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A COMPARATIVE STUDY OF DOUBLE-OBJECT CONSTRUCTIONS IN ENGLISH AND THAI: THE MINIMALIST PROGRAM AND CONSTRUCTION GRAMMAR

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This paper studies the double-object construction in English and Thai within the frameworks of the Minimalist Program and Construction Grammar. It aims to examine the cross-linguistic properties of this construction to see if these properties can answer the controversial question of why only a small group of verbs can occur in double-object patterns. The results of the comparative study lead to two major conclusions. First, they reveal that the double-object construction, involving three NP arguments, is associated with a set of closely related senses of transfer. Such a semantic constraint and a syntactic property of the construction, i.e., the interaction between roles, account for its restricted occurrence. That is, the distribution of this linguistic structure is motivated by the meaning of the construction and the fusion of the construction's argument roles and the verb's participant roles. Second, the results of the study show that a linguistic theory that aims to explain this argument structure should include syntax, semantics, and distribution in its scope of analysis. According to this criterion, CG gives a better account of the construction. By associating each argument structure with a particular semantic core, CG can provide answers to the questions about the shared syntactic and semantic properties of the double- object pattern and the cross-linguistic effect these properties have on the distribution of the construction.

1. INTRODUCTION.

1.1 DEFINING DOUBLE-OBJECT CONSTRUCTIONS. *A Double-object construction* (DOC) refers to a construction in which a verb takes two NP objects as its complements.[1] This construction occurs in few languages, e.g., in English but not French; in Korean but not Japanese. Even in languages where it is found, relatively few verbs permit the double-object pattern (O'Grady 2001).

English

I **taught** Joe math.
*I **explained** Joe math.

Korean (data from O'Grady 2001:62)

Nay-ka	John-ul	i	kes-ul	**cwu-ess-ta**
I-Nom	John-Acc	this	thing-Acc	give-Pst-Decl

'I gave John this.'

*Nay-ka	John-ul	i	kes-ul	**malhay-ss-ta**
I-Nom	John-Acc	this	thing-Acc	tell-Pst-Decl

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[1] The double-object and dative constructions are often referred to as the *after-verb structure* and the *after-preposition structure*; these terms specify the position of the IO in each of the two constructions (Yule 1998). Many people also refer to the DOC as the *ditransitive structure* to indicate the number of object arguments the verb takes.

'I told John this.'[2]

The purpose of this paper is to compare two different approaches—the Minimalist Program (MP) and Construction Grammar (CG)—to the DOC in English and Thai. The results of the study suggest a hint of cross-linguistic properties of this construction in terms of syntax, semantics, and distribution. Syntactically, the DOC consists of three NP arguments. Semantically, it encodes a sense of transfer. Only certain semantic classes of verbs can occur in this construction. Such restricted distribution is motivated by the meaning of the construction and the type of legitimate fusion of the argument roles and the participant roles. Moreover, although both MP and CG can maintain their basic assumptions to account for double objects in the two languages, the analysis points out the strengths of CG in that it can account for the syntactic, semantic, and distributive properties specific to the construction. Under the assumption that each argument structure construction is associated with a meaning basic to human experience, CG can provide the cross-linguistic properties of the DOC, i.e., its core meaning of transfer, its fusion with the verb's meaning, and the way these two factors constrain its distribution.

The paper is organized as follows. Section 1 summarizes the derivational analysis of the DOC, its advantages, and its disadvantages, which call for an alternative approach to looking at this construction as an independent structure. Section 2 presents the analysis of the DOC in English, based on two non-derivational frameworks of MP and CG. Section 3 is the study of a set of data concerning the DOC in Thai, collected from native speakers' grammaticality judgments. Section 4 shows the analysis of the DOC in Thai in terms of MP and CG theories. Section 5 discusses the results of the comparative study, regarding both the cross-linguistic properties of the construction and the validity of the frameworks.

1.2 LITERATURE REVIEW: DERIVATIONAL ANALYSIS OF THE DOC. Work within the generative syntactic approach traditionally regarded the DOC as a structure derived from the dative construction (DAT), suggesting that the two constructions, sharing a common deep structure, were synonymous. For example, Larson (1988), working within the Government and Binding (GB) theory, proposed a derivational relation between the two structures. According to this view, dative complement constructions, e.g., *John gave a letter to Mary*, involve an underlying clause-like VP whose subject is *a letter* and whose object is *(to) Mary*. This inner constituent is obscured at the surface structure by an operation of *V Raising*, through which the verb raises to adjoin to a functional head, Infl. (Inflection), and then receives tense and agreement information.

D-structure: John [$_{VP}$ a letter [$_{V'}$ give to Mary]]

S-structure: John give [$_{VP}$ a letter [$_{V'}$ t to Mary]]
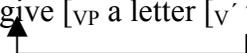
Double objects can be syntactically derived by *Dative Shift*, a transformational rule that has the same operations responsible for passive sentences: withdrawal of Case from an object position and suppression of the thematic role assignment to a subject position. First, Dative Shift absorbs the Case assigned to the IO in the dative *John gave a letter to Mary*. That is, the preposition *to*, having the status of Dative marking, is absorbed. Second, the theta-role assigned to the subject of VP (the DO role) undergoes demotion, reducing this position to non-thematic

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[2] Nom = Nominative, Acc = Accusative, Pst = Past, Decl = Declarative

status and demoting the DO *a letter* to be a V′ adjunct. Third, the IO *Mary,* which is caseless in its base position, undergoes NP Movement to the VP subject position. Finally, the verb *give* raises into V-head position, yielding the S-structure *John gave Mary a letter*.

FIGURE 1. V Raising VS. Dative Shift + V Raising.

```
        VP                                    VP
  Spec V′   V′                          Spec V′   V′
      Vi        VP                          V         VP
     give   NP      V′                     give   NPi      V′
            △      Vi    PP                       Mary   V′    NP
          a letter  t    △                              V  NPi  △
                      to Mary                            t   e  a letter
```
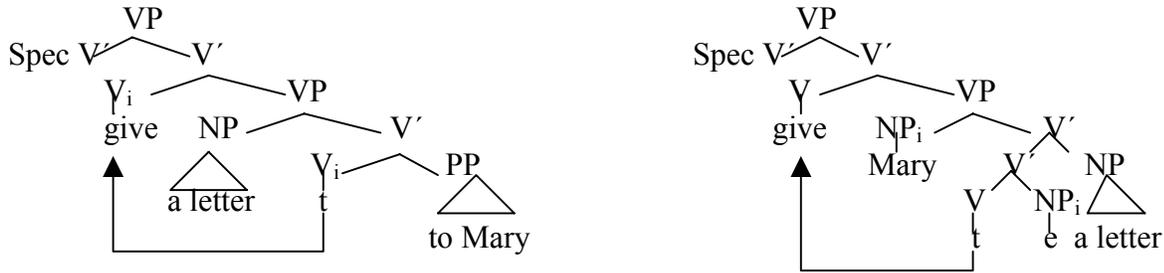
One advantage of such an analysis is that it can explain certain asymmetries in the DOC (Barss and Lasnik 1986), which suggest that the first NP c-commands the second, but not vice versa.[3] For example, reflexives and reciprocals must be c-commanded by their antecedents. Double-object structures show an asymmetry with respect to the licensing of anaphors.

> I showed Mary herself.
> *I showed herself Mary.

A quantifier must c-command a pronoun at S-structure if it is to bind it. Double-object structures show asymmetries regarding quantifier pronoun binding possibilities.

> I gave every worker$_i$ his$_i$ paycheck.
> *I gave its$_i$ owner every paycheck$_i$.

These asymmetries observed with V-NP-NP structures occur with V-NP-PP structures as well, which supports the derivational relationship between the two structures.

> I showed Mary to herself.[4]
> *I showed herself to Mary.

> I gave every check$_i$ to its$_i$ owner.
> ?I gave his$_i$ paycheck to every worker$_i$.

1.3 STATEMENTS OF PROBLEMS. While the derivational analysis provides some insights to the similar characteristics of the two structures, i.e., the asymmetries of the two NPs, several problems remain unsolved. The transformational association is not sufficiently systematic to warrant an analysis in which one structure is derived from the other (Collins 1995). One problem involves ditransitive expressions that have no dative counterpart. If the ditransitive was

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[3] The two most frequently assumed structures for double objects are:

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a.          VP                    b.                VP
       V    NP1   NP2                          V′         NP2
                                          V         NP1
```

(a) is the structure for double objects proposed by Oehrle (1976); (b) is the one proposed by Chomsky (1981). According to Larson's (1988) analysis, under a definition of c-command based on first branching nodes, NP1 and NP2 mutually c-command each other in (a); hence, this structure predicts no asymmetries in relations based solely on hierarchical structure. In (b), NP2 asymmetrically c-commands NP1, predicting that the latter is in the domain of the former but not conversely. Both sets of predictions are contradicted by the facts observed by Barss and Lasnik (1986). Under a definition of c-command based on containment in maximal projections, NP1 and NP2 will

mutually c-command each other in both (a) and (b), predicting no asymmetries of syntactic domain. Again, this prediction is falsified by the data observed by Barss and Lasnik.

[4] Not all speakers consider this sentence acceptable; moreover, it is acceptable only in some circumstances.

derived from the dative, how could one explain the following cases, where there are no dative expressions from which the corresponding ditransitive sentences are assumed to derive?

> The manager allowed him a three-minute break.
> *The manager allowed a three-minute break to him.

> This car cost me a lot of money.
> *This car cost a lot of money to me.

Moreover, the derivational analysis ignores the question of why the application of Dative Shift is restricted; not all verbs can occur in the DOC. Goldberg (1992) referred to the restriction regarding a limited set of verbs that are allowed in the DOC as "partial productivity," i.e., the double-object pattern may be used somewhat but not completely productively; verbs of apparently similar meaning show differences as to whether they allow ditransitive syntax.

> John gave money to the hospital.
> John gave the hospital money.

> John donated money to the hospital.
> *John donated the hospital money.

Therefore, in order to deal with these problems, more recent syntactic theories, e.g., MP and CG, typically consider the DOC as an independent structure, with no derivational relation with the DAT. Moreover, several of these theories attempt to find the properties specific to the construction, which finally lead to a better understanding of its nature as well as the mechanisms responsible for its restricted occurrence.

2. ANALYSIS OF THE DOC IN ENGLISH: MP AND CG.

2.1 MINIMALIST PROGRAM. One syntactic theory that gives an analysis of the English DOC is MP, an approach that focuses on optimal realizations of interface conditions. In this framework, a linguistic expression consists of two kinds of structural representations: (i) a representation of those aspects of the structure of the sentence that determine its *phonetic form* (PF); and (ii) a representation of those aspects of the structure of the sentence that determine its *logical form* (LF). PF and LF are the two levels at which the grammar interfaces with other systems outside the domain of the theory of grammar. PF representations serve as input to articulatory-perceptual systems, and LF representations serve as input to conceptual-intentional systems (Radford 1997).

The derivation of a linguistic expression is a continuous process, starting from *Numeration* and continuing to the final step, where it receives *Full Interpretation* at LF. Numeration refers to a set of lexical items chosen for a derivation of a linguistic expression. Throughout the process of derivation, various syntactic operations, such as Select, Merge, and Move can take place. Spell-Out is the point where the PF information is taken off and sent to the PF component.

Spell-Out

MP accounts for the derivation of the DOC like *John gave Mary a letter* as follows. First, the verb *give* merges with the NP *a letter*, assigning it the theta-role Patient. This in turn merges with *Mary*, which is compositionally assigned the Recipient by V′, to form the VP. The resulting VP merges with the *abstract causative light verb*, v, whose Agent is *John*, and the verb *give* then adjoins to this light verb (Radford 1997).[5]

FIGURE 2. First steps of the derivation of the DOC.
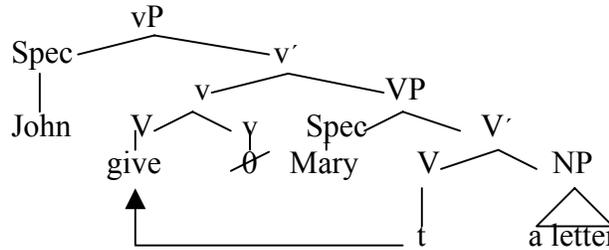

Next, the vP structure merges with AgrP's and TP, and several kinds of movement take place so that all [-interpretable] features can be checked and deleted.[6] These movements, all of which are

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[5] The causative light verb, v, is part of the *VP Shell concept*, which applies only to transitive and unergative verbs: VPs have a complex structure, comprising an inner VP core and an outer vP shell. The VP Shell analysis is motivated by *Uniformity of Theta Assignment Hypothesis* (UTAH), which holds that identical thematic relationships are represented by identical structural relationships between the items at the level of D-structure; e.g., spec-vP is the canonical position associated with an Agent argument (Radford 1997).

The VP Shell hypothesis helps relate several structures at the D-structure. For example, the NP *the ball* in (a) is assumed to occupy the same underlying position as the one in (b), since both are the Theme argument:
a) The ball rolled down the hill.
b) We rolled the ball down the hill.
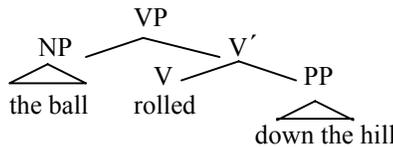
The surface difference arises from different steps of derivation. In (a), the resulting VP then merges with AgrP and TP. In (b), there is an additional intermediate step: the VP merges with v and the verb adjoins to v′.
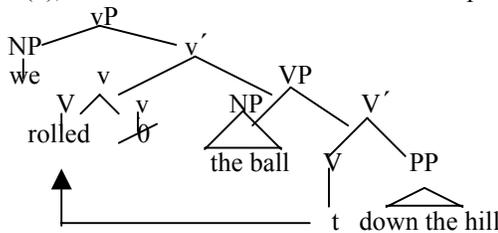
[6] According to the MP framework, each lexical item is a bundle of features. Features are either [+interpretable] or [-interpretable]. [-interpretable] features are not legitimate LF objects and must be checked and eliminated by the time the derivation reaches LF. The operations of feature checking are as below:
A feature is deleted when checked by a matching feature.
A feature is checked in a Spec-head relation.
A feature is checked by adjoining to the head with a matching feature.
Feature checking can take place before or after Spell-Out. Strong features must be checked before Spell-Out, while weak features must be checked after Spell-Out. Checking of a feature F before Spell-Out, referred to as *overt*

movement, moves the whole lexical item that contains F. Feature checking after Spell-Out, or *covert movement*, moves only the relevant feature (Chomsky 1995).

feature-driven, can be divided into seven steps. First, the verb *give* further adjoins to AgrDo and subsequently to AgrIo. This movement is motivated by the V-feature of both Agro's. As a result, the ɸ-features of verb and the V-feature of the two Agro's are checked and deleted. Second, the DO *a letter* moves to [Spec, AgrDo] to check its Case feature with the verb's Case feature. Third, the IO *Mary* moves to [Spec, AgrIo] to check its Case feature with that of the verb. Fourth, triggered by the V-feature of T, *give* moves further and adjoins to T. Fifth, T moves and adjoins to Agrs; this movement is motivated by the T-feature of Agrs. Sixth, motivated by the strong D-feature of T, *John* moves to [Spec, T] to satisfy the *Extended Projection Principle* (EPP), which requires that [Spec, T] be realized.[7] Finally, driven by the Case feature, *John* moves subsequently to [Spec, Agrs]. At this position, its Nominative feature is checked against the Nominative feature of T.

FIGURE 3. The complete derivation of the DOC in English.

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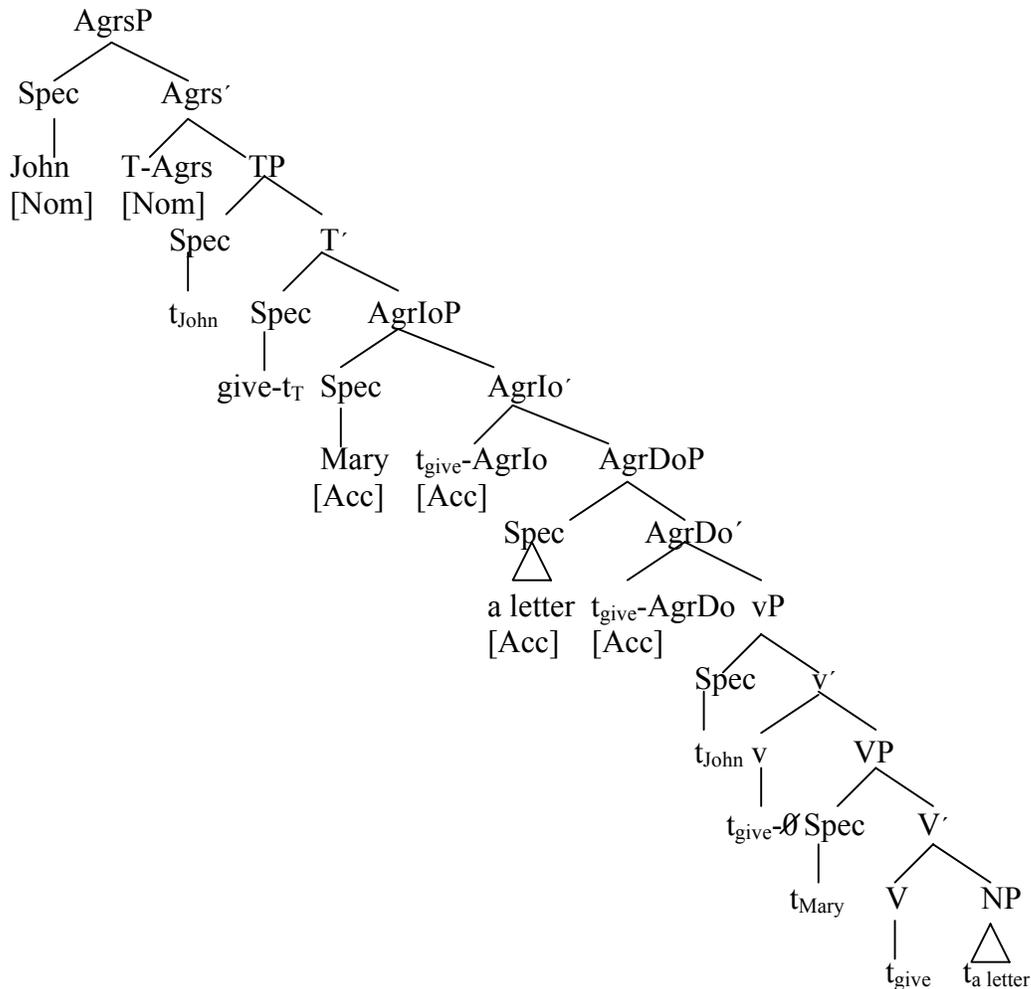
[7] EPP was originally a requirement in GB that sentences have subjects (Haegeman 1991). This principle also has a place in the grammar of MP, which requires that [Spec, T] be realized.

Note that due to *Procrastinate*, most of these movements are covert; they take place after Spell-Out.[8] Only the movement of T to Agrs and those of *John* to [Spec, T] and [Spec, Agrs] are overt. Due to these two overt movements, English is a language in which the subject usually comes before the verb (SVO).

After the checking, all [-interpretable] features, including Case and Agreement features of nouns, and ϕ-features of the verb, are deleted. Only [+interpretable] features, e.g., categorial features and ϕ-features of nouns, are legitimate objects at LF and maintained in order to interpret the meaning of the sentence.[9]

In sum, MP stipulates that the DOC differs from other constructions in two major aspects:

1. One specific property of the DOC involves Case. Chomsky (1986) distinguished two types of Case assignment: *structural Case assignment*, which depends solely on government, and *inherent Case assignment*, which depends on government and theta role assignment. Since the verb of the DOC takes two object arguments, it probably possesses the two types of Accusative Case, i.e., one structural and one inherent. Given that for inherent Case, the Case assigner must also theta-mark the Case assignee, the DO, which is directly theta-marked by the verb, should have inherent Case, while the IO, which is compositionally assigned a theta role by V´, has structural Case.

2. Radford (1997) suggests that the DO and the IO should move to different positions. That is, there are two types of Agro in the DOC: AgrDo and AgrIo. This division is motivated by Case checking. Since Case is a [-interpretable] feature, both NP objects need to check their Case. Such checking needs to be done on separate Agro heads so that each object can enter into a checking relation with the verb, and its Case feature can match the appropriate type of Accusative discharged by the verb.[10]

To account for the restricted occurrence of the DOC, MP relies on the lexical representation of verbs (Larson 1988). Only verbs that are inherently ditransitive can occur in the DOC. That is, the ability of verbs to occur in the DOC is determined by their inherent features; only transitive verbs with the feature "inherent Accusative" are allowed in double-object patterns. Since these verbs contain two Accusatives (inherent and structural) in their feature inventory, they are able to check the Case of the two object NPs. Due to their unique features, verbs occurring in the DOC are assumed to differ from the ones occurring in the DAT, which results in multiple entries for verbs that can be used in both constructions. For example, *give* in *John gave Mary a letter* is regarded as a verb with its own set of features, distinguishing it from *give*

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[8] In order to ensure that a syntactic operation is carried out in the optimal way, MP stipulates several *Economy Principles*, including:

Shortest Move: A derivation must keep to the shortest moves.

Procrastinate: Covert movement is cheaper than overt movement.

Greed: A constituent may not move to satisfy the needs of some other constituent (Chomsky 1995).

[9] Chomsky (1995 and subsequent work) argues that there is no such functional head as Agr. Case-feature checking is done inside vP and TP without Agr as a medium.

[10] As to the question of how inherent Case is checked, Lasnik (1995) proposes that inherent Case, like structural Case, is licensed in the Spec-head relation, and that there are two requirements for the licensing of inherent Case—a Case feature and a theta role feature. In line with these assumptions, the verb in the DOC, when adjoining to AgrDo, discharges its inherent Accusative Case and also the theta role Patient. Next, it moves to AgrIo and discharges its structural Accusative Case. When the DO moves to [Spec, AgrDo], its inherent Accusative and its theta-role feature are checked against those of the verb simultaneously. For the IO, when it moves to [Spec, AgrIo], only its structural Accusative is checked against that of the verb.

in *John gave a letter to Mary*, which contains only one type of Accusative, i.e., structural Accusative.

To sum up, MP focuses on the syntactic derivation of the DOC. According to this approach, the DOC syntactically differs from other constructions in that the verb has two Accusatives and that there are two types of Agro. MP deals with the restricted distribution of the DOC by stipulating a specific set of inherent features of verbs. Only verbs with two Accusatives can occur in the ditransitive structure, and such property of verbs is lexically determined (Larson 1988).

2.2 CONSTRUCTION GRAMMAR. In MP, the derivation of a linguistic expression starts with the selection of lexical items containing specific features: a syntactic construction is thus considered as an outcome, resulting from the operations of various syntactic processes on these lexical items. In contrast, the analysis of a linguistic expression under the CG approach begins with the associating of a particular construction with a particular meaning.

In the theory of CG, the basic units of language are taken to be form-meaning correspondences; these correspondences are called *constructions*. A distinct construction is defined to exist if at least one of its properties is not strictly predictable from knowledge of other constructions existing in the grammar. It is a consequence of this definition that no strict division is assumed between the lexicon and syntax (Goldberg 1995). Lexical constructions and syntactic constructions differ in internal complexity and phonological forms, but words, morphemes, larger phrasal patterns, idioms, and syntactic constructions are all instances of form-meaning correspondences.

Goldberg (1995) and Slobin (1985) propose that each of the basic clause-level constructions designates a humanly relevant scene. This assumption is referred to as *Scene Encoding Hypothesis*:

> Constructions which correspond to basic sentence types encode as their central senses event types that are basic to human experience (Goldberg 1995:39).

As one of the basic clause-level constructions, double-object expressions typically imply the sense of successful transfer; i.e., the subject agentively causes the second object to be transferred to the first object.[11] However, not all ditransitive expressions strictly imply this sense. In this respect, the DOC in English is a case of *constructional polysemy*: the same form is paired with slightly different but related senses (Goldberg 1995). The construction is directly associated with the central sense of successful transfer. The differences in interpretation result from principles of integration between such central sense and the different semantic classes of verbs involved. Verbs in English involving a prospective possessor in some fashion may be classified into nine narrowly defined subclasses (Gropen et al. 1989):

1. Verbs that inherently signify acts of giving, e.g., *give*, *pass*, *hand*
2. Verbs of instantaneous causation of ballistic motion, e.g., *throw*, *toss*, *flip*
3. Verbs of sending, e.g., *send*, *mail*, *ship*

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[11] Goldberg (1992) gives some reasons to postulate this class as the central sense. It involves concrete, as opposed to metaphorical or abstract, transfer. Furthermore, this is the class most metaphorical extensions are based on. For example, *Mary taught Bill French* implies that Bill actually learned some French, i.e., that metaphorical transfer was successful. This is in contrast to *Mary taught French to Bill*, which does not make the same implication.

4. Verbs of continuous causation of accompanied motion in a deictically-specified direction, e.g., *bring*, *take*
5. Verbs of future having, e.g., *offer*, *leave*, *bequeath*
6. Verbs of communicated message, e.g., *tell*, *show*, *ask*
7. Verbs of instrument of communication, e.g., *radio*, *email*, *telephone*
8. Verbs of creation, e.g., *bake*, *make*, *build*
9. Verbs of obtaining, e.g., *get*, *buy*, *find*

FIGURE 4. Polysemous senses of the DOC (Goldberg 1992:56).[12]

F: Subj enables Obj1 to receive Obj2
Verbs of permission: *permit*, *allow*

B: Subj intends to cause Obj1 to receive Obj2
Verbs of creation: *bake*, *make*
Verbs of obtaining: *get*, *grab*

E: Subj acts to cause Obj1 to receive Obj2 at some future point in time
Verbs of future having: *bequeath*, *leave*

A: Central Sense
Subj successfully causes Obj1 to receive Obj2
Verbs that inherently signify acts of giving: *give*, *pass*
Verbs of instantaneous causation of ballistic motion: *throw*, *toss*
Verbs of continuous causation in a deictically-specified direction: *bring*, *take*

C: Subj causes Obj1 to receive Obj2
Verbs of giving with associated satisfaction conditions: *guarantee*, *promise*

D: Subj causes Obj1 not to receive Obj2
Verbs of refusal: *refuse*, *deny*

These lexical items decide which sense of the ditransitive will be implied. For example, expressions involving verbs of future having (e.g., *bequeath*, *offer*) imply that the subject acts to cause the first object to receive the second object at some future time. Expressions involving verbs of creation (e.g., *bake*, *make*) do not strictly imply that the subject causes the first object to receive the second object. Thus, in *Jane baked Mary a cake*, what is implied is that Jane baked a cake with the intention of giving it to Mary (Goldberg 1992).

Verbs interact with the argument structure through *fusion* (Goldberg 1995). Each distinct sense of a verb is associated with the frame semantics that specifies certain *participant roles*: the

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[12] Note that Goldberg's subclasses of verbs are slightly different from Gropen et al.'s. Apart from the nine subclasses, one subclass, i.e., verbs of refusal, is added; Gropen et al.'s fifth subclass, verbs of future having, is further divided into three types, i.e., verbs involving future having (*bequeath*, *offer*), satisfaction conditions (*guarantee*, *owe*), and permission (*permit*, *allow*).

number and type of slots associated with a given sense of a verb. On the other hand, an argument structure construction has *argument roles*, which correspond roughly to traditional thematic roles, such as Agent, Patient, Instrument, Source, etc. The *Semantic Coherence Principle* stipulates that the participant roles of a verb and the argument roles of a construction must be put into correspondence or fused. In other words, these roles must be semantically compatible (Goldberg 1995). In the case of the DOC, the participant roles of a verb must be fused with the three argument roles of the construction, i.e., Agent, Recipient, and Patient. The possibility of fusing is determined by whether the roles are of compatible types. The typical case of fusion is one in which the participant roles can be put in a one-to-one correspondence with the argument roles. For example, note the fusion of the three participant roles of *hand* and the three argument roles of the DOC in Figure 5:

FIGURE 5. Fused structure: ditransitive + *hand* (Goldberg 1995:51).

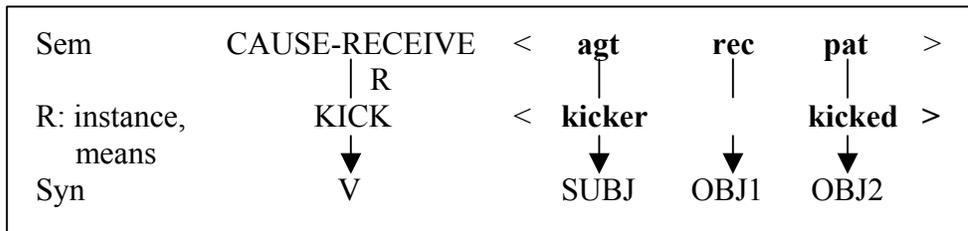| Sem	CAUSE-RECEIVE	<	**agt**	**rec**	**pat**	>
	| R					
R: instance,	HAND	<	**hander**	**handee**	**handed**	>
means						
Syn	V		SUBJ	OBJ1	OBJ2	
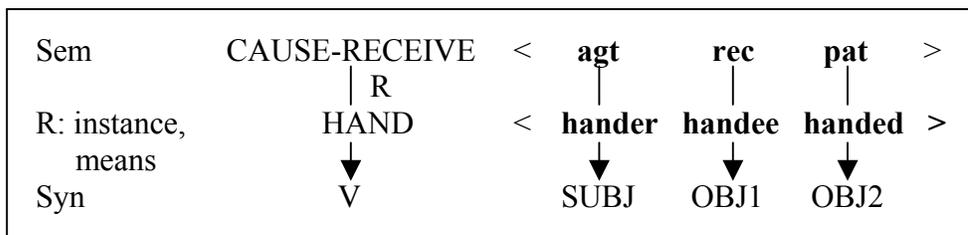
However, it is not necessary that each argument role correspond to a participant role of the verb. For example, the participants of *kick* are *kicker* and *kicked*; thus the Recipient role is not associated with a participant role. In this case, the Recipient role is contributed by the construction. The structure yields sentences like *Joe kicked Bill the ball*. The fusion of the roles can be represented in Figure 6:

FIGURE 6. Fused structure: ditransitive + *kick* (Goldberg 1995:54).

Sem	CAUSE-RECEIVE	<	**agt**	**rec**	**pat**	>
	| R					
R: instance,	KICK	<	**kicker**		**kicked**	>
means						
Syn	V		SUBJ	OBJ1	OBJ2	

The central sense of actual transfer of possession explains in part the restricted occurrence of the DOC. Only verbs whose semantic frame (or subclass) can be integrated with the meaning inherent to the construction are allowed to occur in the ditransitive structure. In English such semantic explanation needs to be supplemented by a morphophonological constraint. Polysyllabic verbs with non-initial stress are disallowed in the double-object construction (Gropen et al. 1989). This constraint, which is presumably specified on the clausal construction, coincides largely with distinctions between Latinate and native vocabulary, and it is used to explain the following:

Joe taught/*explained Jane French.
John gave/*donated the hospital money.

At the same time, the constructional meaning and the flexible nature of fusion allow language creativity, i.e., the use of unconventional or novel verbs in the ditransitive structure. As

long as the integration between the meaning of verbs and the central sense of the construction results in the interpretation (or construal) associated with transfer of possession, regardless of whether it yields a one-to-one correspondence of roles, double-object expressions will be licensed.

Joe kicked/broomed Bill the ball.
John faxed/emailed me the report.

To sum up, in the CG framework, the DOC in English is claimed to be associated with a family of closely related senses of transfer. In this language, the manner of the interaction between ditransitive verbs and the argument structure can be of various types. The semantics associated with the construction and the types of fusion of roles allowed in the language determine the distributive patterns of the construction. Only verbs, regardless of the number of participant roles, which possess the meaning that can be integrated with the central sense of the construction, can occur in this syntactic structure. As a result, apart from the nine semantic subclasses of the ditransitive verbs, the language also allows the use of unconventional verbs (e.g., *kick*, *broom*) in the DOC.

3. CHARACTERISTICS OF THE DOC IN THAI.

3.1 METHODS OF COLLECTING AND ANALYZING DATA. In order to find fundamental properties specific to the DOC, and also to evaluate the two frameworks, MP and CG, in this section, I study the characteristics of the DOC in Thai, a language from a different language family. Data were collected from native speakers' grammaticality judgments. Thirty-six verbs were put in ditransitive contexts. Among these verbs, twenty-eight belong to any of the nine semantic subclasses proposed by Gropen et al. (1989), four represent verbs from other subclasses, and the other four are novel verbs, verbs borrowed from English, and verbs unconventionally used in the DOC. Six native speakers were asked to judge the grammaticality of thirty-six sentences, each containing one of these verbs.

The analysis of the data focuses on the following aspects:

1. Is there any meaning associated particularly with the construction?
2. How does this construction differ from other constructions?
3. Which verbs can occur in the construction? Can these verbs be categorized on any particular basis, e.g., semantic basis or syntactic property?
4. Are novel verbs and verbs that are not conventionally used in double-object expressions allowed to occur in the construction in some specific cases? In other words, does the language allow any possibility for creativity, and what does such a possibility or impossibility tell us about the properties of the construction?

3.2 RESULTS OF THE ANALYSIS. The DOC in Thai, as in English, encodes successful transfer of an object to a recipient. Thus, in *cɔɔn hây còtmǎay mæær̂ii* 'John gave Mary a letter', John is understood to give the letter to Mary and Mary is understood to be able to take possession of the letter. However, this syntactic pattern in Thai is different from English in terms of the order of two object NPs. In this language, the Patient NP always precedes the Recipient NP, yielding the pattern Verb + Patient + Recipient:

cɔɔn   hây   còtmǎay   mæær̂ii
John   give   letter   Mary
'John gave Mary a letter.'

This means that the ditransitive and dative in Thai are similar in terms of the order of the two objects. The differences between the two constructions can be divided into three aspects. Syntactically, they differ in that the second object in the dative is preceded by the dative marker, which is in the form of the preposition *kɛ̀ɛ* 'to':

coon hây còtmǎay **kɛ̀ɛ** mæærii
John give letter to Mary
'John gave a letter to Mary.'

Like the English preposition *to*, the preposition *kɛ̀ɛ* 'to' contributes to the meaning of the DAT; it specifically designates the path followed by the object, e.g., *còtmǎay* 'a letter' (Langacker 1991). The result is a subtle semantic difference between the two constructions: while the ditransitive encodes transfer of possession, the dative emphasizes the change of location of the transferred object. Another difference between the two constructions involves pragmatics. Given that informal speech often involves shorter expressions and more omissions, the DOC, which is characterized by the absence of a preposition, is considered more informal, and native speakers tend to prefer the DOC in informal situations.[13]

The sentences used in the study as well as the native speakers' grammaticality judgments are presented in the tables below: [14]

TABLE 1. Verbs belonging to the nine ditransitive subclasses.

Verb	Subclass	Context	Judgment Yes	No
hây 'give'	1	coon hây còtmǎay chán John give letter me 'John gave me a letter.'	6	0
bɔɔrícàak 'donate'	1	coon bɔɔrícàak sŷə-phâa dèk-kamphrá John donate clothes orphans 'John donated clothes to orphans.'	3	3*
khǎay 'sell'	1	coon khǎay nǎŋsʸy chán John sell book me 'John sold me a book.	6	0
líəŋ 'feed'	1	coon líəŋ ʔaahǎan chán John feed meal me 'John fed me a meal.'	6	0

[13] It may be argued that the dative and ditransitive in Thai are the same construction, in which the presence of the preposition is optional, depending on the formality of the situation. However, such an argument cannot explain the different behaviors of verbs. That is, why are only some groups of verbs allowed to 'omit' the preposition? Moreover, the preposition-drop analysis is also undermined by the observation that preposition- drop in general is impossible in Thai, e.g., *I came from Thailand* vs. **I came Thailand, I write with pen* vs. **I write pen, The book is on the table* vs. **The book is the table*.

[14] The English translations in the data section aim mainly to reflect the structure of the Thai sentence.

khəən 'return'	1	cɔɔn khyyn năŋsўy chán John return book me 'John returned me a book.'	6	0
yoon 'throw'	2	cɔɔn yoon năŋsўy lêm nán chán John throw book Cl. that me 'John threw me that book.' (Cl. = Classifier)	0	6
tè 'kick'	2	cɔɔn tè bɔn lûuk nán chán John kick ball Cl. that me 'John kicked me that ball.'	0	6
sòŋ 'send'	3	cɔɔn sòŋ còtmăay chán John send letter me 'John sent me a letter.'	0	6
ʔaw-maa 'bring'	4	cɔɔn ʔaw-maa năŋsўy chán John bring book me 'John brought me a book.'	0	6
sănyaa 'promise'	5	cɔɔn sănyaa rót mày chán John promise car new me 'John promised me a new car.'	1	5
yók-sŏmbàt 'bequeath'	5	cɔɔn yók-sŏmbàt nỳŋ láan lûuk-chaay John bequeath one million son 'John bequeathed his son one million (baht).'	0	6
môop-măay 'assign'	5	hŭə-nâa môop-măay khrooŋ-kaan lûuk-nɔ́ɔŋ boss assign project staff 'The boss assigned his staff a project.'	3	3**
sɔ̌ɔn 'teach'	6	cɔɔn sɔ̌ɔn lêk chán John teach math me 'John taught me math.'	6	0
ʔàtʰíbaay 'explain'	6	cɔɔn ʔàtʰíbaay lêk chán John explain math me 'John explained math to me.'	5	1***
thăam 'ask'	6	cɔɔn thăam thaaŋ pay hɔ̂ɔŋ-sàmùt chán John ask way go library me 'John asked me the way to the library.'	6	0
bɔ̀ɔk 'tell'	6	cɔɔn bɔ̀ɔk thaaŋ pay hɔ̂ɔŋ-sàmùt chán John tell way to library me 'John told me the way to the library.'	6	0

raayŋaan   6   cɔɔn raayŋaan khàaw rŷəŋ nán   chán   4   2***
'report'   John report   news Cl.   that   me
                  'John reported me that news.'

ʔàan   6   cɔɔn ʔàan ńiithaan chán   0   6
'read'   John read tale   me
                  'John read me a tale.'

khĭən   6   cɔɔn khĭən còtmăay chán   0   6
'write'   John write letter   me
                  'John wrote me a letter.'

sòŋ-thoorálêk 7 cɔɔn sòŋ-thoorálêk khàaw dii   chán   1   5
'telegraph'   John telegraph   news good   me
                  'John telegraphed me the good news.'

thoorásàp   7   cɔɔn thoorásàp khàaw dii   chán   0   6
'telephone'   John telephone news good   me
                  'John telephoned me the good news.'

ʔòo   8   cɔɔn ʔòp   khànŏm-kéek chán   0   6
'bake'   John bake cake   me
                  'John baked me a cake.'

sâaŋ   8   cɔɔn sâaŋ bâan pɔ̂ɔ-mɛ̂ɛ khǎw   0   6
'build'   John build house parents his
                  'John built his parents a house.'

thàk   8   cɔɔn thàk sŷə-kan-nǎaw chán   0   6
'knit'   John knit sweater   me
                  'John knitted me a sweater.'

rin   8   cɔɔn rin   khrŷəŋ-dɨ̀ym chán   2   4
'pour'   John pour drink   me
                  'John poured me a drink.'

ráp   9   cɔɔn ráp   nǎŋsŷy chán càak hɔ̂ɔŋ-sàmùt 0   6
'get'   John get   book   me   from library
                  'John got me a book from the library.'

sàŋ   9   cɔɔn sàŋ   khrŷəŋ-dɨ̀ym chán   0   6
'order'   John order drink   me
                  'John ordered me a drink.'

hǎa   9   cɔɔn hǎa   ʔàpáatmént chán   0   6
'find'   John find apartment   me
                  'John found me an apartment.'

TABLE 2. Verbs belonging to other subclasses.

Verb	Subclass	Context	Judgment Yes	No
kràsíp 'whisper'	manner of speaking	cɔɔn kràsíp khàaw chán John whisper news me 'John whispered me the news.'	3	3**
dyŋ 'pull'	causation of motion	cɔɔn dyŋ klɔ̀ɔŋ chán John pull box me 'John pulled me a box.'	0	6
lŷək 'choose'	choosing	cɔɔn lŷək nǎŋsŷy chán John choose book me 'John chose me a book.'	0	6
sǒŋsǎy 'doubt'	propositional attitude	cɔɔn sǒŋsǎy baaŋyàaŋ chán John doubt something me 'John doubted me something.'	0	6

TABLE 3. Novel verbs, verbs unconventionally used in the DOC, and verbs borrowed from English.

Verb	Type	Context	Judgment Yes	No
fɛ̀ks 'fax'	novel/ loan word	cɔɔn fɛ̀ks còtmǎay chán John fax letter me 'John faxed me a letter.'	1	5
ʔiimel 'email'	novel/ loan word	cɔɔn ʔiimel còtmǎay chán John email letter me 'John emailed me a letter.'	2	4****
sə̀ərf 'serve'	loan word	cɔɔn sə̀ərf khrŷəŋ-dỳym chán John serve drink me 'John served me a drink.'	5	1
kwàat 'broom'	unconventional	cɔɔn kwàat bɔn chán John broom ball me 'John broomed me a ball.'	0	6

Notes:

    *bɔɔrícàak 'donate' is a verb often used in formal speech, compared to hây 'give'; thus the speakers prefer to use it in the dative construction, which is regarded as the more formal construction.

** Speakers who allow *môop-mǎay* 'assign' and *kràsíp* 'whisper' to occur in the DOC said that such usage is restricted. That is, the two verbs are used in the DOC only in informal speech used among intimates.

***Variation in judgments for this subclass of verbs may be caused partly by the speakers' ability to see the polysemy link between the literal and metaphorical senses of transfer.

****The two speakers who allow the use of *ʔiimel* 'email' in the DOC said that they are influenced by the concept of this verb in English.

The results of the grammaticality judgments indicate that compared to English, the number of verbs that are allowed in the DOC in Thai is much more limited. Based on the classification from Gropen et al. (1989), verbs that can occur in the ditransitive structure in Thai are divided into two semantic subclasses:

1. Verbs that inherently signify acts of giving, e.g., *hây* 'give', *bɔɔrícàak* 'donate', *khǎay* 'sell', *líəŋ* 'feed', *khyyn* 'return'.
2. Verbs of communicated message, e.g., *sɔ̌ɔn* 'teach', *ʔàthíbaay* 'explain', *thǎam* 'ask', *bɔ̀ɔk* 'tell', *raayŋaan* 'report'.

4. ANALYSIS OF THE DOC IN THAI: MP AND CG.

4.1 MINIMALIST PROGRAM. To maintain its assumptions about the DOC in English, MP explains this construction in Thai by depending on Procrastinate (Yuko Otsuka, personal communication). As a result, the DOC is basically the same in the two languages in terms of base positions of lexical items and types of required movements. However, whether each of these movements is overt or covert results in the surface differences between the constructions in the two languages.

Given this analysis, the differences between the English and Thai DOC emerge once the first movement takes place. The following explanation summarizes how movements in the sentence *cɔɔn hây còtmǎay mæærîi* 'John gave Mary a letter' are manipulated:

First, after merging with the light verb, the verb *hây* 'give', motivated by the strong V-feature of both types of Agro, further adjoins to AgrDo and subsequently to AgrIo. This movement is overt. This is because before reaching the LF, the DO *còtmǎay* 'a letter' has to precede the IO *mæærîi* 'Mary'. This suggests that the DO, containing the strong D/N-feature, checks its Case with the Case feature of the verb overtly, whereas the IO, containing its weak D/N- feature, does it covertly. In this framework, elements that are in the same minimal domain are considered *equidistant* (Chomsky 1995). Since the movement of the verb creates the minimal domain [Spec, IO, DO], the DO can raise beyond the IO to have its Case checked without violating the Shortest Move. Thus, the raising of the DO must be preceded by the raising of the verb to the two types of Agro, which forms the chain {V, t′, t} and creates the minimal domain [Spec, IO, DO].

FIGURE 7. The minimal domain created by V Raising.
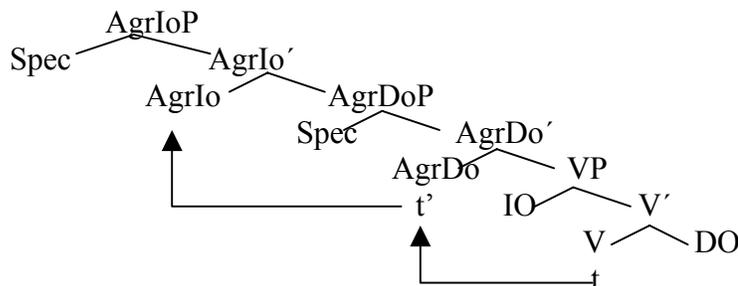
As a result of the verb movement, the ɸ-features of the verb and the V-feature of both types of Agro are checked and deleted; the DO can move across the IO to [Spec, AgrDo].   Second, the DO *còtmǎay* 'a letter' moves to [Spec, AgrDo] to check its Case feature with the verb's Case feature. Since this movement is overt, the base position *cɔɔn hây mæær̂ii còtmǎay* surfaces as *cɔɔn hây còtmǎay mæær̂ii* before Spell-Out. Third, the IO *mæær̂ii* 'Mary' moves covertly to [Spec, AgrIo] to check its Case feature with the verb's Case feature. Fourth, triggered by the V-feature of T, *hây* 'give' moves further and adjoins to T. Fifth, T moves and adjoins to Agrs; this movement is motivated by the T-feature of Agrs. Sixth, motivated by the strong D-feature of T, *cɔɔn* 'John' moves to [Spec, T] to satisfy the EPP. Finally, driven by the Case feature, it moves subsequently to [Spec, Agrs] so that its Nominative feature is checked against the Nominative feature of T.

Therefore, despite the different surface word order of the two objects, MP can provide the same underlying structure and movements to account for the DOC in English and Thai. The difference between the two languages lies in the strength of features, which results in overt and covert movements. In English, only the movements of T and *John* are overt. In Thai, also a SVO language, these movements, as well as the verb raising to Agros and the DO movement, have to take place before Spell-Out.

As to the question of the partial productivity, in this framework the ability of verbs to be in the DOC depends on their inherent features; only verbs with the feature "inherent Accusative" can be used in double-object patterns. This suggests that compared to English, the distribution of the DOC in Thai is more restricted because the number of inherently ditransitive verbs is smaller.

To sum up, MP accounts for the different word order of the two NPs in English and Thai by means of Procrastinate. The more restricted occurrence of this construction in Thai is due to the smaller number of inherently ditransitive verbs in the language.

4.2 CONSTRUCTION GRAMMAR. Double-object expressions in Thai support CG's key assumption that each construction is associated with a certain type of meaning. That is, the two semantic subclasses of ditransitive verbs in Thai are directly associated with the successful transfer of an object to a recipient. Such a semantic restriction also helps strengthen the hypothesis about the central sense of the construction. Cross-linguistic data may show differences in range, but the core purpose of a communicative act is usually shared (Benjamin Bergen, personal communication). In this case, since the central sense of the DOC involves actual transfer, for languages in which ditransitive verbs are associated with only one specific meaning, that meaning should be the central sense of the construction.

The actual transfer may be literal or metaphorical. This means that the DOC in Thai also exhibits a case of constructional polysemy. The use of the literal sense has resulted in the development of an extended sense that encodes the transfer of information (Reddy 1979). Accordingly, the two semantic subclasses differ not only in terms of meaning but also in the type of transfer they convey, and the literal and metaphorical uses of transfer are actually different senses that are related through a metaphorical polysemy link.

Subclass 1: Verbs of Giving

    cɔɔn   hây   còtmǎay   mæær̂ii
    John   give   letter   Mary
    'John gave Mary a letter.'

```
cɔɔn   khǎay  nǎŋsɨy̌        mæærii
John   sell   book          Mary
'John sold Mary a book.'

cɔɔn   líəŋ   ʔaahǎan       mæærii
John   feed   meal          Mary
'John fed Mary a meal.'
```

<u>Subclass 2: Verbs of Communication</u>

```
cɔɔn   sɔ̌ɔn   lêk    mæærii
John   teach         math   Mary
'John taught Mary math'.

cɔɔn   ʔàthíbaay    lêk    mæærii
John   explain      math   Mary
'John explained math to Mary.'

cɔɔn   thǎam  thaaŋ  pay  hɔ̂ɔŋ-sàmùt  mæærii
John   ask    way    go   library      Mary
'John asked Mary the way to the library.'
```

For the latter class of verbs, the transfer is successful metaphorically. The subject/speaker communicates the DO/information to the IO/listener. Communication travels across from the speaker to the listener; the listener understands the communication upon "reception." The relation between transfer of physical objects and communication is known as *Conduit Metaphor* (Reddy 1979).

Apart from the semantic restriction, the type of fusion between participant roles and argument roles in Thai is also restricted. No mismatch of roles is allowed: the interaction between the construction's argument roles and the verb's participant roles must be in a one-to-one fashion, for example:

FIGURE 8. Fused structure: ditransitive + *hây* 'give'.

```
Sem         CAUSE-RECEIVE  <   agt     pat     rec    >
                      | R          |       |       |
R: instance,    GIVE       <   giver   given   givee  >
   means                       ↓       ↓       ↓
Syn             V              SUBJ    OBJ1    OBJ2
```
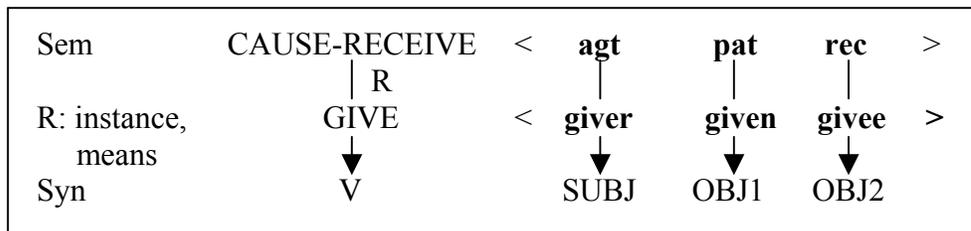
Such a requirement explains why verbs like *khǐən* 'write', *ʔàan* 'read', and *ʔâaŋ* 'quote' cannot be used in the DOC. Although these verbs are members of the subclass of communicated message, their typical roles involve only the subject and the transferred object, hence there is no role that corresponds to the Recipient role of the construction.

```
*cɔɔn  khǐən  còtmǎay    mæærii
 John  write  letter     Mary
'John wrote Mary a letter.'
```

*cɔɔn ʔàan nɯ́thaan mæ̀ær̂ii
 John read tale   Mary
'John read Mary a tale.'

Sem	CAUSE-RECEIVE	<	**agt**	**pat**	**rec**	>
	| R					
R: instance,	WRITE	<	**write**	**written**		>
means						
Syn	V		SUBJ	OBJ1	OBJ2	
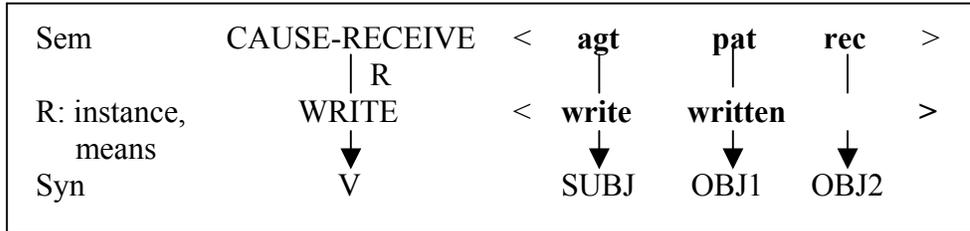
Therefore, compared to English, the distribution of the DOC in Thai is more restricted in terms of both the types of semantic subclasses of verbs and the members of verbs in each subclass. This is because the ditransitive verbs in Thai must strictly encode the sense of successful transfer (literal or metaphorical) and their participant roles must be fused with the construction's argument roles in a one-to-one fashion. In this sense, CG can account for the partial productivity of the DOC in Thai by means of the meaning of the construction and the manner of the fusion of roles.

The constraints in terms of the meaning and manner of fusion also explain different behaviors of novel verbs, verbs borrowed from English, and verbs unconventionally used in the DOC. Only verbs that belong to either of the two semantic subclasses *and* whose meaning involves the three participant roles are licensed to occur in the DOC:

a. *cɔɔn fæ̀ks còtmăay mæ̀ær̂ii (novel verb/loan word)
   John fax letter   Mary
   'John faxed Mary a letter.'

b. cɔɔn sə̀ərf khrŷəŋ-dɯ̀ym mæ̀ær̂ii (loan word)
   John serve drink   Mary
   'John served Mary a drink.'

In (a), although the verb *fæ̀ks* 'fax' specifies the presence of the three participant roles, it does not belong to any of the two ditransitive subclasses. Based on Gropen et al.'s classification, *fæ̀ks* 'fax' is a member of verbs of instrument of communication. In contrast, *sə̀ərf* 'serve' fulfills the two requirements of Thai ditransitive verbs. Its meaning implies the presence of the three participant roles; it belongs to the subclass of verbs that inherently signify acts of giving.

To sum up, in the CG approach, the DOC in Thai, as in English, encodes the sense of successful transfer. This transfer may be literal or metaphorical. However, compared to English, the distribution of the DOC in Thai is much more restricted. In English, the ditransitive verbs can be directly or indirectly associated with the sense of transfer (i.e., the polysemous senses of the DOC), and they are not required to have three participant roles. In contrast, the ditransitive verbs in Thai strictly possess two properties: (1) they must be directly associated with the constructional meaning, i.e., the actual sense of transfer, and (2) they must have three participant roles, each of which will be mapped with the construction's argument roles in a one-to-one correspondence.

5. GENERAL DISCUSSION. The comparative study of the DOC in English and Thai reveals three fundamental properties of this construction in terms of syntax, semantics, and distribution. Therefore, to give an adequate analysis of the DOC, a theory should account for the characteristics of the construction in these three domains. By associating the DOC with the sense of transfer, CG can provide interesting facts about the shared syntactic and semantic properties of the construction and also its restricted distribution across languages. That is, syntactically, the DOC consists of three NP arguments, which are fused with the verb's participants. Semantically, it encodes a set of the extended senses of possessive transfer. This semantic constraint and the fusion of the argument roles and participant roles motivate the distribution of the construction. Such an analysis reveals the nature of human language mechanism. Language is a complex system in which all components are interdependent and affect one another. Thus, linguistic theories that relate all of these components have a better chance of discovering the underlying factors of how language works.

As for MP, it focuses more on the features of lexical items and treats a syntactic construction as a consequence of syntactic operations on lexical items. It is possible in MP to stipulate some semantic properties inherent to ditransitive verbs. For example, ditransitive verbs have inherent Accusative, which is associated with a particular theta role (i.e., Patient), and this theta role is in turn associated with particular semantic features, e.g., [+transfer], [+communication], etc. However, it is still problematic how the theory accounts for the matter of the restricted distribution of the construction. It is claimed in MP that only transitive verbs with inherent Accusative can occur in the DOC. But it can be simultaneously argued that verbs that occur in the DOC must have inherent Accusative. Thus, the explanation MP gives for the restricted distribution of the construction turns out to be circular.

An interesting question is how MP and CG—linguistic approaches which reject the derivational relation of the DOC and the DAT—account for the object asymmetries in both constructions observed in English. While MP can deal with these phenomena by depending on the c-command relations, CG may propose an explanation for the asymmetries based on information structure, which is expressed by word order and differentiates the notions of topic and focus. *Topic* refers to an entity that is within the scope of a pragmatic presupposition at the time of the utterance, i.e., given information; *focus* refers to the semantic component of a proposition whereby the assertion differs from the presupposition, i.e., new information (Lambrecht 1994). In English, the general tendency is for topic to precede focus (Yule 1998). Thus, in both constructions, the first object must be superior to the second object in topicality. The topical prominence of NPs in the DOC is presented in the following scale (Polinsky 1998:414):

Agent   Recipient   Patient
          ◀—— Topicality increasing
                   Focusing increasing ——▶

In contrast, the topical prominence of NPs in the DAT is as below:

Agent   Patient   Recipient
          ◀—— Topicality increasing
                   Focusing increasing ——▶

As a result, the first object can serve as a reference point for the identification of the second object. On the other hand, if the second object is coindexed with a pronominal within the first object, this contradicts the less topical status of this second object and inappropriately marks it as a reference point for identifying the first object (Polinsky 1998). In (a), the unknown (the referent of the second object) is identified by the known (the referent of the first object); in (b), the unknown is assumed as a reference point for the known, and the result is incongruous.

a. I showed Mary herself.
b. *I showed herself Mary.

a. I gave every worker$_i$ his$_i$ paycheck.
b. *I gave its$_i$ owner every paycheck$_i$.

a. I showed Mary to herself.
b. *I showed herself to Mary.

a. I gave every check$_i$ to its$_i$ owner.
b. ?I gave his$_i$ paycheck to every worker$_i$.

At this point, it seems that a theory that makes use of integrated information such as CG can deal with several problems regarding the DOC. However, further topics need to be studied, especially those related to the DOC in other languages, and those related to language acquisition. If ditransitive patterns in different languages share the same basic characteristics in terms of syntax, semantics, and distribution, and if there is empirical evidence that constructions are central to the way children learn language, these features will help strengthen the analysis of the DOC based on the CG approach.

APPENDIX

The following orthographic system is used to represent Thai phonemic transcription throughout the study. These symbols do not represent a definitive analysis of the phonemic system of the language, but serve only as a reference for the transcription of the data in this study. There are 21 consonants, 9 vowels, 3 diphthongs, and 5 tones in the Thai orthography.

Consonants:

	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Voiced unaspirated stops	b		d			
Voiceless unaspirated stops	p		t	c	k	ʔ
Voiceless aspirated stops	ph		th	ch	kh	
Fricatives		f	s			h
Nasals	m		n		ŋ	
Liquids			r, l			
Glides	w			j		

Vowels:

	Front	Central	Back
High	i	y	u
Mid	e	ə	o
Low	æ	a	ɔ

All vowels can be either long or short. Long vowels are represented by double short vowels.

Diphthongs: Tones:
iə, yə, uə   Mid   unmarked

                     Low   ˋ

                     Falling   ˆ

                     High   ˊ

                     Rising   ˇ

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