

SCOPE FREEZING AND OBJECT SHIFT IN UKRAINIAN:

DOES SUPERIORITY MATTER?

Svitlana Antonyuk & Roksolana Mykhaylyk

This remark presents novel evidence on Ukrainian Specificity-inducing Object Shift in its interaction with Quantifier Scope, which suggests a generalization that whatever scope interpretations are established in the postverbal field will carry over into the preverbal field. We point out that the data present a serious challenge to the Superiority account of scope freezing (Bruening 2001) since it predicts that Object Shift of a QP will always freeze scope with respect to another object QP, contrary to fact. Furthermore, while Ukrainian OS does not obey Holmberg's Generalization (Holmberg 1986), we argue that it is nevertheless fully comparable to Scandinavian OS. We propose to account for the data with a modified version of Fox and Pesetsky's (2005) Cyclic Linearization, which accounts for the cross-linguistic differences with respect to OS as well as derives the peculiar OS - QP scope interaction patterns we observe, which remain obscure on the Superiority account of scope freezing.

Key words: Object Shift, Ukrainian, scope freezing, Superiority, shape preservation effects, Holmberg's Generalization, Cyclic Linearization.

Parts of the material in this paper were presented at the Formal Approaches to Slavic Linguistics 25th Meeting, Research Institute for Linguistics at the Hungarian Academy of Sciences in May of 2018, Penn Linguistics Colloquium 43, UConn LingLunch in March of 2019, and Linearizing Constituents Across Domains conference (LCAD 2020) in October of 2020. We would like to thank the participants at these venues for discussions, questions and helpful suggestions. The first author would especially like to thank Boban Arsenijević, John F. Bailyn, Željko Bošković, Ěva Děkány, Marcel den Dikken, Peter Hallman, Renato Lacerda, Richard K. Larson, Sabine Laszakovitz and Adrian Stegovec for their generous comments on various portions of this material. Finally, we thank the two anonymous reviewers and the editors of *Syntax* for the helpful suggestion that helped us significantly improve the quality of this Remark. The first author's research was partially supported by an Austrian Science Fund (FWF), Grant number: P27384-G23 awarded to Dr. Peter Hallman.

1 Introduction: The Superiority Account of Scope Freezing

Bruening (2001) draws parallels between the covert movement operation, Quantifier Raising (QR), and Object Shift (OS) found in Germanic languages. Chomsky (2001) analyzes OS as being driven by a formal feature ‘P’ that is optionally present on the light verb *v* that attracts a DP to *v*P. Bruening exploits the observation that both OS in Germanic languages and QR in English have interpretive effects and proposes that the P feature can be parameterized: i.e., in languages that allow OS, the P feature is employed to attract a *specific* DP to *v*P (a DP bearing a feature [+specific]), while in English (and other languages that do not have OS), it is parameterized to attract a *quantificational* DP (any non-individual denoting DP, henceforth QP) to *v*P at Logical Form (LF). Given this proposal, when the English light verb *v* carries the optional P feature, a QP will be attracted to little *v* via QR; if *v* lacks the P feature, QR will not apply, causing the derivation to crash if the QP is uninterpretable in its base-generated position. If the two objects are in the domain of *v*, Superiority (Chomsky 1995, Richards 1997) will restrict the LF scopal order of the two objects. Shortest Attract requires the indirect object in (1a), whose structure (on Bruening’s assumptions) is illustrated in (1b), to undergo P-feature checking before the direct object does, and the direct object to ‘tuck in’ under the indirect object. For this reason, P-feature checking cannot invert the scope of the two objects, which blocks the bound reading of *different* in (1a).¹

¹ On Bruening’s account this applies to object QPs but crucially not to QPs in subject position; subject QPs for Bruening do not have to raise to *v*P (on the assumption that a subject QP is semantically interpretable in its base position as sister to the verb), hence the account predicts no competition between the subject and the object QPs with respect to Superiority, allowing an object to scope over the subject at LF. This analysis thus captures the fact that both objects may scope over the subject but are fixed in their relative order with respect to each other.

- (1) a. The teacher gave a (#different) student every book.
 b. [_{VP} the teacher [_{VP1} a (different) student V1 [_{VP2} gaveV2 every book]]]

The scope flexibility found in the prepositional counterpart to (1), shown in (2a), is a consequence of the particular structure shown in (2b). Bruening maintains that the Theme is generated in that case in the specifier of PP, which also includes the Goal. Since the two DPs originate in the same projection, they are equidistant from the P-feature, and either may move first, putting the other in its scope at LF, thus resulting in scope ambiguity.

- (2) a. The teacher gave a book to every student.
 b. [_{VP} the teacher [_{VP} gave [_{PP} a book to every student]]]

This analysis thus attributes scope freezing in the Double Object construction in (1a) to the fact that the two objects are base-generated in separate VPs and, crucially, to QR being conceived of as parameterized Superiority-obeying feature attraction.

Bruening's (2001) account, which parameterizes the optional P feature of v to QR or OS, makes two immediate predictions: (1) either we will not find languages that allow both QR *and* OS or (2) if we do, OS and QR will be constrained in similar ways. The first prediction is immediately falsified by the existence of languages which do in fact allow both QR and OS; the second one suggests that OS of internal argument QPs will result in scope freezing in the way Bruening claims QR of object QPs does in the English DOC. In the following section we will provide data from Ukrainian that will allow us to test these predictions, Ukrainian being a language that shows parallel scope freezing with ditransitives (Antonyuk 2015; 2020) as well as has Object Shift (Mykhaylyk 2010; 2011) which exhibits

many properties parallel to those of OS found in Scandinavian languages (Anagnostopoulou 2003; 2005; Diesing 1997; Holmberg 1986; 1999; Vikner 2006 i.a.). In Section 3 we discuss the observed patterns and argue that the data cannot be made compatible with Bruening’s (2001) account and conclude that Superiority is not the right mechanism for capturing QP scope freezing effects the account set out to capture (see also Larson et al. 2019 for the same conclusion based on other data). In section 4 we sketch an account of Ukrainian OS, based on a slightly modified version of Fox & Pesetsky (2005), arguing that it not only captures all the data patterns we observe in Ukrainian but also provides a straightforward way to model the observed cross-linguistic differences with OS. Section 5 offers our conclusions.

2 Novel Data from Ukrainian

Object Shift in Ukrainian refers to movement of an object to a higher pre-verbal landing site (vP-edge), claimed to have certain interpretative correlates, i.e., the loss of nonspecific readings (Chomsky 2001, Diesing & Jelenek 1993, Diesing 1996, Holmberg 1999, Thráinsson 2001). Such a semantic effect of object movement to a preverbal position in Ukrainian is demonstrated in (3), where the adverb *dviči* ‘twice’ marks the edge of the vP. In a context like this, *mjačyk* ‘ball’ in (3b) can only be understood as referring to a specific ball that is salient for the participants of the conversation.

- (3) a. Divčynka dviči kynula mjačyk.
 girl-NOM twice threw ball-ACC
 ‘The girl threw a (possibly different) ball twice.’
- b. Divčynka mjačyk dviči kynula.
 girl-NOM ball-ACC twice threw
 ‘The girl threw the/a certain ball twice.’

Similar effects have also been found with Ukrainian ditransitives (Mykhaylyk, Rodina & Anderssen 2013). Thus, in (4) below, the object-shifted Goal argument must be interpreted as specific, confirmed by the fact that the Goal takes wide scope with respect to the adverb *dviči*, so that in (4) the same girl must be involved in each act of book-giving:

- (4) Petryk divčynci dviči dav knyhu.
Peter-NOM girl-DAT twice gave book-ACC

‘Peter gave a certain girl some book or other on two occasions.’

In addition to allowing OS, Ukrainian shows scope ambiguity in transitive sentences as well as scope freezing in ditransitives and the Spray-Load alternation that is parallel to that found in English (Antonyuk 2015), thus providing a testing ground for the afore-mentioned cross-linguistic predictions of the Superiority account of scope freezing.

2.1 Ukrainian Spray-Load Alternation

To demonstrate that the phenomenon of scope freezing in Ukrainian is the same as that known from the English DOC since Larson (1990), we will briefly discuss the Ukrainian Spray-Load construction, which similarly to the English Double Object Construction exhibits scope freezing on its *with*-variant (as first noted for English in Schneider-Zioga 1988).

First, consider the following examples from English (Kearns 2011: p.218-219):

- (5) a. Jones loaded [the hay] onto the truck
 #...and put the left-over hay in the barn.
 ...and there was still room for the piano.
- b. Jones loaded [the truck] with the hay
 #...and there was still room for the piano.
 ...and put the left-over hay in the barn.

The characteristic property of the Spray-Load alternation is that in the two alternating orders either of the internal arguments can be realized as the direct object (thus, *the hay* in (5a) vs. *the truck* in (5b); see Rappaport-Hovav & Levin 1988). The examples above also demonstrate another well-known property of the Spray-Load alternation, namely the “holism effect”, which means that the direct object is interpreted holistically, being totally “used up”. Thus, in (5a), the hay is understood as being fully loaded onto the truck, with no leftover hay. In (5b), with *the truck* being the direct object, it is interpreted as being fully loaded with hay, so that there can be no space left for other objects to load. Kearns also discusses the sentences in (6), which demonstrate the key entailment relations that exist between the two alternants: i.e., the *with* variant is known to entail the locative variant, but not vice versa:

- (6) a. Jones loaded the truck with hay *entails* Jones loaded hay onto the truck.
 b. Jones loaded the hay onto the truck *does not entail* Jones loaded the truck with hay.

Rappaport-Hovav & Levin (1988) analyze the *with*-variant as semantically more complex, containing the other variant, – hence the entailment relation. Interestingly, the *with* variant is

the one which is also surface scope frozen (7b), similarly suggesting that such sentences are the more complex/derived cases in an otherwise scope fluid language.²

- (7) a. Jones loaded some hay on every truck. $(\exists > \forall), (\forall > \exists)$
 b. Jones loaded some truck with every type of hay. $(\exists > \forall), *(\forall > \exists)$

Let us now take a look at the Ukrainian counterpart of the Spray-Load construction. The Spray-Load alternation at first glance appears to be not as productive in Ukrainian as it is in English, but it is still possible to identify a number of verbs that clearly belong to this group.³ The holistic effect associated with the direct object holds of the Ukrainian examples as well. In the sentences below, the direct object *pal'ne* 'gas' in (8a) and *bak* 'tank' in (8b) are interpreted as being fully "used up" in the event described; similarly, the entailment relation whereby the *with*-variant entails the locative frame is observed for Ukrainian as well. Finally, the Ukrainian counterpart of the *with*-variant is also surface scope frozen (8d):

- (8) a. Myhajlo zalyv pal'ne v bak. *does not entail (8b)*
 Michael filled gas-ACC into tank-GEN
 'Michael filled gas into the tank.'

² While this observation seems trivial due to the fact that the majority of doubly or multiply quantified sentences in English are scopally ambiguous, with scope freezing only observed in the Double Object Construction and the *with*-variant of the Spray-Load alternation, this is not the view taken in Bruening (2001), where scope freezing is the result of the Shortest- and Superiority-obeying feature-checking system, with scope ambiguity requiring a separate analysis in each case. See Larson et al. (2019) for a detailed discussion of this point.

³ The group of such alternations in Ukrainian is in fact quite large if one includes verbs where the two alternating frames are realized with different verbal aspectual prefixation morphology.

- b. Myhajlo zalyv bak pal'nym. *entails (8a)*
Michael filled tank-ACC gas-INS
'Michael filled the tank with gas.'
- c. Myhajlo zalyv jakyjs' vyd pal'noho v kožen bak.
Michael filled some type-ACC gas-GEN into every tank-GEN
'Michael filled some type of gas into every tank.' ($\exists > \forall$), ($\forall > \exists$)
- d. Myhajlo zalyv jakyjs' bak kožnym vydom pal'noho.
Michael filled some tank-ACC every type-INS gas-GEN
'Michael filled some tank with every type of gas.' ($\exists > \forall$), $*(\forall > \exists)$

We assume that the parallelism in semantic and syntactic properties, demonstrated above, justifies direct comparisons and the relevance of our findings for theories of scope freezing formulated based predominantly on English data.

2.2 Interaction Patterns between Object Shift and Quantification in Ukrainian

Since Ukrainian is a language that allows Object Shift as well as exhibits scope freezing in ditransitives, it is instructive to examine the properties of Ukrainian Object Shift when both internal arguments are realized as Quantifier Phrases (QPs). As shown in (9) below, subjecting the higher direct object of the scopally frozen *with*-variant to OS does not change available scope relations, with surface scope still being the only available interpretation (cf. 8d). The direct object, however, is also necessarily interpreted as specific now, which makes the lack of inverse scope in (9a) even more strikingly obvious. Subjecting both objects to OS (as in 9b), the sentence is still interpreted with frozen surface scope relations, but it also means that for some specific tank, Myhajlo poured every type of gas belonging to some

salient or previously mentioned set into that tank, that is, *both* objects are now necessarily interpreted as specific.

- (9) a. Myhajlo jakyjs' bak zalyv kožnym vydom pal'noho.
Michael some tank-ACC filled [[every type]-INS gas-GEN]
'Michael filled some specific tank with every type of gas.' $(\exists > \forall)$, $*(\forall > \exists)$
- b. Myhajlo jakyjs' bak kožnym vydom pal'noho zalyv.
Michel some tank-ACC [every type]-INS gasGEN filled
'Michael filled some specific tank with every type of gas.' $(\exists > \forall)$, $*(\forall > \exists)$

The semantics of the object(s) undergoing OS in Ukrainian can be made more precise by the use of the adverb *dviči* 'twice', which marks the edge of the vP. Thus, in (9c,d), OS entails wide scope of the shifted object with respect to the adverb, while the *in-situ* object is ambiguous and can take either narrow or wide scope with respect to the adverb.

- (9) c. Myhajlo jakyjs' bak *dviči* zalyv kožnym vydom pal'noho.
Michael some tank-ACC twice filled every type-INS gas-GEN
'Michael filled some specific tank on two occasions with every type of gas.'
- $(\exists > \text{twice} > \forall)$: There is a tank x such that Michael filled x on two occasions with every type of gas (that is, he mixed the different types of gas in x).
- $(\exists > \forall > \text{twice})$: There is a tank x such that for every type of gas y Michael filled x with y on two separate occasions (he didn't mix different types of gas).
- d. Myhajlo jakyjs' bak kožnym vydom pal'noho *dviči* zalyv.
Michael some tank-ACC every type-INS gas-GEN twice filled
'Michael filled some specific tank with every type of gas twice.'

($\exists > \forall > \text{twice}$): There is a tank x , such that for every type of gas y , Michael filled x with y on two separate occasions (he didn't mix different types of gas).

*($\exists > \text{twice} > \forall$): no reading that asserts that Michael mixed the different types of gas.

The crucial observations about the data in (9) are thus the following: while OS preserves the scope relations observed in the postverbal field (i.e., scope freezing in this case), scope and specificity judgments diverge in some cases: thus, a QP can be interpreted with fixed narrow scope (as does the QP *kožnym vydom pal'noho* in (9b)/(9d)) yet still be imparted with the specific interpretation as a result of having undergone Object Shift. Another important observation (to be discussed in-depth in section 4) is the lack of Holmberg's Generalization effects: raising of the object(s) in Ukrainian is clearly not dependent on verb movement in any way (cf. Holmberg 1986; 1999 i.a.).

The two objects can also undergo Object Shift in the opposite order.⁴ In (10a), the object in Instrumental (the counterpart of the English *with*-phrase) can be raised to the left of the verb to the exclusion of the direct object which remains postverbal, resulting in the shifted object being interpreted as a contextually salient/specific type of gas while the non-shifted direct object remains ambiguous between the specific and the non-specific interpretation. The two objects can also *both* undergo raising in this order (10b), with the result that both objects are now obligatorily interpreted as specific. Interestingly, this order of arguments, which is scopally ambiguous before the application of OS of one or both

⁴ Assuming an asymmetric relation between the two objects of any ditransitive predicate (see e.g., Bailyn 1995; 2012 on Russian, with the discussion there carrying over to Ukrainian), the ability of *either* object to undergo raising via OS one before another seemingly suggests that OS in Ukrainian is not Superiority-obeying. We show in later sections that this flouting of Superiority is merely apparent, and that Ukrainian OS does in fact obey Superiority (we are grateful to Syntax editors for urging us to explore this issue).

argument phrases remains ambiguous *after* OS. Thus, the sentences in (9) and (10) differ with respect to the actual scopes observed, but what remains constant across these cases are the following two observations: (i) the scope patterns observed in the postverbal field carry over to the preverbal field, that is, QP scope is preserved under OS;⁵ and (ii) we observe divergence of scope and specificity judgments: e.g., in (10a) the Instrumental case-marked object must be interpreted as specific, having undergone OS, yet it can take either wide or narrow scope with respect to the postverbal direct object. In (10b), both objects are obligatorily interpreted as specific, yet either one can scope below or above the other object.

(10) a. Mykhailo jaky mos' vydom pal'noho zalyv kožen bak. IO V DO

Michael some type-INS gas-GEN filled every tank-ACC

Lit: 'Michael some type of gas filled in every tank.' ($\exists > \forall$), $?(\forall > \exists)$

= 'Michael filled some specific type of gas into every tank.'

b. Mykhailo jaky mos' vydom pal'noho kožen bak zalyv. IO DO V

Michael some type-INS gas-GEN every tank-ACC filled

Lit: 'Michael with some type of gas every tank filled.' ($\exists > \forall$), ($\forall > \exists$)

= 'Michael filled some specific type of gas into each of the tanks.'

⁵ It should be noted that subjecting only one of the object QPs to OS creates a surface scope bias for the shifted object in an otherwise scope ambiguous sentence (indicated with a question mark). Nevertheless, the observed preference for the wide scope interpretation of the shifted object QP is merely that – a preference, arguably induced by the shifted QP's now obligatory specific interpretation. This becomes especially clear when examining the corresponding scope frozen sentences in interaction with OS: i.e., a QP may be obligatorily specific when shifted, yet it must still be interpreted in the scope of the other QP, whether the latter has undergone OS as well or, especially strikingly, when the QP that must take wide scope remains postverbal.

As before, the sentences with the quantificational QP *dviči* ‘twice’ can be used as our controls, with the shifted object necessarily taking wide scope with respect to the adverb, which marks the left edge of the vP, while the non-shifted object can scope either above or below the adverb:⁶

- (10) c. Mykhailo jakymos’ vydom pal’noho dviči zalyv kožen bak. IO V DO
Michael some type-INS gas-GEN twice filled every tank-ACC
= ‘Michael filled every tank with some specific type of gas on two occasions.’
- d. Mykhailo jakymos’ vydom pal’noho kožen bak dviči zalyv. IO DO V
Michael some type-INS gas-GEN every tank-ACC twice filled
= ‘Michael filled each of the tanks with some specific type of gas on two occasions.’

Note that the Superiority account of scope freezing does not predict such data. Recall that on Bruening’s (2001) account the scope freezing observed with the Double Object Construction or the *with*-variant of the Spray-Load alternation results from the particular assumptions about the verb phrase structure (namely, the asymmetrical c-command relations between the two objects) coupled with the assumption that QR (and OS) obey Superiority. Specifically, for Bruening scope freezing in such sentences results from the structurally higher QP being attracted by the optional P feature of little v to vP first, with the structurally lower one, if it is attracted by a P feature as well, being forced to tuck in below (per Richards 1997). On this view, the lower of the two QPs could never be attracted to vP unless the higher one has already undergone such feature-driven movement. Thus the Superiority account predicts scope freezing should track OS: it should obtain every time a QP undergoes Object Shift.

⁶ Marcel den Dikken (p.c.) points out that using controls with quantificational adverbs such as *dviči* is important for ruling out analyses of OS which suggest that the two objects may be undergoing OS as a syntactic unit.

This, in turn, means that even sentences that are scope ambiguous in the postverbal field will exhibit scope freezing once OS applies. What we observe instead departs quite significantly from such predictions. The generalization afforded by the Ukrainian data is that (modulo the wide-scope bias in cases such as (10a)-(10c)) OS always preserves scope relations that exist in the postverbal field: i.e., scope ambiguous relations between the two objects to the right of the verb remain to be scope ambiguous upon OS, while the surface scope frozen relations observed in the postverbal field remain undisturbed by OS.

2.3 Quantification in the Postverbal Field

The above data, however, present an incomplete picture. As we show below, the two objects in Ukrainian may invert in the postverbal field, with the two orders in (11a) and (11b), both equally acceptable, being due to an overt permutation of arguments whereby the structurally lower of the two internal arguments raises overtly above the structurally higher one.^{7,8}

⁷ Argument Inversion (AI) is available not only for the Spray-Load verbs, but for any ditransitive verbs in Ukrainian. Ukrainian AI is also arguably identical to its Russian counterpart discussed in Antonyuk 2015; 2020; Bailyn 1995; 2012 i.a. We follow these works in taking AI to be a derivational phenomenon rather than representing two independently derived unrelated structures in each case. The fact that restrictions on scope (i.e., scope freezing) arise as a result of AI is also strongly suggestive of its derivational nature.

⁸ Antonyuk (2015) argues that scope freezing found with Ukrainian ditransitives supports derivational accounts of ditransitives (Larson 1988; 1990; see Larson 2014 and Hallman 2015 for recent derivational accounts of English ditransitives; Hallman 2018 for Syrian Arabic and Antonyuk 2015; 2020 for Russian). Note that while we rely on the scope freezing diagnostic introduced in that work, contra Antonyuk (2015) we do *not* claim that Spray-Load alternations in East Slavic should receive a derivational account, and our position on the analysis of Spray-Load alternations vs ditransitives/DOC is more aligned with that of Baker (1997).

- (11) a. Mykhailo zalyv jakymos' vydom pal'noho jakyjs' bak. V IO DO
Michael filled some type-INS gas-GEN some tank-ACC
Lit: 'Michael filled with some type of gas some tank.'
- b. Mykhailo zalyv jakyjs' bak jakymos' vydom pal'nogo. V DO IO
Michael filled some tank-ACC some type-INS gas-GEN
Lit: 'Michael filled some tank with some type of gas.'

In light of (11), (10) might not be a case of Superiority-violating movement at all, but rather Superiority-respecting Specificity-related feature-checking derived from the already inverted order in (11a). If this is the case, and the quantifiers are inverted in the post-verbal field, OS in Ukrainian could be analyzed as Superiority-respecting P feature checking after all, in line with Bruening (2001). What is irreconcilable with Bruening's account, however, is the scope relations observed in such contexts. If P-feature checking observes Superiority, then OS should presumably only exhibit the surface scope frozen interpretation since any movement of two QPs will have to lock in their scope: i.e., OS should correlate with scope freezing. However, the Ukrainian facts do not exemplify this generalization. Rather, as mentioned earlier, the data exemplify the generalization that whatever scope interpretations are established in the post-verbal field will carry over to the preverbal field.

Consider the following examples. In (12b), which according to Bruening is the base order, scope is frozen in the surface order, just as it is in the English counterpart, which is consistent with Bruening's analysis. In the inverted order in (12a) both scopal interpretations are possible.⁹

⁹ Note that what permutes in these pairs is the two internal arguments while the relative order of quantificational determiners ($\exists > \forall$) is kept the same, so that we can continue to evaluate the possibility of inverse scope (see Pietroski & Hornstein 2002 for a detailed discussion).

- (12) a. Mykhailo zalyv jaky mos' vydom pal'noho kožen bak. V IO DO
Michael filled some type-INS gas-GEN every tank-ACC
Lit: 'Michael filled with some type of gas every tank.' $(\exists > \forall), (\forall > \exists)$
- b. Mykhailo zalyv jakyjs' bak kožnym vydom pal'nogo. V DO IO
Michael filled some tank-ACC every type-INS gas-GEN
Lit: 'Michael filled some tank with every type of gas.' $(\exists > \forall), *(\forall > \exists)$

Crucially, this pattern of scope interpretation persists under OS of one (13) or both (14) quantifiers. That is, OS neither disrupts scope freezing in the scopally frozen sentences nor induces scope freezing in the scopally ambiguous ones.

- (13) a. Mykhailo jaky mos' vydom pal'noho zalyv kožen bak. IO V DO
Michael some type-INS gas-GEN filled every tank-ACC
Lit: 'Michael with some type of gas filled every tank.' $(\exists > \forall), ?(\forall > \exists)$
- b. Mykhailo jakyjs' bak zalyv kožnym vydom pal'nogo. DO V IO
Michael some tank-ACC filled every type-INS gas-GEN
Lit: 'Michael some tank filled with every type of gas.' $(\exists > \forall), *(\forall > \exists)$

- (14) a. Mykhailo jaky mos' vydom pal'noho kožen bak zalyv. IO DO V
Michael some type-INS gas-GEN every tank-ACC filled
Lit: 'Michael with some type of gas every tank filled.' $(\exists > \forall), (\forall > \exists)$
- b. Mykhailo jakyjs' bak kožnym vydom pal'nogo zalyv. DO IO V
Michael some tank-ACC every type-INS gas-GEN filled
Lit: 'Michael some tank with every type of gas filled.' $(\exists > \forall), *(\forall > \exists)$

Furthermore, the generalization that OS preserves scope relations available in the VP before the application of OS holds for the locative frame of the Spray-Load alternation as well. The base structure in (15), which is scopally ambiguous, feeds OS of one or both arguments (16).

(15) Myhajlo zalyv jakyjs' vyd pal'noho v kožen bak.
Michael filled some type-ACC gas-GEN into every tank-ACC
'Michael filled some type of gas into every tank.' $(\exists > \forall), (\forall > \exists)$

(16) a. Myhajlo jakyjs' vyd pal'noho zalyv v kožen bak.
Michael some type-ACC gas-GEN poured into every tank-ACC
'Michael some type of gas poured in every tank.' $(\exists > \forall), ?(\forall > \exists)$

b. Myhajlo jakyjs' vyd pal'noho v kožen bak zalyv.
Michael some type-ACC gas-GEN into every tank-ACC poured
'Michael some type of gas in every tank poured.' $(\exists > \forall), (\forall > \exists)$

The crucial cases for the evaluation of Bruening's analysis as applied to Ukrainian are thus the cases in which scope is flexible in the post-verbal field and remains flexible in the preverbal field. Given the possibility of AI in the post-verbal field, the claim that OS is Superiority-respecting feature-checking is indeed compatible with the observed word orders, but predicts scope freezing in the OS contexts that we simply do not observe. While we have not yet established what kind of operation AI is, it is clear that it derives the order of internal arguments that is the opposite of that available in the base structure, whatever one's assumptions about the base may be. AI thus ensures that either internal argument can be attracted by the P feature of little *v* first, by placing the structurally lower object into a

position where it can be attracted by the P feature. However, if P is responsible for determining the scopal order of the two objects, as per Bruening (2001), we expect that as soon as an object undergoes Object Shift, this will lock in scope relations, ensuring that whatever object is attracted by P second (or doesn't undergo OS at all), will necessarily scope below the one that was attracted by little *v* first due to 'tucking in'.¹⁰ The expectation of similarities in behavior for OS and QR as per Bruening (2001) is not met. What we observe instead is that OS and QR behave as independent, distinct processes.

3 Discussion

The novel data presented above suggest that the original formulation of the Superiority account of scope freezing given in Bruening (2001) cannot account for the interaction of QP scope and Specificity-inducing OS in Ukrainian. One might wonder, however, whether the Superiority account can be made to work with some additional assumptions or whether the empirical data can be reanalyzed in a way that is either consistent with it or puts these data outside the Superiority account's purview.

One conspicuous way of explaining away the problem presented by the Ukrainian OS data is to assume that this movement is of the kind that undergoes syntactic Reconstruction, thus accounting for the scope ambiguity of the examples that Bruening's account predicts to be scope frozen upon OS. This might seem like an attractive solution since the two QPs in their object-shifted positions have the same scopal interpretation as they do in their post-verbal position, which is precisely what 'reconstruction' is. However, this option is excluded for our data, given that Specificity-inducing OS is the kind of movement that affects interpretation, and we never see effects of its 'undoing'. That is, irrespective of whether the

¹⁰ We are grateful to Peter Hallman (p.c.) for pointing out this prediction to us.

shifted QP object has wide or narrow scope, once OS has applied, interpretation is affected accordingly. If Reconstruction were in principle possible, we would expect to find at least some cases where OS has applied, yet its semantic correlate, i.e., the specific/partitive interpretation, is not found. Such cases are unattested, however, posing a significant challenge for the Reconstruction-based solution.¹¹

Another possibility, raised by an anonymous reviewer, is suggested by the fact that overt QR and OS are known to target distinct landing sites in Icelandic (Svenonius 2000). Thus, the reviewer wonders if amending Bruening's account so that QR and OS target distinct landing positions would ensure that the Superiority account could still capture our data. The above modification would seem not only plausible, but, indeed, necessary, in view of the fact that the landing sites of QR and OS are distinct in Ukrainian as well, with OS targeting a higher position to the left of vP (as indicated by the linear order of shifted objects with respect to a quantificational adverb, which shifted objects must precede). We argue, however, that this modification will nevertheless not be sufficient to salvage the Superiority account, for reasons laid out below. Having unpacked the predictions of this account thus far, we see that in fact *any* instance of OS followed by '*tucking in*' will necessarily lock in scope relations between the two QPs: Bruening's mechanism, quite simply, overgenerates scope freezing. Recall now that in Bruening (2001) scope freezing in English is inherently tied to an antisymmetric relation that is constrained by Superiority, with the structurally lower QP also undergoing movement and tucking in below it. However, we have also seen that this is where Ukrainian is different from English in that some structures may involve an additional step,

¹¹Bhatt & Anagnostopoulou (1996) discuss morphologically marked Specificity-related OS in Hindi ditransitives, arguing that morphological marking of Specificity is insufficient and that overt movement of the object outside the VP is still required (in line with Diesing 1992). Crucially, they show that this movement, called short Scrambling, does not reconstruct (unlike Scrambling to a sentence-initial position, which does). These findings correlate with our conclusions about the lack of Reconstruction for OS in Ukrainian.

Argument Inversion, and we have seen that scope freezing in Ukrainian appears to be precisely the result of this operation. One might ask, then, whether incorporating AI into the equation could derive the data distribution after all. Indeed, it appears that it can, but only partially. Thus, if we assume that AI contributes to scope freezing, then each subsequent step of movement will continue to preserve this frozen scope relation (presumably because each instance of movement is constrained by Superiority and ‘tucking in’). This is just as we observe in the data, with OS indeed preserving previously established frozen scope relations. However, it is the scopally ambiguous base order (i.e., one that arguably does not include the AI step) that will continue to be a problem, since as soon as movement takes place, as long as it is constrained by Superiority and ‘tucking in’, it is predicted to result in scope freezing. This is not supported by our data. OS in Ukrainian *always* preserves scope relations, that is, the structure that is scope ambiguous at the base will remain ambiguous post OS.¹²

To conclude this section, one could argue that the Ukrainian OS data could indeed be characterized as Superiority-obeying feature-driven movement of an object QP, followed by the ‘tucking in’ of the second object QP, which is exactly the configuration that on Bruening’s account should derive scope freezing. However, while it appears that OS may indeed be constrained by Superiority and preserve the scope freezing established within the

¹² Marcel den Dikken (p.c.) points out that the generalization that OS preserves scope relations could also be derived by postulating variability in the placement of the verb in Ukrainian. This would mean that placement of the objects behind or in front of the verb has no effect on scope. It seems to us that this very interesting possibility is precluded for our data for several reasons. First, as den Dikken himself points out, using a quantificational adverb such as *dviči* is crucial in controlling for this. Secondly, manipulating the placement of the verb would not account for the interpretational effects we observe with Object Shift. Thus, not only does OS of either one or both objects correlate with the loss of the non-specific reading, but additionally, in sentences that are scopally ambiguous pre-OS, shifting only one object creates a wide scope bias for the shifted QP. Neither of these interpretational correlates of OS are derivable under the variable verb placement approach.

VP, it is clear that OS itself does not cause scope freezing, and so we conclude that Superiority plus ‘tucking in’ must not be the mechanism responsible for the phenomenon of scope freezing, contra Bruening (2001). Overt AI, on the hand, does have this effect. While the question of why or how AI leads to scope freezing is outside of our scope, we will sketch an account of what might constrain OS in Ukrainian. In particular, we will attempt to derive the order preservation effects observed in our data and will situate our proposal in the context of cross-linguistic research into the properties of Object Shift. In the next section we will argue that Ukrainian data instantiate an order preservation effect familiar from the literature on Scandinavian OS (Müller 2000; Sells 2001; Williams 2003 i.a.) and will argue that Fox and Pesetsky’s (2005) Cyclic Linearization account is particularly well-suited to capture all the data patterns we observe. Crucially, on the analysis advanced here, Holmberg’s Generalization effects, fully absent with Ukrainian OS, emerge not as the defining property of OS, as is widely assumed in the literature (Anagnostopoulou 2005; Roberts 1995; Vikner 2006, i.a.), but as merely a byproduct, an artifact of the linearization protocols enforced in Scandinavian languages, as was indeed suggested in Fox & Pesetsky’s original proposal.

4 The Proposal

Before we lay out the proposal, it is important to address the nature of the AI operation, seeing how it appears to be responsible for the ability of the structurally lower internal argument to undergo OS prior to or to the exclusion of the structurally higher object. As will become clear, AI is also an operation that both establishes further similarity with OS in Scandinavian languages as well as delineates the limits of such similarity.

4.1 On the Nature of the Argument Inversion Operation

While the discussion in section 3 has explored OS mostly in terms of what it isn't (e.g., we have shown OS does not cause scope freezing; it does not undergo syntactic Reconstruction, it does not obey Holmberg's Generalization), we are still left with plenty of unanswered questions about what it is. Specifically, what kind of movement is Ukrainian OS – A or A-Bar? What is the motivation behind AI (which is implicated in the OS of the structurally lower internal argument of ditransitive verbs, allowing it to proceed in a Superiority-obeying fashion)?¹³ In an account such as Bruening's, which draws many parallels between OS and QR, it is natural to treat OS as A-Bar movement akin to QR, and thus to expect similarities in behavior and perhaps also complex interactions between the two movement operations. We have seen, however, that OS in Ukrainian is crucially *not* like QR in that it does not give rise to scope freezing of its own and that, unlike QR, it never reconstructs, thus suggesting it is in fact an instance of A-movement. Furthermore, it appears justified to conclude that OS in Ukrainian is a purely syntactic mechanism that gives rise to well-defined semantic effects: quantificational objects undergoing OS above a quantificational adverb must take wide scope with respect to the adverb and, once shifted, the object must be interpreted as specific¹⁴ (cf. Holmberg 1999; see Mykhaylyk 2011 on the semantics of shifted objects in Ukrainian). Motivating AI is a much more involved matter we can discuss only briefly here for space reasons. On the one hand, AI has syntactic and semantic consequences of its own: it leads to new binding relations (see ex.17a-b)¹⁵ and, when the two internal arguments are quantificational, AI results in scope freezing, as demonstrated earlier.¹⁶

¹³ We are grateful to an anonymous reviewer for urging us to explore the nature of the AI step.

¹⁴ Both of these points provide further support for the conclusion that there is no Reconstruction with OS.

¹⁵ The reciprocal binding data in (17) above are modeled on the parallel Russian examples cited in Bailyn (2012), credited to Asarina (2005). The ability of both the Accusative-marked Theme and the Dative-marked Goal argument to bind a reciprocal when in the immediately post-verbal position is meant to demonstrate the A nature of the AI movement that results in this order. The analysis in Bailyn (2012) is that the Dative argument is

- (17) a. Dol'a podaruvala nas odyn odnomu
 destiny-NOM gifted us-ACC one another-DAT
 'Destiny gifted us to each other.'
- b. ?Dol'a podaruvala nam odyn odnoho
 destiny-NOM gifted us-DAT one another-ACC
 'Destiny gifted us with each other.'

Apart from this, AI also affects the Information Structure-related properties of the sentence, determining which argument is understood as part of old, accommodated information, and which must be understood to represent new information/the focus of the sentence.¹⁷ Consider the sentences in (18)-(20), where the internal arguments are realized as bare NPs. Produced with neutral intonation and without any embedding context, all six sentences are readily understood with the sentence-final NP being the focus and the rest of the sentence being interpreted as given, presupposed material.

- (18) a. Marijka podaruvala knyhu divčyntsi.

base-generated in Complement,VP position below the c-commanding Accusative-marked Theme, generated in Spec,VP. The ability of the Dative argument to bind into the Theme reciprocal after AI demonstrates that AI constitutes A movement. Similar binding data is used in Dyakonova (2009) to argue for the exact opposite view, namely the Theme argument being generated in the Complement,VP position and acquiring the ability to bind into the Dative Goal argument due to the A-nature of this argument permutation. Based on available data, we consider AI to be A rather than A-Bar movement and leave other questions for a follow-up study.

¹⁶ As detailed in Antonyuk (2020) the situation is more complex in that there is one group of ditransitives where AI does not result in scope freezing proper, but instead leads to a strong surface scope bias on the derived order.

¹⁷ This issue is discussed at length in the literature on Russian (see esp. Bailyn 2012, Dyakonova 2009 for two largely opposite views that nevertheless mostly converge on this point).

Mary-NOM presented book-ACC girl-DAT

‘Mary presented the book to a little girl.’

b. Marijka podaruvala divčyntsi knyhu.

Mary-NOM presented girl-DAT book-ACC

‘Mary presented the girl with a book.’

(19) a. Marijka zasadyła ljubystkom pole.

Mary-NOM planted lovage-INS field-ACC

‘Mary planted lovage in the field.’

b. Marijka zasadyła pole ljubystkom.

Mary-NOM planted field-ACC lovage-INS

‘Mary planted the field with lovage.’

(20) a. Marijka zaprosyła koleh na večirku.

Mary-NOM invited colleagues-ACC.PL on party-PREP

‘Mary invited her colleagues to a party.’

b. Marijka zaprosyła na večirku koleh.

Mary-NOM invited on party-PREP colleagues-ACC.PL

‘Mary invited colleagues to the party.’

As discussed extensively in Mykhaylyk (2011), in addition to the OS strategy, Ukrainian possesses a wide range of lexical elements that, if used to modify (either of) the post-verbal NPs in (18)-(20), would similarly disambiguate the sentences in favor of the intended interpretation. In the absence of any such lexical cues, however, irrespective of whether the word order is base-generated (i.e., for us, these are all the (a) examples in (18)-(20)) or

derived (i.e., all the (b) examples above), the immediately postverbal, non-sentence-final NP of a ditransitive is preferentially interpreted as discourse-given and topical and the final NP as obligatorily focal. We believe that a straightforward way to interpret such data is that in a discourse configurational language such as Ukrainian the motivation for the AI step in (18b)-(20b) is the need to express a particular information structural partition of a sentence.¹⁸ Furthermore, the fact that this movement is free to take place without causing a locality violation could mean that this movement is in fact driven by feature-checking considerations in the sense of Rizzi (2004) with the structurally lower XP being more richly specified than the higher one in terms of its featural content, with the relevant feature that drives the AI movement reflecting the IS-relevant motivation of this operation.^{19,20} As to the landing site of AI, considering that any XP can raise into it (e.g., a Dative-marked Goal in (18b), an Accusative-marked Theme in (19b) and a PP argument in (20b)), such unrestricted nature of AI strongly suggests that movement into this position is not associated with case assignment (cf. Haddican & Holmberg 2019), but provides the visibility for the phrase that moves there

¹⁸ AI is the first step of argument movement even if alternative options are explored. It is possible that the structurally most deeply embedded element moves out of its base position when its semantics is incompatible with the focus interpretation that would otherwise be assigned to it (due to its sentence-final, nuclear stress-associated position). Alternatively, the element can be feature-marked and must move to a position where it can receive its intended interpretation.

¹⁹ Assuming, following Bošković (2007), that movement to the phase edge is driven by the feature-checking needs of a XP carrying the feature, rather than those of a Probe.

²⁰ We believe the feature in question most likely to be [+given], as per Rizzi (1997). There is an interesting body of research suggesting Topicality is an important feature that may not only affect argument structure alternations (e.g., Jiménez Fernández & Rozwadowska 2016), but that sometimes topicality may be *part* of argument structure, see Onea and Mardale (2020). We assume that argument structure permutations in East Slavic that involve the AI step belong to this group of phenomena.

in terms of its ability to participate in further probe-goal relations.²¹ Chomsky (2001) has argued that the vP edge is endowed with certain interpretive properties, which accounts for the semantics of shifted objects cross-linguistically. Mykhaylyk (2011) has argued extensively for the universality of the vP edge interpretive properties based on the Ukrainian data (contra Lavine and Freidin 2002, who argue that Spec, vP is not projected in Ukrainian). We thus hypothesize that in Ukrainian (and other languages with similar properties), VP must be a phase, too, and that, accordingly, its edge holds a similarly prominent status with respect to further syntactic movement as well as its interpretational correlates.²²

4.2 *Towards an Account of Ukrainian OS and its Interactions with Quantification*

4.2.1 Cyclic Linearization and Scandinavian Object Shift

Fox & Pesetsky (2005) (henceforth F&P) propose an architecture for the syntax-phonology interface, at the heart of which is a linearization algorithm, carried out phase by phase ('Spell Out domains' in F&P's system). According to this linearization algorithm, when Spell-out applies, the elements inside a Spell-out domain are linearized in the order in which they appear by Spell-out, with subsequent domains obligatorily maintaining the linearization order established at the Spell-Out of the original domain. Thus, once a domain D has been built, with the domain-internal order linearized as $[_D XYZ]$, a subsequent Spell-Out domain D' may

²¹ Note that in contrast to Scandinavian languages, OS of PPs in Ukrainian is licit, thus strongly suggesting that it is not driven by case-related considerations (cf. Holmberg 1986; Vikner 1994; Holmberg & Platzack 1995; Haddican & Holmberg 2019 i.a.)

²² There are numerous cases where the AI step is not followed by subsequent movement. AI is *always* a licit step in its own right in Ukrainian (cf. Anagnostopoulou 2003). This fact provides further support for the claim that AI has its own syntactic and interpretational import, since, by Economy, it would be prohibited if it didn't have an effect on interpretation and/or didn't feed any subsequent syntactic movement (Fox 2000).

not violate this order: thus $*[D' Y [D X t_Y Z]]$ and $*[D' Z [D X Y t_Z]]$. An interface thus configured derives the successive-cyclic nature of movement then, since the proposed linearization algorithm will only tolerate (1) movement that proceeds through the edge of Spell-Out domains or (2) movement that does not proceed through the edge yet takes place in a way that does not contradict the linearization established at the Spell-Out of the initial domain. The latter, according to F&P, is exactly what happens with Scandinavian OS: it is argued to be a type of movement that cannot proceed through the edge (presumably as a matter of parameterization), which, in turn, entails that OS may take place if higher material within an initial Spell-Out domain has undergone movement as well, in a way that preserves the original linearization, e.g., $[D' X Y [D t_X t_Y Z]]$ or $[D' X Y Z [D t_X t_Y t_Z]]$.

In a framework of F&P's Cyclic Linearization, Holmberg's Generalization thus emerges not as an inalienable property of OS, but rather as a predictable consequence of a parameterized restriction on OS that precludes it from moving through the edge of Spell-Out domains. In order to derive the data on Scandinavian OS, F&P must also assume that VP and CP (but crucially not vP) are the relevant Spell-Out domains in Scandinavian languages. This is a necessary assumption, since Scandinavian OS is constrained relative to VP-internal material, but the subject (assumed to be generated in Spec, vP) is not constrained in a similar way, thus being able to occur either above the verb (when the subject is in Spec,TP) or below it (when the verb raises to C). Anagnostopoulou (2005) provides additional evidence for VP being the relevant domain that is due to subject Quantifier Stranding under OS, which is grammatical in Scandinavian languages (see 21-22), (in contrast to the ungrammatical subject Q-Stranding under OS in Korean and Japanese, see (23), where vP, rather than VP, is assumed to be the relevant domain, per Ko (2004)). These data additionally suggest that object and subject XPs are not constrained relative to each other (the latter conclusion is supported by the possibility of OS over the subject, see ex. (24), due to Holmberg (1999)):

- (21) Lásu stúdentarnir greinina ekki allir? Icelandic
 read the-students the-article not all
 ‘Didn’t the students all read the article?’
- (22) Läste studenterna den inte alla? Swedish
 read the-students it not all
 ‘Didn’t the students all read it?’
- (23) *Haksayng-tul-i₁ may kewu-lul t1 sey-myeng t2 masi-ess-ta Korean
 student-PL-NOM beer-ACC three-CL_{PERSON} drink- PAST-DEC
 ‘Three students drank beer.’
- (24) Därför gav mej Marit inte nagon present Swedish
 therefore gave me Marit not any present
 ‘Therefore Mary did not give me any present.’

Anagnostopoulou also discusses Swedish and Norwegian ditransitives, which show rather striking similarities to our Ukrainian data. Specifically, she points out that while HG is enforced in Swedish and Norwegian, direct objects in these languages can undergo OS across indirect objects (taken to be generated above direct objects), and argues that this is possible exactly because the two objects may invert in the postverbal field, arguably because the two objects form a Spell-Out domain to the exclusion of the verb. The facts of Swedish and Norwegian OS can then be easily derived if the lower object crosses over the higher one and moves through the edge of this initial domain, thus establishing the linearization of the two

objects that is the opposite of the base order (25a). The movement through the second domain that includes the verb (i.e., VP), will not take place through the edge, however, which means that at Spell-Out, the object(s) will be linearized *after* the verb and this order will then have to be maintained throughout the derivation, giving rise to HG effects (25b).

- (25) a. [Domain B V [Domain A DO IO t_{DO}]]
 b. [Domain B V DO [Domain A t_{DO} IO t_{DO}]]

4.2.2 Cyclic Linearization and Ukrainian Object Shift

We believe that Fox and Pesetsky's Cyclic Linearization does not just provide an adequate framework in which to derive the Ukrainian OS shape preservation data, but that it also offers a straightforward way of accounting for the cross-linguistic differences observed in the Ukrainian and the Scandinavian data. As we will show, the original framework proposed in F&P (2005) will require only minimal modification in order to account for the totality of Ukrainian data. Let us see how the framework would handle the core cases of Ukrainian OS.

Following F&P (2005), we take VP but crucially not vP to constitute the initial Spell-Out domain that will provide the first linearization statement in Ukrainian. As in the case with Scandinavian OS, this is a necessary minimal assumption in order to account for the fact that Ukrainian OS is not constrained relative to the subject. As discussed in Anagnostopoulou (2005), the necessity of this assumption can be shown in several ways. First, Ukrainian OS also targets a position above the quantifier, stranded by the subject (26):²³

²³ The above example indicates only the subject's Q-float positions which are relevant for our discussion. Crucially, if OS in Ukrainian were constrained relative to the subject, such instances would be ungrammatical, as indeed they are in Korean and Japanese (Ko 2004).

(26) Divčata knyhu (vsi) dviči (vsi) pročytaly.
 girls-NOM book-ACC all twice all read-PST-PL

‘All the girls have read the/this book.’

Additionally, Ukrainian routinely allows word orders in which the subject surfaces post-verbally, thus being linearized after both the verb and its object(s):²⁴

(27) a. Tsju knyhu bahato rokiv tomu podaruvala meni moja babusja.
 this book-ACC many years ago present-PST-FEM me-DAT my grandmother-NOM

‘This book was gifted to me many years ago by my grandmother.’

b. Tsju knyhu meni bahato rokiv tomu podaruvala moja babusja.
 this book-ACC me-DAT many years ago present-PST-FEM my grandmother-NOM

‘This book was gifted to me many years ago by my grandmother.’

The ability of the object to precede the subject or a quantifier, floated by the subject, in the above examples indicates that the domain relevant for linearization in Ukrainian must exclude the subject, hence VP, rather than vP, must be the relevant domain, just as it must be in Scandinavian languages. Furthermore, Anagnostopoulou’s (2005) treatment of object inversion under OS in Swedish and Norwegian seems to provide for a ready solution which can accommodate the argument inversion observed in Ukrainian OS data. Thus, we may want to assume that the two objects in Ukrainian similarly form a minimal domain that excludes the verb, with the lower object’s ability to undergo movement through the edge of this

²⁴ The above examples, while given in active voice in Ukrainian, are translated with passive voice in order to convey the information structural partition involved in subject-final sentences in Slavic.

domain deriving the ability of the two objects to be linearized in either order at Spell-Out. However, how do we derive the facts of Ukrainian OS that differ from those of Scandinavian languages? Most conspicuously, how do we derive the absence of any Holmberg's Generalization effects in Ukrainian? Recall that F&P account for HG by proposing that OS is the kind of movement that, perhaps for parameterization reasons, cannot take place via the edge of Spell-Out domains (in Anagnostopoulou's treatment, this is true of the second Spell-Out domain, VP (and all the following ones), but not the first one, which includes the two internal arguments only). As a result of this restriction on the VP domain, the internal objects will be constrained in their movement relative to the verb (adverbs and negation are taken to be outside the VP domain, hence the ability of Scandinavian OS to move across them).

A natural solution is to posit that, in contrast to Scandinavian OS, OS in Ukrainian must *always* take place via the edge of Spell-Out domains:

- (28) a. [Domain B O2 V [Domain A tO2 O1 tO2]] or
 b. [Domain B O2 O1 V [Domain A tO2 tO1 tO2]]

This assumption by itself will derive the fact that Ukrainian OS never incurs HG effects. Notice now that this assumption by itself is also insufficient, since, 'as is', it in fact derives the inverse Holmberg's Generalization, observed with Quantifier Movement (QM) in Icelandic (Svenonius 2000), namely the fact that Icelandic QM is free with respect to VP-internal material, but VP-internal material, including the verb, may not precede a quantifier that has undergone QM. F&P derive the inverse HG effects of Icelandic QM by suggesting that QM, unlike OS, must proceed through the edge of Spell-out domains, which means the verb will be linearized after the QP at Spell-Out. The task at hand, then, is more complex than it might seem at first glance: we need to derive the freedom of Ukrainian OS relative to the

verb, as well as to derive the freedom of the verb movement relative to the shifted object(s). If this is correct, we do in fact need to ensure that the linearization protocols in place will derive the freedom of the verb relative to the shifted object(s).

Finally, while the question of whether the verb in Slavic ever moves to T is a matter of a highly heated debate in the literature (Bailyn 1995; 2017; Bowers 1993; Kallestinova 2007; Dyakonova 2009; Slioussar 2007 i.a.), there is another reason why we believe one must ensure the linearization mechanisms will allow for the freedom of the verb relative to the objects, namely the optional nature of OS and its interaction with prosody. Experimentally elicited data on Ukrainian OS (Antonyuk & Mykhaylyk 2013) shows that in cases where OS is expected (given contextual embedding that entails the specificity of the object in question), but fails to apply, native speakers obligatorily repair such sentences with prosodic recontouring, which thus functions as an alternative means of signaling the specificity semantics associated with OS (Diesing 1996). This means two things: first, there isn't any true optionality with OS, there is merely an option of encoding the relevant semantics either syntactically (via XP movement) or prosodically (by assigning the strongest pitch accent to the verb, with the object(s) in question remaining VP-internal and prosodically distressed). Secondly, assuming that successful accounts of linearization must be able to capture interface phenomena of this sort, the cases of prosodically encoded object specificity present a serious further problem for us to resolve. Let us consider one such case in detail.

The problem for theories of linearization posed by the syntax-semantics-prosody interface is readily apparent in transitive cases where linearization of the direct object (DO) with respect to the verb is at issue. Any configuration in which the DO precedes the verb inside the VP Spell-out domain will cause a linearization problem in a scenario in which the

DO remains VP-internal.²⁵ One possible scenario to model is when a DO that needs to undergo OS in order to be interpreted as specific nevertheless remains unshifted, resulting in obligatory prosodic recontouring. This will result in a linearization conflict between the VP and CP Spell-Out domains, schematized in (30):²⁶

- (29) Marijka pročyTAla (tu) knyhu.
 Mary-NOM read (that)-ACC.FEM book-ACC.FEM
 ‘Mary read a/the book.’

(30) a. [CP V [VP DO tv (t_{DO})]]

b. Linearization statements: VP domain: DO > V; CP domain: V > DO.

On the basis of the above, we conclude that ensuring the freedom of verb movement relative to the internal arguments is indeed crucial. We propose that the most straightforward way to do that, (already anticipated by F&P) is to introduce the *timing* of head movement into the calculation. The proposal is then quite simple: the verb in Ukrainian must undergo head raising to v (and hence be outside the relevant Spell-Out domain containing the objects) by Spell-Out, thus being excluded from the initial linearization. This will ensure that no inverse HG effects will arise, that is, the verb will be free to move (or not) irrespective of any OS-related movement. Notice now, that since considering the timing of verb movement appears

²⁵Note that one’s assumptions about the structure of the Slavic VP are inconsequential in this instance, given that movement to the edge of the Spell-Out domain is clearly always an option in Ukrainian. Thus, whether one assumes that the direct object is always generated in Spec,VP (following Bailyn 1995; 2012 i.a.) or as complement to the verb (Dyakonova 2009; Greenberg & Franks 1995 i.a.), a configuration [VP DO V] in the first case or [VP DO V t_{DO}] in the second will still present a problem discussed in the main text above.

²⁶ Obligatory prosodic recontouring in (29) is indicated via capitalization of the syllable receiving pitch accent.

to be independently required, assuming a separate minimal Spell-out domain for the two objects that excludes the verb, as per Anagnostopou (2005) may be redundant. The two key ingredients of deriving the syntactic component of Ukrainian OS data as well as the consequences for the purposes of linearization of its alternative prosodic realization are these:

- (i) OS in Ukrainian must always take place via the edge of Spell-Out domains;
- (ii) Head raising of the verb to *v* must crucially take place *before* Spell-Out and the linearization of the VP domain.

Both of these components were already anticipated in F&P (2005) Cyclic Linearization proposal. Thus, that Ukrainian OS in all its complexity can be shown to be derivable in this way in our view provides strong support for the Cyclic Linearization treatment of OS, with observable cross-linguistic differences compared to Scandinavian OS following naturally. Crucially, on this proposal Holmberg's Generalization effects can be viewed as a by-product of Scandinavian OS not being able to move through the VP edge, rather than being an inherent, definitional yet entirely mysterious property of OS.

Several important general observations need to be made at this point. First, while the account of Ukrainian OS in terms of F&P (2005) is fully compatible with our earlier observation that OS (unlike QR) is in fact a Superiority-obeying operation, this characterization becomes redundant, with the 'Superiority-obeying' nature of OS now following entirely from the fact that phonologically overt material inside each successive Spell-Out domain is required to linearize in a way that replicates the ordering statement produced at the Spell-Out of the initial domain (see also Surány 2005). Furthermore, the apparently Superiority-non-conforming nature of QR also follows naturally from Cyclic Linearization: since the linearization algorithm only cares about the phonologically overt

material, covert syntactic movement QR will be free to change the relative order of QPs in the covert component in any way necessary, so long as it does not violate any existing constraints on syntactic movement. Finally, we are now in a position to account for the empirical generalization that OS in Ukrainian preserves scope relations that were established prior to its application. If it is indeed an instance of VP-internal AI that causes QP scope to ‘freeze’, with subsequent operations apparently unable to disrupt this relation, on the Cyclic Linearization account it is actually expected that OS will not be able to affect scope relations. Any sentence that is scopally ambiguous before OS will thus continue to be ambiguous after OS, since covert QR will be able to continue to apply. This account predicts that true scope freezing (a phenomenon categorically distinct from scope bias) will only be confined to ‘first-phase syntax’, that is, in our terms, holding between elements of the first Spell-Out domain.

5 Conclusions

The data from Ukrainian OS in ditransitives present a clear generalization that whatever scope interpretations are available in the postverbal field will carry over to the pre-verbal field, with OS being unable to either induce scope freezing or disrupt the scope freezing relation established prior to OS, thus falsifying Bruening’s (2001) Superiority account of scope freezing, which predicts that OS will *induce* freezing. A careful analysis suggests that Ukrainian OS *is* in fact a Superiority-obeying movement, with Argument Inversion being a necessary step allowing OS involving a structurally lower object phrase, while QR, on the other hand, does not appear to be Superiority-obeying after all.

We have further argued that pursuing the Cyclic Linearization account of Fox & Pesetsky (2005) presents a simple and straightforward way of accounting for all the data patterns and interactions observed. The proposed account has the additional benefit of being

sufficiently general, with the differences between Ukrainian and Scandinavian OS boiling down to the fact that movement through the left edge of VP is permitted in Ukrainian while this step is arguably unavailable in the Scandinavian languages, as originally hypothesized in Fox and Pesetsky (2005). Finally, the observed freedom of verb movement relative to the shifted objects (i.e., the absence of so-called inverse Holmberg's Generalization effects) as well as cases of non-shifted objects where specificity is marked prosodically can all follow as well if timing of head movement with respect to Spell-Out is taken into account, with verb raising taking place before the VP domain is spelled out, thus escaping the linearization.

References

- Anagnostopoulou, E. 2003. *The syntax of ditransitives: Evidence from clitics*. Studies in Generative Grammar 54. Berlin/New York: Mouton de Gruyter.
- Anagnostopoulou, E. 2005. Holmberg's generalization and cyclic linearization: Remarks on Fox and Pesetsky. *Theoretical Linguistics* 31 (1-2): 95-110.
- Antonyuk, S. 2020. The puzzle of Russian ditransitives. In *Dative structures in Romance and beyond*, ed. A. Pineda & J. Mateu. Open Generative Syntax series.
- Antonyuk, S. 2015. Quantifier scope and scope freezing in Russian. Doctoral dissertation, Stony Brook University, New York.
- Antonyuk-Yudina, S. & R. Mykhaylyk. 2013. Prosodic effects in word order: Evidence from Ukrainian. In *Proceedings of North East Linguistic Society (NELS) 40*. Cambridge, MA: MIT.
- Asarina, A. 2005. Russian binding theory: Two improved movement approaches. Ms., MIT.
- Bailyn, J. 2017. Against a VP-ellipsis account of Russian verb-stranding constructions. In *Studies in Japanese and Korean Linguistics and beyond*, ed. A. Vovin, 93-109. BRILL.

- Bailyn, J. 2012. *The syntax of Russian*. Cambridge University Press.
- Bailyn, J. 1995. A configurational approach to Russian ‘free’ word order. Doctoral dissertation, Cornell University.
- Baker, M. C. 1997. Thematic roles and syntactic structure. In *Elements of grammar*, ed. L. Haegeman. Dordrecht: Springer, Kluwer International Handbooks of Linguistics.
- Bhatt, R. & E. Anagnostopoulou. 1996. Object shift and specificity: Evidence from *ko*-phrases in Hindi. In *Papers from the 32nd regional meeting of the Chicago Linguistics Society*, ed. L. M. Dobrin, K. Singer & L. McNair, 11-22. Chicago: Chicago Linguistics Society.
- Bošković, Ž. 2004. Be careful where you float your quantifiers. *Natural Language and Linguistic Theory* 22: 681-742.
- Bošković, Ž. 2007. On the locality and motivation of Move and Agree: An even more minimal theory. *Linguistic Inquiry* 38:589-644.
- Bowers, J. 1993. The syntax of predication. *Linguistic inquiry* 24(4): 591-656.
- Bruening, B. 2001. QR obeys superiority: ACD and frozen scope. *Linguistic Inquiry* 32 (2): 233-273.
- Chomsky, N. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. M. Kenstowicz, 1-52. Cambridge, MA: MIT Press.
- Diesing, M. 1992. *Indefinites*. Cambridge, MA.: MIT Press.
- Diesing, M. & E. Jelenek. 1993. The syntax and semantics of object shift. *Working papers in Scandinavian syntax* 51: 1–54.
- Diesing, M. 1996. Semantic variables and object shift. In *Studies in comparative Germanic syntax*, ed. H. Thráinsson, S. Epstein & S. Peter, 66-84. Kluwer.
- Dyakonova, M. 2009. A phase-based approach to Russian free word order. Doctoral dissertation, Netherlands Graduate School of Linguistics.

- Fox, D. & D. Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31 (1-2): 1-45.
- Franks, S. 1995. *Parameters of Slavic morphosyntax*. New York/Oxford: Oxford University Press.
- Greenberg, G.R. & S. Franks. 1995. A parametric approach to Dative subjects and the second Dative in Slavic. *Slavic and East European Journal* 35 (1): 71-97.
- Haddican, B. & A. Holmberg. 2019. Object symmetry effects in Germanic: Evidence for the role of case. *Natural Language and Linguistic Theory* 37: 91-122.
- Hallman, P. 2015. Syntactic neutralization in Double Object Constructions. *Linguistic Inquiry* 46: 389-424.
- Hallman, P. 2018. Double Object Constructions in Syrian Arabic. *Syntax* 21: 238-274.
- Holmberg, A. 1986. Word order and syntactic features in the Scandinavian languages and English. Doctoral dissertation, Stockholm University.
- Holmberg, A. & C. Platzack. 1995. *The role of inflection in Scandinavian syntax*. New York: Oxford University Press.
- Holmberg, A. 1999. Remarks on Holmberg's Generalization. *Studia Linguistica* 53: 1-39.
- Jiménez Fernández, Á. L., & Rozwadowska, B. 2016. The information structure of Dative Experiencer psych verbs. In *Various Dimensions of Contrastive Studies*, ed. M.Zabawa, M.Kuczok, & B.Cetnarowska, 100-121. Katowice: Wydawnictwo Uniwersytetu Śląskiego.
- Kallestinova, E. 2007. Aspects of word order in Russian. Doctoral Dissertation, University of Iowa.
- Kearns, K. 2011. *Semantics*. Palgrave Macmillan; 2nd edition.
- Ko, H. 2004. Asymmetries in scrambling and Cyclic Linearization. Ms., Massachusetts Institute of Technology, Cambridge.

- Larson, R. K. 1988. On the Double Object Construction. *Linguistic Inquiry* 19: 335-391.
- Larson, R. K. 1990. Double objects revisited: Reply to Jackendoff. *Linguistic Inquiry* 21: 589-632.
- Larson, R. K. 2014. *On shell structure*. London: Routledge.
- Larson, R. K., S. Antonyuk & L. Liu. 2019. Superiority and scope freezing. *Linguistic Inquiry* 50 (1): 233-252.
- Lavine, J. & R. Freidin. 2002. The subject of defective T(ense) in Slavic. *Journal of Slavic Linguistics* 10 (1-2):251-87.
- Mykhaylyk, R. 2010. Optional object scrambling in child and adult Ukrainian. Doctoral Dissertation, Stony Brook University, New York.
- Mykhaylyk, R. 2011. Middle object scrambling. *Journal of Slavic Linguistics* 19(2): 231-272.
- Mykhaylyk, R. 2012. Scrambling to Middlefield. In *Slavic Languages in Formal Grammar. Proceedings of FDSL 8.5*, ed. M. Zikova & M. Dočekal, 149-165. Frankfurt am Main: Peter Lang.
- Mykhaylyk, R., R. Rodina & M. Anderssen. 2013. Ditransitive constructions in Russian and Ukrainian: Effect of givenness on word order. *Lingua* 137: 271-289.
- Müller, G. 2001. Order preservation, parallel movement, and the emergence of the unmarked. In *Optimality-Theoretic Syntax*, ed. G. Legendre, J. Grimshaw & S. Vikner, 279-313. Cambridge, MA: MIT Press.
- Onea, E., & A. Mardale. 2020. From topic to object: Grammaticalization of differential object marking in Romanian. *Canadian Journal of Linguistics/Revue Canadienne De Linguistique* 1-43. Doi:10.1017/cnj.2020.12
- Pietroski, P. & N. Hornstein. 2002. Does every sentence like this contain a Scope Ambiguity. In *Belief in meaning: Essays at the interface*, ed. W. Hinzen & H. Rott, Hansel-Hohenhausen.

- Rappaport-Hovav, M. & B. Levin. 1988. What to do with theta-roles. In *Syntax and Semantics 21: Thematic Relations*, ed. W. Wilkins. San Diego, CA: Academic Press.
- Richards, N. 1997. What moves where when in which languages? Doctoral dissertation, Massachusetts Institute of Technology, Cambridge.
- Rizzi, L. 1997. The fine structure of the left periphery. In *Elements of grammar. Handbook in generative syntax*, ed. L. Haegeman, 281-337. Dordrecht: Kluwer.
- Rizzi, L. 2004. Locality and left periphery. In *Structures and beyond. The cartography of syntactic structures*, vol. 3, ed. A. Belletti, 223-251. New York: Oxford University Press, pp.
- Roberts, I. 1995. Object movement and verb movement in early English. In *Studies in comparative Germanic syntax*, eds. H. Haider, S. Olsen & S. Vikner, 269-284. Kluwer Academic Publishers
- Schneider-Zioga, P. 1988. Double objects and small clauses. Ms., University of Southern California, Los Angeles.
- Sells, P. 2001. *Structure, alignment and optimality in Swedish*. Stanford monographs in linguistics. Stanford, CA: CSLI Publications.
- Slioussar, N. 2007. Grammar and information structure: A study with reference to Russian. Doctoral Dissertation, Utrecht University.
- Svenonius, P. 2000. Quantifier movement in Icelandic. In *The Derivation of VO and OV*, ed. P. Svenonius, 255-292. John Benjamins.
- Thráinsson, H. 2001. Object shift and scrambling. In: *The handbook of contemporary syntactic theory*, ed. M. Baltin & C. Collins. Blackwell Publishing.
- Vikner, S. 1994. Scandinavian object shift and West Germanic scrambling. In *Studies in scrambling*, ed. N. Corver & H. van Riemsdijk. New York: Mouton de Gruyter.
- Vikner, S. 2006. Object shift. In *The Blackwell companion to syntax, Volume III*, ed. M.

Everaert & H. van Riemsdijk, 392-436. Malden, MA/Oxford: Blackwell Publishing.

Williams, E. 2003. *Representation theory*. Cambridge, MA: MIT Press.

*Svitlana Antonyuk
University of Graz
Institut für Slawistik
Merangasse 70/1
8010 Graz
Austria*

syudina@gmail.com

*Roksolana Mykhaylyk
Amazon & HURI, Harvard University
34 Kirkland Street
Cambridge, MA 02138
United States*

roks.mykhaylyk@gmail.com