

# Chapter 1

## Scope and the structure of ditransitives in SVO languages

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Janke & Neeleman (2012. “Ascending and Descending VPs in English”. In: *Linguistic Inquiry* 43.2, pp. 151–190.) propose that in English V-IO-DO (verb-indirect object-direct object) structures are rightward descending ([V [ IO [t<sub>V</sub> DO]]]) while V-DO-IO structures are rightward ascending ([[V DO] IO]). The current paper shows that Janke & Neeleman’s conclusion holds for other SVO languages as well. Crucial data come from quantifier scope and a number of other structural diagnostics. The novel generalization concerning quantifier scope put forward here is that IO can always take scope over DO (irrespective of the postverbal order of the objects and of whether the language allows only surface scope or both surface and non-surface scope) and that DO can take scope over IO only in the order V-DO-IO and only in languages that independently allow non-surface scope.

### 1 Introduction

This paper supports the idea from [Janke & Neeleman 2012](#) that in SVO languages, ditransitive VPs with the order V DO IO are rightward ascending by default and VPs with the order V IO DO are rightward descending.

This paper starts by summarizing data that suggests the following generalization about SVO languages: in scopally rigid languages a postverbal IO always takes scope over a postverbal DO independently of order; in scopally fluid ones, V-IO-DO show rigid left to right scope while V-DO-IO is ambiguous. A language is classified as scopally rigid, if universally quantified objects cannot take scope over existential subjects in canonical SVO structures while universally quantified subjects can take scope over existential objects, and as scopally fluid if SVO structures allow wide scope for both universally quantified subjects and objects.

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Table 1: Distribution of scope readings

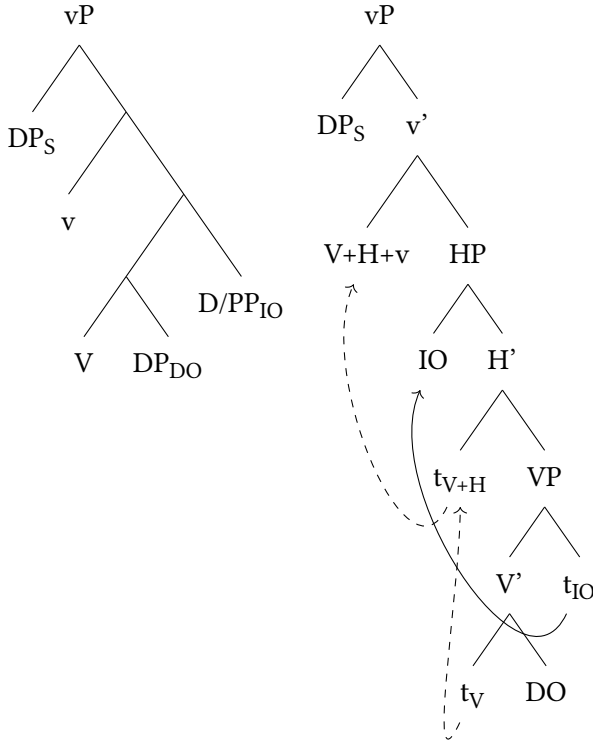
Scope	Language	S-V-O	V-DO-IO	V-IO-DO
rigid	Vietnamese	S >>O	IO >>DO	IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
	Thai	S >>O	IO >>DO	*IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
	Mandarin	S >>O	IO >>DO	IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
fluid	English	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Polish	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Spanish	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Hungarian	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO

I discuss the relevant facts from these languages in the order which the languages are mentioned in table 1 in the following subsections.

On the assumption (Huang 1982) that in scopally rigid languages surface c-command between quantificational expressions maps onto scope directly, we can conclude that IO c-commands DO on the surface in both orders. This then suggests a rightward ascending geometry for V-DO-IO and a rightward descending geometry for V-IO-DO. This geometry was independently motivated in Janke & Neeleman 2012 for English, a scopally fluid language. I will argue in section 3 that V-DO-IO should be given a rightward ascending analysis in all languages under consideration and V-IO-DO a rightward descending one. Section 3 reaches this conclusion by discussing several different possible geometries and pointing out their respective shortcomings.

The conclusion suggested above (V-DO-IO is rightward ascending and V-IO-DO is rightward descending) still allows for a number of different implementations. On the basis of languages in which the alternation affects only word order (without well-known concomitant changes in the category, case, or thematic role of IO which are typical of the English *to*-dative-ditransitive alternation), I propose that the alternation is derived by movement as in 1.

- (1)            V DO IO                    V IO DO  
                  rightward ascending    rightward descending



While this is really all we need to say about scopally rigid languages, we need to make some further assumption for scopally fluid languages. What is needed is an analysis of the fluid scope of V-DO-IO orders and the scopal rigidity of V-IO-DO structures, an effect known as scope freezing. I will assume – with much of the literature – that non-surface scope is achieved through a scope-changing covert movement operation of quantifier raising. To represent the non-surface scope of an object over a subject, the object undergoes covert movement to a position c-commanding the subject (or, depending on the specifics of the approach, a member of the subject’s chain). Likewise, to derive the scope of a direct object over an indirect object, the direct object needs to undergo covert movement to a position c-commanding the indirect object (or a member of its chain).

The fact that in scopally fluid languages V-DO-IO order allows non-surface scope, indicates that in these structures, DO can undergo quantifier raising above

IO. The fact that V-IO-DO order does not allow non-surface scope then requires the assumption that the rightward descending structure in 1 inhibits quantifier raising of DO across IO. In other words, the effect of – though maybe not the reason for – IO movement is to explicitly express scope between the objects (see Williams 2005, Antonyuk 2015, 2020). I do not develop a theory of scope freezing here. (For two different proposals in line with the structures in 1, see Grabska & Abels 2022, Grabska 2023.)

In English, this general pattern is further masked because the two orders aren't minimally paired: the change in argument order goes hand in hand with a change in category of IO and changes in the (range of) thematic role assigned by the verb (Oehrle effects, Oehrle 1976).

## 2 A typology of ditransitive scope

This section briefly lays out the scope data that table 1 is based on.

### 2.1 Vietnamese

All data in this section are taken from La 2024, which – as far as I know – is the first systematic exploration of quantifier scope in Vietnamese. Vietnamese is an SVO languages with *wh*-in situ. La 2024 shows that doubly quantified S-V-O structures in Vietnamese show rigid scope behaviour in the sense that a universally quantified subject can distribute over an existential object but a universally quantified object cannot distribute over an existential subject:

- (2) a. Nhiều hơn năm học-sinh đã mua mỗi quyển-sách.  
Many than five student PST buy each CL-book  
'More than five students bought each book.'  
 $S_{>5} \gg O_V, *O_V \gg S_{>5}$
- b. Một học-sinh đã mua mỗi quyển-sách.  
One student PST buy each CL-book  
'A student bought each book.'  
 $S_{\exists} \gg O_V, *O_V \gg S_{\exists}$
- (3) Mỗi học-sinh đã mua một quyển-sách.  
Each student PST buy one CL-book  
'Each student bought one book.'  
 $S_V \gg O_{\exists}, O_{\exists} \gg S_V$

As can be seen, existentially quantified objects can also be interpreted as referentially independent of the subject. This pattern of wide scope indefinites is, of course, well known from other languages (and known as referential or specific indefinites or exceptional wide scope). It is equally well known that such wide scope existential readings do not obey syntactic constraints on movement (Fodor & Sag 1982, Winter 2001, Ruys 1992, Reinhart 1997) and that semantic mechanisms can give rise to the relevant interpretations (e.g. Schwarzschild 2002) without the need for a syntactic scope shifting operation. For these reasons, I do not take existential wide scope to be reliable indicator for syntactic structure either overtly or at LF (see also Szabolcsi 1997a).

The facts above therefore suggest that Vietnamese is scopally rigid.<sup>1</sup>

Ditransitive structures in Vietnamese show word order alternation. Both V-DO-IO and V-IO-DO is possible. The alternation is accompanied by an optional change in case frame or category. The indirect object is obligatorily realized as a PP in V-DO-IO orders but appears either as a PP or as a DP in V-IO-DO order when the IO is interpreted as a recipient and as a PP when the IO is a location.<sup>2</sup>

- (4) a. Tôi đưa quyển-sách \*(cho) Nam.  
 I give CL-book to Nam  
 ‘I give the book to Nam.’  
 b. Tôi đưa (cho) Nam quyển-sách.  
 I give to Nam CL-book  
 ‘I give Nam the book.’

This alternation partly resembles the English dative alternation. Notice though that the change in order is independent of the change in category for locative IOs – they are always PPs independently of the order. The ordering alternation is partly independent for recipient IOs, which can be realized as PPs in both positions but can optionally be realized as DPs only in the immediately postverbal position.

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<sup>1</sup>See La 2024 for detailed discussion. It is worth pointing out that Vietnamese – like Mandarin – does allow inverse linking. This is shown in *i*, which allows the universal to take scope over the existential and bind the pronoun.

(i) Một vị-hiệu-trưởng của mọi trường đại-diện cho nói tại hội-nghị.  
 One CL-headmaster of every school represent for it at conference  
 ‘A headmaster of every school represents it at the conference.’

<sup>2</sup>Locations are also realized with the preposition *tới* instead of *cho*. For details see La 2024.

Turning now to doubly quantified versions of these structures, we find that a universally quantified IO can take scope over an existentially quantified DO independently of the order:

- (5) Vietnamese IO can take wide scope over DO
- a. Lan đưa (cho) {mọi| mỗi} vị-thuyền-trưởng một con-cá.  
Lan give to every each CL-ship-leader one CL-fish  
'Lan gives {every|each} captain a fish.'  
 $IO_{\forall} \gg DO_{\exists}, DO_{\exists} \gg IO_{\forall}$
  - b. Lan đưa một con-cá cho {mọi| mỗi} vị-thuyền-trưởng.  
Lan give one CL-fish to every each CL-ship-leader  
'Lan gives a fish to {every|each} captain.'  
 $DO_{\exists} \gg IO_{\forall}, IO_{\forall} \gg DO_{\exists}$

As is to be expected, the existential DO also has an irrelevant referential reading here. Crucially though, when the two quantifiers are switched, we find that a universally quantified DO cannot take scope over an existential IO independently of the order of the two objects:

- (6) Vietnamese DO cannot take wide scope over IO
- a. Lan đưa {mọi| mỗi} con-cá cho một vị-thuyền-trưởng.  
Lan give every each CL-fish to one CL-ship-leader  
'Lan gives {every|each} fish to a captain.'  
 $IO_{\exists} \gg DO_{\forall}, *DO_{\forall} \gg IO_{\exists}$
  - b. Lan đưa (cho) một vị-thuyền-trưởng {mọi| mỗi} con-cá.  
Lan give to one CL-ship-leader every| each} CL-fish  
'Lan gives one captain {every|each} fish.'  
 $IO_{\exists} \gg DO_{\forall}, *DO_{\forall} \gg IO_{\forall}$

In sum, Vietnamese shows rigid left-to-right scope in S-V-O and V-IO-DO structures and rigid right-to-left scope in V-DO-IO structures. This can be understood as a rigid surface scope pattern, a pattern describable without recourse to covert scope shifting, only if V-IO-DO is rightward descending and V-DO-IO is rightward ascending.

## 2.2 Thai

Thai, like Vietnamese, is classified here as a scopally rigid language on the basis that doubly quantified S-V-O structures allow a universally quantified subject to

distribute over an existential object, 7, but a universally quantified object cannot take scope over an existential subject, 8.<sup>3</sup> (As before, wide scope indefinites are ignored when it comes to syntactic determination of scope.)

- (7) nak.riian thuk-khon kin khaaw caan-nuuj  
 student every-CLF eat rice CLF-one  
 ‘Every student eats a plate of rice.’  
 $S_V \gg O_{\exists}, O_{\exists} \gg S_V$  Chaiphet 2017: ex. 55a

- (8) nak.riian khon-nuuj kin khaaw thuk-caanlabelex:Thai-SVO-rl  
 student CLF-one eat rice every-CLF  
 ‘A student eats every plate of rice.’  
 $S_{\exists} \gg O_V, *O_V \gg S_{\exists}$  Chaiphet 2017: ex. 56

English ditransitive structures translate in a number of ways into Thai. There are some V-DP-DP structures with V-DO-IO order, there are V-DP-PP structures with V-DO-IO order, and some serial verb constructions (V DP V DP) again with V DO V IO order (see Pongyoo 2017, Thepkanjana & Uehara 2008). I do not discuss the serial verb construction here. In structures with only one verb, the order of DO and IO is fixed (Pongyoo 2017, Jenks 2011) whether or not IO is introduced by a preposition.

- (9) a. Nát hây thúrian (kàp) Nít léεw.  
 Nat give durian with Nit already  
 ‘Nat already gave the durian to Nit.’ Jenks 2011: 17 ex. 2a
- b. \*Nát hây (kàp) Nít thúrian léεw.  
 Nat give to Nit durian already  
 ‘(Nat already gave the durian to Nit.)’ based on Jenks 2011: 17 ex. 2b  
 and Simpson 2011: ex. 35b, Chaiphet 2017: ex. 25b

Like their Vietnamese counterparts, doubly quantified versions of the sentences are unambiguous; a universally quantified IO can distribute over an ex-

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<sup>3</sup>Chaiphet’s description of Thai as a surface scope language conflicts with Jenks’s remark (2013: p. 94 fn. 2 that “sentences with multiple quantifiers [...] allow[...] inverse readings regardless of whether Q-float applied.” Gump Manowang (p.c.) notes that while Chaiphet’s examples are unambiguous, the order of the classifier and the numeral can be reversed (but only for the numeral *one*). Under the reversed order, 8 shows a scope ambiguity. While this complicates the typology somewhat, it leaves the crucial judgments about ditransitives unchanged. Notice that the examples with ditransitives exhibit the numeral-classifier order, which ought to bring out the ambiguity if it existed.

istentially quantified DO but a universally quantified DO cannot scope over an existentially quantified IO.<sup>4</sup>

(10) Gump Manowang (p.c.)

- a. dàʔnaj hâj khǒŋ-nuŋ-jàaŋ kàp dék-thuk-khon  
 Danai give thing-one-CLF to child-every-CLF  
 ‘Danai gave something to every child.’  
 $DO_{\exists} \gg IO_{\forall}, IO_{\forall} \gg DO_{\exists}$
- b. dàʔnaj haj khǒŋ-thuk-jàaŋ kàp dék-nùŋ-khon  
 Danai give thing-every-CLF to child-one-CLF  
 ‘Danai gave everything to some child.’  
 $IO_{\exists} \gg DO_{\forall}, *DO_{\forall} \gg IO_{\forall}$

We thus see that Thai quantifier scope supports the assertion that V-DO-IO is rightward ascending.<sup>5</sup>

### 2.3 Mandarin

The next rigid scope language to be discussed is Mandarin. [Huang 1982](#) famously claimed that in Mandarin, if one QP c-commands another QP on the surface, their relative scope is fixed. Given the assumption that subjects c-command objects on the surface in S-V-O structures, such structures should show scope rigidity. Indeed, the literature has shown that a universally quantified subject can distribute over an existentially quantified object and that a universally quantified object cannot distribute over an existentially quantified subject ([Aoun & Li 1989, 1993](#)).

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<sup>4</sup>It might be interesting to note that floating the quantifier to the right does not change the judgments. Even with the universal floated off the DO, it cannot distribute over IO, *ib.*

- (i) a. dàʔnaj hâj khǒŋ kàp dék-thuk-khon nuŋ-jàaŋ  
 Danai give thing to child-every-CL:person one-CLF:thing  
 ‘Danai gave something to every child.’  
 $DO_{\exists} \gg IO_{\forall}, IO_{\forall} \gg DO_{\exists}$
- b. dàʔnaj haj khǒŋ kàp dék-nùŋ-khon thuk-jàaŋ  
 Danai give thing to child-one-CL:person every-CLF:thing  
 ‘Danai gave everything to one child.’  
 $IO_{\exists} \gg DO_{\forall}, *DO_{\forall} \gg IO_{\forall}$

<sup>5</sup>Ka-Fai Yip (personal email, 07. November 2023) reports that – with an important caveat about heavy NP shift – Cantonese behaves like Thai: it has rigid scope in the intended sense, only allows the V-DO-IO order, and a universal IO can distribute over an existential DO while an existential DO cannot scope over an existential IO.



- (11) a. Meige ren dou xihuan yige nuren.  
 every man all like one woman  
 ‘Every man likes a woman.’  
 $\forall \gg \exists$  Aoun & Li 1989: ex. 1a
- b. Yaoshi liangge ren zhaodao meige xiansuo...  
 if two men found every clue  
 ‘if two men found every clue...’  
 $\exists \gg \forall, * \forall \gg \exists$  Aoun & Li 1989: ex. 1b

Zhou & Gao (2009) show that existentially quantified objects can be interpreted referentially, a fact which is unsurprising for the reasons mentioned in section 2.1 and which should therefore not tempt us to overturn Huang’s generalization (see Scontras et al. 2014, Tsai et al. 2014 for discussion).<sup>6</sup>

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<sup>6</sup>Aoun & Li 1989, 1993 famously contest Huang’s generalization and claim that while S-V-O structures are unambiguous, passive structures are not. Thus, *i* shows the subject scoping over the by-phrase. Although this particular example is irrelevant because of the interference of referential indefinites and although a simple minimally paired example like *ii* is ungrammatical, the examples in *iii* show the universal in the by-phrase scoping over the indefinite subject according to Aoun & Li 1989 and Aoun & Li 1993.

- (i) Meigeren dou bei yige nuren zhuazoule.  
 everyone all by one woman arrested  
 ‘Everyone was arrested by a woman.’  
 Aoun & Li 1993: p 12 ex. 4
- (ii) {You| \*} liangge xiansuo bei meigeren zhaodao le.  
 have two clues by everyone find Asp  
 ‘There were two clues which were found by everyone.’
- (iii) a. Yaoshi liangge xiansuo bei meigeren zhaodao...  
 if two clue by everyone found  
 ‘If two clues were found by everyone...’  
 Aoun & Li 1989: p. 142 ex. 4b
- b. Yaoshi yige nuren bei meigeren ma...  
 if one woman by everyone scold  
 ‘(If) a woman was scolded by everyone...’  
 Aoun & Li 1993: p. 65 ex. 55c

The conditions under which the existential verb *you* can be absent and the range of readings for the examples are neither clear cut nor unanimous, according to my informants. It is not clear that Aoun and Li’s claim about the availability of inverse scope in passives holds for all speakers.

Mandarin speakers allow both V-DO-IO and V-IO-DO orders for some ditransitive verbs – although typically with some degree of unease (see Huang 1982, Gan & Tsai 2020).<sup>7</sup> Importantly for us, Huang reports (chapter 3 footnote 10, where the following examples are taken from) that IO may take scope above DO both in the V-IO-DO and the V-DO-IO order.

- (12) a. Zhangsan mai-le liangben shu gei meige ren.  
 Zhangsan buy-ASP two book to every man  
 ‘Zhangsan bought two books for every man.’  
 $\forall \gg 2, 2 \gg \forall$  the latter is an irrelevant wide scope indefinite
- b. Zhangsan mai gei-le meige ren liangben shu le.  
 Zhangsan buy to-ASP every man two book ASP  
 ‘Zhangsan bought every man two books.’  
 $\forall \gg 2, *2 \gg \forall$  see fn. 9

My informants agree with Huang’s judgments. Universally quantified indirect objects can take scope over existential direct objects independently of word order.

My informants further report that universally quantified direct objects do not take scope over indirect objects, again, independently of word order. This pattern is not discussed explicitly by Huang. This description accords with the intuitive data reported in Gan & Tsai 2020. To verify these facts, Gan and Tsai conducted an experiment crossing three factors (word order with the levels V-DO-IO and V-IO-DO, quantifier order with the levels All–Exist and Exist–All, and disambiguation with the levels linear scope and non-linear scope).<sup>8</sup> Gan and Tsai created stimulus sets of four sentences implementing the factors of Object order and quantifier order. Disambiguation was provided by pictures (two per sentence) targeting either a wide scope reading of the universal or a referential interpretation of the indefinite. The experimental task was a simple truth value judgment task.

- (13) a. Xiaoming ji-le yi-zhang mingxinpian gei mei-yi-wei laoshi  
 Xiaoming mail-ASP one-CL postcard GEI every-one-CL teacher  
 ‘Xiaoming mailed one postcard to every teacher.’  
 Object order: V-DO-IO Quantifier order: Exist–All

<sup>7</sup>Examples are typically fully acceptable when either the DO is fronted (in the *ba*-construction) or the IO is fronted as a PP. Both of those structures yield unambiguous left-to-right scope.

<sup>8</sup>Gan and Tsai actually call their factors and levels differently, but the present way of describing the experiment fits more easily into the current paper than Gan and Tsai’s own terminology.

- b. Xiaoming ji-le mei-yi-zhang mingxinpian gei yi-wei laoshi.  
 Xiaoming mail-ASP every-one-CL postcard GEI one-CL teacher  
 ‘Xiaoming mailed every postcard to one teacher.’  
 Object order: V-DO-IO Quantifier order: All-Exist
- c. Xiaoming ji-le yi-wei laoshi mei-yi-zhang mingxinpian.  
 Xiaoming mail-ASP one-CL teacher every-one-CL postcard  
 ‘Xiaoming mailed one teacher every postcard.’  
 Object order: V-IO-DO Quantifier order: Exist-All
- d. Xiaoming ji-le mei-yi-wei laoshi yi-zhang mingxinpian  
 Xiaoming mail-ASP every-one-CL teacher one-CL postcard  
 ‘Xiaoming mailed every teacher one postcard.’  
 Object order: V-IO-DO Quantifier order: All-Exist

The graph in figure 1 summarizes the results broken down by word order (left and right panels), then by quantifier order, then by direction of scope disambiguation. A score of 100% means that all participants judged the stimulus sentence to describe the disambiguating picture truthfully for all stimulus sentences and each trial. A score of 0% means that no participant ever judged any of the stimulus sentences to describe the disambiguating picture truthfully.

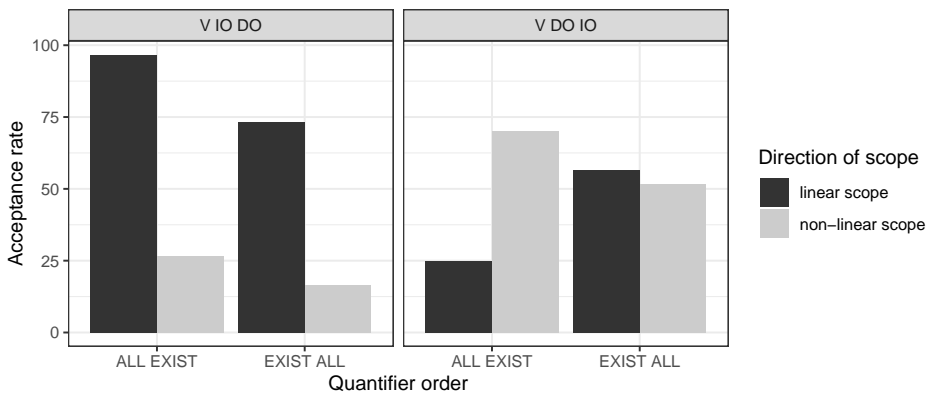


Figure 1: The effect of object order and quantifier order on the acceptability of linear and non-linear scope in Gan & Tsai 2020

The results of the experiment corroborate the intuitions: In the V-IO-DO order, linear scope is readily available independently of the quantificational force of the indirect object but non-linear scope is not. In the V DO IO order, linear scope is (irrelevantly) available for existential direct objects while non-linear scope is

available (independently of the quantificational force of the indirect object). Put differently, universally quantified indirect objects can take scope over existential direct objects independently of the order but universal direct objects cannot take scope over existential indirect objects – again, independently of order.<sup>9</sup>

To summarize, we see that Mandarin behaves in relevant respects like Vietnamese: objects cannot distribute over subjects and, independently of postverbal order, DOs cannot distribute over IOs.

## 2.4 English

The facts from English are familiar and hardly need to be introduced. English - unlike the languages discussed up to this point - is a scope fluid language because in S-V-O structures universally quantified objects can take distribute over existential subjects in addition to subjects being able to distribute over objects (for pertinent experiments and pointers to further work see [Anderson 2004](#), [Scontras et al. 2017](#)):

- (14) One farmer is feeding every pelican.
- a. Surface Scope ( $\exists > \forall$ )  
There is a single farmer who is feeding every pelican.
  - b. Inverse Scope ( $\forall > \exists$ )  
For each pelican, there is a (different) farmer who is feeding it.
- (15) Every farmer is feeding one pelican.
- a. Surface scope ( $\forall > \exists$ )  
For every farmer there is a (different) pelican that he is feeding.
  - b. Inverse scope ( $\exists > \forall$ )  
There is a single pelican such that every farmer is feeding it.

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<sup>9</sup>Since I am not taking wide scope indefinites to be indicative of syntactic scope, the difficulties in obtaining a referential reading for existentially quantified DOs in the V-IO-DO order is, strictly speaking, orthogonal to the main concern of this paper, but it is puzzling. It is possible that speakers reason as follows: The ditransitive structure with two postverbal objects is slightly degraded. If the speaker wanted to convey the referential reading for DO, they could have preposed DO and used the *ba*-construction. Since they did not do this, they must not have intended the referential reading. This reasoning akin to [Bobaljik & Wurmbrand's 2012](#) scope transparency constraint suggests that it should be possible to bring out referential reading of the indefinite if the *ba*-construction is unavailable for some reason. This idea also raises questions concerning the use of two postverbal objects in principle, since IO can also be preposed. I cannot pursue these issues here.

As mentioned in the introduction, I assume that the non-surface scope of 14 comes about via covert syntactic movement of the object quantifier across the subject:

(16) [ [every pelican]<sub>p</sub> [one farmer is feeding t<sub>p</sub> ] ]

This representation directly represents scope as syntactic c-command. For discussion and justification see May 1977, Hackl 2013, Fox 2000, Fox & Nissenbaum 1999, Abels & Dayal 2024, Szabolcsi 2010, Reinhart 1997, Heim & Kratzer 1998, Hornstein 1995), where it is argued that quantifier raising should be treated as a syntactic movement operation (since it obeys standard island constraints like the complex NP constraint and the *wh*-island constraint) and interacts in interesting ways with other syntactically driven processes such as ellipsis. Under the VP-internal subject hypothesis, it is often assumed that the object undergoes QR to a position no further than the edge of the verb phrase, where it c-commands the trace of the subject. Such a very short movement of the quantifier is sufficient to derive the possibility of non-surface scope if we also assume that the subject can reconstruct to the verb phrase internal position.

When we turn to ditransitives, English has an alternation between V-DO-IO (the to-dative) and V-IO-DO (the double object construction). To-datives are ambiguous, the double object construction is not:

(17) The fisherman gave one fish to every shark.

a.  $\forall > \exists$

For every shark there is a (different) fish that the fisherman gave to the shark.

b.  $\exists > \forall$

There is a single fish such that the fisherman gave it to every shark.

(18) The fisherman gave every fish to one shark.

a.  $\forall > \exists$

For every fish there is a (different) shark that the fisherman gave the fish to.

b.  $\exists > \forall$  There is a single shark that the fisherman gave every fish to.

(19) The fisherman gave every shark one fish.

Surface scope ( $\forall > \exists$ ): For every shark there is a (different) fish that the fisherman gave to the shark.

(20) The fisherman gave one shark every fish.

\*Inverse scope ( $\forall > \exists$ ): For every fish there is a (different) shark that the fisherman gave the fish to.

The lack of ambiguity in the double object construction is reported in [Barss & Lasnik 1986](#), [Larson 1988](#), [Aoun & Li 1989](#) among many others and known as the scope freezing effect.<sup>10</sup>

English, then shows scope ambiguities in S-V-O and V-DO-IO structures (with S and IO defaulting to wide scope respectively) and scope rigidity in V-IO-DO. Given that surface scope is generally the preferred reading, we can derive the pattern using the same overt structures assumed for scopally rigid languages with the additional possibility of scope-shifting quantifier raising in SVO and V-DO-IO structures but not in V-IO-DO structures.

## 2.5 Spanish

Spanish (all example Luisa Martí, p.c.) behaves in many ways just like English: S-V-O and V-DO-IO are ambiguous, as illustrated in [21](#) and [22](#):

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<sup>10</sup>The reality of the scope freezing effect is sometimes doubted. In particular, [Heizmann 2007](#) finds non-linear scope in the to-dative structure to be significantly more preferred and more accessible than in S-V-O structures and in the double object construction but she finds no significant difference between the availability of and preference for non-linear scope in the latter two. Likewise, [Bruening 2019](#) finds that non-linear scope is more readily available in the to-dative structure than in either S-V-O or the double object construction again with no significant difference between the latter two. This is in partial agreement with introspection: non-linear scope in the to-dative construction is unproblematic. Indeed, it seems to be the preferred option - and the account being offered here explains this, as we will see. When it comes to the null findings, the absence of a difference between non-linear scope in simple transitive structures and the double object construction, they are surprising but fail to build a strong argument. [Tanaka 2020](#) does find a difference in the expected direction between non-linear scope in S-V-O structures and the double object construction.

Given the introspective strength of the scope freezing effect, Heizmann's and Bruening's results remain somewhat surprising. Closer inspection of the stimuli in the experiments show that Heizmann's direct objects are systematically heavy. This might have inadvertently introduced an interfering factor, since heavy direct objects can undergo rightward (and upward) heavy NP shift, which could well alter the default scope behaviour (see [Pearson 2000](#) for relevant discussion of rightward and upward movement in Malagasy and [Thoms 2021](#) on rightward object shift in Irish and Scottish Gaelic). Bruening's DOs are all D-linked, which might help them evade certain restrictions otherwise governing quantifier raising. It would clearly be desirable to understand better what gave rise to the null results in Heizmann's and Bruening's studies in the face of strong intuitionistic data suggesting that scope in V-IO-DO order is frozen.

- (21) a. Cada niño pintó un animal.  
 each child painted an animal  
 ‘Each child painted an animal.’  $\forall \gg \exists$
- b. Un niño pintó cada animal.  
 a child painted each animal  
 ‘A child painted each animal.’  $\forall \gg \exists$
- (22) a. Luisa le dio cada animal a un niño.  
 Luisa DAT= gave each animal to a child.  
 ‘Luisa gave each animal DOM a child.’  $\forall \gg \exists$
- b. Luisa le dio un animal a cada niño  
 Luisa DAT= gave a animal DOM each child  
 ‘Luisa gave an animal to each child.’  $\forall \gg \exists$

VPs with V-IO-DO order on the other hand show scope rigidity, 23. The quantifier used throughout these examples is *cada*–‘each’. *Cada* more or less obligatorily requires a share that it can distribute over. Since in 23b, the DO cannot distribute over the IO, the lack of the wide scope reading makes the sentences sound degraded.

- (23) a. Luisa le dio a cada niño un animal.  
 Luisa DAT= gave to each child a animal  
 ‘Luisa gave each child an animal.’  $\forall \gg \exists$
- b. \*Luisa le dio a un niño cada animal  
 Luisa DAT= gave to a child each animal  
 ‘(Luisa gave a child each animal.)’  $*\forall \gg \exists$

Despite the clear similarities between English and Spanish there is an important difference. In Spanish, the alternation between V-IO-DO and V-DO-IO is not accompanied by a change in the morphosyntactic marking of IO, that is, there is no PP-DP or case alternation accompanying the change in word order in Spanish. Correspondingly, the thematic distinctions that accompany the word order alternation in English are entirely absent in Spanish. Causative readings (*give X a headache/an idea* vs. *?give a headache/an idea to X*) and location readings (*send the package to NY* vs. *?send NY the package*) are equally possible with both orders.

## 2.6 Polish

The situation in Polish is discussed at length in Grabska & Abels 2022, Grabska 2023. Experiment 1 in Grabska & Abels 2022 shows on the basis of a truth value







field in Hungarian behave much like quantifiers in English. For example, ...S O structures allow non-linear scope:

- (25) Non-linear S O scope post-verbally in Hungarian (Szabolcsi 1997b: p. 146ex. 74b): Egy keddi napon harapott met hatnál több kutya minden fiút'  
 one Tuesday day.on bit pfx six.than more dog  
 minden fiút'  
 every boy  
 OK (a Tuesday >>) more than six dogs >> every boy  
 OK (a Tuesday >>) every boy >> more than six dogs

For ditransitives, Varga 2023 reports the by now familiar pattern of ambiguity for V-DO-IO and rigidity for V-IO-DO. Crucially, Varga 2023 reports that 27a does not allow the direct object to distribute over the indirect object.<sup>13</sup>

- (26) S-V-DO-IO orders in Hungarian (Varga 2023)

- a. Délután csatlakoztatott Anna minden monitort egy  
 Afternoon connected Anna every monitor-acc. one  
 V S ∀-DO ∃-IO  
 számítógéphez.  
 PC-to.

- i. Distributive reading: Each monitor was connected to a different PC. (∀ >> ∃)  
 ii. Collective reading: Every monitor was connected to the same PC. (∃ >> ∀)

- b. Délután csatlakoztatott Anna egy monitort minden  
 Afternoon connected Anna a monitor-acc. every  
 V S ∃-DO ∀-IO  
 számítógéphez.  
 PC-to.

- i. Distributive reading: Each monitor was connected to a different PC. (∀ >> ∃)  
 ii. Collective reading: Every monitor was connected to the same PC. (∃ >> ∀)

<sup>13</sup>The examples were judged in a context with new-information focus on the VP (Zsófia Varga, p.c.). For reasons I do not understand, the scope asymmetry in 27a disappears when the objects do not match in animacy.

(27) S-V-IO-DO orders in Hungarian (Varga 2023)

- a. Délután csatlakoztatott Anna egy számítógéphez minden  
 Afternoon connected Anna a PC-to every  
 V S  $\exists$ -IO  $\forall$ -DO

monitort.

monitor-acc.

- i. Distributive reading: Each monitor was connected to a different PC. ( $*\forall \gg \exists$ )
- ii. Collective reading: Every monitor was connected to the same PC. ( $\exists \gg \forall$ )

- b. Délután csatlakoztatott Anna minden számítógéphez egy  
 Afternoon connected Anna every PC-to one  
 V S  $\forall$ -IO  $\exists$ -IO

monitort.

monitor-acc.

- i. Distributive reading: Each monitor was connected to a different PC. ( $\forall \gg \exists$ )
- ii. Collective reading: Every monitor was connected to the same PC. ( $\exists \gg \forall$ )

As will be shown below, this pattern of judgments is expected in a scopally fluid language for objects of ditransitives within VP given certain (rich) assumptions about the hierarchical structure of the VP. These judgments are entirely unexpected if *É. Kiss 1981* is right and the postverbal field in Hungarian lacks structure or on the other hand if *Brody & Szabolcsi 2003* are right and the postverbal field in Hungarian has a rich functional structure far beyond VP and final objects can be located in the highest reaches of the clause. I offer Varga's observations as tentative support, though noting that Anna Szabolcsi (p.c.) reports that *27a* allows the crucial reading for her as expected under *Brody & Szabolcsi's* account.

## 2.8 Summary

From this small survey a number of striking generalizations emerge. VO languages that show scope fluidity in SVO structures are also scopally fluid in V-DO-IO structures. VO languages that show scope rigidity in SVO structures are

also scopally rigid in V-DO-IO sentences. Both types show scope rigidity in V-IO-DO structures. The situation is summarized in the table repeated here from section 1).

Table 2: Distribution of scope readings (repeated)

Scope	Language	S-V-O	V-DO-IO	V-IO-DO
rigid	Vietnamese	S >>O	IO >>DO	IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
	Thai	S >>O	IO >>DO	*IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
	Mandarin	S >>O	IO >>DO	IO >>DO
		*O >>S	*DO >>IO	*DO >>IO
fluid	English	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Polish	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Spanish	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO
	Hungarian	S >>O	IO >>DO	IO >>DO
		O >>S	DO >>IO	*DO >>IO

While a very clear picture emerges here, I admit that I am painting the picture with a fairly broad brush. There are certain to be operations akin to heavy NP shift and rightward object shift in these and similar languages that end up complicating the generalizations. Such operations typically move a direct object upward and to the right with consequences for order and scope that are factored out (hopefully) in the data considered here (for a glimpse of what I have in mind, see the literature referenced in fn. 10 and 12).

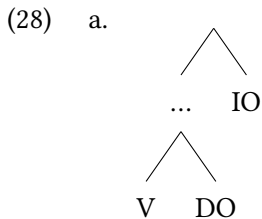
### 3 Structural consequences

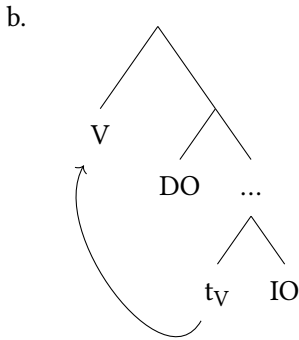
The data surveyed in the previous section, although coming from a small sample of languages, suggests a number of interesting conclusions. The first conclusion becomes evident on the basis of a language like Polish. In Polish the alternation between V-IO-DO and V-DO-IO is not accompanied by a change in category of IO: both dative DPs and PPs can act as IO in both orders. As shown in Grabska

& Abels 2022, V-DO-IO is ambiguous independently of the category of IO and, conversely, V-IO-DO is unambiguous independently of the category of IO. Therefore, any attempt at characterizing scope freezing in terms of the category of IO (e.g., Hallman 2005) is doomed to failure.

Secondly, we see that scope freezing in languages like Polish is independent of the thematic effects accompanying the English alternation between double objects and to-datives. The location version ('send X to Y') is realized with the verb in a DP<sub>ACC</sub> PP frame in Polish and the possessor version ('send Y X') with the verb in a DP<sub>ACC</sub> DP<sub>DAT</sub> frame. Both allow both orders and show scope freezing in the V-IO-DO order and scope fluidity in the V-DO-IO order. This indicates strongly that scope freezing is independent of the thematic interpretation of IO. Relatedly, idiomatic interpretations can be particular to a particular case frame but they are always independent of the order of elements. Any account that ties the English scope freezing effect closely to the thematic difference between double object and to-dative construals (say, via the postulation of different applicative heads whose different positions trigger the thematic and the scope freezing effects) is bound to fail. Scope freezing is independent of these thematic effects.

The third consequence concerns the structure of ditransitive VPs and requires more detailed discussion. If we look at scope data from scopally fluid languages alone, it is difficult to discern whether, in the V-DO-IO order, IO c-commands DO in a rightward ascending structure like 28a or whether DO c-commands IO in a rightward descending structure, 28b.





It is difficult to choose for scopally fluid languages, because these languages allow covert scope shifting (QR and/or reconstruction) to override the overt c-command hierarchy. Both 28a and 28b therefore represent a priori plausible hypotheses. 28a is then often discarded from consideration because it requires a rightward specifier or an analysis of IO as an adjunct.<sup>14</sup> I will propose that the structure in 28a – which I refer to as the rightward ascending structure – is correct (see Janke & Neeleman 2012) and that the structure in 28b (see e.g. Antonyuk 2015) – which I will refer to as DO-over-IO – is incorrect .

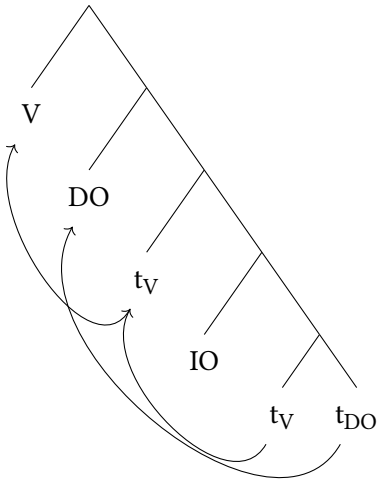
Another version of the idea that IO does not c-command DO on the surface is the following:

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<sup>14</sup>The notion that specifiers are always on the left is probably based on the observation that many familiar specifiers are, indeed, on the left: subjects, *wh*-phrases, moved foci. Notice though that these specifiers reach their overt position by movement and could thus be part of a generalization about the preferred directionality of movement leaving externally merged specifiers free to be to the left or to the right. See Abels & Neeleman 2012 for a similar claim concerning the division of labour between symmetric base generation and asymmetric movement in the domain of Universal 20 and Abels & Neeleman 2023 for some steps towards a deeper explanation of the movement asymmetry.

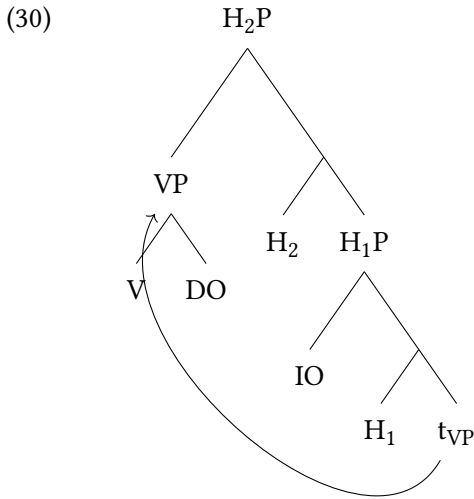
Given that IO is often optional in the presence of DO, even the idea of IO as an adjunct has some initial plausibility, though, unlike with prototypical adjuncts, no stacking is allowed.

(29)



This is the representation advocated for Mandarin V-DO-IO structures in [Gan & Tsai 2020](#). Gan and Tsai assume that DO reaches its position by scrambling. I will refer to this structure as DO-over-IO-over-DO.

Finally, the structure in [30](#) will be discussed. It is an attempt to recode the rightward ascending structure in a way compatible with [Kayne's](#) Linear Correspondence Axiom through roll-up movements. The result, in this case, is that DO, in the terminology of [Collins 2005a,b](#), is 'smuggled' past IO. Consequently, IO fails to c-command DO on the surface but DO does not c-command IO on the surface either. I will refer to this type of structure as the smuggling structure.



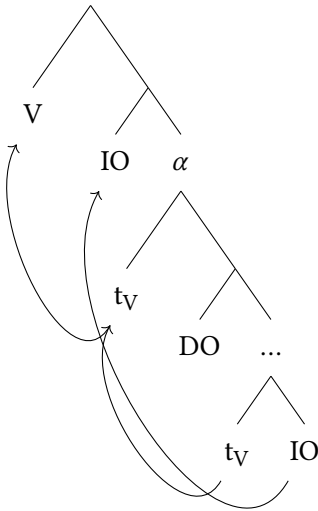
The advantage of the rightward ascending structure should be clear: it directly accounts for the fact that IO unambiguously takes scope over DO in scopally rigid languages under the V-DO-IO order – and it is compatible with DO scoping above IO in scopally fluid languages as a result of covert quantifier raising. The following three subsections discuss various problems with and objections to the other three structures in the order in which the structures were introduced.

### 3.1 Problems with DO-over-IO

Antonyuk 2015, 2020 provides an account of scope freezing in Russian which is based on the idea that V-DO-IO in Russian has the DO-over-IO structure, 28b. As in Polish and English, V DO IO is ambiguous for the relevant class of verbs in Russian. Antonyuk 2015, 2020 proposes to deal with this ambiguity in terms of quantifier raising. Furthermore, V IO DO is derived, under her approach, by leftward movement of IO from 28b. This is schematized in 31. The node marked  $\alpha$  will become important later on and is named for reference only. The node has no particular importance in Antonyuk’s theory.



(31)



The scopal rigidity of this structure then falls under the Scope Freezing Generalization (cited here in its revised version from [Antonyuk 2019](#): ex. 8):

- (32) Scope Freezing Generalization (SFG), revised:  
 Scope freezing results when one QP raises over another to a c-commanding position within the VP as a result of a single instance of movement.

The intuition here is that, in some sense, the function of moving IO over DO is to mark its scope. Marked scope then has to be preserved at LF and cannot be undone by further quantifier raising (see also [Williams 2005](#) for a similar intuition).

This is problematic in several respects.

First of all, attributing wide scope of IO in V-DO-IO to scope shifting in scopally fluid languages, leads to the expectation that in scopally rigid languages, DO should rigidly take scope over IO. As we have seen, this expectation is not borne out. Instead IO rigidly takes wide scope over DO. To a certain extent, we can discern surface scope also in scopally fluid languages, since it is often the default, unmarked scope. In V DO IO, the two objects are not on a par: there is a clear preference for wide scope of IO (see [Grabska & Abels 2022](#): appendix). Under the rightward ascending structure, this can be understood as a reflection of

the general preference for surface scope. It is difficult to reconcile the observed preference with the DO-over-IO structure, which would need to address the preference for non-linear non-surface scope just in this case.

Second, there is independent evidence about constituency that suggest that the rightward ascending structure fits the empirical picture better than the rightward descending DO-over-IO structure. An important observation about the structures in 28b and 31 is that V and IO underlyingly form a constituent to the exclusion of DO. V does not form an exclusive constituent with DO either underlying or on the surface. Indeed, the only derivational moment where V and DO form an exclusive constituent is the constituent labelled  $\alpha$  in 31 above, an intermediate projection whose sister is the landing site of the IO and a remnant containing the trace of IO. This intermediate projection, created and destroyed in the process of constructing the full VP would be an odd constituent to be targeted preferentially by structural diagnostics.

With this in mind, consider the following observations about focus fronting in Polish (from Grabska 2023). Focus fronting can affect a complete transitive VP 33 or just a verb with the object following at the end of the sentence, 34. For intransitive verbs, there is no distinction between V-fronting and VP-fronting, 35.

- (33) Nawet czytać książek Janek nie mógł.  
even read.inf books.GEN John.NOM not could  
'Janek couldn't even read books.'
- (34) Nawet czytać Janek nie mógł książek.  
even read.inf John.NOM not could books.GEN  
'Janek couldn't even read books.'
- (35) Nawet spać Janek nie mógł.  
even sleep.inf John.NOM not could  
'Janek couldn't even sleep.'

Ditransitive verbs can be fronted alone, 36. Full ditransitive VPs can also be fronted, 37.

- (36) Nawet dawać rybak nie mógł ryb rekinom.  
even give fisherman.NOM not could fish.ACC sharks.DAT
- (37) Nawet dawać ryb rekinom rybak nie mógł.  
even giv fish.ACC sharks.DAT fisherman.NOM not could

Crucially, V-DO can be fronted stranding IO, 38. This shows that the verb and the direct object form a constituent to the exclusion of the indirect object. On the other hand, V-IO cannot be fronted leaving behind DO, 39. This requires a V-DO constituent and casts doubt on the status of V-IO as a constituent. Grabska 2023 further shows that substitution with the VP-pro-form *robić to-* ‘do so’ gives the same result as the VP-fronting test: V DO is and V IO is not a constituent. The substitution result cannot be recast in terms of  $\alpha$  in 31, even if this were accepted for VP-fronting as a plausible analysis.

- (38) Nawet dawać ryb      rybak              nie mógł rekinom.  
       even give fish.ACC fisherman.NOM not could sharks.DAT
- (39) \* Nawet dawać rekinom rybak nie mógł ryb.  
       even give sharks.DAT fisherman not could fish.ACC

For more constituency diagnostics to the same effect in Polish, see Grabska & Abels 2022, Grabska 2023. Grabska 2023 discusses a large number of ditransitives including a small class of verbs (including the verb for *expose* in many languages) that behave exactly the opposite way from the pattern discussed here.<sup>15</sup>

Additional support that the direct object forms an underlying constituent with the verb comes from Hungarian. Varga 2023 notes that only underlying complements of the verb can be incorporated under nominalization of the verb. For ditransitive verbs only direct objects can be thus incorporated (‘gift giving’) but not indirect objects (\*‘children giving (of gifts)’) or subjects (\*‘parent giving (of gifts) (to children)’). These tests consistently show that V-DO is a constituent but fail to offer any support for an exclusive V-IO constituent. As noted, these facts fall into place under the rightward ascending structure for V-DO-IO (together with a rightward descending structure for V-IO-DO). The facts are the exact opposite of what the DO-over-IO structure would lead us to expect.

On the basis of the scope facts from scopally rigid languages and constituency evidence (reported here for scopally fluid languages), I will set aside the DO-over-IO structure.

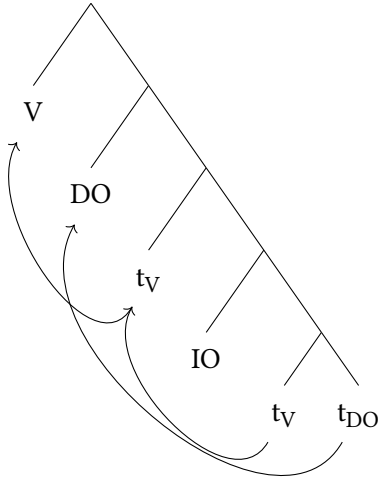
### 3.2 Problems with DO-over-IO-over-DO

Maybe surprisingly, Gan & Tsai 2020 suggest that in Mandarin V-DO-IO structures DO c-commands IO from a derived position. Gan and Tsai assume a rightward descending structure for V-IO-DO and derive the V-DO-IO order from this

<sup>15</sup>It is trivial to relax the IO-over-DO theory so that it generates 38; this can be achieved by scrambling IO out of the DP and allowing remnant VP movement. However, once remnant VP-movement is allowed, there is no way of ruling out 39.

by leftward scrambling of DO, giving rise to the DO-over-IO-over-DO structure below:

(40)



To account for the fact that IO takes syntactic scope above DO independently of the order of objects, Gan and Tsai assume that the short scrambling step that derives V-DO-IO from V-IO-DO obligatorily reconstructs for scope.

There are a number of problems with this proposal. Firstly, the idea that short scrambling forces reconstruction would go against the cross-linguistic record. As is well known, Japanese unscrambled S-O-V and IO-DO-V orders are unambiguous with S taking scope over O and IO taking scope over DO respectively while scrambled O-S-V and DO-IO-V are ambiguous (see [Hoji 1985](#), [Miyagawa & Tsujioka 2004](#), [Harada & Larson 2009](#)). Short scrambling is therefore not a particularly plausible candidate operation to force reconstruction.

Recall also the discussion of [Aoun & Li](#)'s famous claim about scope reconstruction in Mandarin passives in footnote 6 above. We saw that not all speakers allow scope reconstruction and even for those who do, it is far from obligatory. Other clause-internal movement operations in Mandarin do not seem to allow - let alone force - reconstruction. As mentioned above, ditransitives can be disambiguated by fronting either the prepositional IO to a preverbal position or by fronting the DO in the ba-construction. The idea that scrambling in Mandarin obligatorily reconstructs is ad hoc for Mandarin and lacks cross-linguistic plausibility.

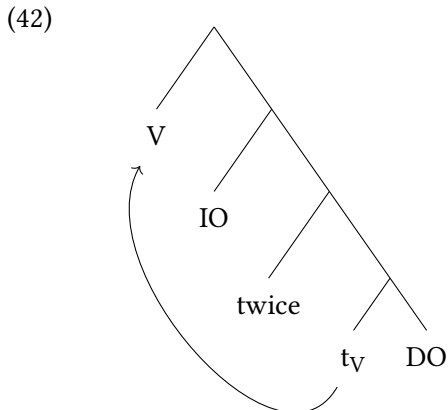
## 1 Scope and the structure of ditransitives in SVO languages

Second of all, scrambling (pretty much by definition, see [Abels 2015](#)) is an optional movement not conditioned by voice, case, or clause type. But if Mandarin V-DO-IO arises from underlying V-IO-DO via scrambling, it is unclear what an account of Thai (or Cantonese, see fn. 5) would look like. Recall that these languages only allow the putatively scrambled V-DO-IO order and only with wide scope for IO. A straightforward extension of [Gan & Tsai 2020](#) approach would seem to implausibly demand obligatory scrambling that obligatorily re-constructs.

A further strong argument against the DO-over-IO-over-DO structures comes from an observation about adverbial scope in Vietnamese reported in [La 2024](#). Building on a comparable paradigm reported for Polish in [Grabska & Abels 2022](#), [La](#) reports the following judgments.

- (41) a. Lan đưa vị-thuyền-trưởng hai-lần một con-cá.  
 Lan give CL-ship-leader two-time one CL-fish  
 ‘Lan gives the captain a fish twice.’  
 twice > a fish => two fish
- b. Lan đưa một vị-thuyền-trưởng hai-lần con-cá.  
 Lan give one CL-ship-leader two-time CL-fish  
 ‘Lan gives one captain the fish twice.’  
 a captain > twice => one captain

The judgments in 41 are what one might expect under any rightward descending structure, 42.

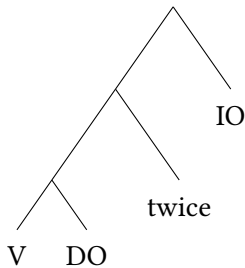


What is important for my argument is that in the V-DO-IO structure, the adverb can again take scope over the direct object but not over the indirect object:

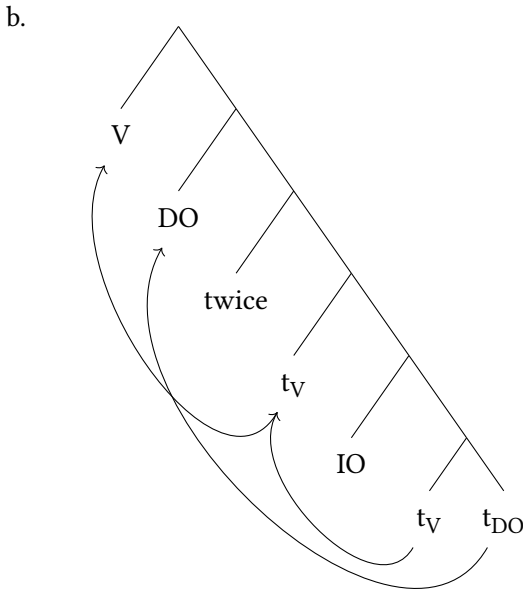
- (43) a. Lan đưa một con-cá hai-lần cho vị-thuyền-trưởng.  
Lan give one CL-fish two-time to CL-ship-leader  
'Lan gives a fish twice to the captain.'  
twice > a fish => two fish
- b. Lan đưa con-cá hai-lần cho một vị-thuyền-trưởng.  
Lan give CL-fish two-time to one CL-ship-leader  
'Lan gives the fish twice to a captain.'  
a captain > twice => one captain

This state of affairs is handled directly under the rightward ascending structure for V-DO-IO adopted here, 44a, but is problematic under Gan & Tsai's DO-over-IO-over-DO proposal, 44b. Given that the DO obligatorily reconstructs, it is easy to see why the adverb scopes over the DO, but then, by transitivity it should also take scope over IO, contrary to fact.<sup>16</sup>

- (44) a.



<sup>16</sup>Grabska & Abels 2022, Varga 2023 report corresponding Polish and Hungarian facts, respectively. As in Vietnamese, the numerically quantified adverbial consistently takes scope over DO but not over IO. Grabska & Abels 2022 note that this is a problem for DO-over-IO proposals quite generally.



Given the cumulative weight of these considerations, I will set the DO-over-IO-over-DO proposal aside.

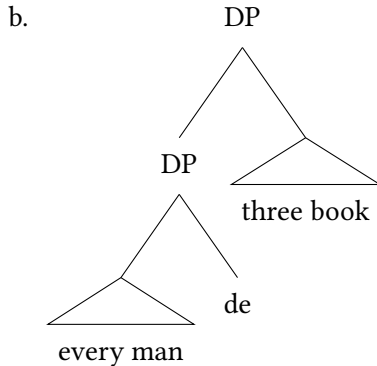
### 3.3 Problems with smuggling

Finally we consider the smuggling derivation in 30, which proceeds through roll-up movements. This is the most straightforward way of reconciling the constituency data (e.g. from Polish) with Kayne’s LCA. Unfortunately, this analysis does not and cannot represent scope on the surface. It does not, because IO clearly does not c-command DO in 30, and it cannot, because the LCA demands that (asymmetric) c-command map onto precedence: if X asymmetrically c-commands Y, then X precedes Y. By contraposition we have that if X follows Y, then X does not asymmetrically c-command Y. Therefore, there is no LCA compatible analysis of V-DO-IO in which IO c-commands DO (asymmetrically) on the surface. But that is exactly what we need for scopally rigid languages.

Recall now that Huang’s generalization about Mandarin (and this seems to extend fully to languages like Vietnamese) says that overt c-command amongst QPs maps directly onto scope. When there is no overt c-command, scope is not rigidly determined by overt structure. Huang demonstrates this latter fact for

Mandarin on the basis of structures reminiscent of inverse linking. Consider first example 45a with the rough structure in 45b:<sup>17</sup>

- (45) a. wo mai-le meige ren de sanben shu.  
 I buy-ASP every man LNK three book  
 ‘For every man x, I bought three of x’s books.’ Huang 1982: chapter 4 ex. 2



The universal quantifier in 45a distributes over the numeral. It can do this, presumably because the universally quantified DP c-commands the numeral. And it must do so because surface c-command rigidly maps to scope in Mandarin. The fact that the initial DP must take wide scope is demonstrated by the fact that 46 is unambiguous and lacks the wide-scope reading of the universal.

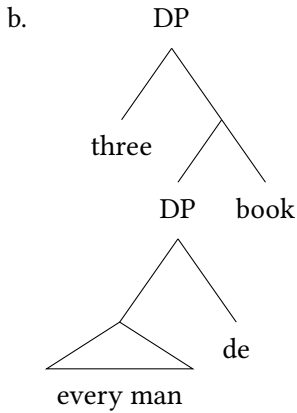
- (46) wo mai-le sange ren de meiben shu.  
 I buy-ASP three man LNK every book  
 ‘For three men x, I bought every of x’s books.’ Huang 1982: chapter 4 ex. 1

The next example differs minimally from 45a. Now the numeral c-commands the universally quantified DP and universal wide scope is impossible:

- (47) a. wo mai-le meiben sange ren de shu.  
 I buy-ASP three every man LNK book  
 ‘I bought three books, each of which belongs to everybody.’ Huang 1982: chapter 4 ex. 11

<sup>17</sup>It is not implausible that 45a is derived from 47a through movement of the universally quantified possessor.

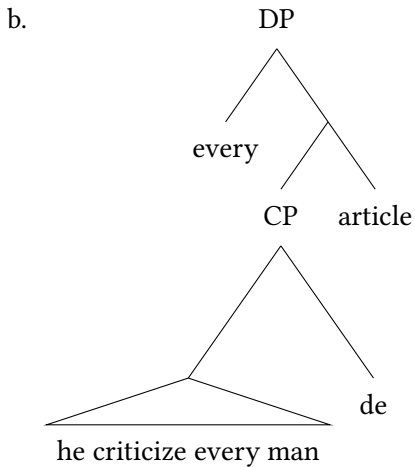




Such examples demonstrate that surface c-command maps one-to-one onto scope.<sup>18</sup>

With this as background, example 47a should be compared with 48a.

- (48) a. meipan to piping meige ren de wanzhang dou hen  
 every.CLF he criticize every.CLF man LNK article all very  
 youqu  
 interesting  
 ‘Every article in which he criticized every man is very interesting.’  
 Huang 1982: chapter 4 ex. 56

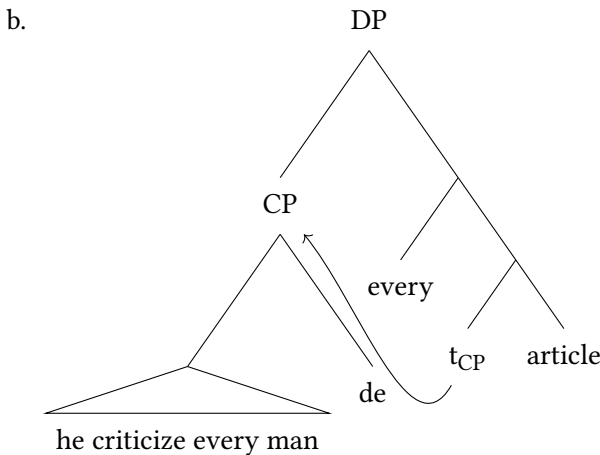


<sup>18</sup>The data in Thoms 2023 can be interpreted in a similar way. Rightward PPs are ambiguously attached above or below the leftward determiner but adding a second rightward modifier disambiguates the structure.

The universal determiner *meipan*–‘every’ c-commands the relative clause and everything within it. Therefore, the relative clause is interpreted as part of the restrictor of *meipan* and the universally quantified DP within the relative clause (*meige ren*–‘every man’) can’t take scope outside of the containing DP.

The situation changes in 49a: as a result of preposing the relative clause, there is no c-command between the two quantifiers; thus *meige ren*–‘every man’ can be interpreted within the restrictor of *meipan*–‘every’, 49a-i, or – crucially – outside of it, 49a-ii.

- (49) a. to piping *meige ren de meipan wanzhang dou hen*  
 he criticize every.CLF man LNK every.CLF article all very  
 youqu  
 interesting
- i. ‘Every article in which he criticized every man is very interesting.’
  - ii. ‘For every man X, every article in which he criticized X is very interesting.’
- Huang 1982: chapter 4 ex. 55



A plausible way of deriving the reading in 49a-i is to assume that the relative clause moves from its position in 48b, as shown in 49b and reconstructs at LF. The crucial difference between 49a and 45a, 47a, and 48a is that *meige ren*–‘every man’ does not enter a c-command relation on the surface with the determiner in the containing DP in example 49a but it does in the other three. Huang suggests that the lesson from these cases is that when there is no overt c-command, scope in Mandarin is not automatically fixed. Let’s assume that this is correct.

Crucially, the ambiguous 49b is a smuggling configuration. The facts from Huang 1982 reviewed here therefore suggest that smuggling unfreezes scope in

Mandarin. This conclusion, however, forces us to reject the smuggling structure in 30 for ditransitive VPs: scope is crucially not free in V DO IO structures but rigidly right-to-left. Therefore, IO must overtly c-command DO; the smuggling structure must be rejected.<sup>19</sup>

### 3.4 Conclusions about structure

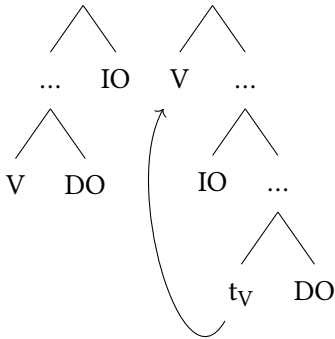
In this section we have seen that the cross-linguistic data surveyed here lead – when combined with some other facts – to the following conclusions. Scope freezing in V-IO-DO (and scope fluidity in V-DO-IO) should not be accounted for in terms of the category or thematic role of IO, since free word order languages like Polish allow both orders for both alternants but V-DO-IO is uniformly ambiguous in Polish and V-IO-DO is scopally rigid. Secondly, the observations from scopally rigid languages militate against a simple DO-over-IO structure (exemplified here by Antonyuk 2015, 2019) for V-DO-IO, since the DO-over-IO approach predicts exactly the wrong relative scope of the objects in scopally rigid languages and the wrong constituency. The data also militate against a DO-over-IO-over-DO analysis (Gan & Tsai 2020), because such an analysis disregards the direct c-command to scope mapping in scopally rigid languages, fails to offer and account of V-DO-IO only languages like Thai, fails to explain the right-to-left scope of adverbial quantifiers in V-DO-Adv-IO structures, and ignores the fact that short scrambling has scope-extending potential (and therefore reconstructs only optionally). Finally, I suggested that the smuggling view of V-DO-IO leads to wrong predictions because bona fide smuggling structures are ambiguous in Mandarin but V-DO-IO structures are not. In reality V-DO-IO structures show rigid right-to-left scope in line with the rightward ascending structure defended here.

Thus, we have the following schematic structures for V-DO-IO and V-IO-DO (modulo possible verb movement in V-DO-IO):

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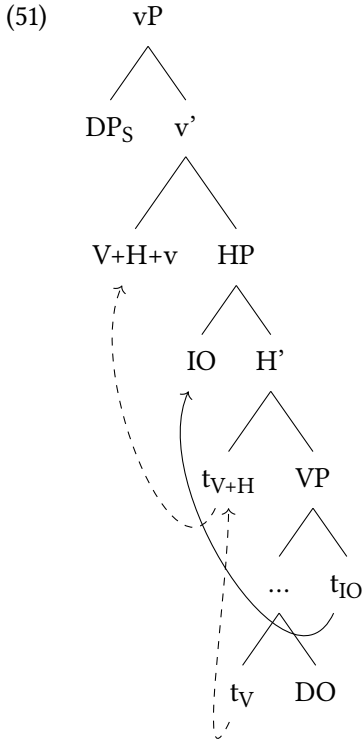
<sup>19</sup>Little in the reasoning changes if 49a is given an analysis in terms of optional raising of *meipan* instead of optional reconstruction of the relative clause. If we assume raising of *meipan*, we still conclude that lack of surface c-command leads to unfrozen scope in Mandarin, which then leads to the wrong expectation that V-DO-IO should be ambiguous under the smuggling derivation, 30, and to the correct expectation that V-DO-IO should be unambiguous under the rightward ascending analysis, 28a.

(50)



These structures are what [Janke & Neeleman 2012](#) propose as the unmarked structures for the English to-dative and double object constructions respectively. The structures represent the surface constituency and do not specify whether there is a derivational relationship between the two alternants.

I will assume that V-IO-DO is derived from V-DO-IO. The reason for positing a derivational relationship is quite simply that many languages exhibit a pure word order alternation (without accompanying case/theta alternations). The remaining issue then concerns the question of which is derived from which. I propose that V-IO-DO is derived from V-DO-IO. The proposal was already given in [1](#) above, a slightly more abstract version is given in [51](#), where the subtree rooted at VP simply stands for whatever the exact details for V-DO-IO in keeping with [50](#) turn out to be.



Deriving V-IO-DO from V-DO-IO (rather than the other way around) allows us to say that movement is leftward, the dominant direction of movement. The proposal also allows me to tap into an intuition (present in much of the literature) that V-IO-DO involves more complex structures than V-DO-IO (e.g. Janke & Neeleman 2012, Paul & Whitman 2010, Bruening 2001). The additional structural complexity can also be used to motivate scope freezing effects (see Bruening 2001, Williams 2005, Antonyuk 2015, Grabska & Abels 2022, Grabska 2023 for different proposals along these general lines). At this point, the legitimate question arises whether the movement step cannot be dispensed with and V-IO-DO could just be based on an alternative linearization of the structure in 28a combined with verb movement. Scope freezing would then presumably have to be tied to the (optional) leftward positioning of IO, but neither leftward positioning in general (e.g., subjects) nor optional leftward positioning (e.g. scrambling) has the effect of freezing scope.

The current proposal, on the other hand, raises the question of what the nature of the head H in 51 is. I have nothing concrete to offer concerning this question.

Paul & Whitman 2010, whose proposal is extremely close to the ideas pursued here, propose that the target of the movement of the indirect object in Mandarin is a ‘raising applicative,’ but this sheds little light on the nature of the head; it is an applicative in name only, since it does not have any thematic properties in Paul & Whitman’s analysis. It’s only role seems to be to trigger IO-raising. Alas, I cannot do better than that.

When applied to English, one might think that the structural view of V-DO-IO and V-IO-DO taken here implies that that V-DP-DP (the double object structure) is derived from V-DP-PP (the to-dative structure). This would then entail that in English movement somehow deletes the preposition and changes thematic relations. This is, of course, not particularly attractive. Fortunately, this view is not forced on us. It is, in fact, quite easy to conceive of a state of affairs where English to-datives have the structure [ [V DP] PP] and disallow movement of PP (maybe because H in English is restricted to attracting DPs or because movement to H in English requires an active case feature, which PPs lack). At the same time, the underlying structure for the double-object structure might be [[V DP] DP]. This might force movement of the indirect object DP because the IO cannot be assigned case in this configuration (as in Janke & Neeleman 2012, Haider 2000). In other words, the assumptions taken here do not force us to relate the English double object structure and the to-dative structure derivationally any more than they force us to relate Polish DP<sub>ACC</sub> PP variants derivationally to DP<sub>ACC</sub> DP<sub>DAT</sub> variants.<sup>20</sup>

It was noted above that the structures suggested here reflect the geometry of the default realization of double object structures in English (rightward descending) and to-dative structure (rightward ascending) in Janke & Neeleman 2012. Janke & Neeleman argue that V-DO-IO also has a rightward ascending structure (which is generally dispreferred but can be forced in the presence of floating quantifiers and verbal particles). Assuming those arguments for the need of alternative rightward descending structure of to-dative constructions to be sound, the current analysis can accommodate this analysis by assuming that, as a marked option, DO can move to Spec,HP. As noted in Grabska & Abels 2022: 23, 34-35 fn. 26 this might also be necessary for the analysis of Polish. This necessity arises from the (marked) option in Polish of allowing numerically quantified adverb in

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<sup>20</sup>The differences between Polish and English might be thought of as follows: DAT in Polish is lexical while ACC in English is structural; the latter might then require adjacency to be assigned. H in Polish can attract both DPs and PP while H in English can attract only DPs. For Vietnamese we would then say that case is structural and assigned under adjacency (deriving V-IO<sub>DP</sub>-DP<sub>DP</sub> and \*V-DO<sub>DP</sub>-IO<sub>DP</sub> as in Janke & Neeleman 2012) while H can attract both DPs and PPs (thus allowing both V-DO<sub>DP</sub>-IO<sub>PP</sub> and V-IO<sub>PP</sub>-DO<sub>DP</sub>, the latter of which English disallows).

the order V-DO-Adv-IO to take scope over IO. That is, the Polish equivalent of the Vietnamese example 43b has right-to-left scope of the adverb as its default reading but allows scope of the adverb over the indirect object as a marked option. This could lead to a marked rightward descending structure for V-DO-IO in line with Janke & Neeleman's structural conclusions (though not consistent with their implementation). The results of the constituency diagnostics reported for Polish are unaffected by this, as long as we assume that predicate clefts, focus fronting of VPs and *do so* substitution are not compatible with remnant VPs.

## 4 Conclusions

This paper intends to contribute to our understanding of the structure of VP in SVO languages and our understanding of scope relations in those languages. I have distinguished scopally fluid languages (those in which universally quantified objects can take scope over existential subjects) from scopally rigid languages (those which are not fluid). In the scopally fluid languages investigated here, ditransitive VPs with the order V-DO-IO are scopally ambiguous (a universal quantifier in either object can distribute over an existential in the other) while V-IO-DO is scopally rigid (a universal quantifier in DO cannot distribute over an existential in IO). In scopally rigid languages both orders are rigid with IO always taking wide scope.

I suggested that these facts should be treated in terms of a rightward ascending structure for V-DO-IO orders and a rightward descending structure for V-IO-DO structures - as this directly explains the observations from scopally rigid languages. A further claim has been that V-IO-DO is derived from an underlying V-DO-IO source by leftward and upward movement of IO.

My impression is that these scope patterns have substantial cross-linguistic validity even beyond the languages sampled here. Clearly, a broader and more systematic study would be able to shed more light on this.

It stands to reason that the nature of scope freezing can be further illuminated by a broader cross-linguistic study. For example, Sportiche (2021) reports that French V-DO-IO structures are scopally ambiguous (as expected) and that when the indirect object is doubled by a dative clitic, a scope-freezing effect emerges but that inversion of the objects alone does not give rise to scope freezing. It is reasonable to expect such observations to shed new light on scope freezing.

The paper has discussed some SVO languages but left other basic structural types aside. If it is true that the essential difference between SVO and VSO languages lies in verb movement, then we expect the conclusions from SVO languages to carry over to VSO languages. Moving on to other types, the simplest

assumption about SOV (and VOS) languages would be that the verb remains relatively low and the arguments are projected on the same side of the verb. Under such a view of SOV languages, the two ditransitive structures from 1 are linearly indistinguishable in SOV languages: both yield an IO DO V word order. In a rigid scope OV language, both structures are expected to be unambiguous; in a scopally fluid OV language one of them should be ambiguous and the other one should yield frozen scope. Scrambled DO IO V orders must have a structure different from the two structures discussed here and are expected to show the scope effects characterizing scrambling in the language under investigation.

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# Glossary

ACC	accusative	DOM	differential object marker
ASP	aspect marker	GEN	genitive
CLF	classifier	LNK	linker
DAT	dative	NOM	nominative

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## 1 Scope and the structure of ditransitives in SVO languages

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