A Note on Light Verb Ditransitives

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Ⅰ. Introduction

It is commonly assumed that linguistic knowledge is organized according to distinct components such as lexicon, a syntactic domain, a semantic domain, a phonological domain, etc. The present paper is concerned with how two such components, the syntax and the lexico-semantics, interact. As a case study, I focus on English ditransitive verbs that take three arguments, and discuss the mapping between syntax and semantics in light verbs and their non-light counterparts.

I start by giving a brief illustration of the data in section Ⅱ. I then

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critically review three recent theoretical accounts of the mapping between syntax and semantic structure in light verb ditransitives with a discussion of depictive modification in section III. Recently experimental studies of psycholinguistics have also begun to address the question of syntax-semantics mapping of light ditransitive constructions. In section IV, I survey the current state-of-the-art in psycholinguistic experimental research on light verb constructions and explore how experimental findings may bear on the different theoretical accounts of the light verb ditransitive constructions. Section V concludes the paper.

Ⅱ. Syntax-Semantics Mapping in Light Verb Ditransitives

Transitive verbs such as *kick* and *devour* in (1) require the presence of two arguments, i.e. they generally encode two-participant events, whereas ditransitive verbs with three arguments encode three-participant events, as we can see in (2). In (2), the ditransitive verbs *give* and *send* instantiate ordinary ditransitive double object constructions with Agent-Goal-Theme arguments.

    (1) a. John *kicked* the ball.
       b. The cat is *devouring* the rat.
    (2) a. John *sent* Mary a letter.
       b. A man is *giving* Jane a rose.

In addition to ordinary non-light uses of ditransitive verbs in (2), English ditransitive verbs like *give* also have light verb uses, as shown in (3). Light verb constructions consist of a semantically bleached light verb and an event

nominal.

(3) a. Romeo *gave* Juliet a kiss.
   (≈ Romeo kissed Juliet.)
   b. John *gave* Mary a kick.
   (≈ John kicked Mary.)
   c. The nurse *gave* the patient his medication.
   (≈ The nurse medicated the patient.)
   d. give x an exam (≈ examine x), give x an order (≈ order x)...

It is a common assumption that light verbs, as semantically bleached verbs, make relatively little contribution to the predicative meaning, and the main content is provided by the complement event nominal. Hence, *giving someone a kiss* in (3a) describes the same kind of event as *kissing someone*; *giving someone a kick* in (3b) is the same as an event of *kicking someone*. In (3c), *giving someone medication* may have an an ordinary transfer of possession interpretation, but it also has a light verb reading such as *medicating someone*.

   Although the light verb *give* in (3) appears in ditransitive syntactic frame with apparently three arguments in the subject, indirect object, and direct object position, it seems to describe a two-participant event with Agent and Patient arguments. Thus, there appears to be a mismatch in the mapping between syntax and semantics in violation of canonical mapping. We may consider three logical possibilities to address this problem of noncanonical mapping: (i) The different syntax-different semantics hypothesis: light verb ditransitives and non-light ditransitives have distinct structures and meanings. Unlike non-light ditransitives '*John gave Mary a book,*' the light verb construction '*John gave Mary a kiss.*' has a transitive structure syntactically, and as a consequence it also has two-argument semantics with the Agent and the Patient role; (ii) The same syntax-same semantics hypothesis: light verb

ditransitive constructions are assumed to have the same structure (i.e. ditransitive structure) and semantics as non-light ditransitive constructions. So, '*give a kick*,' for instance, is syntactically ditransitive and the standard thematic role assignment of Agent-Goal-Theme applies. The mapping is not noncanonical in this hypothesis; (iii) The same syntax-different semantics hypothesis: light verb ditransitives have the same ditransitive syntactic structure as non-light ditransitives, but they have different semantics, and the arguments of light verb ditransitives map onto an Agent-Patient event meaning rather than an Agent-Goal-Theme event meaning. This hypothesis claims that non-light and light ditransitive constructions have different mapping between syntax and semantics. Specifically, light verb constructions involve noncanonical mapping.

The following sections present important proposals from theoretical studies in Principles and Parameters model of grammar (Chomsky 2000), and critically review them in the light of both theoretical and psycholinguistic experimental findings in the literature.

III. Literature Review: Three Logical Possibilities

1. Low Applicative vs. Complex Predicate VP Analysis

Pylkkänen (2002, 2008) pays attention to the peculiar property of depictive secondary predicate modification in ditransitives. The sentences (4a) and (4b) show that depictive secondary predicates such as *drunk* and *raw* can modify the subject and the direct object, respectively. However, such depictive modification is not available for the indirect object, as was first noted by Williams (1980). In (4c), the depictive secondary predicate *drunk* cannot be predicated of the

indirect object *John* and it has to be associated with the subject *Mary*.

(4) a. John$_i$ drove the car drunk$_i$.
   b. Mary ate the fish$_i$ raw$_i$.
   c. *Mary told John$_i$ the news drunk$_i$.

On the contrary, light verb ditransitives allow depictive secondary predicate modification for apparent indirect objects, as shown in (5) (from Pylkkänen 2002, 2008, citing Mailing 2001).[2]

(5) a. The nurse gave the patient$_i$ the medication half-asleep$_i$.
   b. Victorian doctors preferred to give their female patients$_i$ a physical exam fully-dressed$_i$.

This contrast led Pylkkänen to propose distinct syntactic structures for light and non-light ditransitive constructions. She argues that ordinary ditransitives have a low applicative structure (see (6)), where two individual entities are assumed to be related by a possessive functional Appl(icative) head. Light-verb ditransitive verbs, on the other hand, do not project an applicative functional layer. The verb forms a complex predicate with the DO before merging with the IO, as in (7), and assigns the Patient/Theme role to the IO.

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2) In addition to depictive secondary predicate modification, light and non-light uses of *give* also differ in their aspectual properties, as observed by Huddleston and Pullum (2002) and Bruening (2016):

(i) a. He gave a scream. (bounded and probably short event)
   b. He screamed. (potentially unbounded)

(6) Low applicative structure (for ordinary non-light ditransitives)

... [$_{VoiceP}$ ...Voice [$_{VP}$ V [$_{ApplLP}$ IO$_{GOAL}$ [$_{ApplL'}$ ApplL$_{POSS}$ DO$_{THEME}$]]]]

(7) Light verb structure (for light ditransitives)

... [$_{VoiceP}$ ...Voice [$_{VP}$ IO [$_{V'}$ V DO]]]]

(complex predicate formation)

This approach corresponds to the first hypothesis we considered in the previous section. It is a different structure/different semantics approach. Ordinary non-light ditransitive constructions have a low applicative structure and a caused possession meaning (with Agent-Possessor Goal-Theme argument structure) as the presence of possessive Appl head encodes; Light verb ditransitive constructions, on the other hand, have a simpler VP structure without an applicative functional projection, and there is no transfer-of-possession meaning. The event-denoting DO forms a complex predicate with the verb and assigns the Patient thematic role to the IO. Semantically, they encode two-participant events with Agent-Theme argument structure.

2. Small Clause Analysis

Harley (2002) proposes that light verb ditransitive structures and ordinary non-light ditransitive structures are identical in that they have a possessive small clause structure P$_{HAVE}$P, as illustrated in (8), and both involve caused possession meaning with three participants. In this account, the verb *give* is the pronunciation of the light verb v_{CAUSE} combined with an abstract predicate HAVE.

(8) ... [$_{vP}$ [$_{v'}$ v_{CAUSE} [$_{HAVE}$P IO [$_{HAVE'}$ [$_{HAVE}$ DO]]]]]

(where P$_{HAVE}$P = Small clause)

Harley and Jung (2015) account for the contrast in depictive secondary predicate modification in (4c) vs. (5a,b) in terms of the eventive vs. stative interpretation differences of the DO in light and non-light ditransitives. The main point is that depictive secondary predicates can only modify events and may not modify states.

The verb *have* has a variable behavior between an eventive and a stative reading depending on the type of the complement it combines with. If *have* takes an event-denoting DP like *a massage* (9a), it has an eventive reading, and depictive modification is available for the subject. If *have* takes an entity-denoting DP like *a book* (9b), however, the sentence behaves as a (possessive) state, and depictive modification of the subject is illicit.

(9) a. John$_i$ had a massage drunk$_i$.
　　b. *John$_i$ had a book drunk$_i$.

In Harley (2002) and Harley and Jung (2015), ditransitive verbs have the same HAVE component in their lexical semantics. Extending the observation on the behavior of verbal *have* in (9) to ditransitives, Harley and Jung (2015) concludes that what is responsible for the contrast in the availability of depictive modification for the IO is not related to distinct structures and semantics. They argue that different event semantic type of the Theme argument is what makes the distinction in depictive modification between light and non-light ditransitives, given in (10a) and (10b), respectively. In light verb ditransitives (10a), the DO is an event-denoting DO and depictive modification is possible, whereas non-light ditransitives with an entity-denoting DO in (10b) resist being modified by depictive secondary predicates.

(10) a. John gave Mary$_i$ a kiss drunk$_i$. (event-denoting DO)
     b. *I gave John$_i$ a gift drunk$_i$.   (entity-denoting DO)

In sum, Harley (2002) and Harley and Jung (2015) correspond to the second hypothesis we outlined in section II. Light and non-light ditransitive constructions have the same structure and same semantics (i.e. argument structure with Agent, Goal, and Theme). The contrast in depictive modification is not due to different syntactic structures or argument structure; it is attributable to different event-semantic nature of the DO.

3. High Applicative Analysis

Bruening (2010) argues against both low applicative analysis and small clause analysis for ordinary ditransitives, and proposes a high applicative analysis (11) for non-light ditransitives, following Marantz's (1993) original applicative proposal for ditransitives across languages. An applicative head is merged above the lexical VP and introduces an extra object (i.e. IO). This high applicative head relates theIO to an event which is syntactically realized as a VP.

(11) [$_{VoiceP}$ ...Voice [$_{ApplHP}$ IO$_{GOAL}$ [$_{ApplH'}$ ApplH [$_{VP}$ V DO$_{THEME}$]]]]

In Bruening (2015), Harley's small clause analysis is criticized and the high applicative analysis is extended to light ditransitives. Bruening shows that when a depictive secondary predicate modifies the direct object, it holds true throughout the causing event and not just during the result state of HAVE. However, in small clause analysis of ditransitives, neither the DO nor the IO is represented as a participant

in the causing event. This is a big problem for the small clause analysis.

Bruening presents other problems as well. Let's consider two such problems. First, when the indirect object of non-light ditransitives undergoes passivization, it can be modified by depictives as in (12b). This suggests that Harley's semantic account of eventivity vs. stativity is not sufficient and that syntactic consideration is called for.

(12) a. *He told me$_i$ the news drunk$_i$.
     b. I$_i$ was told the news drunk$_i$.

Another problem is found in light ditransitives. Although the indirect object of light ditransitives allow depictive modification as we see in (5), there is a certain class of light ditransitives whose indirect objects resist depictive modification, as in (13). In (13a) and (13b), depictive secondary predicates cannot modify the indirect object, and they can only be predicated of the subject. The indirect object can be modified by a depictive only if the direct object is one that takes a logical object as in (5). The direct objects *shout* and *smile* in (13) do not take a logical object and depictive modification is not allowed.

(13) a. *He gave us$_i$ a shout drunk$_i$.
     b. *He gave us$_i$ a smile still groggy$_i$.

To handle these problems, Bruening classifies light ditransitive into three subclasses: causative *give*, 'produce' *give*, and true light verb *give* (which is our main concern here).

As for the true light verb *give*, Bruening proposes the structure in (14), which is the same structure as non-light ditransitives. The verb encodes the meaning of completely bleached transfer event (i.e. *g-*),

and the Appl head has a benefactive meaning (Appl$_{for}$). The semantic flavor of this Appl head is different from that of Appl head in non-light ditransitives (Appl$_{Poss}$).

(14) [$_{VoiceP}$ ...Voice [$_{ApplP}$ IO$_{GOAL}$ [$_{Appl'}$ Appl$_{for}$ [$_{VP}$ V$_{g^-}$ DO$_{THEME}$]]]]

The difference between light ditransitives and non-light ditransitives is in (i) the different semantic types of event nominals and entity nominals and (ii) the mode of combining these nominals into the structure. Bruening, in particular, argues that event nominals are of type <e, vt> and light verbs combine with event nominal complements by Predicate Modification since both light verbs and event nominals are of the same type. As the root *g-* drops its first argument it does not take the event nominal as an argument but rather conjoins with it. Some parts of the semantic denotation for the light ditransitive sentence '*I gave him a kick.*' are given in the following (15). Compare its ApplP denotation in (15d) with the denotations of VP and ApplP for non-light ditransitives given in (16), where the Theme is combined as a canonical verbal argument.[3]

(15) I gave him a kick. (from Bruening 2015:24)
    a. ⟦ g- ⟧ = λx.λe. G(e) & RECIPIENT(e,x)
          (dropping first arg.)
    b. ⟦ a kick ⟧ = λx.λe. KICK(e,x)
    c. ⟦ VP ⟧ = ⟦ g-a kick ⟧
         = λx.λe. G(e) & KICK(e,x) & REC(e,x)
    d. ⟦ ApplP ⟧ = λe.G(e) & KICK(e,him) & REC (e,him) &
           FOR (kick,him)

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3) I change the verb from *kick* as in '*I kicked him the ball.*' to *give* for the ease of understanding.

(16) I gave Maria the ball. (from Bruening 2015:10)
    a. ⟦ give ⟧ = λx.λy.λe. GIVE(e,x) & GOAL(e,y)
    b. ⟦ ApplP ⟧ = λe. GIVE(e,ball) & GOAL(e, Maria) &
               e culminates in e'.HAVE(e',ball) & PSSR(e',Maria)

To sum up, in Bruening's approach, light and non-light ditransitives share the common syntactic structure (i.e. the high applicative structure), but they differ in terms of the semantic flavor of the applicative head, the semantic type of verbal complements, and the mode of combining verbal head and its complement. In addition, only non-light ditransitive have possessional meaning with three arguments. This account roughly corresponds to the third hypothesis we considered in the previous section.

Ⅳ. Theoretical Disputes and Experimental Findings

This section highlights some conclusions from experimental studies of psycholinguistics on light verb constructions that might shed lights on theoretical disputes between competing theories we considered in section Ⅲ. First, Wittenberg and Snedeker's (2011) experiments show that light-verb ditransitives prime non-light ditransitives as effectively as other non-ditransitives do; i.e. there is strong priming from light to non-light ditransitive constructions. Priming effects are found to exist the other way around from non-light to light as well. In other words, light verb primes syntactic structure just like their non-light counterparts do. According to Bock and Loebell (1990), priming can occur between utterances that have similar surface structures. Wittenberg and Snedeker's results, thus, suggest that light and

non-light constructions have the same surface syntactic form. If light-verb ditransitives have a different syntactic structure from non-light ditransitives, they should act as a less effective prime for non-light ditransitives. This experimental finding disfavors Pylkkänen's (2002, 2008) low applicative vs. complex predicate VP analysis.

Second, Wittenberg and Snedeker's (2013) event-categorization experiment tests whether participants sort non-linguistic events as two-role or three-role events. If light verb ditransitives have the same semantics as the non-light ditransitives, as the second hypothesis like the small clause analysis would suggest, participants would interpret the construction as a three-role event; However, if light verb ditransitives have a different meaning from non-light ones and involve noncanonical mapping as the third hypothesis assumes, they ought to treat light verb ditransitives as two-role events. In the experiment, on 75% of the trial, participants interpreted light verb ditransitive sentences as a two-role event with Agent-Patient in spite of the surface ditransitive syntax, lending support to the third hypothesis. However, on a minority of the trials, participants still sorted light verb sentences as a three-role event with Agent-Goal-Theme, showing that light verb constructions are sometimes interpreted as having three participants. It seems that light verb constructions (e.g., *John gave Mary a kiss.*) are sorted differently from both base-verb sentences (e.g., *John kissed Mary.*) and canonical three-role events (e.g., *John gave Mary a book.*). Overall, according to Wittenberg and Snedeker, these experimental results suggest a three-way distinction between events denoted by light verb ditransitives, canonical transitive events with Agent-Patient, and canonical ditransitive events with Agent-Goal-Theme. Although noncanonical mapping appears to be strong and to affect event construal in general, there exists a subtle influence of syntactic structure onto the conceptualization of events.

Participants rely on the verb meaning (e.g., semantically bleached light *give* vs. fully lexical non-light *give*), but the construction type (i.e. ditransitive syntactic structure) also plays a role in sorting the stimuli and conceptualizing linguistically-encoded events. Although the role of canonical mapping in interpretation is not absent, we can conclude that light verb ditransitives typically involve noncanonical mapping to the event structure of the base verb.

In terms of processing resources, processing load between light and non-light ditransitives would be similar if the second hypothesis is correct. By contrast, if the third hypothesis is on the right track, we would expect different processing efforts between light and non-light ditransitives. Piñango *et al.* (2006) test the processing of ditransitives and find that light verb ditransitives require longer and increased reaction times. In other words, light verbs are processed more slowly than the same verb in non-light uses. It suggests that processing cost is higher for light uses than non-light uses. Wittenberg *et al.* (2014) propose what they call 'co-event hypothesis' that can capture this processing result. In the co-event hypothesis, light verb ditransitives have the same syntactic structure as non-light ditransitives but the mapping between the syntax and semantics is different, as shown in (17) (Wittenberg *et al.* 2014:63). They say that a co-event is not a canonical semantic argument of the event denoted by the verb but is rather a further specification of the event type itself. The event denoted by the construction is both a giving (of some sorts) and a kissing. As light ditransitive verbs select a co-event instead of a Theme, there is a noncanonical mapping between syntax and semantics, which yields the effect of argument sharing.

(17)   Henry gave Elsa   a kiss.
        roles of *give*: Agent   Beneficiary co-event
        roles of *kiss*: Agent   Patient

In this approach, an additional operation is involved in light verb ditransitives to align the thematic roles of the verb and the event nominal even though light and non-light ditransitives have the same syntactic structure and structure-building operations. The additional operation might require more processing efforts in light uses of ditransitive verbs. This result, again, favors the third hypothesis (i.e. same syntax-different semantics hypothesis) over the second (i.e same syntax-same semantics hypothesis).

Both Wittenberg *et al*.'s (2014) co-event hypothesis and Bruening's (2015) hypothesis belong to the third approach in section III. Wittenberg *et al.* (2014) is an analysis couched in Jackendoff's (2002) Parallel Architecture model of grammar, and the higher processing cost is attributed to additional operation of thematic role alignment between the light verb and the event nominal. Bruening's (2015) approach, on the other hand, is couched in Chomsky's (2002) Principles and Parameters theory and the Minimalist Program. In his approach, combining the DO through noncanonical Predicate Modification instead of canonical functional application of arguments can be taken to involve derivational complexity and incur processing cost. In his later work, Bruening (2016) proposes a slightly different analysis. He argues that light verbs are just regular verbs, and analyzes light verb constructions as involving regular verb-complement combinations. The analysis, though, needs the mechanism of control into an eventive NP, as in (18).

(18) John$_i$ gave Mary$_j$ [a KISSER$_i$ kick KISSEE$_j$].

As the light verb *give* is treated as a regular ditransitive verb, it belongs to the same syntax approach; but since the control relation is involved in the interpretation of light verb ditransitives, it is a different semantics approach. Bruening (2016:59) mentions that his analysis is consistent with processing experiments because the processing slowdown is plausibly attributable to the need to process the event nominal with control. In other words, establishing the control relation might correlate with processing efforts.

To encapsulate the forgoing review of psycholinguistic experiments, light and non-light ditransitives can be said to have the same syntactic structure and share some parts of argument structure but light ditransitives have more complex event structure, invoking a mismatch between syntactic and semantic structures. Experimental findings to date help us to choose between competing theoretical analyses presented in section III. Bruening's (2015, 2016) analyses fare better than Pylkkänen's analysis and Harley's analysis.

Ⅴ. Concluding Remarks

There is a mismatch between syntax and semantics in light verb ditransitives. This paper provided a critical review of three competing theoretical approaches that have been proposed to handle the problem. I showed that some of the findings emerging in psycholinguistic experiments might arbitrate between competing theoretical analyses. The same syntax-different semantics approach is favored over the other two approaches from both theoretical and experimental aspects.

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<국문요약>

경동사 이중타동구문에 대한 소고

이주은

영어의 경동사 이중타동구문은 두 개의 목적어를 취하는 통사구조를 가지고 있지만 의미적으로는 한 개의 내재논항만을 취하는 구조이므로, 통사-의미 구조 사상에 있어서 불일치 현상을 보인다. 본고에서는 이러한 불일치 현상을 설명하는 주요 선행분석 세 가지를 이론언어학적 관점에서 묘사술어와 관련하여 비교·고찰하고, 심리언어학의 점화효과 및 언어처리효과 관련 실험결과에 비추어 경동사 이중타동구문과 일반 이중타동구문의 관계를 동일한 통사구조-상이한 의미구조로 보는 분석이 가장 타당한 접근법임을 주장한다.

Key Words : 이중타동구문, 경동사, 비정형적 통사-의미 사상, 묘사술어, 점화효과, 언어처리