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A Preliminary Study on Light Emission Verbs and Substance Emission Verbs in *There* Constructions*

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1. Introduction

This study examines existential *there* constructions with the following emission verbs: sound emission verbs (1a), light emission verbs (1b), and substance emission verbs (1c):

- (1) a. In the hallway there ticked a grandfather clock. (sound emission verbs)
- b. On his finger there sparkled a magnificent diamond. (light emission verbs)
- c. Over the fire there bubbled a fragrant stew. (substance emission verbs)

(Levin 1993: 233-238)

This study focuses on light emission verbs and substance emission verbs, which have received less attention in previous studies than sound emission verbs. In particular, this study reveals the different uses of the three types of emission verbs in *there* constructions through a careful examination of the selection of the subject noun and its interaction with verb senses. This paper does not discuss smell emission verbs such as *smell* and *stink* because this verb class is not mentioned in Levin's (1993: 88-90) verb list, which enumerates the wide variety of verbs that can be used in *there* constructions.

This article is organized as follows: Section 2 summarizes previous studies on sound emission verbs, such as Levin, Song, and Atkins (1997) and Mino (2019b), to illustrate that sound nouns are often selected as the subject of *there* constructions with sound emission verbs. Section 3 claims, on the basis of the corpus study using BNC, COCA, and COHA, that the use of light emission verbs in *there* constructions does not differ from the use in inchoative constructions in that light emission verbs tend to take as their subjects entities producing the light such as *fire* and *diamond* in both constructions. Section 4 briefly discusses why only substance nouns can be used as the subject of *there* constructions with substance emission verbs. Section 5 concludes this paper.

2. Previous Studies on Sound Emission Verbs in *There* Constructions

As exemplified by Levin, Song, and Atkins (1997), sound emission verbs can be used in varied constructions. Sound emission verbs are typically used intransitively, as in (2), where the subjects, *the tea kettle* and *lorries*, are entities producing sounds.

- (2) a. The tea kettle whistled. (Levin, Song, and Atkins 1997: 43)

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b. 2513 lorries have rumbled into Peking with the ubiquitous vegetables. (ibid.: 47)

The prototypical intransitive example using sound emission verbs is (2a). The meaning of sound emission verbs as in (2a) is “to make a sound.” In this sense, the subject is an emitter or a sound source. Almost all studies on sound emission verbs have investigated the intransitive forms used with sound emitters or sound sources as subjects.

However, emitted sounds rather than sound emitters can be realized as subjects of intransitive sentences, although this usage of emitted sound nouns is remarkably infrequent in the canonical intransitive construction, as exemplified in (3):

(3) a. Rock music boomed from speakers in the locker room. (BNC)
b. Raimondo's voice hissed again from behind the curtain. (BNC)

The sense of sound emission verbs in (3) is not “to make a sound,” because, conceptually, the sound itself does not make a sound. Rather, following Levin and Rappaport Hovav (1995: 237-238), the sound emission verbs in (3) denote an appearance of sounds.

This sense has been overlooked by many previous studies, such as those conducted by Levin (1991) and by Levin, Song, and Atkins (1997), which are frequently cited corpus-based works on sound emission verbs. These studies do not investigate this usage despite aiming to provide the most useful description of dictionary entries and to systematically describe the linguistic knowledge of native English speakers. Moreover, this meaning is not mentioned in dictionaries such as *the Longman Dictionary of Contemporary English* (LDOCE) (6th edition) or *the Oxford Advanced Learner's Dictionary* (OALD) (8th edition). Thus, this meaning is infrequent in canonical intransitive sentences and has been ignored in most previous analyses.

Mino (2019b) revealed that this overlooked usage of sound emission verbs is often observed in *there* constructions, as exemplified in (4):

(4) a. When he pulls the bell-rope, there chimes a cadence so beautiful that some say that those who hear it remember it ever after with the bittersweet joy with which one recalls a beloved one never quite found the courage... (J. Lindskold, *Wolf Hunting*)
b. [A]nd there rumbled all around Harry and through the church collective voices, seemingly almost shouting, “Thanks be to God!” (W. Cobb, *Harry Reunited*)

In his sampled data, more than half of the *there* constructions with sound emission verbs (111 out of 215 examples) select sound nouns (e.g., *bass*, *bellowing*, *cadence*, *call*, *chorus*, *grinding*, *gunshot*, *laugh*, *murmur*, *music*, *roar*, *song*, *sound*, *talk*, *thunderclap*, *undertone*, *voice*, *whisper*, and *yell*).

Mino (2019b) argued that *there* constructions with sound emission verbs that take sound nouns as their subjects can denote the sounds' existence or appearance. Since the sense is appropriate for the pragmatic function of *there* constructions introducing a new entity into discourse, it is often chosen in *there* constructions.

Here, one question arises: what kind of behavior do other types of emission verbs exhibit when used in *there* constructions? To answer this question, the following sections investigate the usages of light emission verbs and substance emission verbs in *there* constructions.

3. Light Emission Verbs in *There* Constructions

This section aims to elucidate the usage of light emission verbs in *there* constructions using data from the following corpora: COCA, BNC, and COHA.^{1,2} This study examines all the examples of light emission verbs from Levin's (1993: 233) verb list: *beam, blink, burn, blaze, flame, flare, flash, flicker, glare, gleam, glimmer, glint, glisten, glitter, glow, incandesce, scintillate, shimmer, shine, sparkle, and, twinkle*. In total, 58 examples were found.³ Following Mino (2019b), this paper attempts to reveal what kind of nouns are selected as the subject of light emission verbs in *there* constructions.

The examples from the corpora are divided into two groups; the first category takes as the subject the entity that produces light; the second category selects as the subject light that radiates from the light source. The corpus study revealed that the majority of the subjects are light-emitting entities such as *diamond, fire, and flame*. A few examples from the two categories are shown in (5) and (6):

• Light-emitting entities/light sources as subjects

(5) a. In the center of the ruins there burns a roaring bonfire. (COCA)
 b. On his forefinger, or foreclaw, there glistened a brilliant diamond. (COCA)
 c. In each window, upstairs and downstairs, there shone a candle flame. (COCA)
 d. He drew me closer to him, and beyond the high windows there flashed the passing lights of the carriages, with dim incessant sounds that spoke of safety and comfort, and all the things that Paris was. (COHA: 1985)

• Emitted light as subjects

(6) a. Disturbed by what he saw, he gently brushed aside a strand of hair from her brow, but at his touch, he shuddered and pulled away, and in her eyes, there shone a pure, unworldly light. (COCA)
 b. [S]uddenly there shined round about him a light from heaven: (COCA)

¹ This study collected examples from COCA after the latest upgrade in March 2020.

² This study collected examples that were attested after 1970 from COHA.

³ Because of the small number of samples, this paper is a preliminary study.

c. Even in the dimmest basement apartment, there shines an inner sunlight, a glow of Yiddishkeit. (COHA: 1975)

The examples in (5) depict the emission of light by the subject nouns, whereas the examples in (6) express the existence or occurrence of light.

This result is different from the one obtained from the investigation into sound emission verbs carried out by Mino (2019b). As mentioned in Section 2, more than half of the *there* constructions with sound emission verbs select sound nouns such as *sound* and *voice*. However, light emission verbs in *there* constructions only occasionally select light nouns that emanate from some entities.

The next puzzle to solve is what brings about this difference in subject selection. Actually, the usage like (7) and (8) in the inchoative construction is widely observed in dictionaries and previous studies. The subject nouns in the following examples refer to the luminous energy from the sun, the lamp, the moon, and so on:

(7) a. Sunlight glinted off the windows of a tall apartment building. (LDOCE)
 b. Lightning flashed overhead. (LDOCE)
 c. The moonlight gleamed on the water. (OALD)

(8) a. David and Alice collected their chairs, blankets, and booze, and when the lightning flashed, David imagined his wife lit up [...]. (COCA cited in Rosca 2011: 178)
 b. The lightning flashed. (Levin and Rappaport Hovav 1995: 117)
 c. Lamplight flickered through the foggy air. (FrameNet)

The FrameNet project constructs the Light_movement frame, where **beam** is one of the core frame elements. **Beam** refers to “the light that travels from a Source along a Path to a Goal” (FrameNet). Some instantiations of the frame element **beam** are *sunlight* and *lamplight*.

Nevertheless, why do only a few light emission verbs take nouns such as *sunlight*, *lighting*, and *moonlight* in the *there* constructions collected from our corpus study? To answer this question, this paper compares the lexical properties of these two types of emission verbs.

In my opinion, the difference in subject selection stems from different methods of emission. Let us first consider ways of emitting sound. According to previous research, such as that conducted by Levin and Rappaport Hovav (1995) and Folli and Harley (2008), there are two types of sound emission, as in (9) and (10):

(9) a. The bell buzzed. (Levin 1993: 235)
 b. The train whistled. (Folli and Harley 2008: 192)

(10) a. The wagon creaked down the road. (Goldberg and Jackendoff 2004: 540)

b. At that moment, a flatbed truck bearing a load of steel rumbled through the gate.
 (Levin and Rappaport Hovav 1995: 190)

The first pattern as in (9) involves the inherent property of the entity that can produce sound. Folli and Harley (2008: 192) argued that examples like (9) sufficiently initiate and conduct the entire event denoted by the verb on their own. They assumed that inanimate entities like *the train* can be true agents, as long as they are teleologically capable of performing the audial activity denoted by the verb. The second pattern—as in (10)—necessarily involves the movement of the subject referent, as extensively discussed in Levin and Rappaport Hovav (1995) and Iwata (2020). In fact, Iwata (2020: 467) emphasized that the sound emission event invariably involves some sort of motion. An impressive section title in his book (Section 21.5) is “*Where there is a sound, there should be a motion*” (Iwata 2020: 467). Thus, sound emission events involve agentivity of sound-emitting entities and motion of sound sources.

Now, this paper will be reviewing light emission verbs. According to Rosca (2011: 178), events described by light emission verbs are also divided into two types depending on the property of the subject’s referent. The first light emission verbs involve natural sources, such as the sun, the fire, and a star, that produce a luminous energy by themselves, as in (11). The second light emission verbs involve glossy or shiny entities that can produce light by just reflecting a luminous energy that originates from natural sources; for example, jewelry reflects what radiates from natural sources, such as the sun, or the moon, the fire, as in (12):

(11) a. The sun beamed relentlessly on the passenger’s side. (COCA)
 b. One lamp shone in a room on the side. (COCA)

(12) a. The diamonds sparkled in the glow of the candlelight and the amethysts reflected a violet so rich and deep that it was worthy of a king. (COCA)
 b. The lake shimmered in the moonlight. (LDOCE)

In particular, the second type of light emission verbs does not involve any active actions to produce light on their own; they merely reflect light or beam when their shiny or glossy surfaces are in contact with beam or light (Rosca (2011)).

Following Firbas (1966), Breivik (1990: 164) indicated the close connection between the presentative function of *there* constructions and the types of verb, as follows: *If we are correct in claiming that there₁ (= the existential *there* construction) is a presentative signal, a marker of a foregrounded subject, then this provides a natural explanation for its predilection for verbs like appear, be and exist. Firbas states (loc. cit.): ‘It is natural that attention should be concentrated rather on the person or thing appearing or existing on the scene than on the appearance or existence itself.’* To

focus on the existence of some entity, the process denoted by the verb should be less vivid.

In fact, verbs that are not easily classified as either existence or appearance verbs are subject to some accommodation or coercion. For example, Deal (2009) discussed how change-of-state verbs are acceptable in *there* constructions. She noted that verbs such as *grow* and *bloom* have two readings, only one of which is compatible with *there* constructions:

(13) a. There grew some corn in our garden last year. (Deal 2009: 296)
b. * There grew some corn very slowly in Massachusetts. (ibid.)

Only the sentence in (13a) is acceptable because it can be interpreted as stative. The sentence in (13b), meanwhile, cannot be interpreted as such because it denotes an event reading as exemplified by the adverb *very slowly*. This contrast in acceptability illustrates that *there* constructions are acceptable only when verbs or verb phrases denote the existence or appearance of entities.

The comparison between the processes of sound and light emission revealed that sound emission involves more activities than light emission. In other words, sound emission is more dynamic than light emission in that sound emission necessarily involves some kind of action, whereas light emission does not have to (See Isono (2014: 333) as well). Therefore, sound emission verbs somehow modify their behavior to adjust to *there* constructions, whereas light emission verbs do not have to. The compatibility of emission verbs with an existence/appearance meaning is a key factor in accounting for the different usages in *there* constructions.

Levin and Rappaport Hovav (1995: 256), in their representative study of locative inversions, noted that light emission verbs are more often attested than sound emission verbs in locative inversions. They proposed one reason for the preference for light emission verbs as follows: “What may be more difficult to explain is why so many more verbs of light emission are attested than verbs of sound emission. **This may simply reflect that visual perception is more frequently used than aural perception to take in a scene, suggesting that less familiar information is more likely to be apprehended using a visual than an aural modality**” (Levin and Rappaport Hovav (1995: 256)) (emphasis mine). Although this paper does not move closer to evaluating the validity of this idea in locative inversions, it has been found that approximately 20% of the subject nouns in locative inversions with the verb *come* in the past tense were used with sound nouns in BNC; therefore, the introduction of aural perception is relatively preferable in such expressions.

In fact, light emission verbs are more often found than sound emission verbs in *there* constructions as well. However, the hypothesis advocated by Levin and Rappaport Hovav (1995) does not apply to *there* constructions because it has been revealed by the corpus studies such as Pfenninger (2009) and Mino (2019a) that sound nouns tend to be selected as subjects of *there* constructions. For example, Mino (2019a) revealed that sound-class-nouns (approximately 36%) were most frequently

attested with *there came* in COCA.

Therefore, the introduction of a new entity into discourse is likely to be apprehended using an aural modality in *there* constructions, which degrades the proposal by Levin and Rappaport Hovav (1995). Rather, as mentioned above, the static process of light emission is essential to account for the preference for light emission verbs in *there* constructions, and presumably in locative inversions, as the static nature of light emission is well compatible with the function of *there* constructions.

4. Substance Emission Verbs in *There* Constructions

This section briefly examines substance emission verbs in *there* constructions. Examples of substance emission verbs are as follows: *belch, bleed, bubble, dribble, drip, drool, emanate, exude, foam, gush, leak, ooze, pour, puff, radiate, seep, shed, slop, spew, spill, spout, sprout, spurt, squirt, steam, stream, sweat* (Levin (1993: 237)).

According to Levin (1993) and Levin and Krejci (2019), substance emission verbs can be used in the following two constructions in (14). In (14a), the source of substance and the emitted substance are realized as the subject and the object, respectively, whereas in (14b), the substance is expressed as the subject and the source is realized as the argument of the directional preposition *from*. The pattern as in (14a) can be also used without the explicit object.

(14) a. The well gushed (oil). (Source-as-subject frame) (Levin and Krejci 2019: 10)
b. Oil gushed from the well. (Substance-as-subject frame) (ibid.)

As discussed in Kageyama (2002), sentences with substance emission verbs such as *gush* and *ooze* convey that liquid naturally flows from a source. In fact, the subject nouns in (14a) and (15) are locations from which liquid flows. The subjects' referents do not conduct any activities. In this respect, these verbs denote the leakage of substance such as water, oil, and blood, rather than their emission.

(15) a. The stranded tanker gushed oil. (Kageyama 2002: 125)
b. The burn oozed watery fluid for many days. (ibid.)
c. The street gushed with water. (Levin 1993: 237)

Levin and Krejci (2019) argued with the help of several syntactic tests that the substance emission verb in the source-as-subject frame as in (14a) is unergative, whereas the verb in the substance-as-subject frame as in (14b) is unaccusative. According to them, this distinction accounts for the difference in acceptability when used in *there* constructions, as in (16). Only (16b), which contains the unaccusative substance emission verb, is acceptable. (17) contains examples from COCA, which exhibit the same pattern as (16b).

(16) a. *There gushed a magnificent well. (Levin and Krejci 2019: 13)

b. She passed a spring, set back deep in a hollow where the water winked and shifted like an eye, and there gushed out into the night air the deep earth smell of black loam.
 (Levin and Krejci 2019: 15)

(17) a. Into a small hole, a scrape in the dirt, there seeped a puddle of brown water. (COCA)

b. [F]rom their increased vitality there radiated an extraordinary energy, daring, power of conception and realization. (COCA)

c. [A]s they were in a certain spot contemplating certain marble statues, there spurted under their feet and between their legs, through an infinite number of tiny holes, jets of water so minute that they were almost invisible, ... (COCA)

It has been revealed so far that similar to light emission verbs, substance emission verbs do not involve dynamic actions causing the leakage of liquid. Therefore, the unacceptability of (16a) poses another question: why are the examples in (5) with the light sources in the subject position acceptable although the example with substance emission verbs in (17a) is unacceptable? What is also puzzling is that sound emission verbs and light emission verbs can be used in *there* constructions, though Levin and Rappaport Hovav (1995) classified these two emission verbs with emitters or sources into unergative verbs, as shown in (18):

(18) a. In the hallway there ticked a grandfather clock. (a sound emission verb) (=1a))

b. On his finger there sparkled a magnificent diamond. (a light emission verb) (=1b))

Levin and Rappaport Hovav (1995) resorted to a pragmatic analysis to account for the acceptability of examples like (18): the relationship of mutual predictability between the verb and the subject's referent improves the acceptability of examples like (18). In discussing locative inversions with emission verbs, Levin and Rappaport (1995: 256) argued, "As verbs describing characteristic activities of their argument's referent, these verbs do not contribute new information and qualify as informationally light in context, explaining their occurrence in locative inversions." For example, since a clock normally ticks, an amount of information contributed by the verb is low, which legitimates (18a). In what follows, this paper aims to reveal the semantic differences among (16a), (18a), and (18b) without relying on the strict distinction between unergative and unaccusative verbs.

The difference should be accounted for by the semantic properties of these verbs. The function of *there* construction is the introduction of a new entity into discourse, although it is difficult to identify what comes out from the source in (16a) compared with (18a) and (18b). Examples (18a) and (18b) definitely express the event in which **sound** or **light** is produced from some sources. Moreover, the

hearer/reader can easily identify what kind of **sound** is emitted from the sound source or by the emitter owing to the lexical property of sound emission verbs, because nearly all sound emission verbs have corresponding nouns of the same form. Concerning light emission verbs, all we need to know is that **light** emanates from some sources. There is no need to specifically know what kind of light actually radiates from light sources. Moreover, according to Faber and Mairal (1999: 261), light emission verbs can be divided into two categories with respect to the stability of light. They also claimed that light emission verbs can be ordered by the strength of light; *blaze* and *glare* denote a very bright light, whereas *glimmer* denotes a faint light. Thus, the nature of sound and light can easily be predicted from the lexical properties of emission verbs of sound and light. This satisfies the pragmatic function of introducing a new entity into discourse.

How about substance emission verbs? What (16a) expresses is the leakage of some **substance** or **liquid**, though *a magnificent well* can gush many types of substances. It might be true that some liquid leaked from the well in (16a), but the identity of a substance as liquid is not informative compared with sound and light, and more specific information about the emitted substance is required to fulfill the pragmatic function of *there* constructions enough. Rather, substance emission verbs often specify the process of emission. The following definitions in (19) are from LDOCE:

- (19) a. *exude* : to flow out slowly and steadily, or to make something do this
- b. *gush* : if a liquid gushes, it flows or pours out quickly and in large quantities
- c. *seep* : to flow slowly through small holes or spaces
- d. *spurt* : if liquid or flames spurt from something, they come out of it quickly and suddenly

The primary focus of substance emission verbs in the source-as-subject frame is on the process of emission, rather than the substance itself. This nature of substance emission verbs degrades the acceptability of examples like (16a).

5. Conclusion

This study revealed the different uses of the three types of emission verbs (sound, light and substance) in existential *there* constructions through a careful examination of the selection of the subject noun and its interaction with verb meanings. First, light emission verbs with the light source in the subject position tend to be used in *there* constructions because light emission verbs do not involve dynamic actions in emitting light and do not have to modify their behavior in *there* constructions. Second, substance emission verbs in the source-as-subject frame cannot be used in *there* constructions because substance emission verbs mainly describe the process of emission without fully specifying what leaks from the source. Thus, the close examination of the verb meanings of emission

verbs can account for their particular usages in *there* constructions.

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