6%, is high enough to entitle it to the *highly collocating verb* with the noun *hi*[20].

So far, every example can be explained by the hypothesis (6) and the supportive assumption (7). However, when it comes to the case (19), we cannot explain as easily as we could thus far. This is because in this case the use of the verb *nage-komu* doesn't seem problematic at all, as well as the case (18), and this time the positive reason for the use of the verb *suteru* is not found, that is, there are no words which frequently collocate with the verb such as *hi* in the case of (18).

This fact leads to the conclusion that there is *no sentential* reason for the use of those verbs. However, if we take any larger unit into account, a certain kind of preference would be found. That is, there may be a *contextual* reason for using them.

In (19), the sentence continues as follows:

(25) ... sudeni 7000 pondo ijou no o-kane wo tsuka-tte-shima-tte-ru kara naa.
already 7000 pound more-than GEN money ACC will-have-spent because
"... because (he) will have already spent more than 7000 pounds of money."
(... *more than seven thousand pounds would have been spent!*)

Here, the verb phrase "tsuka-tte-sahima-tte-ru [will-have-spent]" should be noticed. The core verb *tsukaw* "to spend/use" here denotes "to exhaust seven thousand pounds of money," and the phrase *-tte-shimatte-(i)ru* "(will) have V-$_{p.p.}$" denotes *perfect aspect*, with the implication of regret. The phrase "-naku-ta-tte [even if not]" in (19) should also be noticed. It comprises a negative concessive clause *(X ga) (Y wo) V-naku-ta-tte* "even if *X* doesn't *V* (*Y*)." These two phrases are integrated into the sentence which denotes the expectation that regrettably, seven thousand pounds of money is bound to disappear, whether it is thrown away into the sea or not.

In this context, therefore, a verb which fills the slot *V* in *(X ga) (Y wo) V-naku-ta-tte* should imply that something, which is represented by the noun in the slot *Y*, is bound to leave the hands of its original possessor. The verb *nage-komu* lacks this implication. It represents

[20] The reason why the percentage 3.6 is high enough was shown by a simplified kind of *collostructional analysis* (Stefanowitsch & Gries 2003), the details of which are omitted because of space limitations.

the whole sequence of a caused-motion scene in which someone performs an action of throwing (as "agent's action"), something goes into some place (as "object's movement in some direction"), and some kind of effect of his/her action causes its movement (as "causal link").

In contrast, the verb *suteru* "to throw away" does have this implication. The verb represents a kind of caused-motion event in which something gets away from the hands of its original possessor as "object's movement," together with someone's action (typically, throwing) and some kind of effect of his/her action on its movement.

It is probably because the verb *suteru* has this implication that it was selected as a predicate in a translation from "*X throw Y into Z.*" In other words, the occurrence context

(26) *(X ga) (Y wo) V-naku-ta-tte, ...(Z ga) (W wo) tsuka-tte-shima-tte-(i)ru*
"even if *X* doesn't *V* (*Y*), ... *Z* will have spent *W*"

required the verb *V* to have the implication. This implication can be said to be *intentionality.*

In order to illustrate this prediction, one statistical survey was conducted, using the concordance program *GugleFormatter2.4* (Sato 2007), by which one can concord the web documents gained through the search engine *Google* (it can be used on the website: http://sato.fm.senshu-u.ac.jp/_web/gugleFormatter/). The result was that only 15 cases were obtained[21], and there were no cases which include the verb *suteru.* The most frequent verb which occurred at the slot *V* is *tsuka(w)u* "to spend/use." The total number of the occurrence of it is 4, which accounted for about 26.7%. Moreover, in the context (26) we found not only the kind of verb which has the implication in question, but also other kinds of verbs which lack the implication, such as *yomu* "to read" or *ishiki-suru* "to be conscious of."

Therefore, we need to modify the prediction as follows:

(27) the occurrence context (26) requires a verb *V* in (26) to have the implication, if both the noun *Y* and *W* denote the same kind of things.

In (19), the noun which fills the slot *X* was "satsu-taba [a roll of notes]" and in (25), what fills the slot *W* was "7000 pondo ijou no okane [more than 7000 pounds of money]." Both denote

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[21] Since no data were obtained when the same context as (26) was searched, what was actually searched is *(X ga) (Y wo) V-na-ku-te mo, ...(Z ga) (W wo) tsuka-tte-shima-tte*, the context whose meaning is extremely similar to (26) (English version is not displayed here because it is translated in to English in the same way as (26)).

something related to *money*, specifically, bills and money itself, respectively. In the cases which didn't contain a verb without the implication, the nouns at *Y* and *W* did not denote the same kind of things. Meanwhile, in the cases where the verb *tsuka(w)u* "to spend/use," which occurred most frequently in the context (26), was at the slot *V*, *Y* and *W* did denote the same kind of things, or, occasionally, they even co-referred the very same thing. Actually the verb *tsuka(w)u* has the implication that something is bound to leave the hands of its original possessor. That is, if one *spends* or *uses* something, it will leave his/her hands.

With the modified prediction (27), the collocational condition in which typical *nage-komu* is not employed as a predicate in a translation from "*X throw Y into Z*" is clarified and the reason for the use of another verb, *suteru*, can be explained. After all, it can be said that LCI in target language is likely to be the "key factor" which decides the form of target text.

6. Conclusion

From the above discussions, this paper presents a new model of the translation process, which assumes that

(28) translation is performed by means of the lexical items gained by BLN and of LCI in target language associated by those items.

This idea is, in fact, quite compatible with the view of language embodied by *Dependency Grammar* or *Word Grammar* (Hudson 1984, 1991, 2007; Kuroda 2000, 2001), and is utilized as a lexical-selection system in the field of *Machine Translation* (Nobiyama 1991). Therefore, it can be said that this model embodies a valid view of language and is highly applicable for practical purposes.

However, there remain some issues. First, the amount of statistical data was not large enough to illustrate the validity of collocational analysis. In order to attain this goal, it is necessary that preference for one word to another should be shown by the statistical analysis using Japanese corpus.

Second, throughout this paper, discussions have been made only in terms of LCI, but not in terms of BLN. What should be conducted are a statistical research of bilingual dictionaries and a questionnaire targeting Japanese informants in which informants are asked which Japanese word or word cluster is appropriate as a translation from English word or word cluster.

Thirdly and most importantly, in order to reveal the cognitive process of translation, analysing translated texts, which is the result from the translation process, cannot help but have limitations. Therefore, to go beyond this limitation, some sort of psychological experimentation is needed.

In spite of these problems, though, the way to solve each of issues is also displayed. Therefore, they are not the real problems; the solution is only a matter of time.

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