OVERT OBJECT MOVEMENT & INTERNAL STRUCTURE of *v*P in ENGLISH

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1 Introduction[1] The minimalist program (Chomsky (1993, 1994), Chomsky and Lasnik (1993)) does not allow any overt operation of verbs and objects before Spell-Out in languages like English It is because covert movement at LF is more economical However, there are interesting English data that avoid explanation by the covert verb/object movement approach They are the cases of backward binding observed only in the dative construction but not in the double object construction This contrast is not well explained by Larson (1988) or Chomsky (1993) Fujita (1996)'s well constructed theory has also some theoretical weaknesses in its explanation In order to explain the contrast between double object construction and dative construction, first I assume an alternate Thematic hierarchy with Non-Themes in the Spec of the second-highest VP (Johnson (1991), Koizumi (1993), Lasnik (1997), and Stroik (1996)) Second, based on the alternate thematic hierarchy, I suggest a proliferated VP-Shell structure which has maximally two functional maximal projections between vP_1 and VP_2 Under this framework I argue that in English all verbs and objects move overtly n order to have actual surface word order The binding theory as a global principle monitoring entire derivation from D_1 to D_N will be discussed

2 VP-Shell Structure and Thematic Hierarchies

2 1 The Second-highest *Theme* and Covert Object Movement Larson (1988) explains the asymmetries in syntactic domains between the double object construction (1a&b) and the dative construction (2a&b) by suggesting the single complement hypothesis and the VP-Shell structure

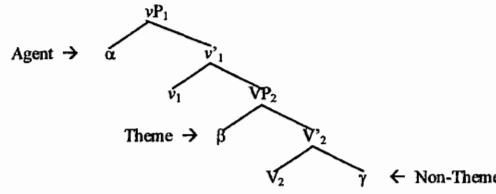
(1) a I showed Mary$_i$ herself$_i$
b *I showed herself$_i$ Mary$_i$

(2) a I showed Mary$_i$ to herself$_i$
b *I showed herself$_i$ to Mary$_i$

To satisfy the binding principle A for anaphor binding, the indirect object *Mary* of the double object construction (1) needs to c-command the direct object *herself*, while in the dative construction of (2) the direct object *Mary* needs to c-command the indirect object *herself* in PP Larson's "pseudo passive-like movement" illustrating the derivation of the double object construction from the dative construction is an attempt to maintain an argument with the thematic role of '*Theme*' in the second-highest SPEC of VP when there are more than two arguments The following structure shows the hierarchy of argument assignment

[1] I am grateful to the audience of the syntax section, especially to Sara Rosen and Thomas Stroik for helpful comments and encouragement

(3)



The thematic hierarchy and subsequent derivation on the VP-Shell structure (3), however, do not correctly capture the backward binding relation found in the dative construction of (4a', b'& c') Consider

(4) a *John showed each other's parents the boys
a' ? John showed each other's boys to the parents ← Backward Binding

b *John gave each other's mothers the babies
b' ? John gave each other's babies to the mothers ← Backward Binding

c *John sent its$_i$ owner every paycheck$_i$
c' ? John sent his$_i$ book to every author$_i$ ← Backward Binding
(Data from Fujita 1996 146-148)

In the pre-movement structure of (4a), which is shown as (5) in the following, Larsonian VP-Shell structure will locate *the boys* (Theme) in the Spec of VP_2 Given that at LF *showed* covertly moves to Agrs via Agro and *the boys* in the Spec of VP_2 covertly moves up to the Spec of AgroP external to vP_1, we have an LF structure (6) in which the reciprocal pronoun *each other* is bound by the antecedent *the boys* in the Spec of AgroP (Note that in the minimalist program the binding relation is checked at LF) Consider

(5) Pre-Movement Structure of (4a)
* $[_{AgroP}$ Spec $[_{Agro}$ Agro $[_{vP1}$ John $[_{v1}'$ v_1 $[_{VP2}$ the boys $[_{V2}$ showed $[_{DP}$ each other's parents]]

(6) LF-Structure of (4a)
*John$_i$ showed$_k$ $[_{AgroP}$ the boys$_j$ $[_{Agro'}$ t''$_k$+Agro $[_{vP1}$ t$_i$ $[_{v1}'$ t'$_k$ $[_{VP2}$ t$_j$ $[_{V2}$ t$_k$ each other's parents]]

However, different from expectation, the resulting sentence is not only ungrammatical, but also it is not even identical with the actual word order (4a) In addition, instead of the structurally Case-marked object *each other's parents* the so-called inherently Case-marked object *the boys* has moved to the structural Case checking position, the Spec of AgroP, shown in (6)

Concerning (4a') where the opposite binding relation to (4a) is shown, the LF structure is judged 'marginal', not 'ungrammatical' The other data from (4b) to (4c) also show a marginal reading, which is contra to the expectation of the grammar Thus, these data raise a question about the thematic hierarchy adopted by Larson (1988) and Hale & Keyser (1993), calling for further discussion

2 2 The Second-highest *Non-Theme(s)* and Covert/Overt Object Movement The fuzzy binding relation of (4) might look properly handled by employing an alternate thematic hierarchy of Agent>Non-Theme(s)>Theme under the same covert movement approach of verbs and objects as in 2 1, though we will reject the idea immediately Pre-movement structures (or roughly D-structures) of (4) obeying the alternate thematic hierarchy with *Non-Themes* in the Spec of VP_2 are shown in the following (7) and (8) Data (4) are rearranged according to grammaticality Consider the pre-movement structures

(7) a. * [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ each other's parents [$_{V}$ showed the boys]]] (for (4a))
b * [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ each other's mothers [$_{V}$ gave the babies]]] (for (4b))
c * [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ its author [$_{V}$ sent every book]]] (for (4c))

(8) a. ? [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ to the parents [$_{V}$ showed each other's boys]]] (for (4a'))
b ? [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ to the mothers [$_{V}$ gave each other's babies]]] (for (4b'))
c ? [$_{vP1}$John [$_{v}$ v_1 [$_{VP2}$ to every author [$_{V}$ sent his book]]] (for (4c'))

Ungrammaticality of the sentences (4a-c) which are derived from (7a-c) might be explicable correctly First movement of the verbs *showed, gave,* and *sent* to v_1 before Spell-Out will produce actual surface order (4a-c) Second covert movement of the verbs to Agro after Spell-Out should be followed by covert movement of Non-Theme arguments such as *each other's parents* and *its author* to the Spec of AgroP This derivation does not produce a configuration in which reciprocals are bound by their possible antecedents such as *the boys, the babies, and every book,* since it is reciprocals that keep moving higher than their possible antecedents Thus, the grammar correctly judges the sentences of (4a-c) ungrammatical

However, this approach does not work for the dative constructions (4a'-c') Unlike (4a-c), movement of the verb to v_1 before Spell-Out cannot provide the expected actual word order (4a'- c') from the initial structures (8a-c)

We may stipulate for overt verbal movement to Agro passing over vP_1 so that *Theme* arguments such as *each other's boys* and *his book* may be located higher than *Non-Theme* arguments However, this movement is rejected immediately due to illegitimate operation the minimal complement domain[2] that is formed by the verb movement from v_1 to Agro no longer includes the innermost arguments, that is, *Themes*, thus making movement of *Theme* argument unlicensed

The problem we have here actually cannot be solved only by overt/covert distinction of movement The problem is that regardless of which thematic hierarchy we adopt, as far as we maintain the VP-Shell structure of (3), we come to have (some) outputs that do not reflect actual surface word order of the sentences at hand This observation leads us to reconsider the VP-Shell structure of (3) for modification

[2] See Chomsky (1993 12) for reference

3 Proliferated *v*P Structure and Overt Object Movement Get back to the sentences (6a-c) which are repeated as (9)

(9) Pre-Movement Structures for (4a'-c')

a ? [$_{vP1}$ John [$_{v1}$ v_1 [$_{VP2}$ to the parents [$_{V2}$ showed each other's boys]]]

b ? [$_{vP1}$ John [$_{v1}$ v_1 [$_{VP2}$ to the mothers [$_{V2}$ gave each other's babies]]]

c ? [$_{vP1}$ John [$_{v1}$ v_1 [$_{VP2}$ to every author [$_{V2}$ sent his book]]]

Note that the problems we have had so far are closely related with adjacent vP_1 and VP_2 adjacent vP_1 and VP_2 actually disallow the most deeply imbedded *Theme* argument to move to a higher position than the *Non-Theme* argument to produce expected surface word order (4a'-c') Note that given the verb movement from V_2 to v_1 in (9), the verbal chain (showed, t_i) has both [Spec, vP_1] and [Spec, VP_2] in its minimal domain [3] [Spec, vP_1] is already filled with 'John', or its trace, and [Spec, VP_2] is filled with PP *to the parents* Thus, there is no position where the DP *each other's parents* to move to and get its Case checked Thus, if we build some functional projection between vP_1 and VP_2 to provide a landing site for the *Theme* argument, then the problem caused by adjacent two VP's may disappear The rough structure with a VP-internal functional projection will be as follows [4]

(10) [vP_1 [v_1 v [$_{FP}$ [$_{F'}$ F [$_{VP2}$ [$_{V'2}$ V [XP]]]]]]]

↑ (Agent) ↑ (Non-Themes) ↑ (Theme)

The FP of (10) should be AgroP because the Theme object *each other's parents* gets its Case checked in the Spec of the FP against the verb adjoined to F In the following section, let us first discuss if the structure of (10) and the subsequent overt object derivation strategy ensure actual surface word order of (4 a'-c') from (9a-c)

Derivation from (9a) will be as follows First, the verb *showed* overtly moves to F Then the complement of the verb *each other's boys*, which is within the minimal complement domain of the chain (V, t_V), also overtly moves up to the Spec of FP for Case checking The Non-Theme *to the parents* remains in-situ (within VP_2) through entire derivation, since all its morphological features, especially the Case feature, will be checked in-situ against P probably by way of AgrpP (Greed) Thus, we can correctly produce the expected surface word order (4a') *John showed each other's boys to the parents* Further derivation will still be able to maintain the Theme *each other's boys* structurally superior to the Non-Theme *to the parents* [5] (9b&c) under (10) also reach the expected surface order (4b') and (4c') respectively

Now let us discuss the production of double object construction (4a-c) under (10) Before we test our approach under (10) to gain the actual word order (4a-c), however, it might be useful to discuss previous approaches to the double object construction especially by Chomsky (1993) and Fujita (1996) for comparison's sake

[3] Refer to Chomsky (1993 16)

[4] For a similar discussion of functional projections within the VP, refer to Fujita (1996 154-156)

[5] The binding issue raised by the drivation will be discssed in the followng section

Let us begin with Chomsky (1993) He suggests, following Larson (1988), that the inherently Case-marked object should remain in-situ Under the minimalist program, this presumably means that the inherently Case-marked object already has its Case feature licensed and therefore does not raise to the Spec position of some Agr projection for Case checking but remains in-situ even after Spell-Out (see Lasnik 1995 for a different view) His analysis starts from (11b) to end with (11a) through the derivation (11c)

(11) a *John showed each other's parents the boys (=(4a))
b [$_{vP1}$John [$_{v}$ v [$_{VP}$ each other's parents [$_{V'}$ showed the boys]]] (=(7a))
c [$_{AgrsP}$ John$_{i}$ [$_{AgroP}$ each other's parents$_{k}$ [$_{Agro}$ showed$_{j}$+Agro [$_{vP1}$ t$_{i}$ [$_{v1}$ t'$_{j}$ [$_{vP2}$ t$_{k}$ [$_{v2}$ t$_{j}$ the boys]]

The non-movement approach to the inherently Case-marked object is also shared by Fujita (1996)[6], though detailed structures are different

As (12) and (13) show in the following, their structures for the double object construction contain only one AgroP in which only structural Case can be checked

(12) Chomsky (1993) for Double Object construction
[$_{AgrsP}$ Spec [$_{Agrs}$ Agrs [$_{TP}$ [$_{T}$ [$_{T}$ [$_{AgroP}$ Spec [$_{Agro}$ Agro [$_{vP1}$ Spec [$_{v}$ v [$_{vP2}$ Spec [$_{V'2}$ V **DP**]]

(13) Fujita (1996 160-161) for Double Object Construction[7]
[$_{AgrsP}$ Spec [$_{Agrs'}$ Agrs [$_{TP}$ [$_{T'}$ [$_{T}$ [$_{vP1}$ Spec [$_{v}$ v [$_{AgroP}$ Spec [$_{Agro}$ Agro [$_{vP2}$ Spec [$_{V2}$ V **DP**]]

For further discussion, let us review Fujita's structure for double object construction in more detail Consider (14) (next page)

In his structure (14), the Spec of VP_2 is the position in which the Causer role is assigned By suggesting (14) he ensures that the second object does not c-command the first object anywhere in the derivation V_3 raises to V_2 in overt syntax, as before Then at LF the V_2-V_3 complex raises to Agro and DP_2 moves to [Spec, AgroP] for accusative Case checking By contrast to DP_2, which has structural Case, he assumes with Larson (1988) that DP_1 has inherent Case, as mentioned before Thus no movement is applicable even after Spell-Out Consequently, DP_1 does not c-command the trace of DP_2 at any time during the derivation, and VP-internal backward binding under LF reconstruction is correctly excluded

Either approach can correctly produce the actual word order (4a-c) from the initial

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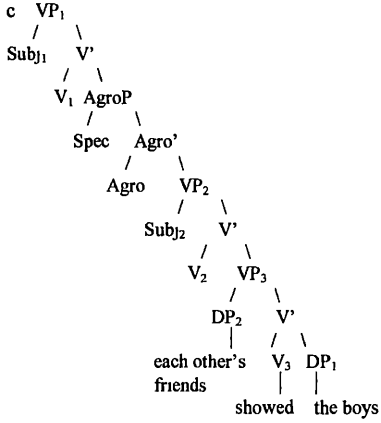
[6] Chomsky and Fujita do not assume the alternate thematic hierarchy adopted by this paper However, the surface order of the inherent Case-marked object as in (7) is the same as that under the alternate thematic hierarchy That is, it is located in the second-highest argument position on the surface structure

[7] Chomsky (1993) assumes that the inherently Case-marked object does not move al all Thus, in terms of AgroP, he does not distinguish the structures between the double object construction and the dative construction Both structures are analyzed to have only one AgroP

Fujita (1996) basically agrees to Chomsky's non-movement approach to the inherently Case-marked object However, concerning the backward binding dative construction, he departs from Chomsky in that he builds up another maximal projection AgrpP between VP_2 and VP_3 See Fujita (1996 158-162) for additional discussion

structures (7a-c) respectively and well explain why there is no backward binding occurring in the double object construction

(14) a. $[_{VP}$ V DP_2 DP_1]
b b *John showed each other's parents the boys (=(4a))
c



However, immediate questions that we can ask about the two analyses will be why the inherently Case-marked object remains in-situ ?, why is there only one AgroP which is only for structural Case checking?, how does the inherently Case-marked object have its Case checked ?, is it necessary to posit two separate Case checking systems, one by Spec-head relation (structural Case checking) and the other possibly by head-complement relation (Inherent Case checking)?

The questions are very closely related with the (backward) binding relation that is assumed to be checked at LF in the minimalist program Fujita [8] explains the marginal reading of the dative constructions (4a'-c') by the LF reconstruction effect His analysis is as follows

(15) LF-Reconstruction and Binding
a $[_{VP}$ V DP_1 P $DP_2]$
b $[_{VP1}$ $Subj_1$ $[_{V'}$ V_1 $[_{AgroP}$ Spec $[_{Agro'}$ Agro $[_{VP2}$ $Subj_2$ $[_{V}$ V_2 $[_{AgrpP}$ Spec $[_{Agrp}$ Agrp $[_{VP3}$ $[_{DP1}$ each other's friends $[_{V}$ showed $[_{PP}$ to $[_{DP2}$ the boys]]

Note that in order to explain the VP-internal backward binding found in the dative construction, he introduces AgrpP external to VP_3 but below AgroP His idea is that in the dative construction the second object DP_2 covertly moves to the Spec of AgrpP for Case checking, from which it c-commands the trace of the first object DP_1 in the Spec of VP_3 However, because the second object DP_2 that has covertly moved to the Spec of AgrpP is still c-commanded by the first object

[8] Note that the backward binding phenomenon in the dative construction is not properly dealt with in Chomsky(1993)

DP_1 that has already moved to the Spec of AgroP, only the marginal reading is available

One important question here is how DP_2 moves up to the Spec of AgrpP external to VP_2 In order to move the second object *the boys* from its original position, it is required for its head *to* to move upwards to somewhere it can adjoin, so that the minimal domain should be formed

In order to make P move, Fujita adopts "reanalysis", by which he argues that P adjoins to V_3 like an instance of incorporation. Then the V-P complex raises to Agrp and Case-checks the second object DP_2 which moves to [Spec, AgrpP] He provides the following as evidence for adjunction of P to V (ibid , 156-157) Consider

(16) a John talked to Mary
b Mary$_i$ was talked to t_i
c P adjoins to V, the V-P complex raises to Agrp, Obj *Mary* in (b) moves to [Spec, AgrpP]

We, however, should be very careful in adopting "reanalysis" as syntactic evidence We may take advantage of P to V incorporation based on reanalysis, for which the stranded P after V in (16b) can be good evidence However it is a different story when it comes to the so-called transitive constructions like the dative construction Consider the difference between the following two sets of sentences

(17) a John talked to Mary
b Mary$_i$ was talked to t_i (=(16b))

(18) a ?John showed each other' boys to the parents (=(4a'))
b *The parents$_i$ were shown each other's boys to t_i

The ungrammaticality of (18b) indicates that P to V incorporation may not occur so freely as Fujita assumes If P to V incorporation is not allowed for (18b) as it is in (17b), then we do not have any way to move P to Agrp via V in (15b), which will be a big problem for Fujita's theory with AgrpP external to VP_3 The location of AgrpP external to VP_3 in (15) is crucial because it is supposed to guarantee the VP-internal backward binding Consider why he denies the conventional position of AgrpP immediately over PP

(19) a. $[_{VP}$ V DP_1 P DP_2]
b $[_{VP3}$ DP_1 $[_{V'}$ V_3 $[_{AgrpP}$ Spec $[_{Agrp}$ Agrp $[_{PP}$ P DP_2]]

(19a) stands for a backward binding dative construction in which syntactically lower DP_2 binds the trace of DP_1 at LF, resulting in a marginal reading If AgrpP were built immediately over PP as in (19b), then after P moves to Agrp and DP_2 to Spec of AgrpP, DP_2 cannot c-command DP_1 (or the trace of DP_1) Therefore, he constructs AgrpP external to VP3 based on the weak evidence of P to V incorporation

Both Chomsky (1993) and Fujita (1996) are able to produce the actual surface word order of the double object construction (4a-c) from their initial structures Both of them could also explain why there is no backward binding phenomenon occurring in the double object construction (recall discussion from (11) to (14)) However, as we have discussed, their

approaches to the inherently Case-marked object have weaknesses in assuming the unclear in-situ Case checking mechanism and the P to V incorporation, etc

In the following sections, departing from Chomsky and Fujita, I will first deepen the postponed discussion production of the actual word order of the double object construction (4a-c) under the proliferated VP structure (10) and the alternate thematic hierarchy The discussion will extend to include the asymmetry of backward binding phenomenon between double object construction and dative construction

The proliferated VP structure (10) and the alternate thematic hierarchy that we have adopted in 2 2 are repeated as (20a&b) A double object construction (4a) and its pre-movement structure under the proliferated VP structure (10) are repeated as (21a&b) in the following Consider

(20) a. $[_{vP_1}$ $[_{v'_1}$ v $[_{FP}$ $[_{F'}$ F $[_{VP_2}$ $[_{V'_2}$ V [XP]]]]]]] (=(10))

(Agent) (Non-Themes) (Theme)

b Agent > Non-Theme(s) > Theme (=(3))

(21) $[_{VP}$ V DP_2 DP_1]

a *John showed each other's parents the boys (=(4a))

b *$[_{VP1}$John $[_{V'}$ v_1 $[_{AgroP}$ Spec $[_{Agro'}$ Agro $[_{VP2}$ $[_{DP2}$ each other's parents $[_{V'}$ showed $[_{DP1}$ the boys]]

Remember that our approach is not favorable to in-situ Case checking If the inherently Case-marked DP_1 should also move to a higher position for Case checking, then we are definitely in need of another maximal functional projection of Agro The label will be AgroiP and inherent Case is supposed to be checked in the Spec of AgroiP Its position on the structure will be decided by cyclic movement of constituents for actual word order (21a) The structure including the new AgroiP will be as follows

(22) $[_{VP1}$ Spec $[_{V'1}$ v $[_{AgroP}$ Spec $[_{Agro'}$ Agro $[_{AgroiP}$ Spec $[_{Agroi'}$ $Agro_i$ $[_{VP2}$ DP_2 $[_{V'2}$ V [DP_1]]

When the verb *showed* first moves to the Agroi external to VP_2, then DP_1 which belongs to the minimal complement domain[9] of the chain (V_1, t_V) will follow to the Spec of Agroi Next movement of the verb to Agro will induce the movement of DP_2 to the Spec of AgroP Further derivation will still maintain the surface word of (4a) correctly *John showed each other's parents the boys* (Note that for the dative construction, there will be no necessity of AgroiP) In this way, we can correctly derive correct surface word order for all (4a-c)

Next discussion is about how we can explain in a unified way that a marginal reading is available for the dative construction (4a'-c') while it is not for the double object construction (4a-c) Let us think about the marginal reading of the dative construction (4a'-c') first

[9] Refer to Chomsky (1993 19)

Recall that as is discussed in (15) and below, Fujita explains the marginal reading of the dative construction (4a'-c') based on the observation that at LF, covertly moved DP_2 *the parents* in the Spec of AgrpP c-commands the trace of NP_1 *each other's boys*, partially satisfying binding theory A Under our theory assuming the alternate thematic hierarchy, DP_2 in the PP *to the parents* should remain in-situ, or it should go up to the Spec of AgrpP immediately dominating the PP for accusative Case checking against P adjoined to Agrp
(23a) in the following shows the initial structure of (4a'), and (23a') is the detailed structure of AgrpP over PP occupying the Spec of VP_2 (23b) has the partial LF structure of (4a') under our theory

(23) [VP V DP_1 P DP_2] ?*John showed each other's boys to the parents* (=(4a'))

a. $[_{VP1}$ John $[_{V}$ v_1 $[_{AgroP}$ Spec $[_{Agro'}$ Agro $[_{VP2}$ to the parents $[_{V}$ showed each other's boys]]

a' $[_{VP1}$ John $[_{VP2}$ $[_{AgrpP}$ $[_{DP2}$ the parents$_i$] $[_{Agrp}$ to$_j$+Agrp $[_{PP}$ $[_{P}$ t_j] $[_{DP2}$ t_j]]]] showed EO's boys]]

b $[_{VP1}$ John [showed$_j$+ v_1 $[_{AgroP}$ EO's boys$_i$ [Agro' t_j' $[_{VP2}$ to the parents $[_{V2}$ t_j t_i]]

As is shown in (23a'), DP_2 in the Spec of VP_2 remains within VP_2 during entire derivation, thus not being able to c-command DP_1 in the Spec of AgroP However, we have very important information that we can depend on to explain the marginal reading the initial c-commanding relation in which the *Non-Theme* object DP_2 binds the *Theme* object DP_1 as depicted in (23a) The subsequent derivation from the initial structure (23a) just disturbs the original structural relation between DP_2 and DP_1 Under the copy theory of movement in the minimalist program, the trace is a complete copy of the moved element Thus, we can stipulate that though the original binding relation gets disturbed as we approach the LF, basically DP_2's c-commanding DP_1 is still said to be maintained DP_2 c-commands the trace of DP_1 at LF Thus, we can say that the marginal reading is due to the disturbed c-commanding relation between DP_2 and DP_1 when DP_1 *each other's boys* moves to the higher Spec of AgroP external to VP_2 and c-commands DP2

The explanation given above is very different from that of Fujita in that our binding theory monitors binding relation 'cumulatively during entire derivation'[10] from $Derivation_1$ to $Derivation_N$ until it reaches LF This might look against the minimalist spirit which maintains that all syntactic principles including the binding theory apply at LF

Concerning this issue, one idea is that we may consider the binding theory like the inclusiveness condition (Chomsky 1995 225)[11] which is about the requirement of the outputs at LF but actually influences entire derivation from D_1 to D_N I will leave this issue open for further discussion

Next let us discuss the production of double object construction (4a-c) which do not show backward binding phenomenon Initial and partially derived structures of (4a) are listed as (24a-c) in the following Consider

[10] (23b) shows that at LF we have two opposite binding relations between DP_2 and DP_1 (1) DP_1 c-commands DP2, and (2) DP_2 c-commands the trace of DP_1 In this paper, this bazaar situation is taken to be a main reason to cause a marginal reading because the original binding relation of DP_2 c-commanding DP_1 is blurred

[11] Inclusiveness Condition (Chomsky (1995 225))
"Outputs consist of nothing beyond properties of items of the lexicon (lexical features) I e , the interface levels consists of nothing more than arrangements of lexical features "

(24) $[_{VP}$ V DP_2 DP_1] **John showed each other's parents the boys* (=(4a))

a $[_{VP1}$ John $[_{V'}$ v_1 $[_{AgroP}$ $[_{Agro'}$ Agro $[_{AgroiP}$ $[_{Agroi}$ $Agro_i$ $[_{VP2}$ EO's parents $[_{V'}$ the boys]]

b $[_{VP1}$ John $[_{V'}$ v_1 $[_{AgroP}$ $[_{Agro}$ Agro $[_{AgroiP}$ the $boys_i$ $[_{Agroi}$ $showed_k$ $[_{VP2}$ EO's parents $[_{V'}$ t_k t_i]]

c $[_{VP1}$ John $[_{V'}$ v_1 $[_{AgroP}$ EO's $parents_j$ $[_{Agro}$ $showed_k$ $[_{AgroiP}$ the $boys_i$ $[_{Agroi}$ t_k' $[_{VP2}$ t_j $[_{V'}$ t_k t_i]]

The initial structure (24a) shows that the reciprocal pronoun *each other* is not bound by *the boys* The initial binding relation becomes reversed in (24b) *the boys* c-commands *each other* Thus, if the derivation ended in (24b), the disturbed binding relation might result in a marginal sentence However, continued derivation (24c) confirms the initial non-binding relation between the two DPs Therefore, the cumulative judgment from D_1 to D_N for (24) will be an ungrammatical sentence Marginal reading of (4b'&c') are also explicable by the same process

4 Conclusion In this paper I have discussed the contrast that are observed between double object construction and dative construction in the dative construction the second object can bind an anaphor contained in the first object, but analogous backward binding is prohibited in the double object construction I have shown that neither Larson's (1988) Thematic hierarchy and VP-Shell structure can handle the contrasts, nor can Chomsky (1993)
As a recent approach, Fujita (1996) has been carefully evaluated I have argued that though his theory can explain the contrast very well, it has some weak arguments on which his important mechanisms such as P to V incorporation, in-situ Case checking for inherently Case-marked are based To allow the inherently Case-marked object to move upwards so that inherent Case is also be able to be Case-checked structurally, I build up AgroiP external to VP_2 but below AgroP
I have argued that the proliferated VP-Shell structure and the alternate Thematic hierarchy necessitates overt verb and object movement In my approach, the binding principle is not just applicable at LF as is widely assumed in the minimalist program, but it is more like an inclusive condition which monitors entire derivation from D_1 (an initial structure) to D_N (a final structure) until all the syntactic operations end

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