Cognitive Domains and Prototypes in Constructions

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1. Introduction

Cognitive Domains and Prototypes in Constructions by Haruhiko Murao is the published version of his doctoral dissertation submitted to Kyushu University in 2006. The ultimate goal of the book's framework is to be able to explain why comparable constructions in different languages do not always map onto one another, even though they are regarded as roughly equivalent. Murao's central concern is to discern why some types of constructions that have been called resultatives are possible in Japanese but not in English and vice versa. Murao observes that these questions have been largely left unsolved in previous studies, mainly due to lack of an adequate framework for proper analysis and assessment of relations between verbs and constructions. Thus Murao proposes a framework designed to account for what motivates particular types of verbs to appear in a given construction in particular languages within the paradigm of Cognitive Grammar (CG) (Langacker (1987, 1991, 1999, 2008)).

As premised in CG, linguistic meaning is a function of both the conceptual content evoked and the construal imposed on that content. As a verb accordingly can be used in a variety of ways depending on its context, one and the same verb may be placed into several different categories. Likewise, following the notion of Construction Grammar in the sense of Croft (2001), the same applies not only to verbal categories but also to constructions, which range from prototypical instantiations to peripheral members,

thus contributing to a boundary that is often not clear-cut or stable. To properly factor out the relationship between verbs and constructions as such, Murao argues that it is necessary to characterize the relationship in terms of the verb's central cognitive domains. Some cognitive domains that are regarded as relevant to constructions in the framework include notions such as telicity, punctuality, volitionality, affectedness, causality, purpose, means and manner. In the case of Japanese resultative constructions, a set of cognitive domains such as manner, purpose and causality determines the prototypical members of the verb classes that occur in them, whereas the domains involved in English resultative constructions are causality, telicity and affectedness, among which causality is the most crucial.

In order to deal with resultatives in both Japanese and English, it is also necessary for Murao's framework to be capable of capturing possible variations of constructions within and across languages by focusing on a range of prominent properties of constructions that are universal. In Murao's view, while Langacker's own model on constructions attempts to systematically accommodate a range of phenomena related to constructions, as it stands, it fails to explain what motivates and constrains the direction of extension and universal properties of constructions as well as typological variations within them. In order to overcome these drawbacks, a semantic map model developed from Croft's theoretical apparatus is utilized. In Murao's framework, discerning cognitive domains in the form of a semantic map also plays a crucial role as it contributes to illustrating the prototype of a given group of constructions and the directions of its extension in a given language. The combination enables Murao to deal with the difference in central domains between Japanese and English resultative constructions. This in turn leads him to argue that the manner or the means of an action is closely connected to the purpose and the result in Japanese, which determines the possible cluster of acceptable Japanese resultatives, while a causal relation of some sort must be warranted for English resultatives to be acceptable.

The book consists of three parts. Part I presents an overview and examination of previous studies on relations between classes of verbs and constructions and then summarizes the shortcomings of each, including Vendler (1967), Perlmutter (1978), Sorace (2000, 2004) and Murao's previous work on the subject. Some of these earlier studies take aspectual properties, unaccusativity, unergativity and transitivity of verbs into consideration in discussing their relation to the validity of constructions. Murao points out that the problems with these earlier studies cannot be solved by proposing more constraints, as to do so would produce more counterexamples. Rather

a systematic solution is called for.   In order to meet this need, the basic notions of CG are briefly introduced, including conceptual tools such as subjectification and prototype category, with which Croft's semantic map model is integrated, as Murao introduces his own framework.

Part II applies the proposed framework to the Japanese V-*te iru* construction, in order to demonstrate its descriptive advantages.   The Japanese V-*te iru* construction has been discussed in relation to the unaccusative diagnostics, which necessarily requires all the members of a verb class to have equal status, resulting in a number of unexplained counterexamples.   Murao tackles this problem by first noting that each of the four verb classes called unergative, unaccusative, ergative and accusative actually consists of a number of subtypes that can be characterized based on degrees of agentivity and telicity.   In addition, it is shown that the four types of V-*te iru* constructions, which he terms as progressive, resultative state, stative and present perfect, are all cognitively motivated and can be defined in terms of schema in that the construction profiles a stable relationship with respect to an already initiated process.

Part III first analyzes different types of Japanese and English resultative constructions, which have been treated in previous studies such as Washio (1997) and Goldberg (1995), although without an adequate framework and the necessary conceptual tools to deal with them.   At the same time, Murao demonstrates through carefully chosen examples how English and Japanese resultative constructions share causality, telicity, affectedness and volitionality as crucial cognitive domains in common.   Then Murao introduces his main argument that for the English resultative the most crucial is causality, while the central cognitive domain in the Japanese resultative is purpose, which is closely related to means and manner.   Because of this difference, he is able to explain the observable differences between the English and Japanese resultative constructions, especially in terms of the directionality of their extensions, which arises due to the difference of the central cognitive domains.

My review of Murao centers on delineating the significance of his framework and his exploration into the English and Japanese resultative constructions, precisely because this approach, I believe, best illustrates the value and the advantage of Murao's work over other major studies in the literature.   It also highlights Murao's remarkable contribution to the study of the relationship between verbs and constructions in general.   Finally, some comments on the overall arguments will follow.

2. Zooming in on Murao's Proposal

In order to shed light on the most notable feature of Murao's framework, it may be helpful to note some other relevant studies. Murao himself also offers a detailed account to achieve the same purpose in the course of the book. Until Takami and Kuno (2002) and Kuno and Takami (2004) clearly showed its inadequacy, the unaccusative vs. unergative distinction pertaining to intransitive verbs attracted many researchers including Levin and Rappaport Hovav (1995), who argued that this distinction can account for the acceptability of many constructions. The English resultative construction was considered to allow only unaccusative verbs (typically referring to predicates whose subjects are semantically patients) and transitive verbs, while not permitting unergative verbs (referring mainly to predicates describing volitional acts) (Levin and Rappaport Hovav (1995)).

(1) a. The pond *froze* solid.   <unaccusative>

(Kuno and Takami (2004: 195))

  b. Mary *painted* the shed green. <transitive>   (ibid.)

  c. *Dora *shouted* hoarse.   <unergative>   (ibid.)

However, later such restrictions were withdrawn in the face of readily available counterexamples. For example, (2) below is acceptable, though the verb *wiggle* is categorized as unergative as it denotes a volitional action.

(2) I can pick Stormy up, but she *wiggles* free immediately.

Closely examining eight other different constructions including *There*-constructions, *Way* Constructions and Cognate Object Constructions in addition to the resultative construction, Takami and Kuno (2002) succeed in showing that the compatibility between verbs and constructions cannot be accounted for in terms of an unaccusative/unergative dichotomy and instead propose individual functional constraints for each construction, claiming the need to resort to semantic, discourse-based and pragmatic approaches.

While Takami and Kuno (2002) and Kuno and Takami (2004) convincingly succeed in calling into question the unaccusative/unergative dichotomy, their proposal fails to offer a solution to problems with resultatives. For example, as Takami and Kuno themselves admit, while their constraint as quoted in (3) explains the type of resultatives that Japanese and English share, what Murao calls the weak resultative, it does not explain many others.

(3) Resultatives are acceptable in Japanese and English, if a resultant state described by the resultative predicate is predicted by the verb itself.

Their hypothesis cannot readily explain, for instance, why a resultative ex-

emplified in (4a) is possible in English but not in Japanese as in (4b), as the runner's shoes being worn out may not necessarily be a predictable result of running itself.

(4) a. The joggers ran their Nikes threadbare.
     b. *Jogging-sha-wa Naiki-o   boroboro-ni hashitta.
         Jogger-Top   Nike-Acc   threadbare   run-Past.
         'The joggers ran their Nikes threadbare.'

                                        (Takami and Kuno (2002: 384))

On the other hand, while the type of resultatives with a creation verb in Japanese including (5a) is found to be acceptable, its English counterpart exemplified in (5b) is not, despite the general observation that English allows a broader range of resultatives than Japanese.

(5) a. Okasan-ga   gohan-o   oishiku   tai-ta.
         Mother-Nom   cooked rice-Acc delicious   cook-Past.
         'Mother cooked rice and it was delicious.'

                                        (Murao (2009: 192)

     b. *Mother cooked rice delicious.   (ibid.)

As the event of 'cooking rice' does not necessarily result in delicious (cooked) rice, Takami and Kuno's constraint is untenable in dealing with the case exemplified above.

One might consider (5a) as being outside the coverage of the constraint shown in (3), because the proposition introduced by the *if*-clause can be understood merely as a sufficient condition to predict the acceptability and has nothing to do with the acceptability of (4a, b) and (5a, b). However, interpreting the constraint this way may also lead us to question its significance as it describes only some limited cases of the type of resultative constructions possible in both Japanese and English. This may also depend, however, on what 'predict' really means in the phrase, which perhaps requires further elaboration.

In addition, the constraint above also fails to properly explicate why there are some types of Japanese and English resultatives whose acceptabilities clearly differ.

(6) a. The lecturer talked himself hoarse.
     b. *The old man fell himself dead.
(7) a. Taro-wa   kuruma-o bokoboko-ni ket-ta.
                                    (Kusayama and Ichinohe (2005:177))
         Taro-Top car-Acc   full of holes kick-Past
         'Taro kicked the car and it got full of holes.'

                              (gloss and translation from Murao (2009: 191))

   b. *Taro-wa   Bob-o   azadarake-ni   ket-ta.
       Taro-Top Bob-Acc black and blue kick-Past
     ?'Taro kicked Bob black and blue.'   (Murao (2009: 150))

The subject's hoarse voice and death may not necessarily be predictable from their act of talking and falling. Kicking something or somebody does not always cause the object to be full of dents and holes or the person to have bruises all over. Yet, in both cases, the first situation may be encoded into an acceptable resultative while the second situation may not.

Murao's proposal addresses all of these points and this is precisely where its significance manifests itself. In a nutshell, Murao claims that English does not allow resultatives unless a causal relation between the verb and the secondary predicate is warranted either semantically or pragmatically, while Japanese does not allow resultatives unless they suggest a manner oriented means-purpose relation. It is therefore the causal relationship that makes (4a) and (6a) possible, as running can cause the runner's shoes to wear out and talking can cause one's voice to become hoarse. In contrast, (5b) and (6b) are unacceptable because no causal connection is observable between cooking itself and delicious rice nor is there a strong connection between falling and death.

Japanese examples (4b) and (5a) above can be explained in the following way. The former is unacceptable primarily because we normally do not regard running as a means to make shoes threadbare. The latter, (5a), is an acceptable resultative because it primarily encodes that delicious rice was produced as the result of a particular manner of cooking. As rice has to be cooked in a particular way to make it delicious, the manner is important to achieve this goal as well as to produce the intended result. This whole situation is exactly what (5a) encodes. The unacceptability of (5b) can be explained in terms of the lack of perceivable inherent causal relation between cooking itself and delicious rice. It is also attributable to the inherent nature of central domains involving English resultative constructions, which have little to do with manner.

Also, although Murao himself (2009: 200–201) explains (7b) differently, as it is merely used to introduce an illustration of a non-basic schema, I feel that the example actually confirms Murao's basic observation. At the same time, the ability to explain the difference between (7a) and (7b) is noteworthy. It seems that this is due to the mimetic adverbial *bokoboko-ni* 'full of holes + into,' which strongly invokes a particular manner of kicking most likely to produce the resultative state, making (7a) acceptable. It also suggests the sound of metal-battering created by the action. On the

other hand, the phrase *azadarake-ni* 'having bruises all over + into' only encodes the resultative state of Jiro and has nothing to do with the manner of the action. The difference in acceptability itself between them is already observed in Kusayama and Ichinohe (2005). They go so far as to note that the manner needs to be controlled to achieve the purpose, as (7a) would be odd if the subject is replaced with *uma* 'a horse,' (Kusayama and Ichinohe (2005: 181)) since the manner is unlikely to be controlled by a horse. They fail, however, to provide an explanation that motivates the difference, precisely because the explanation requires a new framework such as Murao's.

   Although Murao's claim might appear to be just another novel constraint that governs the phenomena in question, the difference between his approach and other prior ones is certainly not insignificant. For one thing, to ground the claim requires a drastic shift in dealing with verbs and constructions in different languages, for which the whole framework he has built in the preceding chapters is necessary. Discovering the differing domains obviates the need for case-by-case remedies to accommodate the obstacles of newly-found counterexamples, even though they themselves may be meaningful in many ways. To understand how wide-ranging Murao's claims are, note that one central notion behind Murao's claims is that, although many scholars consider the resultatives exemplified in (8a) and (8b) typical and basic both in Japanese and English, and conceptually the same as well, they are in fact different, due to the difference in primary cognitive domains on which they are based.

   (8) a. John-ga   kabe-o   kiiroku nut-ta.
            John-Nom   wall-Acc   yellow   paint-Past.
            'John painted the wall yellow.'
       b. John painted the wall yellow.

Murao argues that (8a) in fact forms the most peripheral pattern among the constellations of Japanese resultative constructions, while (8b) is central in English resultative constructions involving causation. (8a) happens to be a well-formed resultative in Japanese, but this is not because it involves simple causation but because the wall-painting must have been undertaken with the purpose of making it yellow.

   This difference restricts the possible range of construction types available in the two languages. Murao categorizes English resultatives into four types. (8b) is categorized as Basic Resultative (e.g. *John broke the door open*.) and characterized as the most prototypical. Three others that are less typical are Non-Basic Transitive Resultative (e.g. *John hammered the metal*

flat.), Intransitive Resultative 1 (e.g. *I danced myself tired*.) and Intransitive Resultaive 2 (e.g. *The joggers ran the pavement thin*.), the last being the most distant from the prototype. All of these, however, are demonstrated to involve causality as it is conceptually based as its source model on the *make*-causative and the particle construction, i.e. [X make Y AP], which actually occurs far more frequently than resultatives in speech.

On the other hand, Japanese resultative constructions are strongly purpose-manner oriented as they are analogous to adverbial constructions in their basic semantic structure. Note that the same adverb *chiisaku*, which encodes the manner of the action in (9a), encodes the resultative state of the action in (9b).

(9) a. Taro-wa hata-o *chiisaku* fut-ta. (chiisaku: Adverbial)

(Yazawa (2000: 227))

Taro-Top flag-Acc little wave-Past.

'Taro gave a little wave of a flag.'

b. Taro-wa hata-o *chiisaku* tatan-da. (chiisaku: Resultative)

(ibid.)

Taro-Top flag-Acc compact fold-Past.

'Taro folded up the flag and it became compact.'

Furthermore, there are some cases which are ambiguous as to whether they are resultative or adverbial as in (10).

(10) Taro-wa hata-o takaku age-ta. (Nitta (1997: 268))

Taro-Top flag-Acc high raise-Past.

'Taro hoisted a flag aloft.'

(gloss and translation from Murao (2009: 173))

In this case, Taro may have raised the flag in such a manner as to achieve his purpose of making it stay in a high position, or he may have just raised the flag and as a result it was located in a high position.

The manner or the means of an action is also closely connected to the purpose and the result in Japanese. Some resultatives such as (5a) may seem to be rare, but they are in fact very frequent, especially when they invoke a situation in which the agent seems to know a particular way to utilize his certain skills and techniques. This adds support to Murao's contention that a particular manner of the action must be used when one intends to achieve a particular purpose and the manner is considered to determine the resultant state to be accomplished in Japanese.

Figure 1 below is a semantic map giving a visual illustration of the different cognitive domains and how Japanese and English resultatives map onto those domains. It should help the reader see that the means-purpose

relation is crucial in the extensions of Japanese resultatives.

Figure 1: Integrated Semantic Map
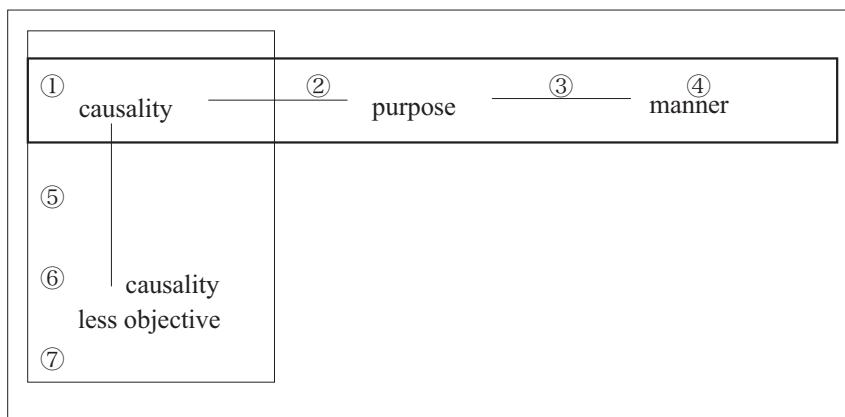
①Basic Resultative   ②Purpose Resultative 1, 2
③Purpose-manner   ④Manner
⑤Non-basic Transitive Resultative
⑥Intransitive Resultative 1   ⑦Intransitive Resultative 2

(Murao (2009: 190))

The major cognitive domains relevant to the Japanese resultatives are arranged on the horizontally placed rectangle, on which the four types are mapped. Indicated below is the correspondence between the number and the subtypes of resultative constructions. The types numbered from ① to ③ are main members of the resultative construction in Japanese and ④ is a peripheral one as it is rather the source of extension, which is a (manner) adverbial construction. Murao explains that among them the most prototypical is Purpose Resultative 2 (e.g. *John-ga kabe-o utsukushiku nut-ta*. '*John painted the wall beautiful.') where the causal relation between the action and the denoted resultative state is defocused. Extension to an example such as (7a) is possible via the means (or manner)-purpose relation between the action denoted by the verb and the resultative phrase. Purpose Resultative 1 (e.g. *Kanojo-wa kutsu o pikapika-ni migaita.* 'She polished the shoes to a brilliant shine.') invokes a causal relation, but it is much weaker than the type referred to as Basic Resultative (e.g. *John broke the door open*.), the type which Japanese and English share as represented by the two rectangles overlapping and which is the source construction in English. The vertical rectangular box indicates that the central domain of the English resultative

is causality, though the construction also involves telicity, with affectedness and punctuality being less central. Murao notes that "the Basic Resultative is the endpoint of the extension in Japanese (190)." That is why Japanese does not have types numbered from ⑤ to ⑦, Non-basic Transitive Resultative (e.g. *John hammered the metal flat*.), Intransitive Resultative 1 (e.g. *I danced myself tired*.) and Intransitive Resultative 2 (e.g. *The joggers ran the pavement thin*.), because these have nothing to do with the means-purpose relation.

3. Additional Matters

Although Murao's proposal is significant, a closer look reveals some points that require additional consideration. First of all, in order to support his central claim that the Japanese resultative is an extended use of purpose-manner constructions, which are extensions from manner-adverbial constructions, a diachronic or statistical investigation would be desirable. One would expect that more peripheral constructions would be less frequent than more central constructions, and if a significant frequency difference is indeed found between the constructions, it will provide solid evidence, provided that the problem of assembling comparative corpora can be dealt with. His recommendations for rectifying previous studies are given in a humble, self-effacing manner. I feel Murao could have profited from being more forceful in asserting his thesis. Murao's insights would be more apparent if the development of his arguments were slightly more reader-friendly and his conceptual tools were more clearly delineated. For example, while his subcategorization of unergative and unaccusative verb classes in terms of different degrees of telicity and agentivity is compelling, it might have helped the reader to follow the development of his discussion if agentivity were given a clearer description, as well as if it were discussed in relation to other categories such as volition, sentience, motion, instigation and persistence. Though Murao notes that *kuru* 'come' as in *Kare-wa kiteiru* 'He has come' invites a resultative reading rather than a progressive one because the verb's agentivity is low, we note that the agentivity may simply be neutral as the subject can often be sentient and instigate the action which also can be volitional. Also, considering that the reader may not necessarily be familiar with Japanese, it might be helpful to add an explanation for the Japanese *V-te iru* construction classified as having a present perfect. For example, the construction is different from the English present perfect as it can co-occur with a past time adverbial as in *Kare-wa 20 nenmae-ni kokoni*

kiteiru 'lit. *He has come 20 years ago.'   This type also evokes a special context in which the speaker is referring to or presenting evidence of the occurrence of the action denoted by the verb stem or *-te* marked verb.   This case is argued by Murao to be the most grammaticalized since the persisting relationship is attenuated.   However, an alternative analysis may be quite possible since we might say that also in this case it is the resultative situation that still persists, as it pertains to the existence of the evidence, which is profiled by this construction.

In addition, as Murao himself mentions in the last paragraph of the book, examination of a broader range of not only resultatives but also other constructions or resultatives over a wider range of languages would be desirable, as his model is presented as a framework to discern both universal and language-specific properties concerning the relationship between verbs and constructions in general.   Murao himself calls his project "the first step."   The step is by no means small.   However, to achieve his stated purpose will require delineating how we can find the kernel or prototypical property of the construction in question to attract other researchers' attention so that they can use their own insights in utilizing his model.

4.   Conclusion

Although many questions still remain to be answered, it is certain that Murao's proposal leaves the door open for further research as it marks an important first step.   Since it seems to require special insight in order to discern prototypical cognitive domains that determine the types of verbs that can occur in a given construction, discerning an objective way to reconcile the problems in describing the relationship between verbs and constructions also seems a large task.   There is no doubt, however, that Murao's approach will contribute to our understanding of the relationship between verbs and constructions within and across languages.   The significance of Murao's framework manifests itself in his case studies, particularly in describing the inherent difference between clusters of the Japanese and English resultative constructions.   His analysis and approach should also provide a firm basis for further investigations.

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