

On “*X-ize*” Construction in English

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The present paper aims at exploring the cognitive process of *X-ize* construction in English. The suffix *-ize* forms change-of-state verbs such as *modernize*, *colonize*, and *apologize*. Our analysis claims that the English *X-ize* construction, [A *X-ize* B], is varied in its interpretive schemata and that it is characteristic of the cognitive integration of the external argument of PROCESS EVENT and the internal argument of RESULT EVENT. The PROCESS EVENT, realized by an action verb, has an unaccusative linkage with RESULT EVENT in terms of its implicational verb. We refer to the analysis of *X-ize* construction provided by Lieber (1998), which takes advantage of the Jackendovian style Lexical Conceptual Structures (LCSs). In addition, we will make a comparative analysis between *X-ize* construction in English and *-ka-suru* construction in Japanese in so far as both suffixes work out to form change-of-state verbs. In the course of examining the generative and structural approach, we assume that there takes place the structural operation of raising from the noun or adjective node in the internal argument structure to the verb node in the external argument structure. Then we propose a cognitive interpretive scheme of *X-ize* construction, [[ACT-ON (A, B) & [RESULT-IN [IV (B, X)]]], where the external argument forwardly represents PROCESS EVENT and the internal argument represents RESULT EVENT, and IV represents an implicational verb. We finally make the claim against Lieber's discussion that there is no theoretical similarity between the *-ize* construction in English and the construction of N to V conversion in English.

Key words: Process Event, Result Event, External Argument, Internal Argument

0. Introduction

Words are ubiquitous in all languages, and their inner and cognitive mechanism is complex. They have their own diachronic and synchronic causes for its existing mechanism. In the course of the diachronic development of lexical items, they are apt to take a certain kind of evolutionary process like something animate. The linguistic form and meaning of a word is to be changed more or less due to its diachronic and synchronic causes.

There are various linguistic ways of word formation in English. Among them is derivation which is evidence of productivity in the morphological process of word formation. And the function of derivation in English is to change one grammatical category of a lexical item into another by means of attaching one or more affixes to it. It goes without saying that morphological elements of a word are varied and they have their synchronic and diachronic background. Focusing upon the morphological process of suffixation, the present paper aims at exploring some cognitive implications of *X-ize* construction in English.

Verbs produced by derivation are varied. We have many derived change-of-state verbs in English such as *enlarge*, *enshrine*, *harden*, *strengthen*, *simplify*, *beautify*, *realize*, *nationalize*, *colonize* and so forth. They are all produced by way of affixation in English in terms of the formation of change-of-state verbs.

This paper also attempts to examine the *X-ize* construction in English. This suffix, being one of category changing affixes, is mainly spelled *-ise* in British English. It changes the grammatical category of morphological base from noun or adjective to verb. For example, the derived verb

colonize consists of the noun stem, *colony*, and the suffix, *-ize*, and the grammatical category of the entire word is changed into verb. Furthermore, the derived verb *modernize*, consisting of the stem *modern* and the suffix *-ize*, is changed from adjective into verb. Other suffixes with similar functions in English are exemplified by *X-(i)fy* like in *beautify* and *simplify* and *X-en* like in *whiten* and *widen*. Thus our focus in this paper is placed on the cognitive structure of the *X-ize* construction in English.

The suffix *-ize* has been widely used in American English, although the other variant *-ise* has been widely accepted in Britain. From the view-point of diachrony, this suffix has been used in English since the 16th century. According to the *Oxford English Dictionary* (henceforth OED), the first appearance of this suffix is 1591. The OED also says that the word *Petrarchize* appeared in *Florio* in 1611. This kind of description probably enables us to assume that the suffix *-ize* came to be used in Early Modern English. In addition, *Oxford Wordfinder* describes: *-ise* is obligatory in certain cases; i.e. (a) where it forms part of a larger word element such as *compromise* and *surprise*, (b) in verbs corresponding to nouns with *-i-* in the stem such as *advertise* and *televise*.

Furthermore, *-ize* is more than the suffix of category change. In fact it derives a verb from a stem of noun or adjective by way of the morphological process of suffixation. However, it also represents the conceptual function of change-of-state verb like in *industrialize* where someone/something is changed from the state of being *non-industrial* to that of being *industrial*. Verbs with this suffix refer to some kind of ACTION which has something to do with the original noun or adjective stem.

The purpose of this paper is to investigate the cognitive implications of *X-ize* construction. We will elaborate the inner mechanism of change-of-state verbs in English in terms of the derivational process of verb formation. First, we will briefly touch upon the morphological variants of *-ize* and *-ise* both in American and British English. Second, we will see the various facts of *X-ize/X-ise* construction in English. Third, we will discuss the cognitive structure of *X-ize* construction in terms of the explicit schematization of EVENT structure. Fourth, we will provide a comparative analysis between *X-ize* construction in English and *X-ka•suru* construction in Japanese in terms of the interpretive analysis of change-of-state verb. In section 5, we will propose and discuss a number of intransitive and non-causative examples of *X-ize* verbs such as *temporize* and *apologize*. Section 6 is devoted to the cognitive integration of the external argument of PROCESS EVENT and the internal argument of RESULT EVENT. In Section 7, our focus is placed on the discussion of the appropriateness or inappropriateness of the Jackendovian style Lexical Conceptual Structures (LCSs) to explain adequately the cognitive structure of *X-ize* construction. And we will also propose the hypothetical implicational verb to provide the cognitive and interpretive schematization of this construction. Finally we claim that there is no cognitive similarity between *X-ize* construction and N to V conversion in terms of the unaccusativity of *X-ize* construction and the non-accusativity of N to V conversion in English.

1. *-ize* and *-ise*

Henry Bradley once described in his classical book *The Making of English*: the endings *-ize*, *-ist*, *-ism*, *-ite*, originally Greek, have been very extensively used in the formation of English derivatives. He also indicates in his book: English *Concise Oxford Dictionary* lists both *realize* and *realise*, while American *Webster's Third New International Dictionary* recognizes only the first,

showing the Greek *-izein* and Latin *-izare*. Thus there has been two ways in fact to produce the lexical causative; i.e. *-ize* and *-ise*.

The suffix *-ize* or *-ise* is added to a noun or an adjective to make a derived verb. The suffix *-ize* or *-ise* (henceforth represented by *-ize*) is often used in place of *-y* in nouns like in *apology* *-apologize*, and *priority* *-prioritize*. The variant *-ise* also forms nouns of quality like in *exercise* and *merchandise*.

Zouhair Maalej suggests in his e-mail discussion of *Linguist List* in January 20, 1999 two major classes of *-ize* and *-ise* selection. One is an ideological explanation and the other is academic one. Ideological explanations, on the one hand, have centered on the two parties of American and British persistence in adopting different systems. Academic explanations, on the other hand, are focused upon etymology, conventional usage, and newspaper corpora. The suffix *-ise* is generally accepted to be the standard spelling form in British English, and American English is not characterized by its consistent form in *X-ize* and *X-ise*. He also introduces that Canadians tend to use *X-ise* as a way of demarcating themselves from Americans.

As for academic explanation, Maalej also quotes in his e-mail message that, considering data from both British and New Zealand English (NZE) newspapers, they almost tend to use *-ise* in the ratio of over 99% in NZE data and 98% in the collected sample of British News articles from 1990 to 1991. Comparing the 1961 and 1990-91 samples of British news articles suggests that there has been some recent standardization towards *-ise* in Britain. In addition, his e-mail report introduces that *X-ize* tends to be fading out in Australia because it takes more time to type *X-ize* than *X-ise*.

Some stems of Greek origin have a tendency to take the suffix *-ize* in verbs such as *anaesthetize* and *baptize*, while some stems of French and Latin origin tend to take the suffix *-ise* in verbs such as *advertise* and *comprise* in their derivational usage. And significantly, an Arabic stem tends to take both the suffixes of *-ize* and *-(i)fy* like in *alkalize* and *alkalify*, which may be caused by the diachronic dynamism of selecting *-ize* or *-(i)fy* in the non-Greco-Roman stems in English. As for the matter of stress, Fudge (1984) claims that some Scots speakers have this suffix autostressed but in general its accentual properties are stress neutral when the stem is a free form.

2. Data

The suffix *-ize* is a categorial marker of change-of-state verbs. The change-of-state verbs of *X-ize* construction are varied in their semantic interpretation. According to Carlson and Roeper (1981), a lexical entry is a collection of listed information and rule features. There are three types of lexical operations which create a complex verb; affixation, zero derivation, and compounding and adding particles. And the concept of complex verb satisfies the condition that a lexical entry should be entirely created by rule. By what rule then is affixation for example realized in order to form a complex verb?

Furthermore, the suffix *-ize* is characterized by changing a noun or an adjective stem into a derived verb. It has some case assignments for subcategorization. The verb *normalize*, for example, consists of the adjective stem *normal* and the suffix *-ize*, and here works the semantic function of the agent (*normalizer*) and the patient (*normalizee*). This verb is also the structural integration of the external argument and the internal argument when used in a real sentence like *They normalized the patient's temperature*. An interpretation of this sentence is: *they* did some ACTtion onto the

patient, and, as a result, *the patient's temperature* changed into being *normal*.

The productivity of the suffix *-ize* is regarded high enough to produce many derived verbs in English. According to *American Heritage Dictionary* (AHD for short), the oblique suffix *-ize* is originated from Greek <*-izein*>, and it later takes the developmental path of Late Latin <*-izare*>, Old French <*-iser*> and Middle English <*-isen*>. Thus this affix is diachronically characterized by the Greco-Roman origin.

The stem which attaches to the suffix *-ize* is varied. The word with Greek origin takes this suffix in verbs such as *symbolize* and *baptize*. The word with Latin origin also takes this suffix in verbs such as *civilize* and *realize*. The stems of person names imply the method used by him or her like in *Thatcherize* and *Calvinize*.

In addition, we come across very often the transitive and intransitive usage of *-ize* construction. Consider the following examples in journals:

- (1) The new government should sell national assets, *privatize* and outsource their services.
— *Newsweek* 7/27/1998

- (2) There has been a huge amount of talk about huge amount of money. That money has not *materialized*. — *Newsweek* 3/8/1999

The *-ize* verb in (1) is transitive and the object of this verb is *their services*. The verb in (2) is intransitive and it undertakes the grammatical function of agent. We also see in novels a number of examples of this kind like in:

- (3) She had a strange sense of having *antagonized* God by too much prayer and so addressed him now obliquely. — T. Wilder *The Bridge of San Luis Ray*

- (4) In the darkness ahead the figure of a man suddenly *materialized*.
— S. Sheldon *The Sands of Time*

For the sake of convenience of our discussion, we would like to list below the variety of derived verbs with the suffix *-ize*. Verbs in (5) are formed in combination of an adjective with this suffix, and those in (6) consist of noun and this suffix. Some examples are listed below:

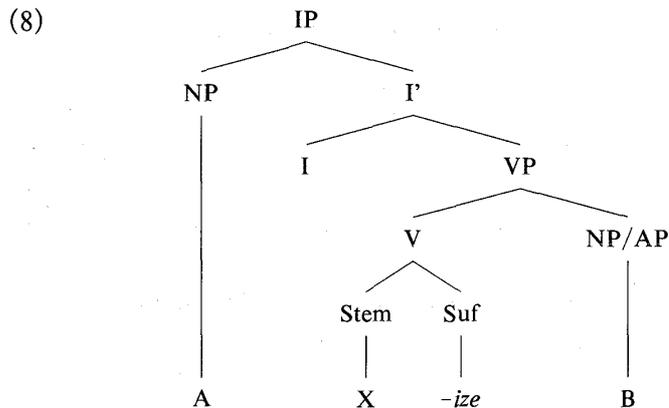
- (5) a. *modernize* *realize* *popularize* *humanize* *civilize*
 brutalize *sterilize* *finalize* *vitalize* *urbanize*
 familiarize *fertilize* *legalize* *standardize* *vocalize*
 solemnize *visualize* *privatize* *mobilize* *centralize*
- b. *formalize* *nationalize* *industrialize* *institutionalize*
 radicalize *typicalize* *actualize* *activize*
 marginalize *personalize* *departmentalize*

- (6) a. *colonize* *theorize* *unionize* *metaphorize* *organize*
 hospitalize *apologize* *economize* *epitomize* *idolize*
 canonize *sympathize* *synthesize* *itemize* *psychologize*
 symbolize *fossilize* *prioritize* *oxidize* *womanize*
- b. *Hellenize* *Darwinize* *Japanize* *Thatcherize* *Clintonize*
 Occidentalize *Calvanize* *pasteurize*

We acknowledge that these derived verbs are change-of-state verbs from noun or adjective. Those in (5a) are schematized to be [Adj-ize] like in *modernize* and *realize*, and those in (5b) are schematized to be [N-Aff(al)-ize] like in *formalize* and *nationalize*. The derived verbs in (6a) are characteristic of their structural scheme of [N-ize] like in *colonize* and *theorize*. Those in (6b) are cases where the suffix *-ize* is attached to a certain kind of person's name. To put it briefly, the schematic manifestation of verb formation by the suffix *-ize* turns out to be either [Adj-ize] or [N-ize]. Thus the abstraction of the brief schematic matrix of *X-ize* construction is:

- (7) [A X-ize B]

where A is the agent or actor, B the patient, and X a word stem of noun or adjective. And also the structural description of this scheme is as follows:



where the forward linkage of A to *X-ize* poses the external argument structure of PROCESS EVENT and the backward linkage of B to X poses the internal argument structure of RESULT EVENT.

According to Bybee (1985: 84), the suffix *-ize* applies productively only to words of more than one syllable. She shows the examples of this kind like in *idolize*, *magnetize*, *fossilize*, and *traumatize*. Additionally, it has been taken for granted that the growth of science and technology in modern age enables the English speaking people to produce new technical words with *-ize* suffix like in *pasteurize* and *computerize*. They are coined or newly invented words more or less owing to their necessity for use in their specialized academic and vocational field. Examples of this kind are:

- (9) *magnetize* *genealogize* *metastasize* *reflexivize*
 galvanize *computerize* *diphthongize* *velarize*

The suffix *-ize* is available both transitive and intransitive forms. The OED tells us that some Greek words were latinized in the 3rd or 4th century like in *Atticize*, *Hellenize*. They are generally originated from racial, national, and sectarian proper names, representing some kind of manners, hence their derived verbs are intransitive.

According to OED, the earliest *X-ize* word in English is considered to be the Greek originated word *baptize*. *-ize* verbs such as *angelize*, *christianize*, *catechize* in ancient days were mainly concerned with the Christian or ecclesiastical terms. Later philosophical words such as *sylogize* and *symbolize* came into being. Thus the latinization of Greek words by *-ize* took place to a great extent in medieval age.

The oblique suffix *-ize* was at first *-iser* for both Greek and Latin origins. Some words take the form *X-ise* in words which are formed in French, English and Latin elements, but *-ize* was retained in Greek originated verbs.

As a matter of fact, all the *X-ize* verbs are not transitive and causative, but some are intransitive. Therefore *X-ize* verbs are not always transitive or causative verbs which necessarily take the patient or causee as object in a given sentence. This is exemplified by:

- (10) "It begins to erode the five senses. It's *dehumanizing*." — *Newsweek* 7/27/1998

where *dehumanizing* is intransitive and predicative adjective. A number of examples of intransitivity in *X-ize* construction can be seen in the following:

- (11) *apologize* *apostatize* *tandemize* *sympathize* *botanize*
 temporize *cricketize*

What is interesting is that *X-ize* verbs with person names are not rare in English. Their meaning is something like "to act like X, to treat like X, in accordance with X, and after the method of X". They were at first nonce words, but they gradually came to be conventional like in:

- (12) *Calvinize* *Irvingize* *Celticize* *Gladstonize* *Boucherize*
 Londonize *Rumfordize* *Thatcherize*

3. EVENT Structure in *X-ize* Construction

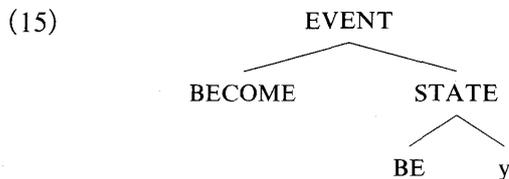
There are two kinds of EVENT structure in *X-ize* construction. One is PROCESS EVENT (P-EVENT for short) and the other is RESULT EVENT (R-EVENT for short). We assume that the *X-ize* construction in English is characterized by the cognitive integration of P-EVENT and R-EVENT. The external argument structure forwardly undertakes the cognitive process of P-EVENT and the internal argument structure undertakes the cognitive process of R-EVENT. This cognitive integration of P-EVENT and R-EVENT is crucial in the course of producing and understanding *X-ize* construction in English. Consider the following example:

- (13) In November, the Finance Supervisory Agency forcibly *nationalized* Nippon Credit Bank. — *Newsweek* 2/1/1999

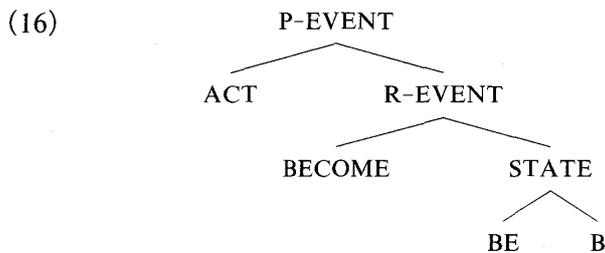
The implication of this sentence is: the Financial Supervisory Agency (FSA) did some ACT onto Nippon Credit Bank (NCB), as a result, the NBC came to be national. The first forward external argument undertakes the cognitive function of P-EVENT and the second internal argument undertakes the cognitive function of R-EVENT. And the suffix *-ize* turns out to be a marker of ACTION in P-EVENT. Thus the FSA functions as actor or agent in this sentence and the NCB functions as patient. Here is another example:

- (14) To *stabilize* and regulate a truly global economy, we need some global system of political decision making. — Newsweek 2/1/1999

The P-EVENT in this example is realized in the structural link of *we* and the suffix *-ize* and the R-EVENT is also realized in the backward combination of *a truly global economy* and the adjective *stable/stable*. Here works the cognitive integration of P-EVENT and R-EVENT in *X-ize* construction. Kageyama (1993:70) describes the basic cognitive structure of CHANGE-OF-STATE Event as follows:



where *y* is an internal argument (cf. 23b(ii)). Taking this cognitive structure into consideration, we would like to elaborate the EVENT structure into the following one in terms of the cognitive integration of P-EVENT and R-EVENT in *X-ize* construction. The above *y* in the internal argument is here replaced by *B* according to the basic schematic frame of (7):



where P-EVENT represents the PROCESS EVENT, R-EVENT represents the RESULT EVENT, and ACT is marked by the suffix *-ize*, and implicational verbs such as [BECOME] are semantic primitives which Wierzbicka (1996) proposes in terms of her hypothetical idea of universal Natural Semantic Metalanguage (NSM).

4. *X-ize* in English and *X-ka-suru* in Japanese

The suffix *-ize* undertakes the cognitive function of instrument or agentivity. It also turns out to be a grammatical marker of some ACTION and its result. This suffix is to be interpreted in the

Japanese suffix *X-ka•suru*. For example, *realize* in English means *genjitu-ka•suru* in Japanese, and *urbanize* means *tosi-ka•suru*. Here is an interpretive correspondence between *X-ize* construction in English and *X-ka•suru* construction in Japanese:

- (17) [A *X-ize* B] — [A-ga B-wo *X-ka•suru*]

where *-ga* is a marker of agent, *-wo* is a marker of patient, and *-ka*, attached to *X*, is the suffix which makes up a change-of-state base for the entire derived verb. The additional *-suru* is a categorial marker which makes up a Chinese-originated or Western-originated word into a Japanese complex verb. Here are some examples:

- (18) a. *modernize* — *kindai-ka•suru*
standardize — *hyoujun-ka•suru*
institutionalize — *seido-ka•suru*
formalize — *keisiki-ka•suru*
- b. *theorize* — *riron-ka•suru*
symbolize — *shouchou-ka•suru*
fossilize — *kaseki-ka•suru*
idolize — *guuzou-ka•suru*

The examples in (18a) are derived verbs which are produced from adjective stem and those in (18b) are produced from noun stem. The complex suffix *X-ka•suru* in Japanese is an explicit marker of change-of-state verb. Then the *-ka•suru* construction represents that the object as grammatical patient is changed from the condition of being non-*X* to that of being *X*. Consider the following:

- (19) a. They *standardize* their mode.
(karera-wa sono yousiki-wo *hyoujun-ka•suru*)
- b. John *theorizes* his idea.
(John-wa jibun-no kangae-wo *riron-ka•suru*)

The Japanese suffix *-ka•suru* in (19a), along with the English suffix *-ize*, undertakes the change-of-state function from being *non-standard* into being *standard*. The example (19b) represents that *his idea* was changed from the condition of being *not-theorized* into being *theorized*.

Furthermore the agent with the suffix *-er* represents the “actor” of ACTION in a given sentence:

- (20) Warmth may seem like natural *fertilizer*, but in fact all plants are adapted to an optimal temperature. — Newsweek 12/8/1997
- (21) Don't perform an act which discourages your *sympathizers*.
— *Kenkyusha's Dictionary of English Derivatives with Sample Sentences*

Whether it represents something animate/human or something inanimate/nonhuman, the derived and agentive *X-izer* form is most productive. It produces a derived verb which represents semantically the undertaker of the change-of-state in some EVENT. The word *fertilizer* in (20) reminds us of *hiyoku-ka•suru* and *hiyoku-ka•suru-hito(mono)* in Japanese. The sentence (21) reminds us of *doujou-suru* and *doujou-suru-hito(mono)* in Japanese. Derived nouns such as *oxidizer* and *catalyzer* are commonly used in chemical experiment. They imply more or less some kind of chemical change or reaction in the course of chemical experiment. The word for music *synthesizer* is "an electronic instrument, often played with a keyboard that combines simple waveforms to produce more complex sounds such as those of various other instruments" (AHD). The derived noun *fertilizer* in (20) means "any of a large number of natural or synthetic materials spread on or worked into soil to increase its capacity to support plant growth" (AHD). It goes without saying that words such as *organizer* and *monopolizer* generally means something that *organize* or *monopolize* some kind of things or people. The word *tranquilizer* is "one that serves to tranquilize, as soothing music" or "any of various depressant drugs used to reduce tension or anxiety and to treat psychotic states" (AHD).

In so far as the suffix *X-ize* in English corresponds to *X-ka•suru* in Japanese in its semantic interpretation, the Japanese people tend to designate *X-ka•suru-hito(mono)* to be the undertaker of change-of-state verb. Some examples of this kind are shown below:

- | | | |
|---------|---------------------|-----------------------------------|
| (22) a. | <i>modernize</i> | <i>kindai-ka•suru</i> |
| | <i>modernizer</i> | <i>kindai-ka•suru-hito(mono)</i> |
| b. | <i>standardize</i> | <i>hyoujun-ka•suru</i> |
| | <i>standardizer</i> | <i>hyoujun-ka•suru-hito(mono)</i> |
| c. | <i>organize</i> | <i>sosiki-ka•suru</i> |
| | <i>organizer</i> | <i>sosiki-ka•suru-hito(mono)</i> |

Thus the Japanese *X-ka•suru* makes a complex verb which shows a semantic change from the condition of being *non-X* to the condition of being *X*.

5. Non-Causativity in *X-ize* Construction

Well-known are roughly two types of verbs in English grammar; i.e. transitive and intransitive. According to Levin and Hovav (1995:3), there are two subclasses of intransitive verbs; i. e. unaccusative and unergative. These types of verbs are to be schematized as follows:

- | | | |
|---------|-------------------------|---------|
| (23) a. | Transitive Verb: | (x <y>) |
| b. | Intransitive Verb: | |
| | (i) Unergative Verb; | (x < >) |
| | (ii) Unaccusative Verb; | (<y>) |

In (23a), both the external argument and the internal argument work to make up a cognitive integration of EVENT structure in a sentence. In (23b(i)), only the forward external argument

works, and it does not imply any EVENT structure of internal argument. This type of verb has been considered to be intransitive, especially unergative, and it tends to undertake the cognitive EVENT structure of ACTION. In (23b(ii)), only the internal argument works. That is, the patient in surface structure functions backwardly as agent in deep structure.

The oblique suffix *-ize* works either in transitive or unaccusative verb. If it is transitive, its structural scheme is like in (23a), and if it is unaccusative, its schematic frame is like in (23b(ii)). Consider the following:

- (24) The mother's strict discipline *womanized* her son.
 — *Kenkyusha's Dictionary of English Derivatives with Sample Sentence*
- (25) Yes, she had dug her husband out of political trouble over *womanizing*, as she did by standing beside him in the famous 1992 "60 Minutes" interview about Gennifer Flowers.
 — *Newsweek* 8/31/1998

The *X-ize* verb in (24) is transitive and it has the semantic function of causation in its cognitive interpretation. That is, we see here that the *mother's strict discipline* causes *her son* to become like a *woman*. The suffix *-ize* here derives a change-of-state verb from a noun. The abstraction from it can be schematized to be [A CAUSE B to BECOME LIKE X]. We also see in this interpretation a metaphorical text in terms of the common and shared knowledge that *his son* physically cannot become a *woman*. This is the case of the verb type (23a) where both external argument and internal argument function together. In this example, the agent as causer is *the mother's strict discipline* and the patient as causee is *her son*.

On the other hand, the *X-ize* verb in (25), which is characterized by the verb type (23b(ii)), is intransitive and its semantic interpretation is not characterized by causation. Its meaning is "to pursue women lecherously" (AHD). This is the case of unaccusative verb where only the internal argument works.

Furthermore, here are some additional cases where the transitive function does not work. Rather they are characterized by its function of intransitivity like in:

- (26) a. The first step to officially *apologize* is for its "wartime misdeeds".
 — *Japan Times*, 8/8/1999
- b. The young people *apostatized* from the cult. (AHD)
- c. Lucas prayed or *agonized* silently. (COBUILD 1987)
- d. "Well", I *temporized*, "you'll have to ask your mother." (ibid.)

In these examples, there is no grammatical element of causee or patient. In view of some analytical paraphrase, we may be able to provide the following paraphrases:

- (27) a. (its) *apology* for "wartime misdeeds"
- b. the young people's *apostasy* from the cult
- c. Lucas's *agony*
- d. my *temporizing*

Thus we claim that the semantic function of *X-ize* construction is not always limited to transitivity

and causativity. Causative verbs are transitive in so far as the two grammatical elements of the causer and the causee work out here as subject and object. As examples in (27) show, a certain kind of prepositional phrase is often necessary in their interpretation. And we see here some case assignments of Target, Source, Experiencer, and so forth.

6. PROCESS-EVENT and RESULT-EVENT in [Adj-ize] Construction

We discussed in the above section the variety of *X-ize* construction in English, where X is either an adjective or a noun. In this section we would like to focus upon the derivational process of [Adjective + *-ize*] combination. Consider the following:

- (28) a. John *modernized* his house.
 b. So when Kors was hired to *modernize* the LVMH-owned French fashion house a year ago, he aimed for synthesis.
 — Newsweek 3/15/199

In (28a) the subject *John* is the 'modernizer' and the direct object *his house* is the 'modernized' in its grammatical function. In other words, the 'modernizer' is the agent and the 'modernized' is the patient, where the ACT-ON process of modernization is realized between the agent and the patient. In other words, the subject functions as the agent which undertakes the cognitive function of ACT. Then the agent (*John*) functions as a causer and the patient (*his house*) is a causee to the effect that the suffix *-ize* functions as a marker of ACTION verb in the external argument. And the patient *his house* changes its condition from being *non-modern* to being *modern*. So we assume that *his house* results in becoming *modern* from *non-modern*. Thus, according to (16), the cognitive schematic interpretation of (28a) is:

- (29) [[ACT-ON (John, his house)] & [BECOME [BE (his house, modern)]]]

with the following generalized scheme:

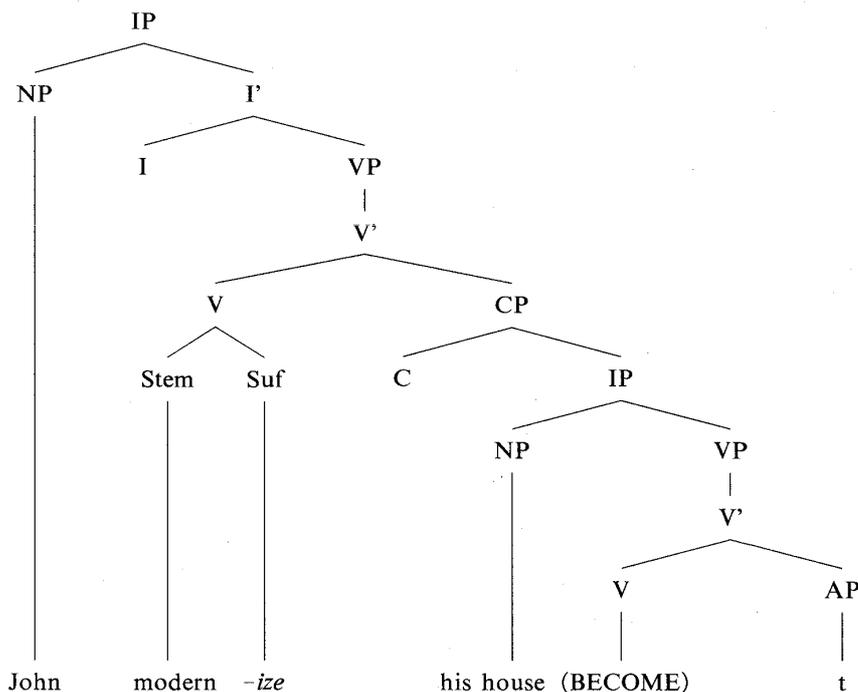
- (30) a. [[ACT-ON (A, B)] & [BECOME [BE (B, X)]]]

where the parameter A stands for an agent or an actor, and the parameter B stands for a patient, and X is an adjectival stem. The first half in this scheme undertakes the forward external argument structure of PROCESS EVENT and the second half undertakes the internal argument structure of RESULT EVENT which we symbolize by RESULT-IN like in (31).

- (31) b. [[ACT-ON (A, B)] & [RESULT-IN [BE (B, X)]]]

And the suffix *-ize* is a morphological and categorial marker of derived ACTION verb. Thus we claim that the *X-ize* verb in English turns out to be unaccusative when X is an adjective stem. Taking the above discussion into consideration, we would like to propose the following structural description of (28a):

(32)



where AP (*modern*), which is governed by IP (Inflectional Phrase) in CP (Complement Phrase), is raised to the stem node in V node which is governed by the initial IP, resulting in forming the surface V node *modernize*, retaining the trace *t* in the original node of AP due to the structure preserving principle.

Now we would like to assume that the structure preserving principle works not only in syntax but also in morphology. An affix, being a bound morpheme, takes obligatorily a free morpheme of stem word in order to construct a derived word in its productivity. In this case the suffix *-ize*, being a marker of a derived ACTION verb in the external argument structure, obligatorily takes the stem word which should be moved or raised from the lexical item in AP which is governed by VP in the internal argument structure.

Furthermore, in this *X-ize* construction, the initial IP node, being an external argument structure, forms P-EVENT, and the second IP node, being the internal argument structure, forms R-EVENT. In so far as the suffix *X-ize* is a marker of ACTION verb, its construction implies the cognitive function of its resultative event in the internal argument, and the stem node must be moved or raised from the morphological item in the internal argument. It is not B but X.

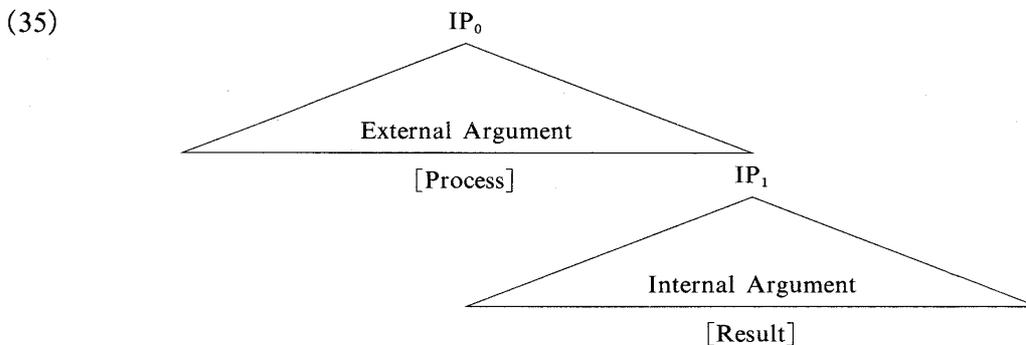
In other words, the structural linkage of the agent (*A*) to the suffix *-ize* represents the P-EVENT in the external argument structure. This implies at first that the agent (*A*) does some ACT onto the patient *B*. This is characteristic of P-EVENT, and the suffix *-ize* functions as a morphological marker of action verb. At the same time, the backward linkage of *B* (*his house*) to *X* (*modern*) is realized in the internal argument structure. This backward linkage implies the R-EVENT where a condition of the patient is changed into another condition due to its combination with [X]. Thus the entire semantic interpretation of (28a) is that [*John* did some ACT onto *the house*, as a result, *the house* became a certain state/condition of being *modern*]. Thus the linkage of *John* to *-ize* is structurally governed by the initial IP on the hierarchical level of the external argument. And the backward linkage of *his house* to *modern*, which is structurally governed by IP in the internal argument. This discussion is to be summarized as follows:

- (33) a. External Argument
John —> ACT-ON [-ize] <PROCESS EVENT>
 <forward event>
 [Governed by IP in External Argument]
- b. Internal Argument
His house —> *modern* <RESULT EVENT>
 <backward event>
 [Governed by IP in Internal Argument]

And the schematic generalization of the above discussion is to be summarized in the following way:

- (34) a. External Argument
 Agent (A) —> ACT-ON [-ize] <PROCESS EVENT>
 <forward event>
 [Governed by IP in External Argument]
- b. Internal Argument
 Patient (B) —> X <RESULT EVENT>
 <backward event>
 [Governed by IP in Internal Argument]

Thus we would like to summarize the structural and cognitive integration of the external argument structure and the internal argument structure in (34) as follows:



7. Lexical Conceptual Structure (LCS) in [N-ize] Construction

Lieber (1998) discusses the morphological implications of the suffix *-ize* in English in terms of the critical analysis against the structuralist approach. The suffix *-ize* has been considered to be a kind of lexical causative. And his discussion on the morphological process of causativization takes place by taking into consideration the semantic relationship between Lexical Conceptual Structure (LCS for short) and morphological productivity. What is stressed in his paper is that the category-changing causatives like *X-ize* tell us in part some knowledge about the cognitive system of synchronic and diachronic productivity in morphology.

Unlike the [Adj-ize] construction in Section 4, the schematic [N-ize] construction poses a number of complex and intricate problems in its cognitive system. That is to say, all the [N-ize] constructions are not always causative or inchoative.

According to Lieber (1998:13), the suffix *-ize* is the second most productive affix which forms derived verbs from nouns. Consider the following:

- (36) a. John *unionized* the workers.
 b. Mary *carbonized* the chemical stuff.
 c. Our teacher *summarized* our discussion.
 d. The government *economized* their natural resources.

Unlike the examples in (28), those in (36) are all characteristic of the schematic structure [A X -ize B], where A is the agent, B is the patient, and X is a noun stem. And their inner schematic LCS is different from each other. Lieber (1998:19-20) poses the following four classes of *N-ize* verbs as follows:

- (37) a. [_{Event}ACT ([_{Thing}], [_{Event}INCH [_{state}BE ([_{Thing}], [_{Place}AT ([_{Thing,Property}base N,A])])])])]
 (unionize, civilianize, epitomize, velarize)
- b. [_{Event}ACT ([_{Thing}], [_{Event}GO ([_{Thing}base N], [_{Path}TO/ON/IN ([_{Thing}]))])])]
 (carbonize, texturize, apologize)
- c. [_{Event}ACT ([_{Thing}], [_{Event}GO ([_{Thing}], [_{Path}TO ([_{Thing}base N])])])])]
 (summarize, hospitalize)
- d. [_{Event}ACT ([_{Thing}], [_{Manner}LIKE ([_{Thing,Property}base N])])]
 (cannibalize, economize)

In (36a) *John* is the agent and *the workers* is the patient, and the suffix *-ize* undertakes the morphological and semantic function of ACT. Furthermore, the agent undertakes the semantic role of actor, although it takes the inflectional form of the past tense. The interpretation of this sentence is: *John* did some ACT onto *the workers*, and as a result, they joined and organized a labor *union*. This is crucially different from the interpretive scheme of Lieber. According to Lieber, * *the workers BECOME* a *union*. However, *the workers* do not BECOME a labor *union* in any sense. Rather, our interpretation goes: *The workers* join and organize a labor *union* as a result of John's ACTION to *the workers*. This can be paraphrased in the following way, taking into consideration the agent in the external argument, symbolized by the preposition *by* and the complement in the internal argument, symbolized by the preposition *of* like in:

- (38) a. the *unionization* of workers (by John)
 b. the *carbonization* of the chemical stuff (by Mary)
 c. the *summarization* of our discussion (by our teacher)
 d. the *economization* of natural resources (by the government)

Here works the cognitive process of procedural PROCESS-RESULT strategy in the structural integration of the agent in the external argument and of the patient in the internal argument.

According to the above Lieber's LCS in (37), the key and primitive verbs represented in the

internal argument structure are BECOME in (37a), GO-TO in (37b) and (37c), LIKE in (37d). Taking into consideration the sample sentences in (38), we would like to describe the following:

- (39) a. [[ACT (*John*)] & [*the workers* BECOME a *union*]]
 b. [[ACT (*Mary*)] & [*carbon* GO-TO *chemical stuff*]]
 c. [[ACT (*Our teacher*)] & [*discussion* GO-TO *summary*]]
 d. [[ACT (*The government*), *natural resources*)] & [*natural resources*
 BE LIKE *economy*]]

However, as we discussed in the above, (39a) is neither distinct nor correct in its interpretive schematization. The interpretation of (39d) is vague and indistinct. It is therefore difficult in nature to make explicit adequately the variety of *N-ize* construction owing to the limited number of LCSs of *-ize* construction.

Thus we assume that implicational verbs in the schematic LCS in (37) cannot be exclusively specified into one verb to grasp the cognitive structure of *-ize* construction. What is significant is the fact that the condition of the patient, *the workers* is changed from being *non-unionized* into being *unionized*. Here works the crucial change-of-state function from the condition of being *non-X* to the condition of being *X* in so far as the suffix *-ize* is a morphological and categorial marker of change-of-state verb.

8. Implicational Verb (IV) in the Internal Argument

The *X-ize* construction in English is characteristic of the structural integration of the forward external argument and the internal argument. The former implies the P-EVENT where the agent of the derived verb does some ACT onto the patient and the latter implies the R-EVENT where the patient results in the change-of-state condition from being *non-X* to being *X*. Consider the following examples:

- (40) a. They *colonized* the island.
 b. Mary *hospitalized* her son.
 c. They *pasteurized* the milk.

These examples are characterized by [N-ize] construction, and the internal structure of R-EVENT is different from each other, although the derived verbs are change-of-state verbs. The *X-ize* construction consists of the two hierarchical levels of P-EVENT in the external argument and R-EVENT in the internal argument. We would like to schematize the basic interpretive structure of [A *X-ize* B] construction as follows:

- (41) [[ACT-ON (A, B)] & [RESULT-IN [IV (B, X)]]]

where [ACT-ON (A, B)] stands for P-EVENT, [RESULT-IN [IV (B, X)]] stands for R-EVENT, and IV represents the implicational verb in the interpretation of *X-ize* construction.

The interpretation of (40a) is: *they* (A) did some ACT onto *the island* (B), as a result, it BECAME (IV) a *colony* (X). In other words, the agent *they* (A) changed the state or condition

of the patient *the island* (B) into *colony* (X). Taking into consideration the cognitive integration of P-EVENT and R-EVENT, we would like to propose the following interpretative schematization as follows:

- (42) [[ACT-ON (*they, the island*)] & [RESULT-IN [IV <BECOME> (*the island, colony*)]]]

In (40b) the interpretation is; *Her son* (B) entered the *hospital* (X) owing to some *Mary's* (A's) ACTION to *her son*. In so far as ENTER is IV (implicational verb) in the internal argument in this construction, the interpretative schematization of (40b) is:

- (43) [[ACT-ON (*Mary, her son*)] & [RESULT-IN [IV <ENTER> (*her son, hospital*)]]]

In this example the target NP (*hospital*) follows after the ACTION verb of *X-ize*, and the implicational verb in the internal argument is [ENTER].

In (40c) the word *pasteurize* is originated from the well-known person name of the French scientist Pasteur. Thus this word is a new word coined or created by its scientific necessity. Our interpretation is: They did some ACT onto the milk (B), as a result, *the milk* (B) BECAME (IV) being pasteurized.

- (44) [[ACT-ON (*they, milk*)] & [RESULT-IN [IV <BE> (*milk, pasteurized*)]]]

This analysis which we generalized in (41) is applicable to the preceding examples:

- (36) a. John *unionized* the workers.
 b. Mary *carbonized* the chemical stuff.
 c. Our teacher *summarized* our discussion.
 d. The government *economized* their natural resources.

In (36a) our interpretation goes: John's some ACTION causes the *workers* to join or organize a labor *union*. The implicational verb (IV) is ORGANIZE in this case. Thus we would like to show below the interpretive schematization of (36a) as follows:

- (45) [[ACT-ON (*John, the workers*)] & [RESULT-IN [IV <ORGANIZE> (*the workers, labor union*)]]]

In (36b) our interpretation goes: Mary's some ACT caused *the chemical stuff* to change itself into *carbon*. The implicational verb (IV) in this case is <CHANGE-INTO>. Thus we would like to show below the interpretive schematization:

- (46) [[ACT-ON (*Mary, chemical stuff*)] & [RESULT-IN [IV <CHANGE-INTO> (*the chemical stuff, carbon*)]]]

In (36c) our interpretation goes: *Our teacher's* some ACT causes *our discussion* to get to a *summary*. The implicational verb (IV) in this case is <GET-TO>. Thus the interpretive schematization is:

- (47) [[ACT-ON (*our teacher*, *our discussion*)] & [RESULT-IN [IV <GET-TO> (*our discussion*, *summary*)]]]

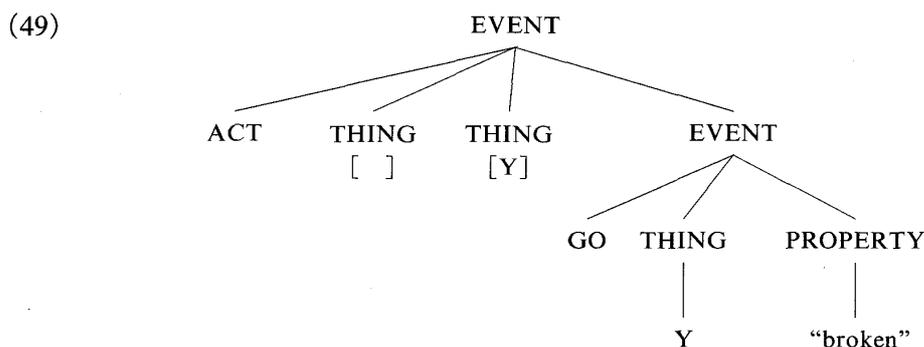
In the interpretation of (36d) *our budget* does not become *economy* in itself. It represents the effective use of *our budget*. Thus our interpretation goes: *the government's* ACT motivates their natural resources to become economical. Thus the implicational verb (IV) in this example is <BECOME>, and the interpretive schematization of this example is:

- (48) [[ACT-ON (*the government*, *natural resources*)] & [RESULT-IN [IV <BECOME> (*natural resources*, *economized*)]]]

Thus we don't see any key concept of LIKE in this example, which Lieber (1998: 13) proposed in (36d).

9. Change-of-State Verb and N to V Conversion

The change-of-state verb is typically exemplified by *break* whose lexical conceptual structure is formulated by Pinker (1989: 198) as follows:



where the agent/actor does some act of *breaking* something as a 'breaker' and the patient results in becoming *broken*. The patient changes its state/condition from being *not-broken* to being *broken*.

The same discussion goes to *X-ize* construction. It reflects the cognitive integration of P-EVENT and R-EVENT which typically implies: the agent does some ACT onto the patient, resulting in the patient's change of state from being *non-X* to *X*.

Lieber (1998: 17) proposes the analogous analysis of *X-ize* construction with N to V

conversion in that verbs formed with the suffix *-ize* are similar in some ways to verbs of N to V conversion. Lieber (1998) claims that they (Dutch prefixation *ver-* and English suffixation *-ize*) are like N to V conversion in that at least part of the Event that is created in conversation is determined by way of pragmatic inference.

According to Quirk et al. (1985:1558), conversion is the derivational process whereby an item is adapted or converted to a new word-class without adding an affix. Here are some examples of N to V conversion.

- (50) a. John *bottled* some whisky.
 b. They *blanketed* the fire.
 c. Mary *combed* her hair there.

Although there are no English words such as **bottlize*, **blanketize*, **combize*, N to V conversion takes place by way of the cognitive integration of P-EVENT and R-EVENT. In the above examples, the noun stem in the verb is moved to the head noun in prepositional phrase like in:

- (51) a. John put some whisky *into the bottle*.
 b. They extinguished the fire *with the blankets*.
 c. Mary cleaned her hair *with the comb*.

Verbs with N to V conversion are also characterized by the cognitive integration of P-EVENT and R-EVENT. In (50a) *bottle* is considered to be moved or raised from the noun stem of the prepositional phrase in (51a). The implicational verb in this example is <BEING PUT>. Thus according to (41), the interpretive scheme of (51a) is as follows:

- (52) [[ACT-ON (*John, some whisky*) & [RESULT-IN [IV <BEING PUT> (*some whisky, into the bottle*)]]]]

Thus an N to V conversion verb poses similar features to the derived verb in *X-ize* construction in that it is characteristic of the change-of-state verb. The noun, which is verbalized by conversion, is considered to be replaced by some implicational verb. However, the converted verb is not unaccusative. For example, *some whisky* cannot BECOME a *bottle*, or *some whisky* cannot change itself into any kind of *bottle*. And also *the fire* cannot BECOME *blanket*, or *the fire* cannot change itself into *blanket* in any way. And also *Her hair* cannot BECOME *comb*, or *her hair* cannot change itself into any form of *comb*. In addition, the implicational verb in (51b) and (51c) are passive like in:

- (53) a. [[ACT-ON (*they, the fire*) & [RESULT-IN [IV <BEING EXTINGUISHED> (*the fire, with the blankets*)]]]]
 b. [[ACT-ON (*Mary, her hair*) & [RESULT-IN [IV <BEING CLEANED> (*her hair, with the comb*)]]]]

Contrastively, the verb in *X-ize* construction is basically expected to be unaccusative in terms of the cognitive structure of R-EVENT. Furthermore the condition of change-of-state verb is characterized by the cognitive integration of the external argument of P-EVENT and the internal argument of R-EVENT. Consider the following:

- (54) a. Mary *theorized* his idea.
 b. They *colonized* the new territory.

In (54a), as a matter of fact, the patient *his idea* can BECOME a *theory* caused by some ACT by the agent *Mary*, and *his idea* can change itself into a *theory*. In (54b) the patient *the new territory* can BECOME a *colony* caused by some ACT by the agent *they*, and *the new territory* changes itself into a *colony*, and so forth. The backward cognitive structure of R-EVENT in (54a) and (54b) shows that the *X-ize* verb in the internal argument of R-EVENT turns out to be unaccusative. Thus we claim that *X-ize* verb in [A X-ize B] construction and the verb of N to V conversion are different from each other.

10. Conclusion

Verbs produced by derivation is ubiquitous in English. Some derived verbs are instantiated by change-of-state verbs. Among them are verbs with the suffix *-ize* which is one of category change suffixes in English. We first touched upon the variety of the spelling of *-ize* and *-ise* in American and British English. We took advantage of the e-mail report from *Linguist List* in January 20, 1999. We also reviewed the diachrony of the suffix *-ize* in OED, finding that this suffix first appeared some time about the end of the 16th century. We also found that it originally came from Greek derivative form, *-izein*, and later its latinizing from Greek took place in its diachronic process of affix change. In Section 2, we showed various kinds of *-ize* construction, referring to the basic schematization of the construction [A X-ize B] where A is the agent, B is the patient, and X is a free form stem of noun or adjective. In Section 3, we claimed that the inner mechanism of *X-ize* construction is characterized by its cognitive integration of PROCESS EVENT and RESULT EVENT. Then we pointed out that the forward external argument in *X-ize* construction undertakes PROCESS EVENT in the cognitive process of ACT and the backward cognitive structure of the internal argument undertakes RESULT EVENT. In Section 4, we attempted to provide a comparative analysis between *X-ize* construction in English and *X-ka•suru* construction in Japanese, both of which are acknowledged to be change-of-state verb. We also confirmed that the agent in *X-ize* construction plays an important role in forming an "undertaker" of PROCESS EVENT in its cognitive function on a par with the RESULT EVENT. In Section 5, we provided a discussion about the intransitive and non-causative function of *X-ize* construction like in *apologize* and *temporize*. Section 6 was devoted to the detailed analysis of change-of-state verb in *-ize* construction in terms of the cognitive integration of the external argument of PROCESS EVENT and the internal argument of RESULT EVENT. In Section 7, we focused on the cognitive

analysis of PROCESS and RESULT EVENTS in [Adj-ize] construction. Then we proposed the interpretive scheme of [A X-ize B] construction like in [[ACT-ON (A, B)] & [RESULT-IN [IV (B, X)]]]. In Section 8, we discussed Lieber's analysis of X-ize construction, along with the further discussion of Lexical Conceptual Structures (LCSs) in [N-ize] construction. In Section 9 we elaborated the discussion of the inner mechanism of the internal argument in RESULT EVENT. Our mental task of understanding suggests that there can be the variety of implicational verb (IV) in cognitive interpretive process in X-ize construction. Finally, we claimed that X-ize construction and N to V conversion are quite different from each other in its nature of unaccusativity.

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