CASE, SCOPE AND LINKING PETER HALLMAN, MAY 2005

1 Introduction

This study presents an analysis of scope freezing and other phenomena related to the peculiar syntax of the double object frame in English and its dative counterpart. It seeks to demonstrate that these behaviors fall out from the phase-structured architecture of syntactic derivation outlined in Chomsky (2000, 2001), in concert with an approach to linking that ascribes an important role to Case, described in detail in section 3. The central grammatical principle proposed to be at work in the phenomena treated here is that syntactic relations established in phase *n* of a derivation persevere in every phase containing *n*, a consequence of the Projection Principle (Chomsky 1973). Under this principle, the present analysis unifies scope freezing in the double object frame, the fact that EPP raising reconstructs but QR does not, free scope in the dative frame, as well as some unexpected and previously unobserved constraints on scope alternations in the dative frame, suggesting that the behavior of the double object frame and its dative counterpart exemplifies a level of generality that it has not been previously given credit for. The discussion begins with a review of the basic properties of the double object frame and its dative counterpart and of two recent approaches to the particular problems that the constructions pose for the theory of syntax.

2 Aspect and Economy

The double object frame is illustrated in (1a), its prepositional dative counterpart in (1b). The conclusions drawn here are independent of the question of whether the 'counterpart

of' relation is a syntactic transformation or a surface resemblance, as discussed at greater length in section 4.1.1.

(1) a. I gave a child every doll. a > every, *every > a

b. I gave a doll to every child. a > every, every > a

The scope of the two object quantifiers is fixed in their surface order in the double object frame (1a) but not in the dative frame (1b) (Aoun and Li 1989, Larson 1990).[1] *Every* may display inverse scope over *a* in (1b), entailing that every child acquired a doll. Example (1a), however, cannot assert that for each doll, a different child received it, meaning that in (1a) inverse scope is unavailable, a state of affairs that Larson (1990) terms 'scope freezing'. The following two subsections discuss two recent approaches to the problem that scope freezing presents for the theory of syntax. Basilico (1998) relates the effect to differences in the structure of the predicate between (1a) and (1b), while Bruening (2001) relates it to a superiority constraint on QR.[2]

2.1 Aspect

Basilico (1998) claims that the scope distinction in (1) derives from a predicate-internal stage/individual-level distinction, after the predicate typology of Carlson (1977). Diesing (1992) claims that subjects of stage-level predicates are generated lower than subjects of individual-level predicates. Similarly, Basilico claims that the first object is generated lower in (1b) than in (1a). In particular, *a child* in (1a) is generated in a functional projection Trans[itive]P, which in turn embeds a stative predicate *have*, shown in (2a). In (1b), the first object *a doll* is generated in [spec,VP1] but moves to [spec,TransP] to

satisfy the feature [nominal] associated with Trans, shown in (2b). At LF it may reconstruct to its base position. In both cases, the scope of the second object is 'roofed' by VP1. Hence, the second object may scope over the first when the base position of the first is internal to VP1, which is the case in (2b) but not (2a).

(2) a. $[_{VP2}$ I CAUSE $[_{TransP}$ a child $[_{VP1}$ HAVE every doll]]

b. $[_{VP2}$ I CAUSE $[_{TransP}$ a doll$_i$ $[_{VP1}$ t_i BE $[_{PP}$ AT every child]]]

Though the first object may well have a lower position available to it in (1b) than in (1a), this does not explain scope freezing in (1a), since in both construction types, both objects may scope over the subject. I.e., both objects may scope over VP2, meaning the scope of the second object is not roofed by VP1. This point is made by Breuning (2001;243-244), who shows that when one of the objects is non-quantificational, the other may scope above the subject.

(3) a. A teacher gave me every book. a > every, every > a

b. A teacher gave every child candy. a > every, every > a

(4) a. A teacher gave me three books. a > three, three > a

b. A teacher gave three children candy. a > three, three > a

Bruening does not provide data that show that both objects may scope over the subject simultaneously, though his analysis predicts the possibility (as discussed below), and the prediction is indeed borne out. The sentence in (5) has three readings—inverse scope of both objects over the subject,[3] inverse scope of only the first object over the

subject, and surface scope, highlighted in (6a,b,c) respectively.

(5) A politician gave every donor more than three contracts

a. every > more than three > a

b. every > a > more than three

c. a > every > more than three

(6) a. Before the election, industrialists gave money to every politician they could find in the hopes of winning contracts later. And their efforts paid off; a politician gave every donor more than three contracts.

b. ...Their efforts paid off; a politician gave every donor more than three contracts— the politician they donated the most to.

c. A politician gave every donor more than three contracts. He's sure to be censured.

These data show that objects are scopally free with respect to the subject, yet, as (1a) shows, multiple objects must maintain their relative scope with respect to each other. This observation suggests that scope freezing is not the effect of a roof on the second object, as Basilico describes it, but a property of the movement operation itself, as Bruening describes it.

2.2 Economy

Bruening (2001) applies the account of superiority formulated by Richards (1997) to scope freezing, both making use of innovations in Chomsky (1995). Chomsky analyzes quantifier raising as attraction of a checking category to a feature to be checked. In particular, the feature *P*, a feature of agent-introducing little-*v*, attracts the nearest quantifier in its c-command domain into the nearest position in its checking domain. For the attraction relation, 'nearest' requires that no potential attractee intervene in the attraction relation. For the checking relation, 'nearest' requires that no potential checker intervene in the checking relation. The caveat 'potential' relativizes intervention to elements relevant to the kind of relation being established (Rizzi 1990). It is for this reason that the subject (*Subj* in (7)) does not intervene in the checking relation between the quantifier *Q* and the feature *P*. The subject does not originate in the c-command domain of *P*, and therefore cannot establish an attract relation with *P*, a prerequisite for checking, and therefore is not a potential checker of *P*. Since it is not a potential checker of *P* it does not interrupt the checking relation between *Q* and *P*, though it is nearer to *P* than *Q* is.

(7) $[_{vP}\ Q_1\ [_{vP}\ \text{Subj}\ \ [_{v}\ v^{[P]}\ [_{VP}\ V\ \ t_1\ \ ]]]]$

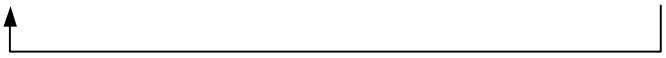
Bruening's analysis of the double object construction is simply that the movement shown in (7) applies cyclically to each quantifier. For the first quantifier, the effect is as in (7). After movement of Q_1 (8b), Q_2 is now the closest potential attractee of *P*, triggering checking-driven movement of Q_2 as well. However, Q_2 may not adjoin outside Q_1, as might be expected under the Extension Condition (Chomsky 1993), since Q_1 then

would intervene between Q_2 and the feature to be checked *P* and fail to be the nearest potential checker. Q_2 is then forced to 'tuck in' under Q_1, as shown in (8d).

(8) a. $[_{vP}$ Subj $[_{v}$ $v^{[P]}$ $[_{VP1}$ Q_1 $[$ V_1 $[_{VP2}$ V_2 Q_2]]]]]

b. $[_{vP}$ Subj $[_{v}$ $v^{[P]}$ $[_{VP1}$ Q_1 $[$ V_1 $[_{VP2}$ V_2 Q_2]]]]]

c. $[_{vP}$ Q_1 $[_{vP}$ Subj $[_{v}$ $v^{[P]}$ $[_{VP1}$ t_1 $[$ V_1 $[_{VP2}$ V_2 Q_2]]]]]



d. $[_{vP}$ Q_1 $[_{vP}$ Q_2 $[_{vP}$ Subj $[_{v}$ $v^{[P]}$ $[_{VP1}$ t_1 $[$ V_1 $[_{VP2}$ V_2 t_2]]]]]

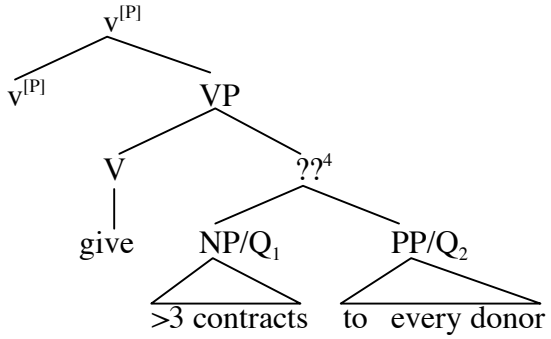
This analysis allows both objects to scope above the subject while enforcing scope rigidity among the objects. Scope freezing is the mechanical outcome of economy constraints on checking.

2.2.1 Free scope in datives

All other things being equal, the mechanism described above enforces scope freezing everywhere in the domain of the feature *P*, contrary to what we find in the dative frame, where the indirect object appears in a prepositional phrase (1b). Bruening proposes that when the object of a preposition is a quantifier, the PP may inherit the quantificational character of the quantifier, just as it inherits the interrogative character of a wh-phase in pied piping contexts. He further claims that in the dative construction, the two objects—the direct object DP and indirect object PP—are in the mutual c-command relation. Since they are syntactically symmetrical, in the domain of the feature *P*, either can check *P* first. As a result, they can adjoin to vP in any order, allowing free scope with respect to

both the subject and each other.

(9)



Bruening offers two pieces of evidence that support the symmetry of the two quantifiers in (9). First, the NP and PP are symmetrical with respect to passivization. Either can be promoted to subject.

(10) a. The collection of grandfather clocks was given to Bill.

b. To Bill was given the collection of grandfather clocks. [Bruening's (70b)]

NP and PP are also symmetrical with respect to superiority. Although the object of the preposition cannot be moved over an intervening wh-object (11b) (cf. (11a) where there is no intervention), the PP as a whole can (11c).

(11) a. What did you send to who? [Bruening's (66)]

b. *Who did you send what to?

c. ?To whom did you send what?

The data in (12) and below cast doubt on the claim that NP and PP are

syntactically symmetrical. The possibility of promotion of PP over NP is contingent on properties of the NP.

(12) a. To Bill was given the collection of grandfather clocks
b. ?To Bill was given the clock.
c. *To Bill was given it.

Promotion of PP is slightly less natural over the simple NP *the clock* than over the heavy NP *the collection of grandfather clocks*, and altogether impossible over the pronoun *it*. These judgments exactly parallel the judgments for heavy-NP shift in the active counterparts of the sentences in (12).

(13) a. Max gave to Bill the collection of grandfather clocks
b. ?Max gave to Bill the clock.
c. *Max gave to Bill it.

The parallel between (12) and (13) suggests that PP promotion to subject prerequires heavy-NP shift, unlike NP promotion to subject, which is not contingent on the heaviness of either itself or the PP. This asymmetry between NP and PP promotion to subject indicates that there is a structural distinction between the two, a distinction that must be surmounted by heavy-NP shift in the case of PP promotion but not in the case of NP promotion.

Further, Higginbotham (1980) claims that apparently superiority-violating examples like (11c), repeated as (14b), are fed by a reordering of NP and PP within VP, citing the 'Free Ordering Hypothesis' of Fiengo (1980) (which (13) reveals as heavy-NP

shift).

(14) a. ?Who sent to Bill what?

b. ?To whom did you send what?

(14a) is an unexpectedly felicitous case of heavy-NP shift, unexpected in light of the lightness of *what*, though presumably this lightness is responsible for the slight marginality reflected in the question mark judgment. But the fact that (14a) is grammatical is significant for the derivation of (14b), if, per Higginbotham, the inversion witnessed there obviates the intervener status of the NP, which it seems to in the examples of PP promotion to subject in (12). Since such an analysis avails itself for (14b) (=(11c)), the pattern in (11) does not represent a clear case of symmetrical behavior among the NP and PP, and indeed the judgment for (14b) matches that of (14a) quite well, suggesting this marginality has the same source in both, namely heavy-NP shift of the not-so-heavy wh-phrase *what*. These facts implicate that the NP and PP are not syntactically symmetrical. The are not freely interchangeable for the processes Breuning discusses.

Lastly, Bruening's analysis does not provide a generalization about what contexts license inverse scope.[5] Inverse scope in the dative frame arises from the symmetry of the NP and PP, while inverse scope of an object over a subject arises because of the particular syntactic juxtaposition of the subject with respect to the feature *P* (within its maximal projection but external to its c-command domain). The following section outlines a proposal that characterizes what syntactic condition allows inverse scope in general, a proposal that relates the possibility of inverse scope to the grammatical functions of the elements involved.

3 A Case Theory of Scope

The contexts in which inverse scope is available are characterizable in terms of the grammatical functions of the DPs involved. In (5), repeated below as (15a), an accusative object may display inverse scope with respect to a nominative subject but not with respect to another accusative DP.[6] In (15b), a dative DP may display inverse scope with either an accusative DP or a nominative DP.

(15) a. A politician$_{NOM}$ gave every donor$_{ACC1}$ more than three contracts$_{ACC2}$

ACC > NOM, *ACC2 > ACC1

b. A policitican$_{NOM}$ gave more than three contracts$_{ACC}$ to every donor$_{DAT}$

DAT > ACC, DAT > NOM

The relevance of the grammatical function of the DPs involved to their scopal configuration is nowhere clearer than in Bruening's example (53), shown in (16) (case subscripts added).

(16) a. Ozzy gave a (#different) girl$_{ACC1}$ every telescope$_{ACC2}$

b. A (different) girl$_{NOM}$ was given every telescope$_{ACC1}$

In the double object construction in (16a), *every telescope* may not display inverse scope with respect to the accusative DP *a different girl* (failing therefore to license *different*, which is parasitic on distributivity). But when *a different girl* is promoted to nominative in (16b), the scope reading that is blocked in (16a) is available, in conformity

with the observation in (15) that an accusative may display inverse scope over a nominative.

Analyses of inverse scope in transitive constructions have attributed a significant role to Case. The possibility of inverse scope of an object over a subject is contingent on the quantificational type of the subject, which, according to recent investigations, is constrained by its Case. Belletti (1988) claims that the predicate-internal subject in (17a) receives an inherent Case she terms 'partitive', after the morphological Case of weak objects (of certain verbs) in Finnish (which de Hoop 1992 terms 'weak Case'). Partitive Case allows the subject to satisfy the Case Filter directly in its base position (without Case inheritance, cf. Safir 1985) at every level of representation (without expletive replacement, cf. Chomsky 1985).

(17) a. $[_{TP}$ There is $[_{vP}$ a man$_{PART}$ in the garden]]

b. $[_{TP}$ A man$_{NOM}$ is $[_{vP}$ in the garden]]

Certain quantifiers are blocked from the predicate-internal position, those that Milsark (1974) terms 'strong' (*each, every, both, the*, etc.). Those that are licit he terms 'weak' (*a, some, several,* cardinal numerals like *three*, modified numerals like *more than three*, etc.). A strong object (*every bride* below) may display inverse scope over a weak subject (*a girl* below), as in (18a) (Bruening's (51a)). A weak object may also scope over a weak subject (18b), though the reading is slightly less salient, as mentioned in footnote 3.

(18) a. A girl kissed every bride a > every, every > a

b. A girl kissed three brides a > three, three > a

But not even a strong object may display inverse scope over a strong subject (Hornstein 1999). For example, (19a) is contradictory. If the first conjunct in (19a) offered an inverse scope reading of the strong object *every bride* over the strong subject *most girls*, it would assert that every bride is such that most girls kissed her. That assertion leaves open the possibility that there is no particular girl who kissed every bride, which is what the second conjunct asserts. The fact that (19a) is a contradiction means that no such interpretation for the first conjunct is available, meaning that object wide scope is blocked there. (19b) is not contradictory (on the relevant interpretation) meaning that object wide scope is possible there, as observed in (18a).

(19) a. #Most girls kissed every bride, though no girl kissed every bride.
b. A girl kissed every bride, though no girl kissed every bride.

These facts indicate that quantifier raising of the object is roofed by a syntactic boundary above the partitive Case position, where weak subjects (may) occur, but below the nominative case position where strong subjects (must) occur. This is just the analysis proposed by Hornstein (1999), who claims that quantifier raising is movement of the object to an accusative Case licensing position Agr_OP above vP but below TP, where the object scopes above a weak subject but below a strong subject.

(20) a. $[_{TP}$ $[_{AgrOP}$ every $bride_{ACC}$ $[_{vP}$ a $girl_{PART}$ $[_{VP}$ kiss]]]]
b. $[_{TP}$ most $girls_{NOM}$ $[_{AgrOP}$ every $bride_{ACC}$ $[_{vP}$ $[_{VP}$ kiss]]]]

An accusative DP, then, may display inverse scope over a partitive DP (a weak

subject), but not a nominative DP (a strong subject). As discussed above, an accusative DP may not scope over another accusative DP (whence scope freezing), but a dative DP may scope over a partitive DP or an accusative DP, as discussed in section 1, but also not over a nominative DP. In general, the configurations in which inverse scope is available distinguish themselves from the configurations in which inverse scope is not available in the Cases of the DPs involved. A DP's Case plays a role in determining its scope at LF.[7] This is just the claim made by Keenan (1987).

3.1 Case and Generalized Quantifier Extensions

Keenan (1987) proposes that the Case a DP bears affects its denotation in a way that determines the derivation of quantifier scope ambiguities. A DP with morphological accusative Case is interpreted as the 'accusative Case extension' of the quantifier the DP denotes. The accusative Case extension of a generalized quantifier (written F_{ACC}) is a function that sends each binary relation R to the set of entities b such that (unextended) F is true of the set of a's that b bears R to. And similarly, the 'nominative Case extension' of F (F_{NOM}) is a function that sends each binary relation R to the set of entities b such that F is true of the set of a's that bear R to b.

(21) For any generalized quantifier F and any binary relation R:

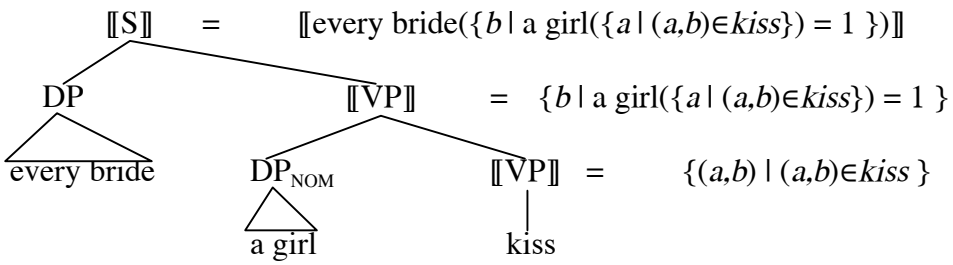
a. $F_{ACC}(R) = \{ b \mid F(\{a \mid (b, a) \in R\}) = 1 \}$

b. $F_{NOM}(R) = \{ b \mid F(\{a \mid (a, b) \in R\}) = 1 \}$

The nominative/accusative distinction, then, essentially determines the theta role of the first of two quantifiers to apply to the predicate. When the first (lowest) quantifier

is nominative, it saturates the external argument of the predicate, and the second quantifier applies over the predicate so derived, as illustrated in (22). The wide scope quantifier has no semantic Case.

(22)



Keenan's proposal relates DPs to binary predicates, but is undefined for more-than-two-place predicates like the kind of interest here—those that display scope freezing—or for that matter one-place predicates, for which reason the wide scope quantifier has no semantic Case. Keenan and Westerståhl (1997) present a generalization of the notion of extension which allows DPs to link to argument positions in any-place predicates, but which does not address the possibility of inverse scope or its origin, which is the main concern of Keenan (1987). In the following paragraphs, I discuss Keenan and Westerståhl's proposal, and in section 3.2 show how Keenan's (1987) Case theory extends to Keenan and Westerståhl's analysis of linking in polyadic environments.

A generalized quantifier is a function from subsets of the universe *E* to truth values (Barwise and Cooper 1981, drawing on Mostowski 1957, Montague 1973, and others). The denotation of e.g. *more than three contracts* is such a function. This particular function maps a set to '1' (i.e. 'true') if it contains more than three contracts. As the lowest argument in the tree in (24), it applies syntactically to the three-place predicate *give*, a set of triples, not a subset of the universe, resulting in a type mismatch at

this level. Keenan and Westerståhl define the 'extension' of a quantifier as a function that denotes the set of *n*-tuples such that the (unextended) quantifier is true of the set abstracted over the last argument of the predicate that the extended quantifier applies to in the syntax, formally, (23). *TYPE<1>* is the set of generalized quantifier denotations (functions from one-place predicates to a truth values), R_n is the set of *n*-place predicates, and E^n is the set of sequences of length *n*.

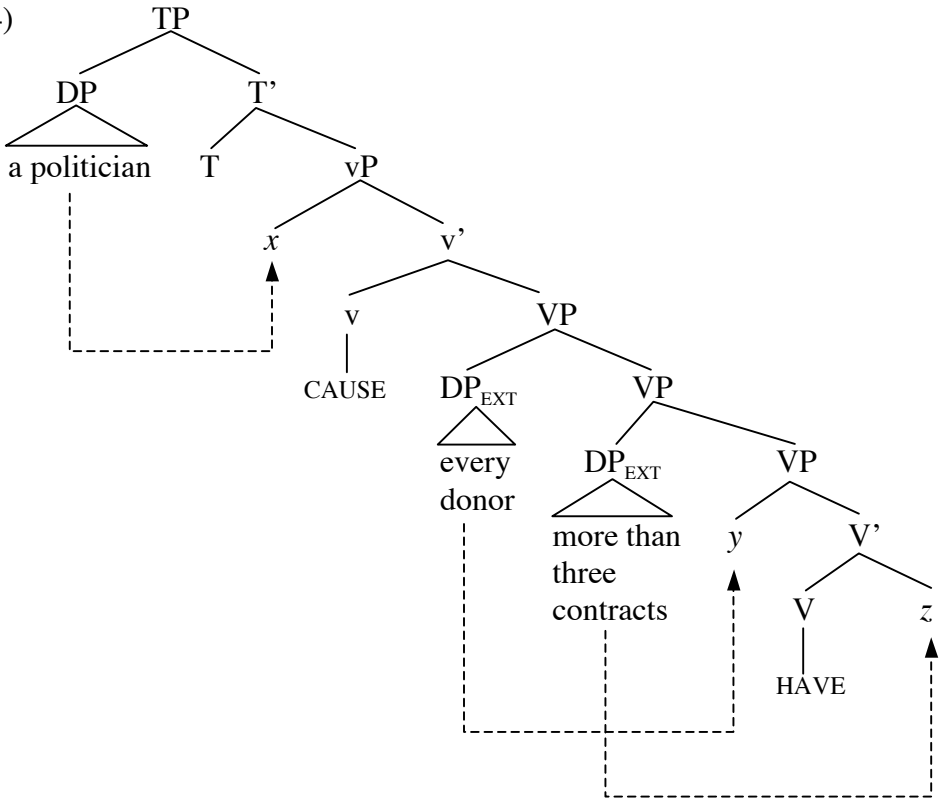
(23) For all functions $F \in$ TYPE<1>, for all relations $R \in R_n$,

$$F_{EXT}(R) = \{ (a_1, \ldots, a_{n-1}) \in E^{n-1} \mid F(\{a_n \in E \mid R(a_1, \ldots, a_n)\})=1\}$$

The discussion that follows syntacticizes Keenan and Westerståhl's approach to linking within the Principles and Parameters approach to syntax, in particular the Minimalist Program outlined in Chomsky (1993) and elsewhere. The structures postulated below follow a body of literature that hypothesizes that the external theta role of a polyadic predicate is introduced in a position syntactically superior to licensing positions for object quantifiers, a view known for ditransitive constructions as the 'VP shell' hypothesis (Larson 1988) and for transitive constructions as the 'light verb' hypothesis (Chomsky 1995). I follow Green (1974), Kayne (1981), Pinker (1989), Krifka (1999), Johnson (1991), Basilico (1998) and others in taking *give* to be a complex predicate containing a predicate of possession, notated *HAVE*, and in section 4.1.1 provide evidence for this beyond the references just cited. The generalization in (23) states that quantifiers link to argument positions by binding the last, or syntactically lowest, argument position in the subtree they merge to, as illustrated in (24), which displays the surface scope reading of *A politician gave every donor more than three contracts*. For perspicuity I have diagrammed the objects as adjuncts of VP, though this convention is

not meant as a denial of the possibility that there are dedicated object licensing positions, i.e. AgrPs or quantifier-class positions as proposed by Beghelli and Stowell (1997).

(24)

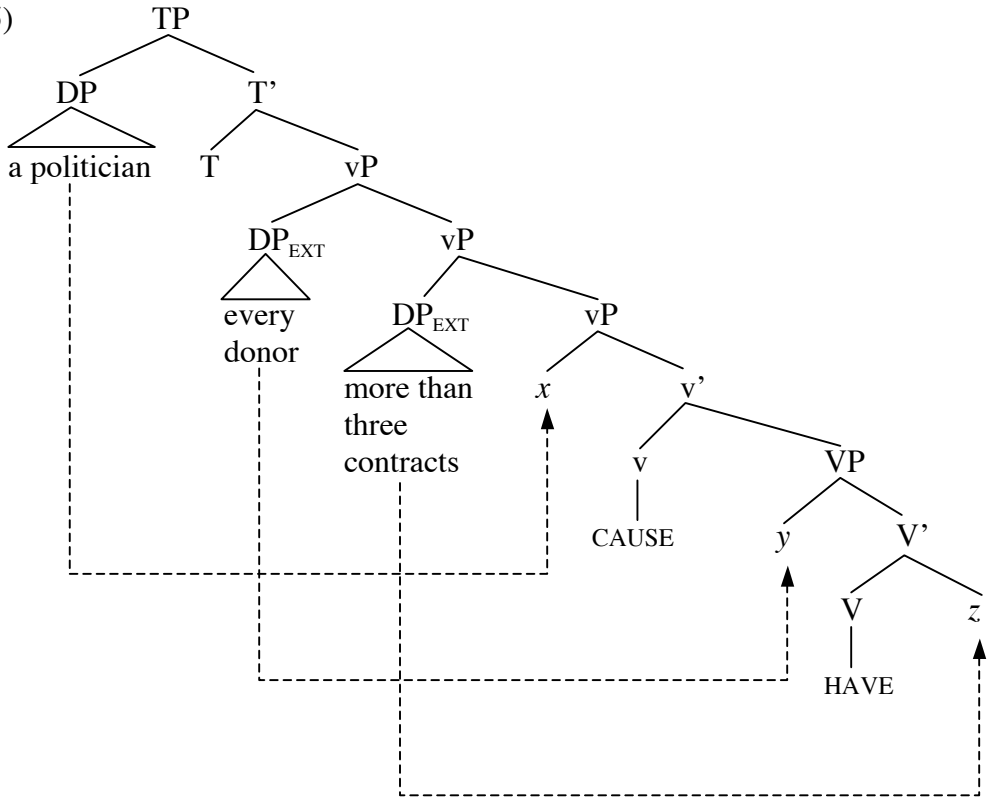


The variables *x, y* and *z* are individual-denoting argument variables assigned a theta role directly by the local predicate in accordance with the UTAH (Baker 1988).[8] They do not mark the base positions of the quantifiers, as the positions they occupy are typed for individuals, and quantifiers are not individual-denoting, as described above, and therefore excluded from theta positions for semantic reasons (Montague 1973). Quantifiers link to a theta role from a Case position by binding an argument variable in accordance with (23). In the structures described in the present study, the linear order of quantifiers at PF reflects their base order, i.e., no scope inverting transformations feed PF.

Clearly though, quantifiers may be interpreted in positions other than their surface position, indicating that they are subject to movement, contra Montague, discussed in more detail in section 4. The broken arrows in (24) and below do not indicate movement. They indicate the linking arrangement that the DPs (or their extensions) fall into given the definition of 'extension' in (23). The extension of *more than three contracts* binds the last available argument position in its sister, *z*. The extension of *every donor* binds the last available argument position in its sister, *y* (*z* now is already bound). *A politician* binds *x* (it need not be extended, since there is only one argument position left unsaturated at that point).

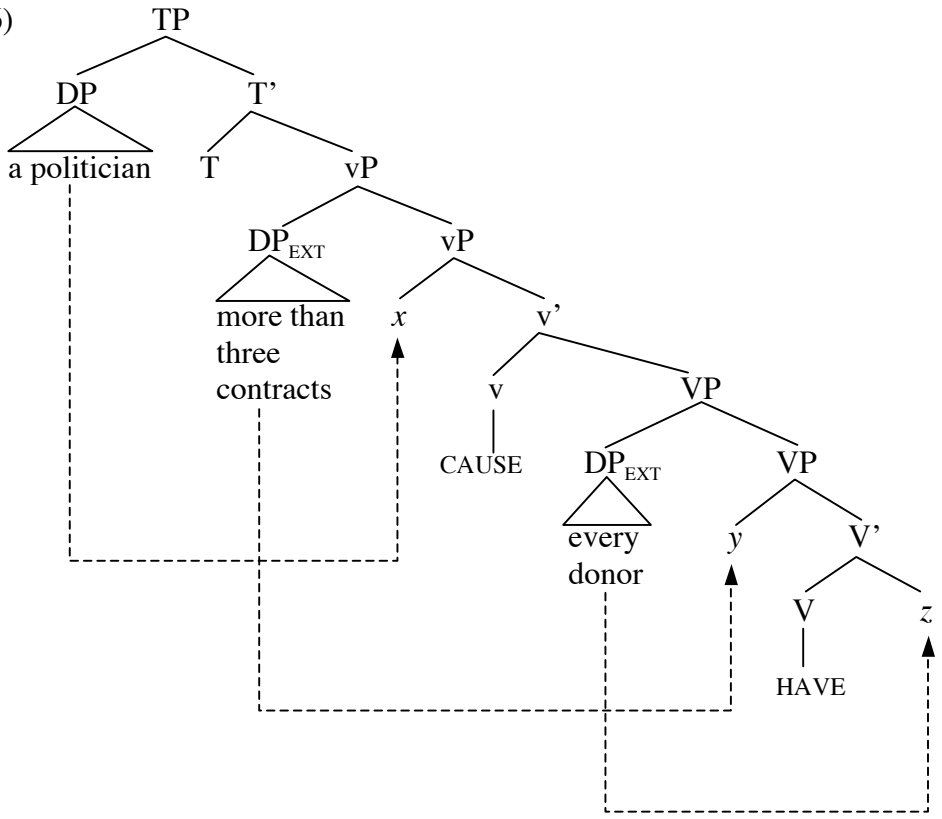
The same linking arrangement obtains if the objects occur in a higher scopal position, e.g. adjunct of vP. The discussion here remains temporarily uncommitted to any particular derivational history for (25) and (26). Again, the matter is addressed in detail in section 4.

(25)



Here too, *more than three contracts* binds the lowest available argument *z* and *every donor* binds the lowest available argument *y* (*z* is now taken), as (23) requires. *A politician* binds *x*. Note that it is not possible to invert the scope of quantifiers without also inverting their theta roles. Suppose *more than three contracts* occurs in a scopally higher position than *every donor*, as in (26), a scope freezing violation.

(26)



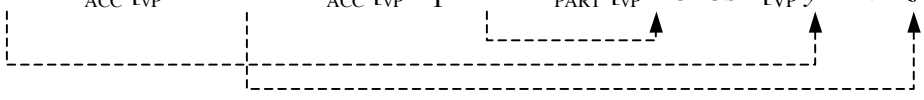
In this structure, *every donor* binds the lowest available argument variable *z*, making the donors the theme, and *more than three contracts* binds the lowest available argument variable (after *z*) *y*, making the contracts the recipient (i.e. 'haver'). The premises that license the trees in (24) and (25) do not rule out (26). (26) is syntactically well formed, though it is clearly not a possible interpretation for the sentence *A politician*

gave every donor more than three contracts, meaning constraints on derivations prevent it from being derived from the base in (24). Section 4 addresses these constraints in detail. First, from the perspective of Keenan and Westerståhl's (1997) approach to linking, I expand below on Keenan's (1987) proposal about the relation between scope and Case.

3.2 The Role of Partitivity in the Derivation of Inverse Scope

The conclusion of section 3 is that scope and Case are intimately related. In Keenan (1987), inverse scope occurs in the environment of the semantic Case 'nominative', which allows a subject to link to the external argument of the predicate before the object applies. The inverse scope configuration derived by raising of both objects in the double object frame over a partitive subject is shown in (27) (the reading of (5) exemplified in (6a)). In this scopal configuration, the subject links to the external (highest) argument variable, before the objects apply, not the lowest as expected per (23), but in accordance with what Keenan (1987) refers to as semantic nominativity. Note the two objects link to the lowest theta roles available to them in the order that (23) imposes, i.e. they behave as accusatives. I use labelled bracket diagrams in the remainder of this paper to conserve space.

(27) $[_{TP}\ [_{vP}$ every donor$_{ACC}$ $[_{vP}$ >3 contracts$_{ACC}$ $[_{vP}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ *y* HAVE *z*]]]]]]



Keenan's (1987) nominative Case reverses the 'default' linking pattern, that in which the scope of quantifiers matches the thematic hierarchy—the pattern enforced by

Keenan and Westerståhl's (23). The discussion in section 3 indicates that the role Keenan attributes to nominativity is in fact characteristic of partitive Case. Accordingly, semantic partitive Case is defined below as the reversal of the generalization in (23). A partitive Case marked DP denotes the 'partitive extension' of the function the underlying (Case-less) DP denotes. The partitive extension of a DP binds the first, or highest argument variable in its domain.

(28) For all functions $F \in$ TYPE<1> and all relations $R \in R_n$

$F_{PART}(R) = \{(a_2, \ldots, a_n) \in E^{n-1} \mid F(\{a_1 \in E \mid R(a_1, \ldots, a_n)\})=1 \}$

The notion of 'extension' defined in (23) I henceforth refer to as 'accusative extension'. The linking patterns in (24), (25), and (27) display the correlations in the chart in (29). A partitive DP is interpreted by its partitive extension. An accusative DP is interpreted by its accusative extension. A nominative DP is unextended. Again, although I assume for the purposes of this paper that that accusative is assigned to adjuncts of vP and VP, it is possible that dedicated accusative positions are involved. Since the argument variable *x* occupies the specifier position of vP, the partitive subject presumably occurs in a second specifier (see Chomsky 1995) while the object DPs are bona fide adjuncts of vP.

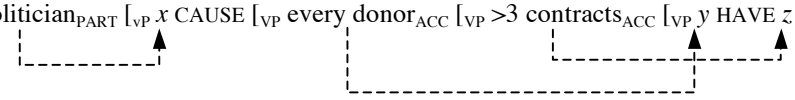
(29)

[spec,TP]	= NOM	=	basic F
[adjunct,vP]	= ACC	=	accusative extension of F
[adjunct,VP]	= ACC	=	accusative extension of F
[spec,vP]	= PART	=	partitive extension of F

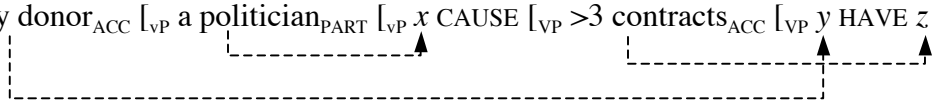
Given the linking procedures in (23) and (28) and the position-Case associations in (29), when the subject is partitive, there are three scopal orders for the quantifiers in the sentence *A politician gave every donor more than three contracts* (30) which instantiate the thematic order found in that sentence (that *a politician* is agent, etc.), namely those in (31) ((31c) is (27)).

(30) A politician gave every donor more than three contracts.

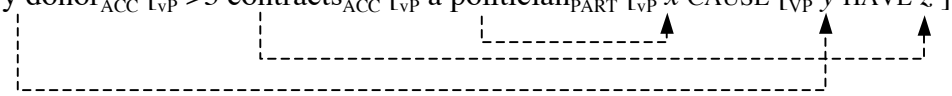
(31)a. $[_{TP}\ [_{up}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ every donor$_{ACC}$ $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ *y* HAVE *z*]]]]]]



b. $[_{TP}\ [_{vP}$ every donor$_{ACC}$ $[_{vP}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ *y* HAVE *z*]]]]]]

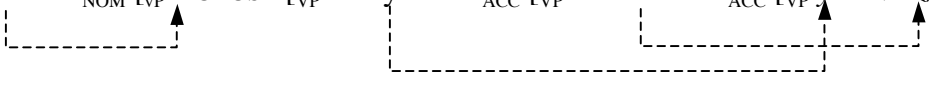


c. $[_{TP}\ [_{vP}$ every donor$_{ACC}$ $[_{vP}$ >3 contracts$_{ACC}$ $[_{vP}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ *y* HAVE *z*]]]]]]

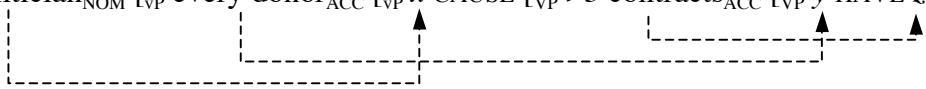


There are three additional orders when the subject is nominative (in [spec,TP]), as in (32), but in this case object raising has no net effect (as observed in section 3).

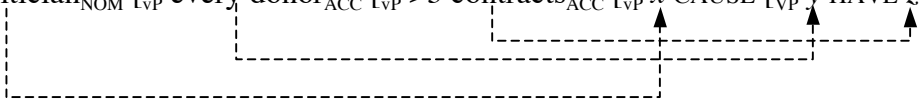
(32)a. $[_{TP}$ a politician$_{NOM}$ $[_{vP}$ *x* CAUSE $[_{VP}$ every donor$_{ACC}$ $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ *y* HAVE *z*]]]]]]



b. $[_{TP}$ a politician$_{NOM}$ $[_{vP}$ every donor$_{ACC}$ $[_{vP}$ *x* CAUSE $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ *y* HAVE *z*]]]]]]



c. [$_{TP}$ a politician$_{NOM}$ [$_{vP}$ every donor$_{ACC}$ [$_{vP}$ >3 contracts$_{ACC}$ [$_{vP}$ *x* CAUSE [$_{VP}$ *y* HAVE *z*]]]]]]



There is no other way of distributing the three DPs among the four Case positions in (29) such that (23) and (28) derive the linking arrangement observed in (30).[9] In the following section, I propose that this property is what blocks the derivation of all such structures as LFs of (30).

4 Movement and Linking by Phase

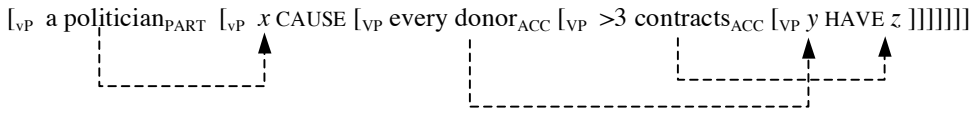
In the analysis outlined above, the Case a DP bears at a particular level of representation is determined by the configuration it occurs in at that level,[10] and the theta role a DP bears at a particular level of representation is determined by the Case it bears and its scope with respect to other DPs at that level, independently of other levels. That is, movement chains transmit neither the theta role nor the semantic Case of the trace in this analysis. On the other hand, the narrow syntax does not seem to permit the re-assignment of theta roles in the course of a derivation. I propose that rather than being a *property* of chains, it is a *constraint* on derivations that the linking pattern instantiated at a given level of structure must be re-established at the next level, where 'level' is 'phase', i.e.:

(33) The Cyclic Linking Constraint (CLC): Thematic relations established in phase *n* must persevere in every phase containing *n*.

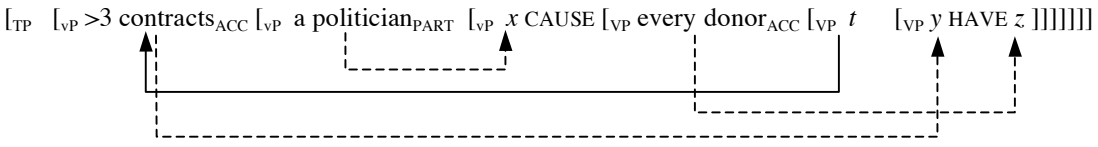
The CLC derives the scope freezing effect and certain other properties of the

alternation in (1), as described below. Chomsky (2000) argues that vP is a phase boundary, a conclusion I adopt here, noting though that the vP phase excludes adjuncts of vP (see below), a point which lends some credence to the possibility mentioned earlier that QR moves DPs to dedicated syntactic positions (outside vP), not adjunction sites, though I will not explore the possibility here. The generalizations in (23) and (28) govern argument variable binding in any given phase. The CLC enforces that if a quantifier binds an argument variable in a particular phase, it must bind that same argument variable in subsequent phases.[11] This constraint restricts movement. A DP may only move to a position in which the Case it bears in that position and its scope with respect to other DPs cause the DP to bind the same argument variable that it binds in the previous phase. Suppose (31a), repeated in (34a), is the initial phase from which the structures in (31) and (32) are derived (it is the structure in which the scopal order matches the linear order and all DPs are in the lowest positions available to them). (34b) (which is the scope freezing violation in (26) modulo the position of the subject) cannot be derived from (34a).

(34) a. PHASE 1:



b. PHASE 2 (*direct object > indirect object):

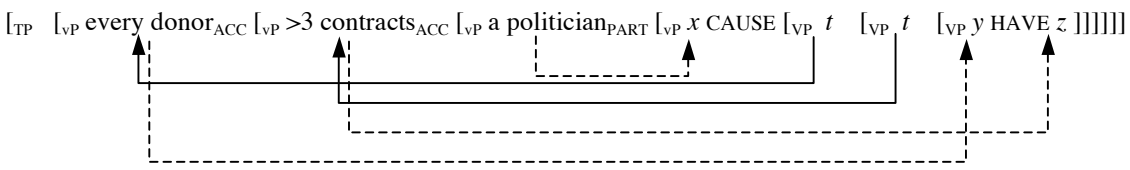


Here, traces indicate the derivational history. Solid arrows indicate movement and broken arrows, as before, indicate argument variable binding. In both (34a) and

(34b), the DPs link to argument variables in accordance with (23) or (28), as appropriate; the two accusative DPs bind the lowest argument variables in their domain, the partitive DP the highest. The unlicensed factor in (34b) is that the DPs *more than three contracts* and *every donor* bind different argument variables there than in phase 1 (34a), in violation of the CLC. This violation makes (34b) underivable from (34a) and therefore unavailable as an LF for it, making the CLC the source of the scope freezing effect.

On the other hand, (35) below (=(31c)), is a legitimate derivative of (34a) as it obeys the CLC.

(35) PHASE 2 (indirect object > direct object):



Both moved DPs bind the same argument variables in their derived positions in phase 2 as they bind in their base positions in phase 1, marked in (35) by their traces. Note that in this approach, traces are copies of the moved quantifier, as in Chomsky (1993), not variables bound by it. They serve to mark the path of QR for the valuation that the CLC requires.

The proposal presented here that thematic relations are re-established in every phase is superficially indistinguishable from the more conventional assumption that DPs inherit their theta role from a trace in a theta position. In both cases, QR is observed to maintain the thematic relations that obtain in the base (which generally surface at PF in English). But the present proposal excludes certain structures as LFs for a given PF, namely any structure in which a DP acquires a different theta role in its derived position

than it acquires in its base position. The premises in (23), (28), (29) and (33) correctly admit the structures in (31) and (32) as derivatives of (34a) but exclude (34b) and all other possible scopal configurations.

The analysis excludes (34b) and accepts (35) (=(31c)) in a way that makes the possibility of inverse scope contingent on the availability of partitivity, the empirical desideratum identified in section 3. There is an additional respect in which this analysis improves upon those discussed in section 2. It explains the impossibility of deriving inverse scope through reconstruction. The P-checking movement posited by Bruening (2001), modelled after wh-movement, is expected to display reconstruction effects like wh-movement (May 1977, 1985). (8d) is repeated below as (36a), the structure derived by raising Q_1 and Q_2 to adjunct-of-vP. Reconstruction lowers Q_1 or Q_2 to the position occupied by its trace. If Q_1 lowers, reconstruction inverts the two quantifiers, deriving an inverse scope configuration (36b). The fact that an inverse scope reading is not observed indicates that the movement shown in (36b), i.e. reconstruction, is not available. As Bruening states: "The Superiority account of scope freezing relies on the inability of QR to reconstruct (only non-scope movement, such as EPP movement to TP, can). If reconstruction back within the VP were possible, there could be no scope freezing." pg. 267. That is, the superiority-enforced symmetry of QR is not enough. That reconstruction is impossible must be stipulated independently.

(36)a. $[_{vP}\ Q_1\ [_{vP}\ Q_2\ [_{vP}$ Subj $[_{v}\ v^{[P]}\ [_{VP1}\ t_1\ [\ V_1\ [_{VP2}\ V_2\ t_2\ ]]]]]$

b. $[_{vP}\ t_1\ [_{vP}\ Q_2\ [_{vP}$ Subj $[_{v}\ v^{[P]}\ [_{VP1}\ Q_1\ [\ V_1\ [_{VP2}\ V_2\ t_2\ ]]]]]$

In the present analysis, the structure in (36b) corresponds to that in (34b), a structure ruled out by the CLC as a derivative of (34a) because of the thematic mismatch between the two. In the case under consideration, in which (34b) is derived by reconstruction, not QR, (34a) is not the base from which (34b) is derived, rather, (34b) is derived by lowering in the LF represented by (35). The claim that the reconstructed order in (36b) is ruled out by the CLC (as a phase-phase mismatch) presupposes that (36a) and (36b) are distinct phases, i.e., that lowering obtains in a phase subsequent to the phase in which (36a) is constructed. Chomsky claims that the narrow syntax presents a complete phase to PF (Chomsky 2001, pg. 12). If that is so, then reconstruction of overt movement obtains in a new phase derived from the phase fed to PF, even though no additional structure is added in this last phase. That reconstruction obtains in a new phase makes reconstruction subject to the CLC. Hence, (35) (=(36a)) consists of two phases, corresponding to vP and TP, while (34b) (=(36b)), when derived from (35), consists of three phases, vP, TP, and a third phase also corresponding to TP but in which the quantifier *every donor* is lowered to its base position. The argument variable binding configuration in the third phase (34b) differs from that in the second phase (35), which rules out (34b) as a possible derivative of (35).

The fact that scope-inverting reconstruction is impossible would seem to want to fall under the principle that explains the original scope freezing observation, but does not fall out wholly from Bruening's superiority constraint on P-checking. In the present analysis, (34b) is excluded as a possible derivative of (35) for the same reason that that scopal order is underivable by QR in the first place, because of the thematic mismatch between the base and derivative. Both the symmetry of QR for multiple objects and the impossibility of reconstruction fall out from the CLC.

The present analysis not only predicts the impossibility of reconstruction for QR,

it also predicts the EPP exception to the impossibility of reconstruction that Bruening mentions. The structures in (31) and (32) differ respectively only in the position of the subject, [spec,TP] vs. [spec,vP]. The subject typically surfaces in [spec,TP] in English, but may reconstruct to [spec,vP], as in the LFs in (31). Since [spec,vP] is a partitive position, reconstruction of the subject to [spec,vP] does not alter the thematic relationships established in the phase that feeds PF (the 'surface structure'), as mentioned in connection with (32). Since the structures in (31) and (32) all share the same linking arrangement, those in (31), where the subject occurs in [spec,vP], are possible LFs for those in (32), where the subject occurs in [spec,TP]. Just as it is partitivity that allows QR of an object over a subject, it is partitivity that allows reconstruction of a subject under an object. This generalization is also at work in the dative frame, as described below.

4.1 Dative Constructions

The previous discussion focuses on the double object construction. Dative constructions differ from double object constructions in the scope possibilities available to the two objects, in ways that are informative for an analysis of scope freezing in the double object construction. For any analysis that makes reference to argument structure in double object and dative constructions, as the present one does, the debate concerning to what extent the two constructions are transformationally related is potentially of some consequence (see Chomsky 1975, Fillmore 1965, Emonds 1972, 1993, Marantz 1984, and Larson 1988 versus Kayne1984, Aoun and Li 1989, Marantz 1993, Basilico 1998, Bruening 2001, and Beck and Johnson 2004, to mention a few of the protagonists on the transformational and non-transformational side of the debate, respectively). The

following section, preliminary to the discussion of scope in dative constructions in section 4.1.2, seeks to establish that double object constructions and their dative counterparts share an identical lexical argument structure. This lexical argument structure occurs in a distinct Case frame in the two constructions (a distinction that additional semantic features may ride on). It may be, but does not follow from this observation, that there is a syntactic transformation mapping one Case frame to the other. The present analysis is concerned with how scopal interactions correlate with Case configurations. What is of interest for the present analysis is that the DPs in the dative frame have different grammatical functions than their counterparts in the double object frame, and this distinction correlates with a distinction in their scopal interactions, which is observably the case. Whether there is a transformational source for the alternation is not relevant and not treated here.

4.1.1 The Dative and Double Object Frame Share the Same Lexical Relational Base

Rationale clauses are sensitive to the underlying thematic structure, not surface grammatical functions (Manzini 1983, Roeper 1987). The hidden subject of the rationale clause *to collect the insurance money* is identified by the underlying agent in both examples below, not the surface subject (*the ship* in (37b)).

(37) a. They$_i$ sank the ship e_i to collect the insurance money

b. The ship was sunk (by them$_i$) e_i to collect the insurance money

Rationale clauses may not contain non-subject gaps (cf. **They$_i$ sank the ship$_j$* e$_i$ *to prevent the IRS from confiscating* e$_j$), but purpose clauses may (Nissenbaum, to appear).

(38) They$_i$ bought a present$_j$ e_i to give e_j to Mary.

Nissenbaum claims that purpose clauses differ from rationale clauses only in the level of attachment. Rationale clauses are little-vP adjuncts, while purpose clauses are big-VP adjuncts that attach below the merge site of the object, a type of adjunction that Nissenbaum analyzes as semantic coordination. The unsaturated object argument in the main VP demands a corresponding gap in a purpose clause, an across-the-board effect enforced by the type-matching requirement across the conjuncts. In light of Nissenbaum's unification of purpose and rationale clauses, the data in (37) lead to the expectation that purpose clauses are also sensitive only to underlying thematic structure in their domain, not surface grammatical relations. Note now that purpose clauses are indifferent to the dative/double object alternation:

(39) a. I gave Mary$_i$ the dog$_j$ e_i to play with e_j.

b. I gave the dog$_j$ to Mary$_i$ e_i to play with e_j.

This insensitivity to the alternation in (39) suggests that the underlying argument structure in the two sentences is the same. In (39), the recipient *Mary* identifies the agent of *to play with*, while the theme *the dog* identifies the theme. Assuming this identification relation preserves the hierarchy of theta roles across the correspondence, and that agents are structurally superior to themes in lexical argument structure, these correspondences situate the recipient role of *give* in a position structurally superior (because it corresponds to agent of *play with*) to the theme role of *give* (which corresponds to theme of *play with*) in both examples.

The examples in (40) indicate further that the lexical relational base that the dative and double object frame share is one of possession.

(40) a. I gave Mary the dog back

b. I gave the dog back to Mary

Both (40a-b) share the presupposition, induced by the particle *back*, that Mary was previously in possession of the dog. The presupposition is not a locative one in (40b) (whereas possessive in (40a)), since the dative frame (40b) is not a locative construction at all. Bona fide locative verbs like *put* do not allow either of their objects to identify the subject of a purpose clause (41), unlike dative verbs like *give* (39).

(41) a. *I put the blanket$_i$ on the horse$_j$ e_j to carry e_i.

b. *I put the blanket$_i$ on the horse$_j$ e_i to keep e_j warm.

Locative verbs admit the particle *back*, in which case *back* has a locative presupposition.

(42) I put the blanket back on the horse.

(42) presupposes that the blanket was previously on the horse, suggesting, vis à vis (40), that *back* constructs the presupposition it induces from its syntactic context (as opposed to always inducing a possession presupposition, for example). Its syntactic context includes a possessive sub-predicate in the double object frame. The dative and double object frame pattern exactly alike with respect to the behavior of both *back* and purpose

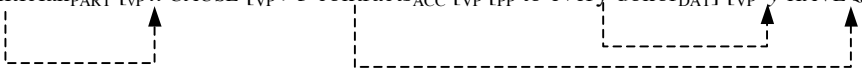
clauses, indicating that both the dative and double object frame contain a possessive sub-predicate *HAVE*.

4.1.2 Dative Case is Partitive

The dative and double object frames do not differ in their argument structure. They differ in (i) the linear order in which the two objects occur, (ii) the availability of inverse scope in the dative frame, and (iii) the presence of the preposition *to* in the dative frame. They may also differ aspectually (Pinker 1989, Beck and Johnson 2004, Krifka 1999, Basilico 1998), but any aspectual differences do not impact linking, as section 4.1.1 demonstrates. I propose that the first two differences enumerated above reduce to the third.

The direct object is syntactically superior to the indirect object in the dative frame (Barss and Lasnik 1986, Larson 1988). These two terms are observed to link to the theme and recipient theta roles respectively, as in the double object counterpart. The conclusion that the argument structure of the dative frame is just that of the double object frame implies the base in (43) for *A politician gave more than three contracts to every donor*, where *more than three contracts* bears morphological accusative Case and *every donor* the prepositional Case dative.

(43) $[_{vP}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ $[_{PP}$ to every donor$_{DAT}]$ $[_{VP}$ *y* HAVE *z*]]]]]]



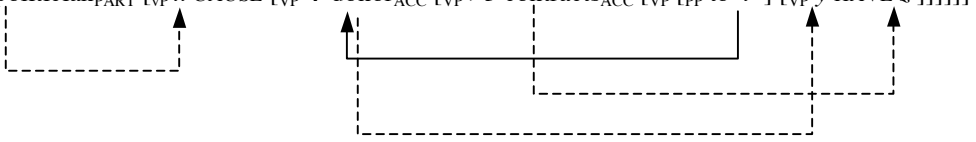
Every donor is construed as possessor, meaning it binds the argument variable *y*, subject of *HAVE*. Here, *every donor* binds the highest argument variable it its domain, not the lowest, a behavior attributed to partitive Case in section 3.2. I.e., *every donor* behaves in (43) as if it is interpreted by its partitive Case extension, suggesting that *to*

assigns semantic partitive Case, and that the chart in (29) be augmented by (44).

(44) [compl, *to*] = PART = partitive extension of F

In the analysis presented in section 3, a DP's semantic Case in any given phase is determined wholly by its position in that phase, not by its position in prior phases. E.g., the subject does not receive partitive Case at LF if it occurs in [spec,TP] at LF, only if it reconstructs to [spec,vP] at LF. Similarly, then, if the indirect object in the dative frame moves out of the PP, it leaves the partitive Case position and no longer receives partitive Case. It receives the Case associated with the position it moves to. Suppose it adjoins to VP above the direct object, deriving (45).

(45) $[_{VP}$ a politician$_{PART}$ $[_{vP}$ *x* CAUSE $[_{VP}$ ∀ donor$_{ACC}$ $[_{VP}$ >3 contracts$_{ACC}$ $[_{VP}$ $[_{PP}$ to *t*] $[_{VP}$ *y* HAVE *z*]]]]]]

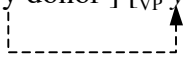


In (45), *every donor* is accusative, being an adjunct of VP, and so in the phase shown in (45), *every donor* and *more than three contracts* link to theta roles in accordance with (23) in the same way as in the double object frame, and *every donor* correctly links to the same theta role (that of the argument variable *y*) as in the previous phase, where it is partitive. In this case, this scopal order is an *inverse* scope reading given the linear order at PF. It is the fact that *to* is a partitive Case assigner that allows the recipient to occur lower in the syntax than the theme in the dative frame, and it is the fact that movement chains do not transmit semantic Case that allows the double object order to fall into place at LF as the scopal order.[12]

Note that as diagrammed, the movement shown in (45) is phase-internal. The

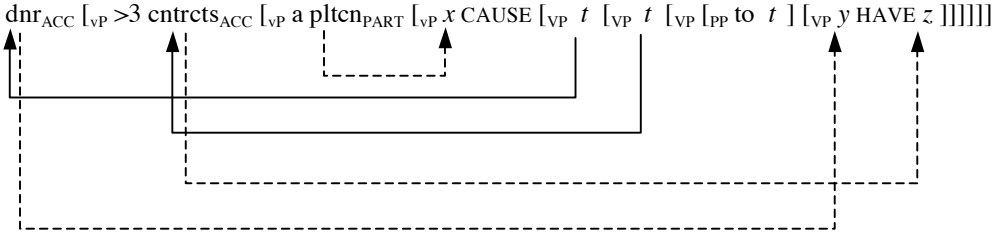
observation that QR in (45) obeys the CLC indicates that the base position of *every donor* is in a different phase than its derived position, suggesting that the initial phase is not in fact the structure in (43) but rather only the first adjunct-of-VP node (46), and (43) and (45) are two possible derivatives. The fact that adjuncts of vP are not part of the vP phase (see section 4) in turn suggests, if VP is parallel to vP in this regard, that the PP is not an adjunct at all, but rather the second specifier of VP (the argument variable *y* being the first), parallel to the partitive subject, which is the second specifier of vP, its argument variable being the first.

(46) $[_{VP}\ [_{PP}$ to every donor $]\ [_{VP}\ y$ HAVE $z\ ]]$



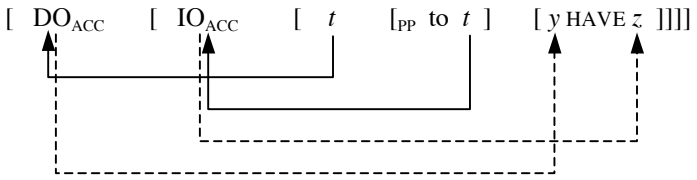
As in the double object frame, both objects in the dative frame may scope above the subject. (47) is derived from (45) by (more) QR.

(47) $[_{vP}\ \forall$ dnr$_{ACC}\ [_{vP}$ >3 cntrcts$_{ACC}\ [_{vP}$ a pltcn$_{PART}\ [_{vP}\ x$ CAUSE $[_{VP}\ t\ [_{VP}\ t\ [_{VP}\ [_{PP}$ to $t\ ]\ [_{VP}\ y$ HAVE $z\ ]]]]]]$



Raising of the indirect object out of the PP removes it from the partitive Case position available in the dative frame and obviates the effect of partitive Case, leading to the expectation that the derived scopal orders that are available in the dative frame should be exactly those available in the double object frame and no others. This fact about the present analysis sets the stage for an unusual prediction. Whenever QR of the indirect object is detectable, we expect to find that its scope with respect to the direct object is frozen in the *inverse* of the linear order seen in the dative frame (which is the linear order

seen in the double object frame). If both the direct and indirect objects undergo QR, preserving their linear order, illustrated schematically in (48), they bind opposite argument variables in the resulting structure than in their base positions. E.g., the indirect object that binds *y* in (46) binds *z* in the derivative (48), meaning the derivation shown in (48) (superiority-preserving QR in the dative frame) is ruled out by the CLC. The following section details two such cases, and shows that the prediction is borne out.

(48) 

4.1.3 Scope Constraints in the Dative Frame

The first case discussed exploits two fortuitous properties of negative quantifiers of the form *no NP*, (i) their scope is ambiguous, at least in the contexts discussed here, and (ii) they disallow quantifiers of the form *some NP* (and other positive polarity items) in their immediate scope. For example, (49a) is ungrammatical for the latter reason, since *some* falls under the scope of negation at PF, but cannot leave the scope of negation at LF because of scope freezing. No anomaly arises in (49b). *Some* is pronounced with word stress in the following examples (its 'wide scope pronunciation' per Diesing 1992).

(49) a. *Moritz served no guests some appetizers.

b. Moritz served some guests no appetizers.

Both linear orders of quantifiers are grammatical in the dative frame, as expected

in light of the judgments for (1b) discussed in section 1. *Some* has the option of moving out of the scope of *no* in (50b), correcting the illicit surface configuration.

(50) a. Moritz served some appetizers to no guests.

b. Moritz served no appetizers to some guests.

The prediction of the present study is that if *no guests* raises to a VP-external position in (50a), ungrammaticality will ensue. The reason is that *some appetizers* will be ungrammatical in the scope of the raised *no guests* but at the same time unable to move out of the scope of *no guests*, since that would give rise to the illicit (by hypothesis) configuration in (48). Since in derived scopal orders both DPs are interpreted by their accusative extension (partitive is not available outside the PP), their scopal order must match the thematic order *recipient* > *theme*, the pattern that (23) enforces. The order *some* > *no* is grammatical as the surface order, where the indirect object is partitive, so the prediction is only testable in a context in which it is evident that *no guests* is interpreted VP-externally. Such a context presents itself in cases such as (51) (Klima 1964, Kayne 1984).

(51) I will force you to marry no one

a. force > no

b. no > force

(51) admits a reading in which *no one* has wide scope over the matrix VP, licensing the *neither*-tag that only matrix negation licenses, as in (52b) but not (52c) (Klima, pg. 285).

(52) a. I will force you to marry no one, and neither will he.

b. I won't force you to marry anyone, and neither will he.

c. *I know that nothing happened, and neither does he.

Kayne (1984) analyses the derivation of the scopal order in (51b) as involving covert movement of the quantifier *no one* into the matrix clause. In light of the ambiguity of *no* and *force* seen in (51), the interpretation of (53) is informative.

(53) Max forced Moritz to serve some appetizers to no guests.

a. force > some > no

b. *no > force > some

c. *some > no > force

(53) admits an interpretation paraphrasable as 'Max forced Moritz to make it the case that there were some appetizers that were not served to any guests.' Because *some* may not occur in the scope of *no*, we expect (53) to lack an interpretation paraphrasable as 'No guest was such that Max forced Moritz to serve some appetizers to that guest,' which is the case. Somewhat more surprisingly, (53) also lacks an interpretation paraphrasable as 'There are some appetizers such that there is no guest that Max forced Moritiz to serve that appetizer to.' Consider the following text as illustration.

(54) When Max and Moritz have a dinner party, Max cooks and Moritz serves. Max always tells Moritz what to serve to whom. But because at this particular occasion there are some guests with allergies, there are certain appetizers, namely

devilled eggs, peanut dip and strawberries, which Moritz thinks it's best left to Max's judgment who to serve them to, so *Max forced Moritz to serve some appetizers to no one*.

The text above is not coherent. The interpretation of (53) that correctly describes the situation in (54) is not available. The missing interpretation is one in which both *some* and *no* scope above *force*, but maintain their surface scope with respect to each other. This is the derivation shown in (48), which is ruled out by the CLC. That this LF is not available is extremely puzzling from the point of view of the superiority approach to QR—it is the superiority preserving order—but falls out from the analysis proposed here.

By contrast, the scopal order *some* > *no* is grammatical in the dative frame when it is the inverse of the linear order, though a small confound complicates the judgment.

(55) Max forced Moritz to serve no appetizers to some guests.

a. force > some > no

b. *no > force > some

c. ?some > no > force

The reading in (55a) is grammatical because inverse scope is available in the dative frame. (55b) is ungrammatical as before, because *some* may not occur in the scope of negation. (55) does, however, marginally admit a reading paraphrasable as 'There are some guests for whom it's the case that there are no appetizers that Max forced Moritz to serve to them'. This is the reading blocked in (53). It is grammatical here because this scopal order is the inverse of the linear order, and, as mentioned above, only the inverse

scopal order between the two objects is expected when both objects undergo QR. The reason the reading is marginal is independent of the obligatoriness of inversion. Direct objects resist wide scope in the dative frame, even when the other object is non-quantificational (56), meaning the interaction with the other object is not the source of the marginality in (55c).

(56) Max forced Moritz to serve no appetizers to the Queen.

a. force > no

b. ?no > force

(57) The Queen and the Prime Minister were in attendance, among others, at one of Max and Moritz's dinners. Moritz is good friends with the Queen and Prime Minister, and so, not wanting to impose, Max again left it to Moritz's judgment what appetizers to serve them, but told him what to give to everyone else, so *Max forced Moritz to serve no appetizers to some guests.*

(55) is more coherent in the text in (57) than (53) is in (54), meaning the scopal order *some > no > force* is available in (55) but not in (53). This scopal order inverts the linear order of *some* and *no* in the context where it is grammatical (55) and preserves it in the context where it is ungrammatical (53), implicating the generalization in (58) for the dative frame, where *Q* is a quantificational element superior to the base positions of both objects (*force* in the discussion above). The pattern in (58) is just that found in the double object frame. (58) is an unusual state of affairs for the superiority account, but predicted in the present account.

(58) a. indirect object > direct object > *Q*

b. *direct object > indirect object > *Q*

The fact that *some* is ungrammatical under *no* helps clarify what scopal orders are available in the double object frame, but has an unwanted side effect. The availability of the order *indirect object > direct object > Q* is observed in a different example sentence (55) than the unavailability of the order **direct object > indirect object > Q* (53). The discussion below exploits an ambiguity in the interpretation of *many* with respect to negation that is slightly subtler than the polarity effect induced by *some* but allows us to observe the pattern in (58) in a single example.

Bruening (2001;fn 14) cites (59), which he credits to a personal communication from Kyle Johnson, as a demonstration that the direct object in the double object construction may undergo quantifier raising out of the VP.

(59) She didn't show me many of the answers.

a. not > many

b. many > not

Many may be interpreted outside the scope of negation, the inverse of their linear order. The dative frame shows its usual ambiguity among object quantifiers (60a-b), unless both the direct and indirect object scope above negation (60c-d), in which case only the inverse scope reading is available between the two objects (60c).

(60) Celine didn't show many of the pictures to more than one editor.

a. not > many > more than one

b. not > more than one > many

c. ?more than one > many > not

d. *many > more than one > not

That is, if both object quantifiers scope above negation, the linear order is unavailable for the two objects, as demonstrated in (61).

(61) At a magazine publisher, there are a number of editors and all of them have to approve every picture the magazine publishes before it goes to press. The photo editor, Celine, has a number of pictures for the issue going to press the next day and is in a rush to get them all approved by all the other editors. Some of the pictures have already been approved by all the editors, and the others, the majority, have been approved by most of the editors, meaning there are still many pictures that a few editors have not seen yet. So *Celine didn't show many of the pictures to more than one editor*.

The sentence in (60) is incoherent in the text in (61), meaning the reading of (60) that would make the text coherent is not available, namely the reading paraphrasable as 'Many of the pictures are such that there is more than one editor whom it was not shown to yet'. This is the reading in which both object quantifiers scope above negation but maintain their linear order with respect to each other (60d), but this reading is blocked. Only the inverse scope reading is available (60c), as demonstrated in (63). Note first that (60c) suffers from the same confound as (55), namely that the direct object in the dative frame disprefers wide scope with respect to negation, even if the other object is non-quantificational (62).

(62) She didn't show many of the answers to me

a. not > many

b. ?many > not

(63) Most of the editors have approved all the pictures, but there are a couple of editors who left town after seeing only a few of Celine's pictures, meaning there is more than one editor for whom it's the case that many of the pictures were not shown to him/her, so *Celine didn't show many of the pictures to more than one editor*.

The text in (63) has the status attributed to the scopal configuration in (62b). It is noticeably more coherent than the text in (61), and in light of (62b), the slight marginality seen in (63) (=(60c)) appears to be due to the independently observed dispreference of direct objects for wide scope in dative constructions. These observations demonstrate that when two object quantifiers both undergo QR, their scope is frozen in the *inverse* of the linear order, as predicted by the analysis described in section 4.

5 Conclusion

In the analysis proposed here, inverse scope is derivable if the derived scope configuration preserves the linking arrangement in the base, a contingency enforced by the CLC (33). The linking arrangement of DPs in phase *n* is a function of the relative scope of the DPs and their semantic Case in phase *n*. A DP's semantic Case in phase *n* is determined by its syntactic position in phase *n* (regardless of its scope with other DPs). This analysis derives the scope freezing effect in double object constructions, and beyond

that, derives the impossibility of reconstruction in double object constructions (while allowing subject reconstruction), free scope in dative constructions (vP-internally), and subtle and unexpected asymmetries between possible scope configurations internal and external to vP in dative constructions, asymmetries that speak against the superiority approach to scope freezing.

The accuracy of this analysis in predicting the behavior of double object constructions and their dative relatives lends credence to the original premise that A-chains do not transmit theta roles, but rather that linking is enforced phase-by-phase. On the assumption that A-chains do not transmit theta roles, what is described as a 'proposal' in section 4, that every phase preserves the thematic order established in the previous phase, falls out from the Projection Principle (Chomsky 1973). The Projection Principle states that "Representations *at each syntactic level*. . . are projected from the lexicon, in that they observe the subcategorization properties of lexical items" (pg. 29, emphasis mine). In Chomsky (1973), the Projection Principle is the theoretical premise that motivates the proposal that movement chains transmit theta roles. The Projection Principle imposes a monotonicity constraint on syntax, that relationships established at a particular level must persevere throughout the derivation. This is just the generalization seen at work in the derivations described here, meaning that the effect of the Projection Principle is independent of the question of whether movement chains transmit theta roles. In fact, the conventional assumption that movement chains transmit theta roles obviates the Projection Principle, relegating it to a possible motivation for the design of Universal Grammar, with no synchronic role to play within that design. In contrast, the present analysis attributes great derivational significance to the Projection Principle (in the guise of the CLC), since it effectively recasts the Projection Principle as a constraint on movement. These results suggest the phase-by-phase preservation of lower order

syntactic relations is an essential component of the architecture of narrow syntax.

Notes:

[1] Aoun and Li credit the observation to a personal communication from Richard Larson and James Higginbotham. Barss and Lasnik (1986) discuss syntactic asymmetries in the double object frame similar to the scope freezing effect.

[2] Larson (1990) does not offer an explanation for the scope freezing effect. Basilico (1998) argues effectively against Aoun and Li's (1989) account.

[3] This reading is less salient than the other two, since, firstly, indefinites like *more than three contracts* disprefer wide scope, and also because in general inverse scope readings are somewhat less salient that linear scope readings, and here *both* objects display inverse scope with respect to the subject. Though less salient, the reading is clearly available, since the text in (6a) is coherent.

[4] On the identity of the mystery category, Bruening remarks: "The available evidence does not decide on the exact structure, and I will leave it open here; what is crucial is that NP and PP are sisters in the same domain in the locative [dative] but not in the complex-predicate [double object] structure" (pg. 266).

[5] Basilico's analysis does isolate such a generalization. Inverse scope is available when no syntactic barrier blocks QR. Again, however, this analysis fails to derive the observed scope alternations between objects and subjects.

[6] I assume that both objects in the double object frame have structural objective Case, for which I use 'accusative' as a cover term. The first object clearly has the objective Case

assigned by transitives—it is the Case that is withdrawn in passives (Larson 1988). The second may have a structural oblique case, but it is clear that neither has the prepositional case that I am calling 'dative' that occurs in the dative frame, since no preposition occurs in the double object frame.

[7] Such interactions are common cross-linguistically. In negative constructions of certain verb classes in Russian, for example, genitive subjects are interpreted inside the scope of negation, nominative subjects outside (Babby 1980).

(i) a. Moroz ne cuvstvovalsja

frost$_{NOM}$ not be-felt 'The frost could not be felt.'

b. Moroza ne cuvstvovalos'

frost$_{GEN}$ not be-felt 'No frost could be felt.'

In Greenlandic Eskimo, nominative objects have wide scope with respect to the rheme, yielding a definite interpretation, while instrumental objects (assigned in the antipassive voice) have narrow scope, yielding an indefinite interpretation (Bittner 1988).

(ii) a. Jaaku-p arnaq tuqut-p-as

Jacob -ERG woman$_{NOM}$ kill-IND-3sERG/3sNOM 'Jacob killed the woman.'

b. Jaaku arna-mik tuqut-si-v-uq

$Jacob_{NOM}$ woman-INS kill-AP-IND-3sNOM 'Jacob killed a woman.'

See also the discussion of Finnish in footnote 12.

[8] The approach to linking embodied in (23) is therefore not an abandonment of the UTAH. In fact it is independent of the UTAH, since it does not concern the configurations in which individual denoting expressions receive a theta role, only the way in which quantifiers bind individual variables, and thereby link to a theta role.

[9] There is one exception, but it is ruled out independently. If the subject appears as an accusative adjunct of vP, it will still bind the agent argument variable as long as it is syntactically superior to the objects. Presumably the EPP, which requires an element in [spec,TP] at PF, blocks such a derivation.

[10] I take this generalization to hold of A-movement, and I take QR to be A-movement (Hornstein 1999, Kitahara 1996), or covert A-scrambling of the kind described by vanden Wyngaerd (1989), Mahajan (1990), Moltmann (1991) and Haider (1997). The theta role that an A'-operator has is determined by reference to the position of the gap it indexes at PF, not its LF position [spec,CP]. Assuming that PF A'-gaps are for some reason not visible to (i.e. bindable by) quantifiers, A'-movement is not expected to effect linking, as is the case. Space prevents me from exploring these issues in the present work.

[11] This proposal is similar to one made by Fox and Pesetsky (to appear) regarding constraints on object shift in Scandinavian, extended to other types of scrambling by Ko (2004) and Takahashi (2004). They claim that the linear order instantiated between terms in a given phase must be reinstated in every subsequent phase, a principle they term 'Cyclic Linearization' from which they derive Holmberg's Generalization.

[12] The correlation in (44) warrants two brief remarks. First, if this approach to the dative frame is correct, it means there are prepositions other than *to* that assign partitive Case, namely all those that allow a scope ambiguity with another object, though not all prepositions do. The partitive Case assigning prepositions include, e.g., *for* as in *I bought a doll for every child* and *over* as in *I draped a sheet over every chair* but not, e.g., *with* as in *I draped a chair with every sheet*. Second, note that no restriction on the definiteness of the object of the preposition is observed in the dative frame, unlike in subject position, meaning that partitivity is not universally associated with indefiniteness in English, contra Belletti (1998). But this is the case even in the language Belletti borrows the morphosemantic notion of partitivity from, namely Finnish. Partitivity marks indefiniteness in certain aspectual contexts in Finnish, e.g. (i)-(ii). The examples below are taken from Kiparsky (1998).

(i) saa-n karhu-j-a
get-1SG bear-PL-PART

'I'll get bears.'

(ii) saa-n karhu-t

get-1SG bear-PL/ACC

'I'll get the bears.'

However, some verbs assign partitive case exclusively, to objects of all quantificational types, such as *etsiä* (*look for*). In (iii), *karhuja* (*bears*) is ambiguous between a definite and indefinite interpretation.

(iii) etsi-n karhu-j-a

look.for-1SG bear-PL-PART

'I'm looking for (the) bears.'

It is perhaps significant that the English gloss *look for* makes use of the prepositional Case assigner *for*, inferred to be a partitive Case assigner above. That this is not completely coincidental is suggested by at least one other such example, involving a class of verbs that assign either partitive or accusative, contingent on the aspectual interpretation of the event. In such contexts, there is again no definiteness restriction on a partitive object. For example, when the object of *ampua* (*shoot*) is partitive (iv), the

event is interpreted irresultatively, approximating the English gloss *shoot at*, which does not commit to the fate of the bear in question. When the object is accusative (v), the event is interpreted resultatively, approximating the gloss *shoot*, with a dead bear result.

(iv) Ammu-i-n karhu-j-a
shoot-PST-1SG bear-PL-PART
'I shot at (the) bears.'

(v) Ammu-i-n karhu-t
shoot-PST-1SG bear-PL/ACC
'I shot (the) bears.'

Here again, a preposition (*at*) steps in in the English gloss of the context in which partitive Case is *not* restricted to an indefinite interpretation (cf. (i)). If there is any generality to these translational equivalencies, it is that no definiteness restriction imposes itself on partitive objects of *prepositions*, only on partitives in other syntactic contexts (e.g. [spec,vP]), and that a hidden preposition is at work in (iii) and (iv) but not (i), which is overt in the English counterparts.

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