A cognitive analysis of English cognate objects[1]

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Abstract

In this paper, from the perspective of Cognitive Grammar, we consider the question of what kind of verbs can take cognate objects (COs) and what kind of verbs cannot. We investigate the syntactic properties of COs, such as the ability to take modifiers, the passivizability of cognate object constructions (COCs), and the *it*-pronominalization of COs. It is our contention that a detailed classification of verbs that occur in COCs is required in order to capture the relation between the syntactic properties and the modification of COs. While classifying verbs, we focus on three conceptual factors: the force of energy of the subject, a change of state of the subject, and the objectivity of the cognate noun. The study reveals that these three parameters enable us to capture the difference in the interpretation of COs in relation to modification and syntactic tests.

1. Introduction

This paper addresses the question of what kind of verbs can take cognate objects (COs) and what kind of verbs cannot. Furthermore, this paper investigates the syntactic properties of COs, such as the ability to take modifiers, the passivizability of cognate object constructions (COCs), and the *it*-pronominalization of COs. We provide a classification of verbs that occur in COCs on the basis of conceptual factors and demonstrate that our approach can capture the relation between the syntactic properties and the modification of COs.

A COC is presented in the following examples:

(1a) John smiled a happy smile.
(1b) Bob slept a sound sleep.

[1] I am very grateful to the two anonymous reviewers and the editor of *Constructions* for their numerous, invaluable comments and suggestions. Any remaining errors are, of course, my own.

As can be observed in (1), intransitive verbs take COs whose head nouns are morphologically related. In this paper, we consider a CO as that wherein the head noun is etymologically related to the verb.

Our approach is in accordance with the Cognitive Grammar approach advocated by Langacker (1987, 1990, 1991, 1999). In the present paper, we provide the conceptual structures of verbs that are related to COCs, while maintaining that it is important to take into consideration encyclopedic knowledge associated with verbs.

The structure of this article is as follows. In section 2, we offer an overview of previous studies, focusing on the issue of verbs that can appear in a COC. Section 3 introduces the theoretical assumptions of this paper. In section 4, we consider the syntactic properties of COCs, while section 5 contains a classification of verbs that appear in COCs on a conceptual basis. In section 6, we show that the classification of verbs presented in section 5 adequately deals with variation in the acceptability of various data. The final section, section 7, presents concluding remarks.[2]

2. Previous analyses

It has been claimed in the literature that only the so-called unergative verbs can appear in COCs (Levin & Rappaport Hovav 1995: 148; Massam 1990; Omuro 1990; Keyser & Roeper 1984). The unergative/unaccusative distinction among intransitive verbs was first proposed by Perlmutter (1978); this distinction was based on the differences in the semantic roles of the verbs' subjects within the framework of Relational Grammar. In this paper, we classify intransitive verbs into unergative or unaccusative verbs on a conceptual basis; unergative verbs describe a participant as both a source and simultaneously an energy sink, while unaccusative verbs declare that a

[2] In this paper, unless the references have been specified, the acceptability of sentences is based on the judgments of native speakers. Since a COC is a marked construction, these judgments are occasionally somewhat subtle.

participant does not exert energy but changes its state.[3] We provide the conceptual structures of unergative and unaccusative verbs in 5.2 and 5.3, respectively. Unergative and unaccusative verbs are shown in (2) and (3), respectively, as follows:

(2a) John laughed a hearty laugh.
(2b) Bill sighed a weary sigh.
(Jones 1988: 89)

(3a) *The glass broke a crooked break.
(Levin & Rappaport Hovav 1995: 40)
(3b) *The ship sank a strange sinking.
(Keyser & Roeper 1984: 404)
(3c) *The actress fainted a feigned faint.
(Levin & Rappaport Hovav 1995: 40)

On the one hand, the verbs *laugh* and *sigh* in (2a, b) and *smile* and *sleep* in (1a, b) are unergative, and the examples presented in (1, 2) are all acceptable. On the other hand, the verbs *break*, *sink*, and *faint* in (3a–c) are unaccusative, and all the examples presented in (3) are unacceptable.[4] Many researchers (Levin & Rappaport Hovav 1995: 148; Massam 1990; Omuro 1990; Keyser & Roeper 1984) argue that only unergative verbs can appear in COCs. In the generative grammar approach, the properties of verbs that appear in COCs have been captured in terms of Case Theory. Although a COC may include an intransitive verb, a CO is assigned accusative Case in accordance with Burzio's generalization, because the subjects of unergative verbs occupy the specifier position of IP throughout the derivation and are assigned θ-roles.[5] In

[3] Based on our definition of unergative and unaccusative verbs, the former prototypically indicate a volitional event of their subject, while the latter do not.

[4] One might wonder whether the verb *faint* is an unaccusative verb. Based on our definition of unaccusative verbs, it is categorized as an unaccusative verb because it does not describe a participant as exerting energy.

[5] Burzio's generalization is as follows:

(i) Burzio's Generalization
All and only the verbs that can assign θ-roles to the subject can assign accusative Case to an object.
(Burzio 1986: 178)

contrast, if the sentence includes an unaccusative verb, it does not form a COC. Since the subjects of unaccusative verbs occupy the object position at D-structure and move to the specifier position of IP at underlying structure, the object cannot receive accusative Case because its subject is not assigned a θ-role.

Kuno and Takami (2004), however, provide a number of examples that include unaccusative verbs in a COC and argue that it would be incorrect to impose the unergative restriction on the COC:[6]

(4a) The tree grew a century's growth within only ten years.
(4b) ✓/?The gale blew its hardest blow yet in the next hour.
(4c) The stock market dropped its largest drop in three years today.
(4d) The stock market slid a surprising 2% slide today.
(4e) Stanley watched as the ball bounced a funny little bounce right into the shortstop's glove.
(4f) The apples fell just a short fall to the lower deck, and so were not too badly bruised.
(Kuno & Takami 2004: 116)

The verbs *grow*, *blow*, *drop*, *slide*, *bounce*, and *fall* in (4) are all considered to be unaccusative verbs because the subjects of these verbs do not exert energy and therefore do not have volition. Based on examples such as (4), Kuno and Takami (2004) reject the distinction between unergative and unaccusative verbs, proposing that "the intransitive verb must represent an activity or event involving a temporal process" (ibid: 129) in the COC. In contrast to their claim, however, our argument is that it would still be meaningful to distinguish between unergative and unaccusative verbs in a COC, because of the following two reasons. First, the modification of COs is different for unergative and unaccusative verbs, as seen in the contrast between (5) and (6):

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[6] The symbol "✓" means that a sentence is acceptable, which is based on Kuno and Takami's (2004: 116) notation.

(5a) The wolf howled a long howl.
(Kuno & Takami 2004: 105)
(5b) Bob grinned a sideways grin.
(Horita 1996: 224)
(5c) John ran a smooth run.

(6a) *The apples fell a smooth fall.
(Levin & Rappaport Hovav 1995: 148)
(6b) ??The apples fell a short fall.
(6c) The apples fell just a short fall to the lower deck, and so were not too badly bruised.
(Kuno & Takami 2004: 124)

While the adjectives *long*, *sideways*, and *smooth* in (5a–c) modify each cognate noun and are acceptable in the COCs with the unergative verbs *howl*, *grin*, and *run*, respectively, the adjectives *smooth* and *short* in (6a, b) modify cognate nouns; further, the former is unacceptable and the latter is marginal in the COC with the unaccusative verb *fall*. There is no restriction in the modification of COs in the COCs with unergative verbs, unless the adjectives conflict with COs semantically; however, there is such a restriction in the case of unaccusative verbs.[7]

The second reason for the need to distinguish between unergative and unaccusative verbs is that while the COCs with unergative verbs can be passivized, those with unaccusative verbs cannot, which is evident in the following examples:

(7a) The blood-curdling scream that they had all heard in countless horror movies was screamed by one of the campers.
(Langacker 1991: 363)
(7b) The grin that means "I've got more work for you" was just grinned by my boss.
(Rice 1987: 216)

(8a) *A blush of anger was blushed.
(8b) *A surprising 2% slide was slid today.

[7] Among unaccusative verbs, only the COC with the verb *die* has no restriction in modification. We should treat it differently because the CO of the verb *die* indicates the manner, not the resultant state, denoted by the verb.

(Kuno & Takami 2004: 133)

While the passive sentences with the unergative verbs *scream* and *grin* in (7) are acceptable, those with the unaccusative verbs *blush* and *slide* in (8) are unacceptable.[8] As seen in the above observation, there is a difference in acceptability between COCs with unergative verbs and those with unaccusative verbs; therefore, it is necessary to distinguish between the two verb classes.[9, 10]

Within the framework of Cognitive Grammar, Horita (1996) mentions that COCs prototypically take unergative verbs and illustrates the parallelism of construal between an adjective modifying a CO and an adverb modifying a verb. She proposes that a COC can be diagrammatically depicted as in Figure 1:

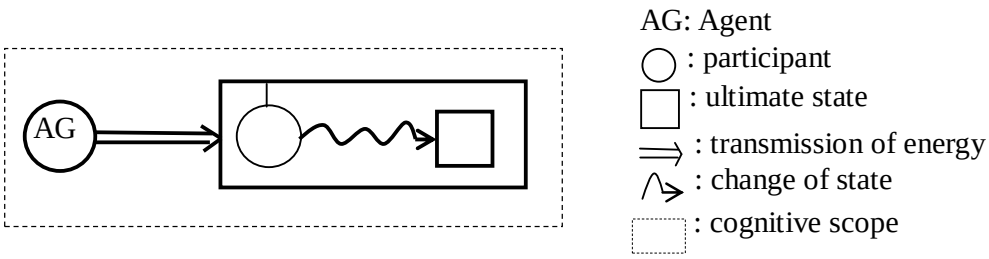


Figure 1. The Cognate Object Construction (Horita 1996: 237)

[8] Although Kuno and Takami (2004) and many other researchers consider the verb *blush* as unaccusative, we maintain that it is at an intermediate position between unergative and unaccusative verbs.

[9] It is important to note that we do not argue that all unergative verbs can appear in COCs, as seen in (i):

(ia) *John ambled a gentle amble.
(ib) *John strolled a gentle stroll.

Although both *amble* and *stroll* in (ia) and (ib), respectively, are considered to be unergative verbs, they cannot appear in COCs. As for the verbs that are related to the meaning of 'walking', it appears that only *walk* can appear in COCs. The reason is that both *gentle amble* and *gentle stroll* do not represent the resultant state denoted by the verb, because the verbs *amble* and *stroll* only foreground manner.

[10] Nakajima and Ikeuchi (2005) and Nakajima (2006) defend the Unaccusative Hypothesis and argue that the COs with unaccusative verbs occur in adjunct position. Moreover, they claim that the COs with unergative verbs occur in object position or adjunct position. Although we agree with their claim in that the COs with unergative verbs are ambiguous between the result interpretation and the adverbial interpretation, in a subsequent section of this paper, we have pointed out that a CO can be also interpreted as a *thing*, depending on the modification.

Figure 1 shows the cognitive structure of a COC, which is based on Langacker's (1991) action chain and Croft's (1990) causal chain.[11] This figure indicates that the subject (Agent) transmits energy to itself, which corresponds with a process or event. The subject causes itself to change its state. Figure 1 motivates the employment of unergative verbs in both the COC and its transitive form. It can also capture the resultant state of the CO because it is parallel to the figure of the resultative construction.

While Figure 1 explains some characteristics of a COC, it is unclear whether it is appropriate to assume that the participant (Agent), which is a CO, corresponds to an event that involves receiving energy. Moreover, Horita presents her cognitive structure of a COC with a type reading (Horita 1996:240), in which the participants are profiled, not a process. We wonder whether this structure is appropriate because the profiled elements generally correspond to the participants in the event. While her proposed structure comprises three profiled elements including the ultimate state, the COC comprises two participants. Although Horita's proposals are insightful and we agree with the majority of her analysis, it is crucial to describe unergative verbs in fine detail in order to capture the syntactic properties of COCs.[12]

3. Theoretical assumptions

This paper is mainly based on the tenets of Cognitive Grammar (Langacker 1987, 1991, 1999). Cognitive Grammar assumes that the nature of language is a symbolic structure constituted of form and meaning and maintains that lexicon and grammar form a continuum. According to this theory, the grammar of a language is characterized as "a structured inventory of conventional linguistic units" (Langacker 1987: 57). In this paper, we would like to argue that we must take the

[11] Nakamura (1993) integrates Croft's (1990) causal chain model into Langacker's (1991) action chain model, and Horita employs this integrated model.

[12] Horita (2005) focuses on the modification of the CO and presents the network of verbs which appear in the COC. However, we still do not concur with her cognitive structure of a COC.

meanings of both verbs and constructions into consideration in order to capture the properties of COCs.

The Cognitive Grammar methodology pertinent to our discussion involves the description of the cognitive structure of a COC. By employing this methodology, we can capture the properties of the verbs appearing in COCs. Langacker makes the important point that it is necessary to refer to background knowledge in order to construe linguistic expressions, as seen in Fillmore's Frame Semantics. In a subsequent section of this paper, we have proposed cognitive structures of verbs that include frame semantic meanings, that is, they refer to a frame rich with world and cultural knowledge.[13] In this paper, we will show that the *it*-pronominalization test is related to the background knowledge regarding a cognate noun, for example, *smile* or *laugh* is not separable from the subject. This knowledge is evoked by the verb or by the nature of the nominal referents. It should be noted at this point that the lexical meaning and encyclopedic knowledge form a continuum.

According to Langacker, a "construction is defined as either an expression (of any size), or else a schema abstracted from expressions to capture their commonality (at any level of specificity)" (Langacker 2003: 43). As held in Construction Grammar (Goldberg 1995; Michaelis & Lambrecht 1996; Fillmore, Kay & O'Connor 1998; Kay & Fillmore 1999), Langacker adopts the notion of "grammatical construction" as the basic unit of description.

Although there are differences between Langacker's Cognitive Grammar and Kay and Fillmore's or Goldberg's Construction Grammar approaches, these approaches also show some similarities. Kay and Fillmore's Construction Grammar is based on generative assumptions without redundancy, while Goldberg's Construction Grammar puts a strict restriction on "construction". However, Langacker's Cognitive Grammar does not restrict "construction" in

[13] Although Langacker calls encyclopedic knowledge structures "domains" and differentiates them from Fillmore's frame in some respects, for example, the hierarchical nature of the domain, this does not affect our discussion. The important point in this paper is that verb meanings cannot be understood independently of background knowledge.

such a way; it is a usage-based model of language. Even though we can determine such differences between the above approaches, they all regard grammar as an inventory of symbolic units.[14]

In the following section, we will discuss the central concern of this paper: how the varying syntactic characteristics of COs can be captured.

4. The varying syntactic characteristics of cognate objects

In this section, we discuss the syntactic properties of COs, focusing on their modification, the *it*-pronominalization test, and the passivization test.[15]

4.1. The modification of COs

In this subsection, we consider whether COs require modification through some sort of modifier. In the following examples, we can distinguish the COs that do not need modification from the ones that do, as follows:

(9a) John sang a song.
(9b) Mary danced a dance.

(10a) We don't live life forever.
(Macfarland (1995: 89))
(10b) They dreamed a dream.

(11a) *Tom jumped a jump.
(11b) *Tom fought a fight.
(11c) *Bob ran a run.

[14] A more detailed comparison between Construction Grammar and Cognitive Grammar is discussed by Croft and Cruse (2004: Ch. 10), Langacker (2005), Goldberg (2006: 213–217), and Evans and Green (2006: 660).

[15] A number of researches have noted the syntactic properties observed in this section (Horita 1996, 2005; Takami & Kuno 2002; Kuno & Takami 2004; Nakajima 2006, among many others). However, none of them have systematically considered all the properties seen in this section. Kuno and Takami (2004), for example, left unresolved whether verbs such as *live*, *life*, and *shriek* should not be considered as belonging to the COC.

(12a) *Mary screamed a scream.
(12b) *Mary shrieked a shriek.

(13a) *John smiled a smile.
(13b) *John laughed a laugh.

(14a) *The tree grew a growth.
(14b) *The stock market slid a slide.
(14c) *The apples fell a fall.
(14d) *She blushed a blush.
(14e) *She died a death.

As seen in (9, 10), the COs of the verbs *sing*, *dance*, *live*, and *dream* do not need modification, while the others necessarily require some sort of modification.

4.2. it-*Pronominalization*

In this subsection, let us examine the manner in which the *it*-pronominalization test depends on COs:[16]

(15a) John sang a beautiful song. He *sang it* (= the beautiful song) to cheer her up. (Kuno & Takami 2004: 132)
(15b) Mary danced a beautiful dance. She *danced it* (= the beautiful dance) to cheer him up.

(16a) He lived a happy trouble-free life. He could *live it* because his wife took care of all the difficulties. (ibid: 132)
(16b) Mary dreamed a happy dream. She *dreamed it* because she made money on the stock market.

[16] As evident below, the acceptability of the *it*-pronominalization of cognate nouns depends on modification. In this section, the adjectives that modify the CO noun are restricted to "property adjectives". The cognate noun can be modified by the adjectives that enable the construal of CO as a certain property, such as *happy*, *small*, *merry,* or *sad*. Hereafter, we will refer to them as "property adjectives". When a cognate noun takes an adjective that causes the construal of a CO as an event, such as *sudden*, *it*-pronominalization is impossible.

(17a) John jumped a tremendous 15-foot jump in the Olympic Games. He *jumped it* with such grace that I felt for a moment as if I had been watching a well-choreographed ballet scene.
(Takami & Kuno 2002:149)

(17b) Tom fought a good fight. He *fought it* (= the good fight) and defeated the opponent.

(17c) Mike ran his second run of the day along the Esplanade. He *ran it* in ten minutes, breaking his previous record by 10 seconds.
(ibid: 149)

(18a) Mary screamed a blood-curdling scream and she *screamed it* practically in my ear.
(Kuno & Takami 2004:132)

(18b) Upon hearing the news, Sue shrieked a banshee-like shriek at the top of her lungs, and I couldn't help feeling that she *shrieked it* mostly for my benefit.
(ibid: 132)

(19a) He was horrified, but he smiled a happy smile. *He *smiled it* (= the happy smile) in order to disarm the intruder.
(ibid: 132)

(19b) He laughed a hearty laugh. *He *laughed it* (= the laugh) because he was truly amused by her joke
(ibid: 132)

(20a) The tree grew a century's growth within only ten years. *It *grew it* (= the century's growth) by a new plant growth promoter.

(20b) The stock market slid a surprising 2% slide. *It *slid it* in spite of some positive signs in the airlines and technologies industries.
(ibid: 132)

(20c) The apples fell just a short fall to the lower deck, and so were not too badly bruised. *They *fell it* (= the short fall to the lower deck) by a gust of wind.

(20d) She blushed a blush of anger. *She *blushed it* in spite of her attempt to stay cool.
(ibid: 132)

(20e) He died a terrible, lingering death.*There was no reason for him to *die it* (= the death) with all the powerful painkillers we have nowadays.
(ibid: 132)

As seen in (15, 16), the cognate nouns *song*, *dance*, *life*, and *dream* can undergo *it*-pronominalization. Some native speakers of English say that the *it*-pronominalization in (17) is

marginal; however, they admit that these nouns undergo *it*-pronominalization more easily than *smile* or *laugh* in (19) and *growth*, *slide*, *fall*, and *die* in (20). As for the verbs *scream* and *shriek* in (18), they can also undergo *it*-pronominalization. From these observations, we find that the *it*-pronominalization test merely reveals that *song*, *dance*, *life*, *dream*, *jump*, *fight*, *run*, *scream*, and *shriek* are referential, while *smile*, *laugh*, *growth*, *slide*, *fall*, and *death* are not.

4.3. Passivization

Following this, we will investigate the characteristics of a passive construction of COCs. It has been pointed out that passivization is related to the transitivity of the object. According to Langacker (1999), it involves the interaction of its participants. In other words, a sentence can be passivized if the object is construed as affected.

(21a) *A song was sung* by Caruso.
(21b) *A dance was danced* by Shirley.
(Rice 1987: 214)

(22a) *Life can be lived* in many different ways.
(Kuno & Takami 2004: 133)
(22b) *A happy dream was dreamed* by Mary.

(23a) ?*The high jump that tied the U.S. record was jumped* by John.
(23b) *The good fight that everyone saw yesterday was fought* by Tom.
(23c) ?*The good run that everyone saw in the New York City Marathon last week was run* by Bob.

(24a) *The blood-curdling scream that they had all heard in countless horror movies was screamed* by one of the campers.
(Langacker 1991: 363)
(24b) The banshee-like shriek that echoed off the vault ceiling was shrieked by a mechanic responsible for performing the inspection.

(25a) And then the great mammal descended back to the ocean. In its way was the potato chip. There was a splash and there was a potato chip. *A smile was smiled* somewhere.
(Kuno & Takami 2004: 133)

(25b) *Laughs are laughed*, and some cheeks blush.
(ibid.)

(26a) **A century's growth was grown* by the tree within only ten years.
(Nakajima & Ikeuchi 2005: 187)

(26b) **A surprising 2% slide was slid* today. (= 8b)

(26c) **Just a short fall was fallen* to the lower deck by the apples.
(ibid:188)

(26d) **A blush of anger was blushed*. (= 8a)

(26e) **A natural death was died* by my grandfather.
(Horita 1996: 242)

The above examples (21–25) suggest that the COCs with unergative verbs can be passivized, although the passives with the verbs *jump* and *run* in (23a) and (23c), respectively, might be marginal with respect to their acceptability. In contrast, the COCs with unaccusative verbs cannot be passivized, as seen in (26). This suggests that the passivization test is an indicator that the COs of COCs containing unergative verbs are affected and are arguments of verbs, while those containing unaccusative verbs are adjuncts.[17]

4.4. Summary

The data that we have provided so far can be summarized as follows:[18]

[17] We can semantically define an argument and adjunct as follows: an argument is required by the verb, and an adjunct adds some information to a predication.

[18] Tables 1 and 2 are similar to those provided by Takami and Kuno (2002: 152) and Kuno and Takami (2004: 133): moreover, these researchers claim that transitive verbs and intransitive verbs form a continuum. Although we accept this point, we do not regard *run* or *jump* as true transitive verbs.

	sing, *dance*	*live*, *dream*	*jump*, *fight*, *run*	*scream, shriek*	*laugh*, *smile*
(a)	No Need	No Need	Necessary	Necessary	Necessary
(b)	Yes	Yes	Yes	Yes	No
(c)	Yes	Yes	Yes	Yes	Yes

Table 1. Unergative verbs

	blush	*grow*, *fall*	*die*
(a)	Necessary	Necessary	Necessary
(b)	No	No	No
(c)	No	No	No

Table 2. Unaccusative verbs

(a) Necessity of Modification; (b) *it*-pronominalization; (c) Passivization

In the following section, we classify the verbs appearing in COCs according to three parameters in order to capture their syntactic properties, as seen in this section.

5. Which verbs can take cognate objects and which verbs cannot

Thus far, we have observed the varying syntactic characteristics of COs. In this section, in order to capture them, we classify the verbs appearing in COCs according to three parameters – the force of energy of the subject, a change of state of the subject, and the objectivity of the cognate noun. Further, we discuss our reason for classifying verbs on the basis of these three parameters.

5.1. Three parameters

5.1.1. The force of energy of the subject

It has been claimed in the literature that unergative verbs can apparently appear in COCs. In Cognitive Grammar, the unergative/unaccusative distinction among intransitive verbs is captured in terms of the force of energy coming from the subject. Based on Langacker (1991: 245),

unergative and unaccusative verbs are diagrammatically represented in Figures 2 and 3, respectively:[19]

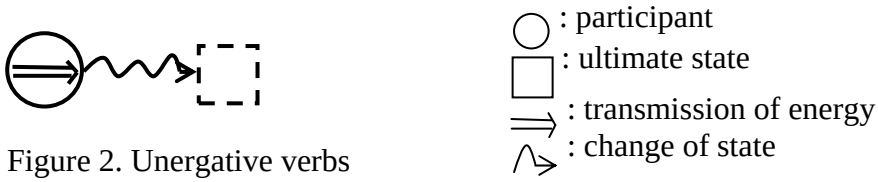


Figure 2. Unergative verbs

Figure 3. Unaccusative verbs

In Figure 2, which shows unergative verbs, a participant is not only a source of energy but also receives it simultaneously. On the other hand, in Figure 3, which shows unaccusative verbs, a subject does not exert energy but changes its state. The idea that the force of energy coming from the subject is related to the occurrence of the verb in COCs is shown in the following examples, which are repeated here:

(27a) John laughed a hearty laugh.
(27b) Bill sighed a weary sigh. (= 2)

(28a) *The glass broke a crooked break.
(28b) *The ship sank a strange sinking. (= 3)

In the verbs *laugh* and *sigh* in (27a, b), the subject exerts energy, while in the verbs *break* and *sink* in (28a, b) the subject does not. This indicates that the force of energy coming from the subject is related to the occurrence of the verb in COCs.

[19] The dashed square indicates that the verb does not conceptualize the ultimate state.

5.1.2. A change of state of the subject

This subsection is concerned with a change of state of the subject with respect to the classification of unergative verbs. It should be noted here that the notion of a change of state of the subject is used in order to classify unergative verbs, while the notion of force of energy is used to distinguish between unergative and unaccusative verbs.

As shown in Figures 2 and 3 above, unergative and unaccusative verbs include a change of state of the subject, which is depicted using a squiggly line in each figure. Since it is considered that verbs form a continuum in unergativity, all unergative verbs do not involve a change of state of the subject. For example, although the verb *sing* is an unergative verb in terms of the volitionality of the subject, the subject does not change its state. In a subsequent section, we will see that in the verb *sing*, the object is construed as affected, and therefore, it is similar to a transitive verb in terms of modification.

5.1.3. The objectivity of the cognate noun

Finally, we will consider the question of the objectivity of the cognate noun in its relation to a classification of unergative verbs. In this paper, the term objectivity is defined as follows:

(29) The cognate noun is construed as objective if the action denoted by the verb is separable, even metaphorically, from the subject.

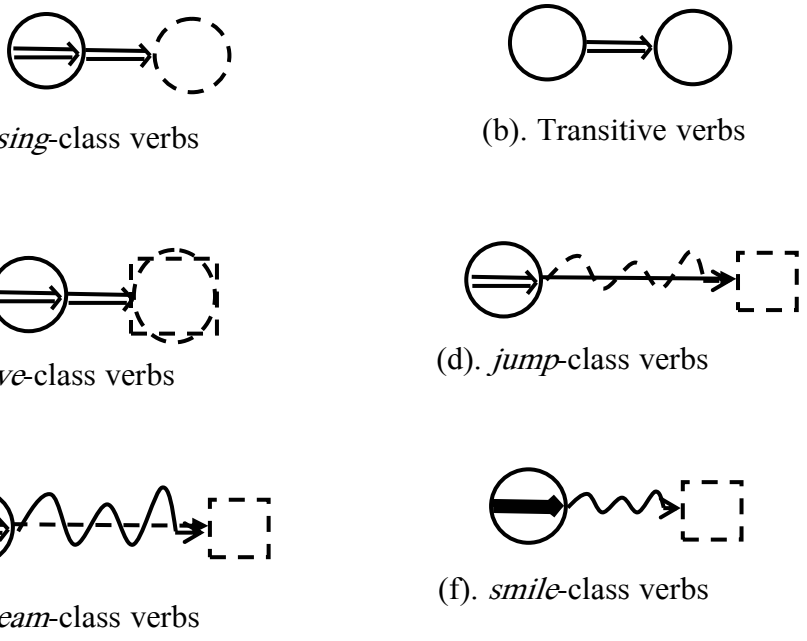
The above definition implies that a human voice, for example, can be captured by the "sound is a moving object" metaphor, and therefore, the resultant object is separable from the subject.

Based on (29), *song* is objective because it is separable from the subject. In contrast, the cognate noun *smile* is less objective because it occurs on the face of the subject and is not separable from the subject. Thus, the notion of objectivity depends on our knowledge and experience. Presently, we will see that the objectivity of the cognate noun is related to *it*-pronominalization.

5.2. A classification of unergative verbs on the basis of the parameters

Among unergative verbs, we consider the cognitive structures of *sing*, *dance*, *live*, *dream*, *jump*, *fight*, *run*, *scream*, *shriek*, *smile*, and *laugh* on the basis of a change of state of the subject and the objectivity of the cognate noun. Since unergative verbs include the force of energy of the subject, this parameter is not related to the classification of unergative verbs.[20]

First, the verbs *sing* and *dance* do not involve a change of state of the subject even though the force of energy affects it, because the cognate nouns *song* and *dance* are both independent – the state of each cannot undergo any further changes.[21] This suggests that *sing* and *dance* are similar to transitive verbs. In terms of objectivity, they are objective because they can exist independently from the subject. They can be diagrammatically represented as in Figure 4(a).



(a). *sing*-class verbs

(b). Transitive verbs

(c). *live*-class verbs

(d). *jump*-class verbs

(e). *scream*-class verbs

(f). *smile*-class verbs

Figure 4.

[20] Even though we have classified them, our assumption is that these verbs form a continuum.

[21] The noun *dance* can also be construed as a type of action depending on the modifiers, as seen in (i):

(i) John danced a happy dance.

In Figure 4(a), the dashed circle indicates a participant-like entity. Figure 4(a) shows that the subject transmits energy to itself, while its energy is transmitted to the object. With the exception of the subject's internal force, this figure is similar to Figure 4(b), which shows a prototypical transitive verb.

Second, let us consider the verbs *live* and *dream*.[22] With respect to the object status, they are located between the class of *sing* and *dance* and that of *jump*, *fight*, and *run*, which are discussed hereafter. This is because the cognate nouns *life* and *dream* can be construed as a type of action and objective; however, in this case, they are abstract things. The verbs *live* and *dream* can be depicted as in Figure 4(c), which shows that the cognate nouns *life* and *dream* can be construed as both a type of action and the ultimate state of the object, drawn by the dashed circle and square. Figure 4(c) also shows that the verbs *live* and *dream* do not involve a change of state of the subject.

Third, the verbs *fight*, *jump*, and *run* focus on the action denoted by the verbs. The verbs *jump* and *run* represent the subject's change of location. Here, based on the metaphor "change of state is change of location" (Lakoff & Johnson 1999), we have regarded this change of state to extend to a change of location. As regards the verb *fight*, we can assume that it is intermediate between the *live*-class and the *jump*-class verbs, because it involves a physical activity, although it does not conceptualize a change of location. In terms of objectivity, these verbs are objective because the action denoted by them is metaphorically separable from the subject. The *jump*-class verbs and *fight* can be drawn as in Figure 4(d). The figure shows that the subject transmits energy

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[22] One may argue that the verb *live* should be classified as an unaccusative verb in the syntactic classification of intransitive verbs, because the verb can appear in a *there*-construction, as in (i):

(i) Once there *lived* an unhappy princess.

Although *live* indicates the diagnostics of the unaccusative verb syntactically, we have categorized it as an unergative verb because our classification of verbs is performed on a conceptual basis, and the verb indicates a volitional event of its subject. Therefore, it is not a prototypical but a peripheral unergative verb.

to itself and changes its own location, which is expressed by the composition of the solid arrow and the dashed squiggly arrow.

Fourth, we will consider the verbs *scream* and *shriek*, which are categorized as verbs of manner of speaking in Levin (1993). It should be noted that since it is possible to conceptualize speech sound as a moving entity, the metaphor "change of state is change of location" becomes applicable again, although in this case, speech sound is an abstract thing.[23] This means that the verbs are objective because speech sound is separable from the subject. The *scream*-class verbs are depicted as in Figure 4(e). The figure shows that the subject transmits energy to itself and changes its location metaphorically, which is expressed by the composition of the dashed arrow and the solid squiggly arrow.

Lastly, let us consider the verbs *smile* and *laugh*. When people smile, a smile typically occurs on the face, which is a part of the body. In this sense, the cognate noun *smile* is not construed as an objective thing because it is not separable from the subject. The *smile*-class verbs are depicted as in Figure 4(f), which shows that the subject transmits energy to itself and that its state is changed. The bold arrow indicates that it is difficult to separate the action denoted by the verb from the subject.[24]

It should be noted in this case that, according to Figure 4(f), the COs involving the *smile*-verb class can be construed ambiguously between the resultant state of the action denoted by the verb and its manner, although this point depends on the kind of modifiers:

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[23] The following example (i) shows the employment of the metaphor:

(i) A scream reaches my ears.
(ii) The train reaches Tokyo Station.

In (ii), the physical movement of a thing, i.e., the train, is described, in contrast to (i).

[24] In Figure 4(e), the segment pertaining to a change of state is also depicted using a solid squiggly arrow because the segment is also included in this verb class. Since it also involves a metaphor, the degree of the change of state in the *scream*-verb class is lower than that in the *smile*-verb class.

(30a) John smiled a happy smile.
(30b) John smiled happily.

In accordance with Poutsma (1926: 76), Jespersen (1927: 234), Quirk et al. (1985: 750), Visser (1963: 412), and Kuno and Takami (2004: 119), we argue that the CO of (30a) indicates the result of the action denoted by the verb, by default, and also can be interpreted as adverbial, which makes it equivalent to the adverb *happily* in (30b).[25]

It can be observed that Figures 4(d) and 4(e), which show verbs such as *jump*, *fight*, or *run* and *scream* or *shriek*, also include the squiggly line, predicting that the COs containing these verbs can be construed as events. As predicted, when the COs are modified using the words *sudden* or *fast*, they can be interpreted as performing adverbial functions:

(31a) John ran a sudden run.
(31b) John ran suddenly.

(32a) John screamed a sudden scream.
(32b) John screamed suddenly.

In the COs of (31a) and (32a), it is difficult to get the result reading; consequently, they are interpreted as adverbial, as seen in (31b) and (32b), respectively.[26]

In this section, we have argued that the COs containing the verbs *smile* and *laugh* have low objectivity, and in 6.2, it will be shown that the low objectivity of these COs affects their *it*-pronominalization.[27]

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[25] As will be demonstrated below, our contention is that the COs of unergative verbs represent the resultant state denoted by the verb by default, while those of unaccusative verbs represent the resultant extent of the events.

[26] We will consider the adverbial interpretation of the CO in further detail in 5.5.

[27] In this subsection, we have placed the representatives of unergative verbs into several classes in terms of the three parameters, while Levin (1993: 95) classifies verbs that appear in COCs in terms of their meaning, as follows:

(ia) verbs of nonverbal expression (some): *beam*, *chuckle*, *cough*, *cry*, *frown*, *giggle*, *grimace*, *grin*, *howl* ….
(ib) *waltz* verbs: *boogie*, *bop*, *cancan*, *clog*, *conga*, *dance* ….
(ic) other verbs: *dream*, *fight*, *live*, *sing*, *sleep* ….

5.3. Unaccusative verbs that can appear in COCs

We will now discuss the cognitive structures of unaccusative verbs, which are depicted in Figure 3 and are discussed in 5.1.1, and juxtapose them with Figure 2 for contrast:

Figure 3. Unaccusative verbs

Figure 2. Unergative verbs

In Figure 3, a subject does not exert energy but changes its state. As we have seen above, unaccusative verbs such as *grow*, *drop*, or *fall* can also appear in COCs. Based on the observation of Nakajima and Ikeuchi (2005) and Nakajima (2006), we argue that unaccusative verbs such as *grow*, *drop*, or *fall* can conceptualize the resultant extent of the events because the verbs involve a certain kind of movement, and therefore, they can appear in COCs, as seen below.

Let us first consider the verb *blush*. It is controvertible whether this verb should be categorized as unergative or unaccusative, among intransitive verbs. Since we have defined unergative verbs as those in which a participant is both a source and simultaneously an energy sink in section 2, *blush* can be categorized as belonging to an intermediate position between unergative and unaccusative verbs.[28] The occurrence of this verb in the COC can be depicted as in Figure 5:

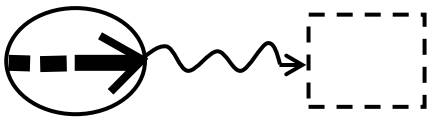


Figure 5. *blush*

According to us, the verbs in (ia) should be classified into *smile*-class verbs or *scream*-class verbs, depending on their objectivity. The important point to note is that since the categories have fuzzy boundaries, the verbs in (ia) can be classified as both *smile*-class verbs and *scream*-class verbs, based on their conceptualization.

[28] Levin and Rappaport Hovav (1995) categorize the verb *blush* as an unergative verb on the basis of syntactic tests: tests to determine whether a verb can appear in COCs and in a *way*-construction.

In the above figure, the arrow expressing the force of energy of the subject is sketched using bold dashed lines. This shows that not only does the degree of the internal force have low volitionality but the objectivity of the cognate noun is also low, because the action denoted by the verb is not separable from the subject.

Hereafter, let us consider the verb *die*, which is depicted in Figure 6, wherein the arrow expressing the subject's force of energy points to the left. This indicates that energy is lost when people die, and this energy can be regarded as a peripheral force of energy. One may wonder whether Figure 6 shows that the verb *die* does not occur in the COC, since the box showing the resultant state is not drawn using a dashed line. In other words, the figures that show unergative verbs all include boxes drawn using a dashed line, and therefore, unergative verbs can take the COs that represent the resultant state of the action denoted by the verb. It is important to note here that the CO of the verb *die* indicates a manner in which someone dies, not the resultant state, and therefore, the verb can appear in the COC despite being not categorized as an unergative verb.[29]

Figure 6. *die*

Finally, we will consider the verbs *grow*, *drop*, or *fall* in COCs. As shown above, these unaccusative verbs can appear in COCs; the pertinent sentences are repeated here for reference:

(33a) The tree grew a century's growth within only ten years.
(33b) ✓/?The gale blew its hardest blow yet in the next hour.
(33c) The stock market dropped its largest drop in three years today.
(33d) The stock market slid a surprising 2% slide today.
(33e) Stanley watched as the ball bounced a funny little bounce right into the shortstop's glove.

[29] As regards the CO's objectivity, the parameter is not applied to the CO of the verb *die* because it represents the manner and is construed as adverbial.

(33f) The apples fell just a short fall to the lower deck, and so were not too badly bruised. (= 4)

Nakajima and Ikeuchi (2005: 187) argue that the COs in (33) represent the resultant extent of the events, not the resultant state of the action denoted by the verb. This is because these COs can be replaced with other elements, as in (34); further, they can also be approximately paraphrased by employing prepositional phrases representing the resultant extent of the events, as in (35):

(34a) The tree trunk grew *a century's expansion* in only 10 years.
(34b) The stock market dropped *250 points* today.
(34c) The ball bounced *a funny little curve* right into the shortstop's glove.
(34d) The apples fell *the length of my arm*.
(Nakajima & Ikeuchi 2005: 187)

(35a) The tree trunk grew by a century's expansion in only ten years.
(35b) The stock market dropped by 250 points today.
(35c) The ball bounced with a funny little curve right into the shortstop's glove.
(35d) The apples fell {by/ to} the length of my arm.
(ibid.)

Moreover, the COs in (34) and (35) cannot be passivized, as in (36) and (37), respectively:

(36a) **A century's growth was grown* by the tree within only ten years.
(ibid.)
(36b) **The largest drop in three years was dropped* by the stock market today.
(36c) *A funny little bounce was bounced right into the shortstop's glove by the ball.
(36d) *Just a short fall was fallen* to the lower deck by the apples.
(ibid: 188)

(37a) **A century's expansion was grown* in only ten years by the tree trunk.
(37b) *250 points were dropped by the stock market today
(37c) *A funny little curve was bounced right into the shortstop's glove by the ball.
(37d) *The length of my arm was fallen by the apples.
(Nakajima & Ikeuchi 2005: 187)

On the basis of Nakajima and Ikeuchi's observations, we assume that the COs in (33) do not represent the resultant state of the action denoted by the verb but the extent of the events.

Since the verbs *grow*, *drop*, or *fall* can take objects that represent the resultant extent of the events, they are depicted as shown in Figure 7:

Figure 7. *grow*-class verb

In Figure 7, the straight arrow indicates that the movement denoted by the verb is foregrounded in the case of COCs containing the verbs *grow* or *fall*. This figure indicates that unaccusative verbs such as *freeze* or *melt* cannot occur in COCs because they do not involve the extent of the movement.[30]

Thus far, we have seen unaccusative verbs that can appear in COCs. In the following subsection, we have considered the reason why other unaccusative verbs cannot occur in COCs.

5.4. Unaccusative verbs that cannot appear in COCs

In this subsection, we investigate the properties of the unaccusative verbs that cannot appear in COCs. They are shown in the following examples:

(38a) *The glass broke a crooked break. (= 3a)
(38b) *The actress fainted a feigned faint. (= 3c)
(38c) *She arrived a glamorous arrival.
(38d) *Karen appeared a striking appearance at the department party.
(38e) *It emerged a strange emergence.
(38f) (Keyser & Roeper 1984: 404)
(38g) *The accident occurred a sudden occurrence.
(Kuno & Takami 2004: 122)

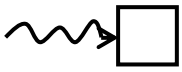
[30] As regards the objectivity of the CO, the aspect is not applied to the CO of the *grow*-class verb because it represents the resultant extent and is construed as adverbial, as shown above.

Kuno and Takami (2004: 123) point out that since the verbs *break*, *faint*, *arrive*, *appear*, *emerge*, and *occur* in (38a–f), which are classified as achievement verbs, all represent results themselves, the objects in (38a–f) represent "the results of results," which is tautological. We agree with their claim and suggest that the figures expressing these verbs include the resultant state but not the extent of the movement, as follows:[31]

(a). *break*, *faint*

(b). *arrive*

(c). *appear*, *emerge*



(d). *occur*

Figure 8.

Figure 8(a) depicts the verbs *break* and *faint* in (38a, b).[32] The diagram pertaining to the verb *arrive* in (38c) is similar to Figure 8(b), which shows the lack of a source of energy. The appearance verbs *appear* and *emerge* in (38d, e) are depicted in Figure 8(c), which shows that a participant moves from an unspecific position to a specific position. The verb *occur* in (38f) is diagrammatized in Figure 8(d). Although we can regard it as a kind of appearance verb, it does not represent movement from a certain position to another. It should be noted at this juncture that Figures 8(a–d) all include both a change of state and the ultimate state of the object. The difference between the unaccusative verbs that occur in COCs and those that do not is that the former conceptualize the extent of a certain movement and the latter do not, as seen in Figures 7

[31] A similar classification of unaccusative verbs is seen in Taniguchi (2005).

[32] One may wonder why the unaccusative verb *faint* is not depicted as in Figure 6. Our explanation for this is that in the case of *faint*, energy is not lost, although consciousness is, because a person who faints can regain consciousness.

and 8, respectively. With respect to this point, the verbs *blush* and *die* are idiosyncratic, and they occur in COCs.[33]

Kuno and Takami (2004: 124) also point out that modification is related to the acceptability status of COCs in conjunction with unaccusative verbs:

(39a) *The apples fell a smooth fall.
(39b) ??The apples fell a short fall.
(39c) The apples fell just a short fall to the lower deck, and so were not too badly bruised. (= 6)

There are differences in the acceptability status of (39a–c), despite the fact that they all include the verb *fall*. Examples (39a–c) show that when the CO represents the resultant extent of the events, *short* is more compatible with this meaning than *smooth*, which represents the manner denoted by the verb.

To summarize, we have seen that the conceptual structures proposed in this paper can explain the (non)occurrence of verbs in COCs.

5.5. The association between verbs and construction

In this subsection, we have considered the relation between conceptual structure and syntactic structure and argued that it is necessary to recognize the need for semantic compatibility between verbs and construction in order to explain what kind of verbs can occur in COCs.

We propose that each lexical meaning of a verb is associated with the constructional meaning of the COCs in which it is used, as depicted in Figure 9:

[33] The idiosyncrasy of the verb *die* is also attested by its derivational process (Kuno & Takami 2004: 124; Horita 2005: 80). According to the *OED*, in Old English, the noun *death* in the COC represented instrumental, and in Middle English, it was used with prepositions such as *in*, *on*, *with*, and *by*. The preposition *a* was originally the preposition *o* or *on* and only later became an indefinite article, as seen in present-day English.

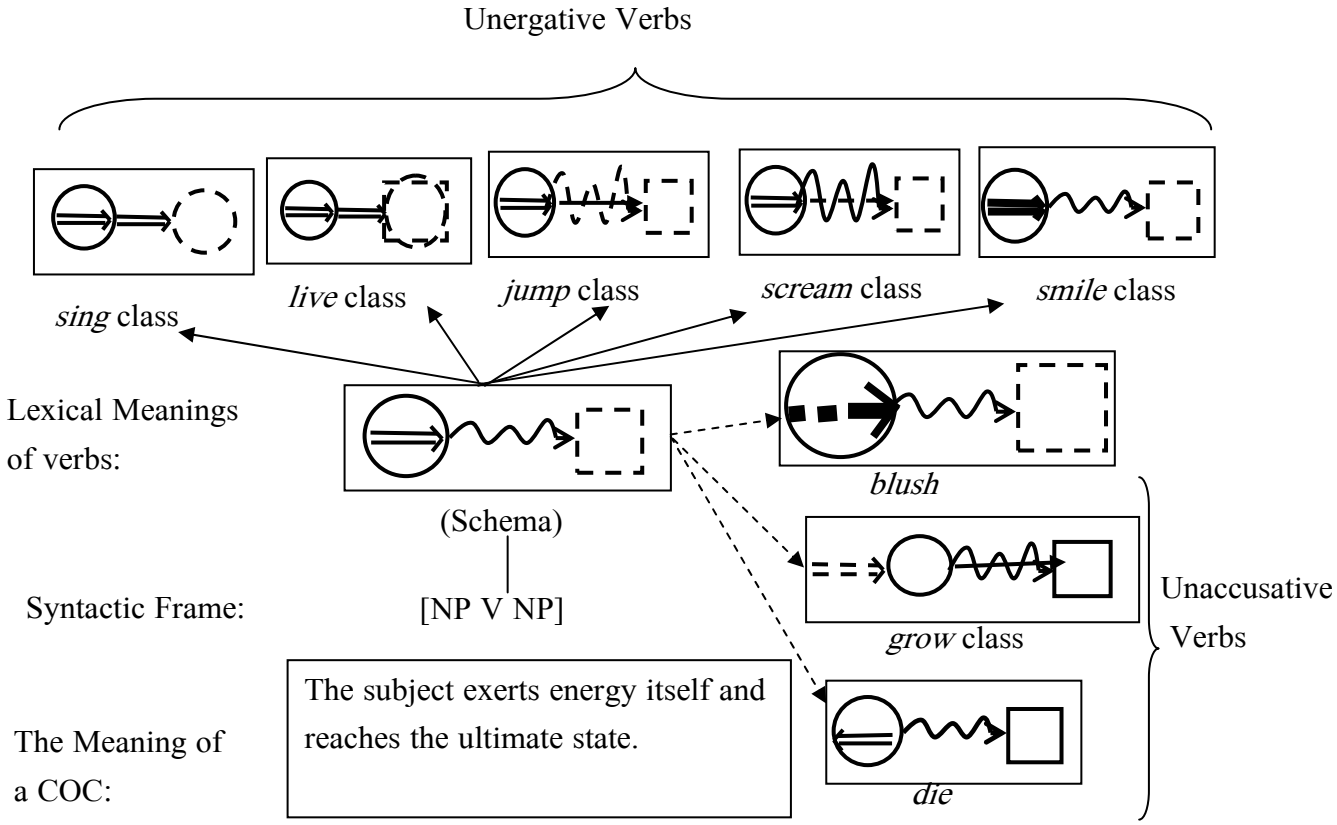


Figure 9. Linkage of lexical meaning and constructional meaning

In Figure 9, the lexical meaning of a verb is presented by showing each cognitive structure of the verb, and the schematic meaning extracted from each verb is described in the figure expressing unergative verbs. The solid arrows emerging from the schema indicate that each unergative verb instantiates the schema, while the dashed arrows indicate that the unaccusative verbs that appear in COCs are extended from the schema of unergative verbs.[34] In other words, these unaccusative verbs are partially sanctioned by the schema. The syntactic frame of COCs is expressed by [NP V NP], and it is associated with the constructional meaning of the COC. The advantage of our analysis is that we can partially predict what kind of verbs can occur in COCs;

[34] In Figure 9, the verb *blush* is categorized neither as unergative nor as unaccusative, because we consider it to be intermediate between the two categories.

in other words, if the conceptual structure of the verb includes the resultant state, which is drawn by the solid square in Figure 9, the verb cannot appear in the COC.

Although COCs are expressed using the syntactic frame [NP V NP], the CO typically requires some sort of modifier, as discussed above. First, let us consider the case in which COCs take unergative verbs, as well as when they take the verb *blush.* Since the conceptual structure of the verb includes the segments of a change of state as well as the ultimate state, it predicts that the CO can be ambiguous between the result reading and the modification reading (e.g., manner or extent). It is our view that when the adjective modifying the cognate noun can be categorized as a property adjective, such as *sad* or *happy*, its CO, by default, is likely to be interpreted as the result of the action denoted by the verb. However, when the adjective is categorized as one that causes the construal of its CO as an event, such as *sudden* or *quick*, the CO is interpreted as the manner of the event denoted by the verb. This is presented in the following examples:

(40) What sort of smile did Catherine smile?
(40a) *She smiled a sudden smile.
(40b) She smiled a thin-lipped smile.

(41) How did Catherine smile?
(41a) She smiled a sudden smile.
(41b) *She smiled a thin-lipped smile.
(Horita 1996: 238–239)

As shown by Horita (1996), when a cognate noun is modified by *sudden*, it does not appear as an appropriate reply to the question *what sort of~*, but answers the question *how*. This indicates that the CO with *sudden* is construed as adverbial.

Second, let us consider the case in which COCs take unaccusative verbs, such as *grow* or *fall*, and compare it with the verb *die*. When COCs take *grow* or *fall*, their COs represent the resultant extent of the events, as seen above. When the COC takes the verb *die*, however, the corresponding CO represents the manner in which someone dies, as seen in 5.3.

Finally, we would like to argue that it is important to take into consideration not only the meaning of a verb but also the construction in order to analyze the properties of COCs. In other words, a verb can occur in a particular syntactic frame if its meaning is compatible with the constructional meaning. This idea can capture the fact that the verbs appearing in COCs are prototypically unergative, while the COCs with unaccusative verbs are regarded as extensions. Although the CO represents the resultant state denoted by the verb by default, it can be interpreted as adverbial, based on the modification. Which interpretation can be chosen is determined by which aspect of the verb's meaning is foregrounded.

In the following section, we have demonstrated that the classification presented in this section can account for variation in the acceptability of the passive constructions of COCs and the *it*-pronominalization of COs.

6. A cognitive account of the syntactic properties of COs

Thus far, we have discussed the classification of verbs that appear in COCs with respect to their conceptual structures. In this section, we will demonstrate that the classification presented above adequately handles variation in the acceptability of various data; moreover, we will explain the manner in which the modification of the CO plays an important role in its interpretation.

The data that we have provided in section 4 and the unergative and unaccusative verbs whose properties have been discussed in section 5 are summarized in Tables 3 and 4, respectively:[35, 36]

[35] Although we consider that the verb *blush* is categorized as belonging to an intermediate position between unergative and unaccusative verbs, it is included in Table 4 for convenience.

[36] In Table 3, the *scream*-class verb includes "Change of Location (metaphorical)" in column (e) because sound is captured by the "sound is a moving object" metaphor, as seen above.

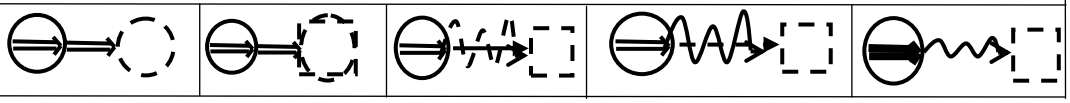
	sing, *dance*	*live*, *dream*	*jump*, *fight*, *run*	*scream, shriek*	*laugh*, *smile*
(a)	No Need	No Need	Necessary	Necessary	Necessary
(b)	Yes	Yes	Yes	Yes	No
(c)	Yes	Yes	Yes	Yes	Yes
(d)	Yes	Yes	Yes	Yes	Yes
(e)	No	No	Change of Location	Change of Location (metaphorical)	Yes
(f)	high ⟷ low				
(g)					

Table 3. Unergative verbs

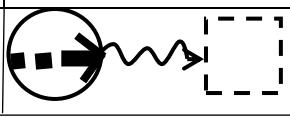
	blush	*grow*, *fall*	*die*
(a)	Necessary	Necessary	Necessary
(b)	No	No	No
(c)	No	No	No
(d)	No(but physiological)	No	No
(e)	Yes	Yes (extent)	Yes (manner)
(f)	low	low	low
(g)			

Table 4. Unaccusative Verbs

(a) Necessity of Modification; (b) *it*-pronominalization; (c) Passivization; (d) Force of Energy; (e) Change of State; (f) Objectivity

6.1. The modification of COs

First, as seen in column (a) of Table 3, the COs of the verbs *sing*, *dance*, *live*, and *dream* do not need modification, while the others necessarily require some sort of modification. It can be discerned that as mentioned in section 5, the cognate nouns *sing* and *dance* are participant-like entities, and *life* and *dream* can be construed as a type of action, although they are abstract things.

These observations suggest that if verbs conceptualize their objects as a type of action, which is depicted using circles in Figures 4(a, b), the COs do not need modification.[37]

With respect to modification, we notice that the interpretation can depend on the kind of adjective, that is, property adjectives and the adjectives that cause the CO to be construed as an event:

(42a) Susan lived a good life.
(42b) Harry lived an uneventful life.

We call adjectives such as *good* in (42a) property adjectives, while the ones such as *uneventful* in (42b) cause the CO to be construed as an event. Notice that there is a difference in the passivizability of (42):

(43a) A good life was lived by Susan.
(Rice 1988: 210)
(43b) *An uneventful life was lived by Harry.
(Jones 1988: 91)

While the passivization of a COC containing a property adjective in its CO is acceptable, that containing an adjective that causes the CO to be construed as an event is not acceptable. If the CO is construed as an event, the COC containing it tends to disallow passivization because its CO is interpreted as adverbial.

6.2. it-*Pronominalization*

Second, let us consider *it*-pronominalization. As regards unergative verbs, *smile* and *laugh* do not undergo *it*-pronominalization, as seen in column (b) of Table 3. This can be accounted for in terms of objectivity, as seen above. That is to say, since cognate nouns such as *smile* or *laugh* are not separable from the subject, the *it*-pronominalization of their COs is not possible. This is shown

[37] *Live life* in (10a) and *walk the walk* might be idiomatic.

by the bold arrow, which indicates that it is difficult to separate the action denoted by the verb from the subject. As regards unaccusative verbs, all the COs with *blush*, *growth*, *fall*, and *death* do not undergo *it*-pronominalization, as seen in column (b) of Table 4. In our approach, the CO with *blush* has a low objectivity because the action denoted by the verb is not separable from the subject, and therefore, it does not undergo *it*-pronominalization. As mentioned above, the objectivity of the CO is not applied to the COs containing the verb *die* and the *grow*-class verbs because the former represents the manner and the latter represent the resultant extent, in other words, they are construed as adverbial.

Notice here that the acceptability of *it*-pronominalization of the CO with *smile* depends on modification, as seen in (44):

(44a) He was horrified, but he smiled a happy smile. *He *smiled it* (= the happy smile) in order to disarm the intruder. (= 19a)
(44b) John smiled Tom Cruise's smile. He *smiled it* (= Tom Cruise's smile) in order to charm that woman.
(44c) John smiled a sudden smile. *He *smiled it* (= the sudden smile) in order to surprise that woman.

As discussed above, *it* in (44a) cannot refer to *the happy smile* because it is construed as an event. The same is true of (44c). On the other hand, *it* in (44b) can refer to *Tom Cruise's smile*. The difference between *a happy smile* in (44a) and *a sudden smile* in (44c) is that while the former can be construed as a type of action, the latter cannot, as mentioned above. In contrast, *Tom Cruise's smile* in (44a) can undergo *it*-pronominalization. Our view is that this is because the objectivity of the verb *smile* is heightened by *Tom Cruise*, objectivity being an important factor for *it*-pronominalization.

6.3. Passivization

As shown in column (c) of Table 3 and column (c) of Table 4, the COCs with unergative verbs can be passivized, while those with unaccusative verbs cannot be passivized. This suggests that

the passivization test shows that the COs of COCs with unergative verbs are affected and are arguments of verbs, while the ones with unaccusative verbs are adjuncts.

Thus, the passivization test can only distinguish the arguments from adjuncts with respect to the class of verbs. However, as seen above, the passivization of a COC depends on the type of adjective, and it has been repeated (45) here as follows:

(45a) A good life was lived by Susan. (= 43a)
(45b) *An uneventful life was lived by Harry. (= 43b)

This shows that the argument/adjunct distinction can depend on the type of modifiers. In (45), *a good life* can be construed as a type of action and functions as an argument of the verb, while *an uneventful life* can be construed as an event and functions as an adjunct. This suggests that it is vital to pay attention to the type of adjective, as well as the types of verbs.

In the present study, since the COs involving unaccusative verbs – with the exception of the verb *die* – represent the extent of the events, they are not affected, and therefore, the COCs involving those verbs cannot be passivized. Since the CO with the verb *die* represents the manner denoted by the verb, the COC involving this verb cannot be passivized. However, the COC with the verb *blush* cannot be passivized, although its CO represents the resultant state denoted by the verb. The reason for this is that since the force of energy in the verb *blush* is of a lesser degree, which is indicated by the dashed arrow in the figure, its CO's degree of affectedness is also low.

Our cognitive structures can also account for the observation that when the CO is construed as an event, its COC cannot undergo passivization. Since the cognitive structures of the verbs include the segment of a change of state, which is indicated by the squiggly line, we can predict the possibility that the segment is profiled. If it is profiled, the COC cannot be passivized because it is not a participant.

6.4. Summary

Thus far, we have seen the way in which the classification presented in this paper adequately handles variation in the acceptability of syntactic data. First, with regard to unergative verbs, although there is no difference between the class of *sing* and *dance* and that of *live* and *dream* in Table 3 except for their cognitive structures, we have distinguished between these two classes in section 5. They differ only in whether or not the COs refer to an abstract thing, and therefore, the degree of objectivity of *song* and *dance* is higher than that of *life* and *dream*. Furthermore, these two types of verbs can be distinguished from the others in terms of the necessity of modification. In cognitive structures, the verb's object is drawn in a circle or a circle plus square, which indicates that it is similar to a true object.

Second, while Table 3 indicates that there is no difference between *jump*-type verbs and *scream*-type verbs – with the exception of their cognitive structures – we saw a distinction between these two classes in section 4. Our contention was that the COCs with *jump*-type verbs could be captured by the "change of state is change of location" metaphor, while the ones with *scream*-type verbs could be captured by the "sound is a moving object" metaphor. With regard to cognitive structures, it is demonstrated that the resultant state denoted by the verb is created due to the subject's movement, physical action, or the emission of a sound.

Third, Table 3 shows that the verbs *laugh* and *smile* can be distinguished from the other verb classes in terms of *it*-pronominalization. As seen in Table 3, the COCs involving these verbs do not undergo *it*-pronominalization; however, they do so if the CO takes a modifier such as *Tom Cruise's* in (44b). In cognitive structures, it is shown that the segment of a change of state is drawn only using squiggly lines, and this indicates that the change of the subject is foregrounded to a greater extent. Moreover, the bold arrow indicates that it is difficult to separate the action denoted by the verb from the subject; this restriction is related to the difficulty of *it*-pronominalization in the case of *smile*-type verbs.

Finally, as seen in Table 4, unaccusative verbs behave similarly during syntactic tests; our argument is that the COs with unaccusative verbs are adjuncts of a verb, not arguments, because they do not undergo passivization. Although the CO with the verb *blush* represents the resultant state of the action denoted by the verb, it functions as an adjunct of the verb because the subjects' degree of force of energy is low.[38] In addition, the verb *die* is distinguished from the verbs *grow* or *fall* in that the former represents the manner of the action denoted by the verb, while the latter represents the extent of the event. In the cognitive structure of the *grow*-verb class, the solid arrow indicates that the extent of the event is foregrounded. The cognitive structure of the verb *die* shows that its CO does not represent the resultant state of the action denoted by the verb because it is an achievement verb and represents the result itself, as seen in section 5.

Thus, we have shown that the result of syntactic tests can be interpreted in terms of a conceptual classification of the verbs that we have evaluated in this paper.

7. Conclusion

In this paper, we have classified the verbs that appear in COCs on the basis of three conceptual factors: the force of energy of the subject, a change of state of the subject, and the objectivity of the cognate noun. Moreover, we have shown that by assuming these parameters, we can capture the relation between the syntactic properties and the modification of COs. In terms of the force of energy of the subject, we have argued that the passivization of COCs is acceptable when their verbs' subjects include the force of energy, because they are agentive. With respect to a change of

[38] We assume that the CO of the verb *blush* is similar to the appositive, because the COC with *blush* tends to take the *of* genitive, as seen in (i):

(ia) She blushed a *blush of* anger. (= 20d)

(ib) When I asked my nine-year-old sister what a bright girl like her was doing reading stuff like that, she blushed *the blush of* a contrite but confirmed addict and said she just liked it. (http://srino.com/dey/susan_dey_look.html)

We argue that the CO is an adjunct of a verb with respect to this point as well, even though it represents the resultant state denoted by the verb.

state of the subject, the COs do not need modification if the subjects do not change their state, that is, the COs are construed as a thing. Further, the objectivity of the cognate noun is related to the *it*-pronominalization of the CO; that is, since the COs of the verbs *laugh* or *smile* cannot be construed as objective, they do not undergo *it*-pronominalization.

The advantage of our analysis is that it can capture the relation between the syntactic properties and modification of COs by hypothesizing conceptual structures. Although Nakajima (2006) and Kuno and Takami (2004) discuss the implications of syntactic tests in terms of COCs, their analyses do not explain the fact that syntactic tests depend on the type of verbs as well as the modification of COs. In this respect, our analysis is more explanatory than the previous analyses. Although the conceptual structure of a COC is not a new concept, the previous analyses have not yet provided a detailed description of the cognitive structure of a verb. In this respect, the analysis in this study sheds new light on the properties of a COC.

References

Burzio, Luigi (1986). *Italian syntax: A Government-Binding Approach*. Dordrecht: Kluwer Academic Publishers.

Croft, William (1990). *Syntactic Categories and Grammatical Relations*. Chicago: University of Chicago Press.

Croft, William & Alan Cruse (2004). *Cognitive Linguistics*. Cambridge: Cambridge University Press.

Evans, Vyvyan & Melanie Green (2006). *Cognitive Linguistics*: *An Introduction*. Edinburgh: Edinburgh University Press.

Fillmore, Charles J. (1977). Topics in Lexical Semantics. In Cole, Roger W. (ed.) *Current Issues in Linguistic Theory*. Bloomington: Indiana University Press. 76–138.

Goldberg, Adele E. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.

Goldberg, Adele E. (2006). *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.

Horita, Yuko (1996). English Cognate Object Constructions and Their Transitivity. *English Linguistics* 13: 221–247.

Horita, Yuko (2005). Douzoku-mokutekigo Koubun no Kategori ni kansuru iti Kosatu (A Study of the Category of Cognate Object Constructions). *Studies and Essays* (*Language and Literature*, Kanazawa University): 67–88.

Iwakura, Kunihiro (1976). Douzoku-mokutekigo to Youtaino Fukushi to Hitei (Cognate Objects, Manner Adverbs, and Negation). *Eigo Kyoiku* (*English Education*) 6: 60-63.

Jespersen, Otto (1927). *A Modern English Grammar on Historical Principles*. Part III. *Syntax*. London: George Allen & Unwin.

Jones, Michael A. (1988). Cognate Objects and the Case Filter. *Journal of Linguistics* 24: 89–110.

Keyser, Samuel J. & Thomas Roeper (1984). On the Middle and Ergative Constructions in English. *Linguistic Inquiry* 15: 381–416.

Kuno, Susumu & Takami Ken-ichi (2004). *Functional Constraints in Grammar: On the Unergative-Unaccusative Distinction*. Amsterdam: John Benjamins.

Lakoff, George & Mark Johnson (1999). *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. New York Basic Books.

Langacker, Ronald W. (1987). *Foundations of Cognitive Grammar*. Volume I. *Theoretical Prerequisites*. Stanford: Stanford University Press.

Langacker, Ronald W. (1990). *Concept, Image, and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton de Gruyter.

Langacker, Ronald W. (1991). *Foundations of Cognitive Grammar*. Volume II. *Descriptive Application*. Stanford: Stanford University Press.

Langacker, Ronald W. (1999). *Grammar and Conceptualization*. Berlin Mouton de Gruyter.

Langacker, Ronald W. (2003). *Constructions in Cognitive Grammar*. *English Linguistics* 20: 41–83.

Langacker, Ronald W. (2005). Construction Grammars: Cognitive, Radical, and Less so. In Ruiz de Mendoza Ibáñez, Francisco J. & M. Sandra Peña Cervel (eds.) *Cognitive Linguistics: Internal Dynamics and Interdisciplinary Interaction*. Berlin: Mouton de Gruyter. 101–159.

Levin, Beth (1993). *English Verb Classes and Alternations: A Preliminary Investigation*. Chicago: University of Chicago Press.

Levin, Beth & Malka Rappaport Hovav (1995). *Unaccusativity: At the Syntax-Lexical Semantics Interface*. Cambridge, MA: MIT Press.

Macfarland, Talke (1995). *Cognate Objects and the Argument/Adjunct Distinction in English*. Doctoral dissertation. Northwestern University.

Massam, Diane (1990). Cognate Objects as Thematic Objects. *Canadian Journal of Linguistics* 35: 161–190.

Matsumoto, Masumi (1996). The Syntax and Semantics of the Cognate Object Construction. *English Linguistics* 13: 199–220.

Moltmann, Friederike (1990). Nominal and Clausal Event Predicates. *Chicago Linguistic Society* 25: 300–314.

Nakajima, Heizo & Masayuki Ikeuchi (2005). *Asu ni Kakeru Seisei Bumpo* (*Generative Grammar Looking Ahead*). Tokyo: Kaitakusha.

Nakajima, Heizo (2006). Adverbial Cognate Objects. *Linguistic Inquiry* 37: 674–684.

Nakamura, Yoshihisa (1993). Koobun no Ninchi-koozoo Nettowaaku (A Network of Cognitive Structures for Grammatical Constructions). In Fukuoka Gengogaku Kenkyukai (ed.) *Gengogaku karano Chooboo* (*The View from Linguistics*). Fukuoka: Kyushu Daigaku Shuppankai. 247–268.

Omuro, Takeshi (1990-1991). Douzoku-mokutekigo Koubun no Tokuisei (1)(2)(3) (The Peculiarities of the Cognate Object Construction). *Eigo Kyoiku* (*English Education*) 39 (8): 74–77. 39 (9): 78–80. 39 (10): 68–72.

Perlmutter, David (1978). Impersonal Passive and the Unaccusative Hypothesis. *Berkeley Linguistic Society* 4: 157–189.

Perlmutter, David & Paul Postal (1984). The 1-Advancement Exclusiveness Law. In Perlmutter, David & Carol Rosen (eds.) *Studies in Relational Grammar* 2. Chicago: University of Chicago Press. 81-125.

Poutsma, Hendrik (1926-1929). *A Grammar of Late Modern English*. Groningen: Noordhoff.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik (1985). *A Comprehensive Grammar of the English Language*. London: Longman.

Rice, Sally (1987). *Towards a Cognitive Model of Transitivity*. Doctoral dissertation. San Diego: University of California.

Rice, Sally (1988). Unlikely Lexical Entries. *Berkeley Linguistic Society* 14: 202–212.

Takami, Ken-ichi & Susumu Kuno (2002). *Nichieigo no Jidoshi Kobun: Seiseibunpo Bunseki no Hoihan to Kinoteki Kaiseki* (*A Functional Analysis of Intransitive Constructions in English and Japanese*). Tokyo: Kenkyusha.

Taniguchi, Kazumi (2005). *Jitaigainen no Kigoka ni Kansuru Ninchigengogakuteki Kenkyu* (*A Cognitive Analysis of the Symbolization of Event Conception*). Tokyo: Hituzi Shoboo.

Visser, Frederik Theodoor (1963). *An Historical Syntax of the English Language*. Part 1. Leiden: E.J. Brill.

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