ORIGINAL PAPER



Adjunct control in German, Norwegian, and English

Silke Fischer¹ · Inghild Flaate Høyem²

Received: 11 April 2020/Accepted: 21 June 2021 © The Author(s) 2022

Abstract This paper presents an overview of adjunct control in German, Norwegian, and English, comprising adverbial infinitives, adverbial present and past participle constructions, as well as adverbial small clauses headed by the particle als in German, som in Norwegian, and as in English. We show that the height of the adjunction site (and thus, following scope-based adjunct theories, the underlying semantics of the adjuncts) determines the control possibilities. Based on a large set of data, we argue that event- and process-modifying adjuncts, i.e. adjuncts adjoined in the verbal domain (at the vP- or VP-level, respectively), display obligatory control (OC) properties, whereas sentence and speech act adverbials, which are adjoined at the TP- and CP-level, respectively, rather involve non-obligatory control (NOC). To capture these data theoretically, we propose a structural account that assumes that OC relations are syntactically licensed under upward Agree with PRO being the referentially defective probe that needs to be referentially identified in the course of the derivation by the controller, i.e. the goal. If the adjunct is adjoined in the verbal domain, such an Agree relation can be successfully established and OC is derived. If adjunction occurs in higher adjunction sites, i.e. outside of the verbal domain, feature valuation under Agree fails; as a last resort strategy, the control relation is then licensed on the basis of pragmatic factors, which yields NOC.

 Silke Fischer silke.fischer@ifla.uni-stuttgart.de
 Inghild Flaate Høyem inghild.flaate@ntnu.no

¹ University of Stuttgart, Stuttgart, Germany

² NTNU - Norwegian University of Science and Technology, Trondheim, Norway

Keywords Adjunct control · German, Norwegian, English · Adjunction sites · OC vs. NOC · Agree · Small clauses · Participle constructions

1 Introduction

In the control debates of the recent years (cf. Hornstein 1999; Landau 2000, 2013, 2015; among others), adjunct control has only played an ancillary role. There are at least three reasons for this. Firstly, adjunct control comprises a very heterogeneous set of examples, empirically speaking. Secondly, as Landau (2013, 2015, 2017) points out, adjunct control cannot be categorized in unison as obligatory or non-obligatory control (OC vs. NOC). Instead, the distinction between OC and NOC cuts through the set of examples involving adjunct control, an observation that adds to its heterogeneous character. Thirdly, NOC as such has typically played a minor part in theories of control.

The aim of this paper is two-fold. In the first part, we focus on the empirical situation and provide insight not only into English, but also German and Norwegian data involving adjunct control, something which is much needed since the available literature is to a large extent based on English data only. To this end, we investigate adjunct control into (i) various adverbial infinitives (cf. Faarlund et al. 1997; Landau 2013; Høyem 2015, 2018), (ii) adverbial present and past participle constructions (cf. Kortmann 1991; Fabricius-Hansen and Haug 2012; Brodahl 2016, 2018, 2020; Brodahl and Høyem 2018; Høyem and Brodahl 2019), and (iii) adverbial small clauses headed by the particle als in German, som in Norwegian, as in English (cf. Emonds 1985; Eide 1996; Flaate 2007; Eide and Flaate 2017). Apart from providing comparable data, we show that there is, after all, a common underlying pattern. We argue that it depends on the underlying syntactic structure whether we get OC with the subject or the object as controller, or NOC. To be precise, it depends on the height of the adjunction site (which, in turn, hinges on the semantics of the adjunct): it turns out that adjunction in the vP-domain results in obligatory subject control, adjunction in the VP-domain results in obligatory object control, and a higher adjunction site yields NOC (see also Høyem 2018; Høyem and Brodahl 2019).

In the second part of the paper, we focus on the theoretical side and show how the data can be captured in accordance with phase theory, drawing on ideas by Fischer (2018) and Fischer and Høyem (2021).

The paper is structured as follows: in Sect. 2, empirical evidence is presented what kind of adverbials can we observe, where do they adjoin, and which type of control do they display? The control analysis advocated in this paper will be outlined in Sect. 3. First, some underlying technical issues concerning the analysis are discussed, before the theory is then tested on the different adjuncts and control possibilities from Sect. 2. Section 4 concludes the paper.

2 Empirical evidence

First, we concentrate on empirical evidence from German, Norwegian, and English, which includes adverbial infinitives, adverbial present and past participle constructions, as well as adverbial small clauses headed by the particle *als* in German, *som* in Norwegian, and *as* in English.¹ These adjuncts display a wide range of adverbial readings and appear in most adverbial positions. Although these three languages differ typologically, with English and Norwegian being SVO languages and German an SOV language, the ordering restrictions among these adverbial adjuncts adhere to the same syntactico-semantic adverbial hierarchy.

2.1 Background assumptions

In line with scope-based adjunct theories, like Frey and Pittner (1998, 1999), Pittner (1999), Haider (2000), Ernst (2002, 2014), we assume that adverbial adjuncts are located in different syntactic domains, which correlate with their semantic scope. According to the scope-based approach, adverbials modifying the speech act or proposition (i.e., speech act, frame, and sentence adverbials) are attached high in the clause, as CP- and TP-adjuncts, whereas event-modifying (causal, temporal, instrumental, etc.) and process-modifying (manner) adverbials are adjoined lower down in the tree structure, as vP- and VP-adjuncts, respectively.

(1)	Ernst	(2014,	115)
-----	-------	--------	------

	СР	ТР	vP	VP
Frey and Pittner (1999)	Frame	Proposition	Event	Process
Ernst (2002)	Speech-Act	Proposition	Event	Specified Event

Interestingly, adverbial small clauses headed by *als/som/as*, adverbial infinitives as well as adverbial present and past participle constructions all appear to adhere to this syntactico-semantic hierarchy (cf. Eide 1996; Flaate 2007; Høyem 2015, 2018; Brodahl 2016, 2018, 2020; Eide and Flaate 2017; Brodahl and Høyem 2018; Høyem and Brodahl 2019). These adjuncts are syntactically and semantically underspecified in the sense that they are not inherently temporal, causal or manner, for example, but are interpreted as such in these adjunct positions (see also Businger 2011 and Høyem 2019 for a similar conclusion regarding absolute small clauses headed by *mit* ('with')).² Regarding the interpretation of PRO in these adjuncts, we will show

¹ Adjunct control has also been studied for Swedish (but to our knowledge not for Danish); cf. Lyngfelt (2002) for a large study of control in Swedish (adjunct) infinitives (within Optimality Theory) and Thurén (2008) for a control analysis of present participles in Swedish (inspired by Landau's 2000 control analysis and Pesetsky and Torrego's 2007 Agree approach).

² See also Stolterfoht (2020) as regards a recent experimental investigation on time-frame adverbials which also confirmed that the interpretation of these adjuncts depends on their structural position. This work has been presented under the title 'Processing temporality: Position-tense-aspect' at the Linguistic Research Colloquium at the University of Stuttgart on July 14, 2020.

below that the low adverbial adjuncts typically display the OC properties described by Landau (2013) outlined in (2).

- (2) OC properties:
 - a. The controller must be an argument of the adjunct's matrix clause.
 - b. Long-distance and arbitrary control are ruled out.³
 - c. OC PRO only allows a sloppy reading under ellipsis.
 - d. OC allows a non-human PRO.

This means that the control status of these adjuncts is affected by their syntactic position; that is, adjuncts in the c-command domain of T (= vP- and VP-adjuncts) generally display OC properties, and adjuncts adjoined above T (= TP- and CP-adjuncts) display NOC properties. Drawing on Frey and Pittner (1998, 1999) and Ernst (2014), we assume that (only) speech act, frame, and sentence adverbials have scope over T (anchoring the event/proposition temporally) and are thus attached to a projection of TP or CP. Event-modifying adjuncts, for instance temporal, causal, and instrumental adverbials, are adjoined to a projection of vP (semantically corresponding to the whole or parts of the event), whereas process-modifying adjuncts, like manner adverbials, are adjoined to the VP; see also the illustration in (3).





³ In fact, if in OC relations the controller must be an argument of the adjunct's matrix clause (as stated in (2a)), this already implies that long-distance control or arbitrary control are ruled out. But since this is typically listed as a separate OC property, we follow this common practice. In Sect. 2.2.2, we will therefore explicitly test whether arbitrary or long-distance control are possible in the presumptive OC relations that we investigate; these tests also prove the necessity of a local controller in the adjunct's matrix clause.

Regarding the different control possibilities in the OC domain, i.e. vP/VP-internally, there is syntactic evidence that subject-controlled adjuncts adjoin higher in the tree structure than object-controlled adjuncts. The first piece of syntactic evidence for different adjunction sites comes from pre- and post-verbal word ordering restrictions, in the literature known as mirror effects (cf. Barbiers 1995, 102–113; Åfarli 1997, 99; Pittner 1999, 304–310; see also Bowers 1993, 605–612). As illustrated in the German data in (4), subject-controlled adjuncts precede object-controlled adjuncts in preverbal position:

 (4) <u>Pre-verbally: subject-controlled adjuncts > object-controlled adjuncts</u> Er_i hat [**PRO**_i schon als junger Student] Noam Chomsky_j [**PRO**_j als he has already as young student.NOM Noam Chomsky as Linguisten] bewundert. linguist.ACC admired 'Already as a young student, he admired Noam Chomsky as a linguist.'

Post-verbally, we observe the opposite ordering with object-controlled adjuncts preceding subject-controlled adjuncts; see (5a) vs. (5b):

(5) Post-verbally: object-controlled adjuncts > subject-controlled adjuncts

a.	dass die	e E	ltern _i d	len	Sohn _i	in	den	Kinder	garten	brachten,
	that the	e.NOM po	arents t	he.ACC	son	to	the	kinder.	garden	brought
	[PRO _j	um	mit	anderen	Kinde	ern	zu	spielen]	,	
	Ū.	in.order.to	with	other	childr	ren	to	play		
	[PRO _i	um	mehr	Zeit f	füreinar	der		zu	haben]	
		in.order.te	o more	time j	for.each	.oth	er	to	have	
	' that,	in order t	o have r	nore tim	ne for ea	ach	other	, the par	rents too	ok their
	son to k	indergarde	en to pla	y with c	other ch	ildre	en.'			
b.	*dass d	ie E	ltern _i d	en	Sohn _j i	n d	en K	Cinderga	rten br	achten,
	that th	he.NOM p	arents t	he.ACC	son 1	to t	the k	inder.ga	rden br	ought
	[PRO _i	um	meh	r Zeit	füreina	nde	r	zu hab	en],	
		in.order.	to more	e time	for.eac	h.ot	her	to hav	е	
	[PRO _j	um	mit	andere	en Kin	dern	ı zu	spieler	1]	
		in.order.	to with	other	chil	dren	to to	play		
								(Høyem	2018, 3	376)

We take this as evidence that object-controlled adjuncts are closer to the verb and therefore are adjoined lower than subject-controlled adjuncts, implying that subject-controlled adjuncts are vP-adjuncts, whereas accusative and dative object-controlled adjuncts are VP-adjuncts; cf. also Nissenbaum $(2005)^4$ for the same observation in subject-controlled rationale clauses and object-controlled purpose clauses, see (6) and (7):

⁴ These data were presented at NELS 36 at the University of Massachussetts, Amherst.

(6) They brought Max along ...

- a. [_ to talk to himself] [(in order) _ to amuse themselves].
- b. *[(in order) _ to amuse themselves] [_ to talk to himself].

(Nissenbaum 2005, 4)

(7) George put that gun on the table ...

- a. [for me to shoot him with _] [in order to prove I'm a coward].
- b. *[in order to prove I'm a coward] [for me to shoot him with _].

(Nissenbaum 2005, 4)

That subject-controlled adjuncts are structurally higher than object-controlled adjuncts is further corroborated by binding effects in the form of (lack of) Principle C effects in ditransitive structures.⁵

As far as the underlying structure for ditransitives involving a dative argument is concerned, we assume that the latter is introduced by Appl^o (following Anagnos-topoulou 1999; Pylkännen 2002; McFadden 2004, 2006; Høyem (2018); see also Sect. 3.3.1 below); this means that the dative argument is situated in a phrase between VP and vP.

Let us now look at the data in (8) and (10). These sentences involve adverbial small clauses headed by *als*. Example (8) involves control by the accusative object (*ein Auto* 'a car'). In (8a), the scenario is as follows: the dative argument (*Peter*) is an R-expression which is co-indexed with the pronoun *sein* ('his') inside the adverbial. This constellation is unproblematic, since the dative argument is not c-commanded by anything inside the adjunct; so the sentence is expected to be grammatical (which it is). However, if we use a pronoun as dative argument (*ihm* 'him') and a co-indexed R-expression in the adverbial, the sentence becomes ungrammatical (see (8b)). This suggests that a Principle C effect arises, i.e. the dative argument c-commands into the adjunct, which is exactly what we expect if this adverbial is adjoined at the VP-layer (see tree (9)).

(8) German

a. ... dass wir Peter_i ein Auto_j [PRO_j als Belohnung für sein_i gutes that we Peter.DAT a car.ACC as reward for his good Abschneiden] schenken.
coming.off.well give '.'

[&]quot;... that we rewarded Peter with a car for his good results."

⁵ Note that binding tests, such as Principle C effects, are commonly used in adjunction theories to demonstrate adjunction height (cf. Frey and Pittner 1998, 1999; Pittner 1999; Frey 2003; Haegeman 2012; Frey and Truckenbrodt 2015; Solstad 2016). However, it is not trivial to find suitable structures if control into these adverbials is involved: what we are typically interested in when we apply these tests is whether there is a binding relation between a certain DP in the matrix clause and a DP inside the adjunct. So we have to look for structures in which the potential binder outside the adjunct is not co-indexed with PRO (otherwise, we would end up considering only a binding relation *within* the adjunct). Therefore, we use examples which involve control by the subject or accusative object and use the dative object as potential binder in the binding test.

b. *... dass wir ihm_i ein Auto_j [PRO_j als Belohnung für Peters_i that we him.DAT a car.ACC as reward for Peter's gutes Abchneiden] schenken.
good coming.off.well give
... that we rewarded Peter with a car for his good results.'





Interestingly, we get a different result if we consider subject-controlled adjuncts. In (10), we also use the dative argument *Peter/ihm* ('him')) as a potential binder for the DP *seine* ('his')/ *Peters* ('Peter's') inside the adverbial.⁷ In this case, however, no Principle C effect arises if the co-indexed R-expression occurs inside the adjunct, which suggests that the dative argument does not c-command the adjunct in the case of subject control.

⁶ Note that we generally use a CP-label for all adjuncts in our trees; however, nothing hinges on that and alternatives are of course conceivable. Moreover, the tree is a simplified representation insofar as the German middle field is actually more complex. But this way the relevant underlying c-command relations (and thus the involved binding relations) can be represented simply and clearly.

⁷ Note that the adjunct is ambiguous and could also function as a DP-modifier. But, crucially, it can be interpreted as an adverbial as well. This becomes apparent if we consider sentence (i), which shows that the *als*-phrase can be moved to SpecC excluding *Maria*.

 ⁽i) [Als zuständige Sachbearbeiterin für seine, Gehaltsabrechnung]_j hat Maria t_j Peter, as responsible clerk.in.charge for his payroll has Mary.NOM Peter.DAT sofort die gewünschte Auskunft gegeben. immediately the requested information given

^{&#}x27;As the responsible clerk in charge for his payroll, Mary gave Peter immediately the requested information.'

(10) German

a. ... dass Maria_j [PRO_j als zuständige Sachbearbeiterin für seine_i *that Mary* as responsible clerk.in.charge for his Gehaltsabrechnung] Peter_i sofort die gewünschte Auskunft payroll Peter.DAT immediately the requested information.ACC gab.

gave

'... that Mary, as the responsible clerk in charge for his payroll, gave Peter immediately the requested information.'

 b. ... dass Maria_j [PRO_j als zuständige Sachbearbeiterin für Peters_i that Mary as responsible clerk.in.charge for Peter's Gehaltsabrechnung] ihm_i sofort die gewünschte Auskunft payroll him.DAT immedately the requested information.ACC gab.

gave

'... that Mary, as the responsible clerk in charge for his payroll, gave Peter immediately the requested information.'



As far as speech act adverbials are concerned, scope-based adjunct theories suggest that they are high adjuncts which occur in the CP-domain. As a result, we would not expect a Principle C effect to arise when the adjunct contains an R-expression which is co-referent with the subject of the matrix clause. As the example in (12) shows, this prediction is indeed borne out.

(12) German

[PRO_{speaker} Um Peter_i gegenüber fair zu sein], er_i hatte in dieser in.order.to Peter towards fair to be he had in this Situation keine andere Wahl. situation no other choice 'To be fair, Peter had no other choice in this situation.'

So the data in this section provide further evidence for the assumptions (i) that subject-controlled adjuncts occur higher in the structure than object-controlled adjuncts; i.e., we deal with vP- and VP-adjuncts, respectively, (ii) and that speech act adverbials are adjoined even higher in the structure, namely in the CP-domain.

2.2 OC in vP/VP-adjuncts

Now we will focus on adjuncts in the verbal domain in general and show that OC is attested in all kinds of adverbials adjoining at the vP/VP-layer, i.e. in event-modifying, event-internal, and process-modifying adjuncts, such as temporal, causal, (true) conditional, counterfactual, instrumental, and manner adverbials. To this end, we investigate adverbial infinitives (cf. Faarlund et al. 1997; Landau 2013; Høyem 2015, 2018), adverbial present and past participle constructions (cf. Kortmann 1991; Faarlund et al. 1997; Fabricius-Hansen and Haug et al. 2012; Brodahl 2016, 2018; Høyem and Brodahl 2019), and adverbial small clauses headed by the particle *als/som/as* (cf. Emonds 1985; Eide 1996; Flaate 2007).

As the following data show, PRO in these adjuncts displays all OC properties described by Landau (2013) and summarized in (2) above.

2.2.1 OC property no. 1

According to Landau's first OC property, the controller must be an argument of the adjunct's matrix clause (see (2a)). As illustrated below, subject control is attested in adverbial infinitives (see (13)), in adverbial present and past participle constructions (see (14)), and in adverbial small clauses headed by *als/som/as* (see (15)).

(13) Adverbial infinitives

a. German

Ein	Licht _i	genügt	(mir _i),	[PRO _{i/*j/*k}	um	das Zimmer				
a	light.NOM	suffices	(me.DAT)	-	in.order.to	the room				
zu	erleuchten]. ⁸									
to	light.up									
'A single light is sufficient (for me) to light up the room.'										

(Bech 1957, 97; Haider 2015, 1)

⁸ Due to the non-agentive verb *erleuchten* in the adverbial infinitive, only subject control is a possible reading here (and the dative argument cannot function as a controller).

b. Norwegian

Han; [...] takket for maten [ved PRO_{i/*i} å bøye seg thanked for the food by REFL he to bow lett og kysse henne på hånden]. slightly and kiss her on the hand 'He [...] thanked for the meal by bowing slightly and kissing her hand.' (Haug et al. 2012, 163)

- c. English
 Mary_i grew up [PRO_{i/*j} to be a famous actress]. (Landau 2013, 221)
- d. English

The crops_i are harvested [only $PRO_{i/*i}$ to rot in the barns].

(Landau 2013, 235)

(14) Present and past participle constructions

a. German

[PRO_{i/*i} Als tauglich eingestuft], stellte Nils; zunächst den found.PRF.PTCP handed.in Nils first as fit the.ACC auf Verweigerung des Dienstes Waffe. an der Antrag application for exemption the.GEN service.GEN by the.DAT weapon 'After having been found to be fit for service, Nils applied for exemption from military service.' (Høyem and Brodahl 2019, 99)

b. Norwegian

[PRO_{i/*j} Fylt av en anelse] løftet **jeg**_i kruset og drakk. *filled by a hunch lifted I the.mug and drank* 'With a hunch, I lifted the mug and drank.' (Helland and Pitz 2012, 94) c. *English*

Thanks, **he**_i said [PRO_{i/*i} stammering]. (König 1995, 65)

(15) Adverbial small clauses headed by 'als'/'som'/'as'

a. German
[PRO_{i/*j} Schon als 15-Jähriger] kam er_i 1937 zur already as 15-year.old.NOM came he 1937 to.the.DAT
Schützengesellschaft. shooter.society.
'Already as a 15-year-old, he joined the shooting club in 1937.'
(Flaate 2007, 87)

b. Norwegian
[PRO_{i/*j} som student] fikk Jon_i alltid rabatt på fly.

as student obtained Jon always discount on flights 'As a student, Jon always obtained a discount on flights.' (Eide 1998, 53) c. English

[PRO_{i/*i} As a blonde], **Mary**_i might look like Jane.

(Fabricius-Hansen and Haug 2012, 36)

Although subject control is a very frequent control relation in these types of adjuncts, also (accusative or dative) objects in the adjunct's matrix clause may function as an antecedent for OC PRO, shown in (16).

- (16) *Object control*
 - a. German

Man bezahlte **die Studenten**_i, [PRO_{i/*j} um Flyer zu verteilen]. *one paid the students.ACC in.order.to flyers to hand.out* 'The students were paid to hand out flyers.'

b. German

Eine Kerze genügt ihm_i, [PRO_{i/*i} um sich zurechtzufinden]. candle suffices him.DAT in.order.to REFL to.orientate.INF а 'A candle is sufficient for him to orientate himself.' (Haider 2015, 1) c. Norwegian Hun brukte sine foreldre_i [PRO_{i/*i} som sannhetsvitner]. she used her parents as truth.witnesses 'She used her parents as witnesses.' (Eide 1996, 84)

d. Norwegian

Hunsendte $sønnen_i$ ibarnehagen $[PRO_{i/*j}]$ forålekeshesentthe.sontothe.kinder.gardenfortoplaymedandrebarn].withotherchildren

'She sent her son to the kindergarden to play with other children.' e. *English*

 $[PRO_{i/*j} Having undergone the German academic education], the English university system impressed$ **him**_i a great deal. (Kortmann 1991, 8)

2.2.2 OC property no. 2

As outlined in (2b), the second OC property described by Landau states that OC PRO is never arbitrary or long-distance, which is exactly what we find in these adjuncts. In the German example (17a), the matrix clause does not contain a potential local controller for PRO; as a result, the sentence is ungrammatical, which shows that arbitrary control is not an option either. The same seems to be the case in the equivalent Norwegian and English examples in (17b, c). Here, PRO can have neither an arbitrary reading (as PRO_{arb}) nor a specific reading (as PRO_i), even though this would be required pragmatically.

(17)	a.	German							
		*Der Himi	mel wurde	e dunkler	r, [PRO _{*arb/*i}	ohne	es	zu be	merken].
		the sky	becar	ne darker		without	it	to no	tice
	b.	Norwegian							
		*Himmeler	ı ble	mørkere	[PRO*arb/*i	uten	å	merk	e det.
		sky.DEF	became	darker		without	to	notic	e it
	c.	English							
		The sky b	ecame dai	ker [PRO	_{*arb/*i} withou	t noticing	g (it))].	

In German and Norwegian, one would have to use the finite counterpart of these adjuncts with a lexical subject (see (18a, b)); in English, a gerund with a lexical subject can be used to express the intended interpretation, as in (18c).

(18) a. German

Der Himmel wurde dunkler, [ohne dass man es bemerkte]. the skv became darker without that one it noticed b. Norwegian Himmelen ble mørkere [uten man la merke til det]. at skv.DEF became darker without that one let notice to it c. English

The sky became darker [without anyone noticing (it)].

As becomes evident considering the data in (19), the adjunct's acceptability does not improve by providing a (larger) context with a suitable non-local controller for PRO.

(19)	a.	German
		Die Jungen _i waren seit Stunden im Wald unterwegs.
		the boys were since hours in the wood around
		*Der Himmel wurde dunkler, [PRO _i ohne es zu bemerken]
		the sky became darker without it to notice
	b.	Norwegian
		Guttene _i hadde vært i skogen i timevis.
		boys.DEF had been in wood.DEF in hours
		*Himmelen ble mørkere [PRO _i uten å merke det].
		sky.DEF became darker without to notice it
	c.	English
		The boys _i had been walking around in the woods for hours. *The sky
		became darker [PRO _i without noticing (it)].

To sum up, (17) and (19) show that the non-availability of a suitable controller in the matrix clause leads to ungrammaticality; resort to arbitrary control or control by an otherwise discourse-salient referent is excluded. Below, we add some more examples to illustrate explicitly that LD controllers in higher embedding clauses are also ruled out and that these observations are not restricted to adverbial infinitives headed by *ohne/uten/without* (see (17), (19)) but generally hold for adverbial infinitives (see

(20a), (21a), (22a)), adverbial participle constructions (see (20b), (21b), (22b)), and small clause adjuncts headed by *als/som/as* (see (20c), (21c), (22c)).

(20) German a. Peter, behauptete, dass **sie**, vorbeigingen, [PRO_{*i/*arb/i} ohne Peter claimed that they by.passed without etwas zu bemerken]. anything to notice 'Peter claimed that they had passed by without noticing anything.' (Haider 2015, 4) b. Peter_i erzählte, dass Nils_i, [PRO_{*i/*arb/i} als tauglich eingestuft],⁹ found.PRF.PTCP Peter told that Nils as fit zunächst den Antrag auf Verweigerung des Dienstes the.ACC application for exemption first the.GEN service.GEN an der Waffe stellte. by the weapon handed.in 'Peter told that Nils, after having been found to be fit for service, had applied for exemption from military service.' (Høyem and Brodahl 2019, 115) erzählt, dass Peterk [PRO*i/*i/*arb/k als c. Johan; hat mir_i Johan me DAT told that Peter has as Lehrer] arbeitet. teacher works

'Johan has told me that Peter works as a teacher.'

(21) Norwegian

a. Hun_i fortalte at **Fritjof**_i hadde vaska golvet [PRO*i/*arb/i she told scrubbed the.floor that Fritjof had uten å bli våtl. without to hecome wet.SG 'She told that Fritjof had scrubbed the floor without getting wet.' b. [PRO_{i/*i/*arb} Fylt av en anelse] løftet jeg_i kruset og drakk.

- filled by a hunch lifted I the mug and drank 'With a hunch, I lifted the mug and drank.' (Helland and Pitz 2012, 94) c. De, fortalte i retten at hun, brukte **sine foreldre**_k
- they told in court that she used her parents [PRO_{*i/*j/*arb/k} som sannhetsvitner]. as truth.witnesses

'They told in court that she had used her parents as witnesses.'

(Eide 1996, 84)

⁹ This adjunct is ambiguous and could also be interpreted as a DP-modifier. In this paper, we are interested in the interpretation as an adverbial adjunct.

- (22) English
 - a. Peter_i claimed that **they**_j had passed by $[PRO_{*i/*arb/j}]$ without noticing anything].
 - b. She_i observed that, $[PRO_{*i/*arb/j} \text{ standing on a chair}]$, **John**_j could touch the ceiling. (Fabricius-Hansen and Haug 2012, 36)
 - c. Peter_i claimed that, [PRO $_{i/*arb/j}$ as a financial expert], **Mary**_j should have noticed the mistake.

In fact, Norwegian examples like (21a) with a predicative adjective inside the adjunct offer another possibility to test whether LD control is possible or not: since the adjective must agree with the PRO subject in number, the ungrammaticality of sentence (23), in which the adjective bears plural morphology, clearly indicates that PRO cannot refer to the plural subject *de* ('they') in the embedding clause; instead, it must refer to the local, singular subject DP *Fritjof*.

(23)	*De _i	fortalte	at	Fritjof _i	hadde	vaska	golvet	[PRO _i
	they.PL	told	that	Fritjof.SG	had	scrubbed	the.floor	
	uten	å	bli	våte].				
	without	to	become	wet.PL				
	intended	: 'They t	old that H	Fritjof had s	crubbed	the floor	without th	em
	getting v	vet.'						

To conclude, the data in this section have revealed that only OC by a syntactically local controller (i.e., a controller in the adjunct's matrix clause) is possible and that both long-distance and arbitrary control are ruled out.

2.2.3 OC property no. 3

Landau's third OC property states that in VP-ellipsis, OC PRO can only get a sloppy reading, never a strict reading (see (2c)). As shown in the data below, this is the case in all three languages, here exemplified by adverbial infinitives, where a strict reading should be possible for pragmatic reasons, but only a sloppy reading seems to be available.

(24) a. German

Der	Professori	bezahlte	die Stu	identen, [PROi	um	die	Korrekturarbeit
the	professor	paid	the stu	dents		for	the	correction.work
zu	vermeiden],	und das	tat	auch	sein	Kolleg	gej	
to	avoid	and that	did	also	his	collea	gue	
bez	ahlte die Stu	identen, [PRC) <u>*_{i/j}</u>	um	die K	orrektu	ırarbei	t zu vermeiden].
pai	d the stu	dents		for	the co	ərrectic	n.wor	k to avoid

'The professor paid the students to avoid the correction work, and so did his colleague.'

b. Norwegian

Hani	fulgte	barna		til	sko	olen [PRO	Di	for	å	få	jobt	e
he	followed	childre	en.DEF	to	sch	nool		for	to	get	wor	k
uforsty	vrret],	og	det	gjord	e	noen gan	igei	r best	efor	eldren	ej	også
undistı	urbed	and	that	did		some tim	es	grar	idpa	rents.	DEF	also
fulgte-	barna	-	til s	kolen	[PF	RO∗i/j−for		å f i	à	jobbe	ufor	styrret] .
followe	ed childi	ren.DE	F to s	chool		for		to g	et	work	undis	sturbed
'He too	ok the chil	dren to	school	to (be	abl	e to) wor	k u	ndistur	bed,	and s	o dic	l the
grandp	arents son	netimes	,									

c. English

The professor_i took the essays home [PRO_i to grade them], and so did his wife_j take the essays home [PRO_{ij} to grade them].

In all these examples, we see that PRO can only be controlled by an antecedent located in the second conjunct and not by an antecedent in the first conjunct. If we compare this to equivalent finite adjuncts with a lexical subject (see (25)), we can observe that they allow both a sloppy and a strict reading.

(25) a. German

Korrekturarbeit Der Professor bezahlte die Studenten, damit eri die students he the correction.work the professor paid the so vermeiden konnte. und das tat auch sein **Kollege**_i avoid could that did also his colleague and **bezahlte** die Studenten. damit die Korrekturarbeit eria paid the students the correction.work vermeiden konnte.

```
avoid could
```

'The professor paid the students so that he could avoid the correction work, and so did his colleague.'

b. Norwegian

skolen slik at Hani fulgte barna til hani fikk jobbe children.DEF to school so he followed that he got work.INF uforstyrret, gjorde noen ganger besteforeldrenei og det også grandparents.DEF also undisturbed, and that did some times fulgteharna til skolen slik at hani/dei fikk jobbe followed children. DEF to school so that he/they got work INF uforstvrret.

. .

undisturbed

'He took the children to school so that he could work undisturbed, and so did the grandparents sometimes.'

c. English

The professor_i took the essays home so that he_i could grade them, and so did his wife_j take the essays home so that he_i/she_j could grade them.

In the following example, a strict reading should be available for pragmatic reasons (since this event could imply that the crew went down with the ship). However, in this case only a sloppy reading seems to be possible, with the rather strange interpretation that the crew sank after taking in large amounts of water.

(26) Norwegia	IN
---------------	----

*/#	Skipet _i	sank	[PRO _i	etter	å	ha	tatt	inn	store	men	ngder	vann],
	ship.DE	F sank		after	to	have	taken	in	large	am	ounts	water
og	det	gjorde	mannsk	apetj	ogs	å sa	nk [PR	O∗i/#j	etter	å	ha	-tatt
and	that	did	crew.D.	EF	too	sc	ink		after	to	have	
inn-	store	mengde	r vann] .								
in	large	amounts	wate	۴								

'The ship sank after taking in large amounts of water, and so did the crew.'

To sum up, we can conclude that also the third OC property holds in adjunct control at the vP/VP-level.

2.2.4 OC property no. 4

According to the fourth OC property described by Landau (2013), the controller of OC PRO is not restricted to [+human], but can also be [-human] (see (2d)). This is clearly attested for adverbial infinitival, participial, and small clause adjuncts in German, Norwegian, and English; see (27)–(35) below.

(27) German adverbial infinitives

a.	Salat _i	erfrise	cht, []	PROi	ohne	zu	schwäc	chen], []		
	salad	refres	hes		without	t to	weaker	ı			
	'Salad	is refr	eshing	witho	ut bein	g bad	l for you	u.'			
									(Høy	em 2	015, 175)
b.	Man	gab	dem	Raun	nschiff _i		genug	Bre	ennstoff	mit,	
	one	gave	the	space	ecraft.D	AT e	enough	fue	l	with	
	[PRO _i	um		auch	noch	den	Merku	r (erreichen	zu	können].
		in.ord	der.to	also	still	the	Mercu	ry i	reach	to	can
	'The sp	pacecra	aft got	enoug	gh fuel	to be	able to	eve	n reach N	/lercu	ry.'
									(I	Leys	1971 , 34)

- (28) German adverbial participle constructions
 - ihre milde Schärfe a. Durch wirken rote Zwiebeln_i [PRO_i fein through their mild sharpness seem thinly red onions oder gehobelt auf einem Salat] besonders geschnitten gut. cut.PAST.PTCP or sliced on a.DAT salad particularly well 'Due to their mild flavour, red onions taste particularly well in a salad when thinly cut or sliced.'

(BRZ07/OKT.01655 Braunschweiger Zeitung, 20.10.2007)

b. Er liest den **Dialog** [PRO_i stark pointiert]. eben in reads dialogue emphasized he the strongly exactly in Schauspielermanier. actor.wav 'He is reading the dialogue in a strongly emphasized way, just like an actor.' (Høyem and Brodahl 2019, 115)

 (29) German adverbial small clause headed by 'als' Wir verwenden unser altes Elternhaus_i heutzutage nur noch we use our old parents.house these.days only still [PRO_i als Ferienwohnung]. as holiday.cottage
 'These days, we only use our parents' old house as a holiday home.'

(30) Norwegian adverbial infinitive

Skipet_i sank [PRO_i etter å ha tatt inn store mengder vann]. the.ship sank after to have let in large amounts water 'The ship sank after letting in large amounts of water.'

(Faarlund et al. 1997, 457)

- (31) Norwegian adverbial participle construction
 Denne flasken_i ble oppbevart [PRO_i liggende].
 this bottle was stored lying
 'This bottle was stored lying.'
 (Haug et al. 2012, 147)
- (32) Norwegian adverbial small clause headed by 'som' Han brukte kniven_i [PRO_i som flaskeåpner]. he used knife.DEF as bottle.opener 'He used the knife as a bottle opener.'

(33) English adverbial infinitives

- a. The noise_i was loud enough [PRO_i to disturb the neighbors].
- (Landau 2013, 236)
 b. Granola snack_i can raise your energy level [PRO_i without increasing your blood pressure]. (Landau 2013, 235)
- c. [PRO_i After causing a lot of trouble], **the dishwasher**_i finally broke down. (Landau 2013, 226)
- (34) <u>English adverbial participle construction</u> [PRO_i Surrounded by trees], the cottage_i comprises a charming living-diningkitchen area opening onto a covered patio.
- (35) <u>English adverbial small clause headed by 'as'</u> For your online purchases, you can use your mailing address_i [PRO_i as billing address].

The examples above do not only show that the local antecedent can be non-human; they also reveal that it need not be the subject, but can alternatively be an object in the adjunct's matrix clause (see (27b), (28b), (29), (32), (35)).

To sum up, the tests in the preceding subsections have confirmed that adjunct control into various types of adjuncts adjoining in the verbal domain qualifies as OC.

2.3 NOC in TP/CP-adjuncts

Speech act and sentence adverbial adjuncts, on the other hand, appear to be NOC adjuncts, since (i) the controller can (see (36a)), but does not have to be an argument in the adjunct's matrix clause; (ii) PRO can have an arbitrary reference or refer to the speaker; and (iii) PRO is always [+human],¹⁰ as shown in (36)–(38). This stands in contrast to Landau's (2013) OC criteria summarized above in (2) and thus

¹⁰ Note that adverbials adjoined at the CP-layer are speech act adverbials and thus speaker-oriented. As a result, they are automatically only compatible with a [+human] PRO; so this property follows automatically from the semantics of the involved adverbials. The same holds for adverbials adjoined at the TP-layer, since they typically involve predicates that obligatorily involve a person; see (i) and (ii) as an illustration.

⁽i) Salat_i ist, [PRO_{speaker/*i} ohne zu übertreiben], eine der gesündesten Beilagen. salad is without to exaggerate one the.GEN healthiest side.dishes 'Without exaggeration, salad is one of the healthiest side dishes.'

 ⁽ii) Dieser Sturm_i ist [PRO_{speakert^{*i}} meteorologisch betrachtet] einer this storm is meteorologically considered.PRF.PTCP one der stärksten seit Jahren. the.GEN strongest for years 'Meteorologically speaking, this has been one of the severest storms for years.'

characterizes NOC. Speech act and sentence adverbial readings are found in adverbial infinitives and adverbial participle constructions headed by a present or past participle in all three languages, but, to our knowledge, not in adverbial small clauses headed by the particle *als/as/som* (cf. Emonds 1985; Eide 1996; Flaate 2007).

(36)	Ge	rman								
	a.	adveri	bial infinitiv	2						
		Eri	ist, [PRO _i	ohne	sich	dessen	bewusst	zu	sein],	der
		he	is	without	REFL	of.it	aware	to	be	the
		beste	Spieler	auf	dem	Feld.				
		best	player	on	the	field				
		'He is	the best pla	yer on the	e field v	vithout re	eally being	g aw	are of	it.'
	b.	adver	bial infinitiv	e						
		Er is	t, [PRO _{spea}	 _{ker} ohne	zu	übertrei	ben], we	it	und	breit
		he is	s peu	witho	out to	exagger	ate wid	dely	and	broadly
		der b	este Bil	liard-Spie	eler.	00				2
		the b	est bill	iard-play	er					
		'He is,	without exa	ggeration	n, the be	est billiar	d player e	ever.	,	
								(Pi	ttner 19	99 , 338)
	c.	adveri	bial infinitive	2						
		[PRO _i	_{=speaker} Un	h ehrlich	zu se	ein,] ich	n _i habe i	nie	viel	von
			for	honest	to b	e I	have	neve	r muc	h of
		Krimi	nalromanen	geha	lten.					
		crime.	novels	held						
		'To be	e honest, I ha	we always	disliked	l crime n	ovels.'	(P	ittner 19	<mark>999</mark> , 357)
	d.	adver	bial present	participle	e constr	uction				
		[PRO _a	_{arb} Von M	lainz ko	mmend]	empfieh	lt	sich	die
			from M	lainz co	ming.Pl	RS.PTCP	recomm	ends	REFI	L the
		Fahrt	mit der	S-B	ahnlinie	8 bis V	Wiesbaden	Ha	uptbahn	hof.
		journ	ey with the	city	-train.lin	e 8 to 1	Viesbaden	cen	tral.trai	n.station
		'Whei	n coming fro	om Mainz	z, it is a	dvisable	to take th	e ci	ty metr	0
		line 8	to Wiesbad	en centra	1 statior	ı.'				
							(.	Broc	lahl 20	16, 113)
	e.	adveri	bial past pai	rticiple co	onstructi	ion				
		[PRO	 Politisch 	hetra	htet]		ist er	ein	e Kat	astronhe

[PRO_{arb} Politisch betrachtet] ist er eine Katastrophe. *politically considered.PRF.PTCP is he a disaster* 'Politically, he is a disaster.'

(37) Norwegian

a. adverbial past participle construction
[PRO _{i=speaker} mellom oss sagt] har jeg _i ikke mye å tilby.
between us said have I not much to offer
'Between ourselves, I do not have much to offer.'
b. adverbial past participle construction
Du har [PRO _{speaker} ærleg tala] ikkje mykje å tilby.
you have honestly spoken not much to offer
'To be honest, you do not have much to offer.' (Faarlund, et al. 1997, 811)
c. adverbial past participle construction
Han var [PRO _{speaker} kort sagt] for dårleg.
he was briefly said too bad
ne was briefly said 100 bud
'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811)
'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u>
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i>
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse.
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse. <i>not a chance</i>
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse. <i>not a chance</i> 'To be honest, you never had a chance.' (Faarlund et al. 1997, 812)
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse. <i>not a chance</i> 'To be honest, you never had a chance.' (Faarlund et al. 1997, 812) e. <u>adverbial past participle construction</u>
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse. <i>not a chance</i> 'To be honest, you never had a chance.' (Faarlund et al. 1997, 812) e. <u>adverbial past participle construction</u> [PRO_{arb} Strengt tatt] har han ingen formell utdannelse.
 'He was, to put it briefly, too bad.' (Faarlund et al. 1997, 811) d. <u>adverbial infinitive</u> [PRO_{speaker} For å si det som det er], så hadde du <i>in.order to say it like it is so had you</i> ikke en sjanse. <i>not a chance</i> 'To be honest, you never had a chance.' (Faarlund et al. 1997, 812) e. <u>adverbial past participle construction</u> [PRO_{arb} Strengt tatt] har han ingen formell utdannelse. <i>strictly taken has he no formal education</i>

(38) English

- a. <u>adverbial present participle construction</u> [PRO_{i=speaker} Putting it mildly], I_i would not say that the holiday resort met our expectations.
- b. <u>adverbial present participle construction</u> [PRO_{speaker} Putting it mildly], the holiday resort didn't quite meet our expectations. (Kortmann 1991, 51)
 c. <u>adverbial present participle construction</u>
- [After PRO_{speaker} pitching the tents], darkness fell quickly.

(Landau 2013, 232)

d. <u>adverbial present participle construction</u> Potatoes are tastier [after PRO_{arb} boiling them]. (Landau 2013, 232)

To sum up, we have now reached the following conclusions: as the literature on scope-based adjunct theories has convincingly shown (see, among others, Frey and Pittner 1998, 1999; Pittner 1999; Haider 2000; Ernst 2002, 2014), the adjunction height of adverbials depends on their underlying semantics. Considering speech act and sentence adverbials, we can therefore, on the one hand, say that they are

generally adjoined at the CP/TP-level; on the other hand, the data in this section have shown that control into these adverbials qualifies as NOC (which means that PRO's interpretation hinges on pragmatic factors and can include arbitrary PRO or a discourse-salient referent like the speaker). Hence, we can generally conclude that control into adjuncts in the TP/CP-domain involves NOC.

By contrast, as outlined in the scope-based adjunct theories, event- and processmodifying adverbials are adjoined in the verbal domain, i.e. at the vP/VP-level. As shown by the data in Sect. 2.2, we argued that control into event-modifying adverbials typically involves subject control, whereas control into processmodifying adverbials involves object control, and standard OC diagnostics have shown that both instances of control qualify as OC. In fact, that subject control involves a higher adjunction site than object control has further been corroborated by the binding effects discussed in Sect. 2.1.

In the remainder of this paper, we will now turn to a potential technical implementation of these observations.

3 Theoretical Approach

To illustrate how our analysis works, we will restrict ourselves to data from German for reasons of space; however, we assume that the analysis can be applied to Norwegian and English in the same way.

As shown in the first part of the paper, various instances of adjunct control (i.e. those involving adjunction in the verbal domain) involve OC. In Sects. 3.1–3.3, we will concentrate on these instances of control before we then turn to non-obligatory adjunct control in Sect. 3.4, which has been shown to be involved in adjunction in the TP/CP-domain.

3.1 Licensing of OC under Agree

In line with Fischer (2018) and Fischer and Høyem (2021), we argue that OC is licensed under upward Agree and propose a phase-based theory of adjunct control; i.e. we adopt a local-derivational view according to which the accessible domain at a given point in the derivation is restricted by the Phase Impenetrability Condition (PIC) (see (39)). As a result, syntactic licensing must occur locally within the respective accessible domain. We assume the following standard definitions:

(39) Phase Impenetrability Condition (PIC) The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

(Chomsky 2000, 108)

(40) CPs and vPs are phases.

Our basic assumptions are the following (see also Fischer 2018; Fischer and Høyem 2021): PRO is a referentially defective empty argument which must be referentially identified. This means that PRO's interpretation is determined in the course of the syntactic derivation by an Agree relation with an accessible binder.

To encode this idea technically, we follow Wurmbrand (2017) and suggest that there is a distinction between formal $u\varphi$ -features and semantic $i\varphi$ -features. While formal $u\varphi$ -features "feed (only) into PF and carry the values realized in morphology [...] semantic $i\varphi$ -features [...] feed (only) into LF and carry the values interpreted in semantics" (Wurmbrand 2017, 32). We argue that the relevant feature on PRO that must be licensed in control relations is an unvalued semantic $i\varphi$ -feature;¹¹ so the fact that this feature is unvalued in the beginning reflects PRO's referential defectiveness. That is, PRO enters the derivation with the feature specification {D, $i\varphi$:_}, and to get licensed, PRO probes upwards to find a goal in the accessible domain that values its unvalued semantic $i\varphi$ -feature.¹² PRO's concrete interpretation can be determined once this feature has been valued under Agree; i.e. Agree syntactically links PRO to its controller (i.e., the goal), which means with respect to PRO's interpretation that, whatever the interpretation of the controller is, this will be the interpretation of PRO.¹³

Formally, we adopt the following definitions, which combine assumptions by Wurmbrand (2011) (in terms of upward probing) and Pesetsky and Torrego (2007), Bošković (2009 et seq.), Wurmbrand (2011), among others, as far as the assumption is concerned that Agree is valuation-driven.

(41) Agree

- a. α agrees with γ iff
 - (i) γ c-commands α ,
 - (ii) γ is the closest goal, and
 - (iii) α and γ are both in the accessible domain (as defined in (39)).
- b. If α agrees with γ , feature [F:_] on α is valued by feature [F: val] on γ .

¹¹ Note that Wurmbrand (2017) points out that anaphoric \emptyset_N in ellipsis (being phonetically zero) only bears an $i\varphi$ -feature (and no $u\varphi$ -feature); it therefore seems natural to extend this classification to other covert nominal elements like PRO as well. In fact, our central point is that PRO is referentially defective and that its interpretation hinges on the syntactic licensing by the controller, which, as a result, determines PRO's interpretation. Technically, this could also be encoded in terms of β -features as proposed in Fischer (2004, 2006) as far as (anaphoric) binding is concerned and Fischer (2018) as far as control is concerned.

¹² See also, for instance, Baker (2008), Schäfer (2008), Haegeman and Lohndal (2010), Bjorkman (2011), Wurmbrand (2011 et seq.), Zeijlstra (2012), Bjorkman and Zeijlstra (2019) as regards upward probing.

¹³ For a related proposal, see also Sheehan (2018) in terms of index sharing between controller and controllee.

In the subsequent sections, we will outline in detail how this basic mechanism can concretely be applied to the data we have discussed in the previous sections, i.e. how it can account for adjunct control in the languages under discussion.

3.2 Adjunction in the vP-domain

3.2.1 Basic observations

One of our insights from Sect. 2 was that adjunction in the vP-domain results in obligatory subject control. As an example, consider, again (42) (adapted from (20a)).

(42) Sie, gingen vorbei, [CP PRO, ohne etwas zu bemerken].
they passed by without anything to notice
'They passed by without noticing anything.' (Haider 2015, 4)

In tree (43), we illustrate the point in the derivation when the vP-phase of the matrix clause is built; it contains the vP-adjunct as well as the subject in its base position, Specv.

 $(43)^{14}$



Let us first have a closer look at the adjunct itself. Inside the adjunct, PRO is basegenerated in Specv, where it is theta-marked. Bearing an unvalued semantic $i\varphi$ feature, it probes upwards to find a suitable goal, but without success. As a result, the derivation would be doomed to fail immediately if PRO did not move to the edge of the phase to remain accessible and thereby at least retain the possibility of

¹⁴ Concerning the subsequent trees, be aware of the following aspects:

⁽i) The trees display OV structures as is common for German.

⁽ii) As default, the adjunct is represented as CP, but nothing hinges on this (see also footnote 6). Generally, the inaccessible domain in trees like (43) comprises the c-command domain of the highest phase head within the adjunct.

⁽iii) The trees typically display right-adjunction structures; again, nothing would change if an adjunct were left-adjoined.

having its feature valued in the next phase. In our example, this means that PRO moves successive-cyclically via SpecT to SpecC inside the adjunct (see tree (43)).¹⁵

This line of reasoning follows a number of proposals in the literature which suggest that the need to keep constituents accessible in order to enable feature checking later in the derivation triggers movement to the phase edge.¹⁶ This way an early crash of the derivation can be avoided in phase-based derivations.

However, the position in which PRO occurs in (43), i.e., SpecC inside the adjunct, is the highest position to which it can move since adjuncts are islands for extraction (see Huang 1982).¹⁷ At this point in the derivation, PRO (being at the edge of the CP-phase) is still accessible, whereas material below C inside the adjunct is not; however, as soon as the derivation proceeds and vP merges with T, all material inside the adjunct becomes inaccessible;¹⁸ this is illustrated in tree (44). So tree (43) illustrates the last point in the derivation when PRO is still accessible.



¹⁵ Depending on the language under consideration, PRO might not have to stop in SpecT: typically, movement to SpecT would be EPP-driven; however, not all languages check the EPP via DP-movement to SpecT (see Alexiadou and Anagnostopoulou 1998).

¹⁶ See, for instance, Heck and Müller (2000, 2003), Müller (2004), Fischer (2004), where this is implemented in the form of the principle Phase Balance; and Bošković (2007) and Zeijlstra (2012) with respect to successive-cyclic *wh*-movement, where movement to the phase edges "is taken to be driven by the needs of the moved element itself and not by the need of some target position" (Zeijlstra 2012, 511). Here we also have the situation that movement takes place to retain the possibility of establishing an Agree relation later in the derivation.

¹⁷ Generally speaking (i.e., independent of whether the adjunct is a CP), we can conclude that the highest position to which PRO can move is the edge of the highest phase inside the adjunct.

¹⁸ This follows from the PIC as defined in (39) and the fact that the notion of edge is not recursive; i.e. "the edge β of a category α is not part of the edge of a phase Γ even if α is part of the edge of Γ " (Müller 2011, 171, fn. 12). In (44), this means that PRO (= β) is no longer accessible for operations outside the vP phase (= Γ) since PRO itself is not at the edge of vP; only the adjunct (= α) is.

3.2.2 Obligatory subject control into adjuncts

Let us now derive the control relation in examples like (42), which involves obligatory subject control. Our starting point is the scenario in tree (43).

In order to account for binding effects in adjuncts, Reinhart (1976) has already proposed that the subject DP in (43) c-commands the adjunct in this configuration.¹⁹ In the following, we adopt Bruening's (2014) simplified and generalized version of this c-command definition, which is cited in (45).²⁰

(45) Node A c-commands node B iff the first branching node dominating A does not exclude B.

(Bruening 2014, 356)

(46) α excludes β iff no segment of α dominates β .

(Chomsky 1986, 9)

If we apply these definitions to tree (43), we get the following results: the first branching node dominating the subject is vP; since a segment of vP dominates the vP-adjunct, the vP does not exclude the adjunct–following (45), the subject therefore c-commands the adjunct and thus PRO inside it.

To sum up, we are faced with the following situation: PRO has an unvalued semantic $i\varphi$ -feature and is looking for a suitable goal; the subject DP (which has a valued semantic $i\varphi$ -feature) c-commands PRO, is the closest potential goal, and PRO is still in the accessible domain (see tree (43)). As a result, Agree between PRO and the subject DP can be established (following definition (41)). This yields the desired result: PRO's semantic $i\varphi$ -feature can be valued by the subject DP, which means that we get obligatory subject control into the vP-adjunct. This is illustrated in tree (47).

¹⁹ The original c-command definition Reinhart (1976) proposes in this context is as follows:

⁽i) Node A c(onstituent)-commands node B iff the first branching node α_1 dominating A either dominates B or is immediately dominated by a node α_2 which dominates B, and α_2 is of the same category type as α_1 . (Reinhart 1976, 148)

On the basis of this definition, Reinhart (1976) can rule out sentences like the following:

⁽ii) *The gangsters $[_{VP} [_{VP} \text{ killed him}_1] [_{PP} \text{ in Hoffa}_1 \text{'s hometown}]].$

⁽Reinhart 1976, 69; labeled brackets adapted from Bruening 2014, 355, tree (47b))

²⁰ Note that Bruening himself argues for the notion of phase-command (instead of c-command).





Note in addition that, although accessibility is a precondition for both Agree and movement, this is not yet a sufficient condition for movement (in contrast to Agree; cf. (41a-iii)); hence, Agree into an adjunct can be possible while extraction out of it is illicit (see Fischer 2018 for a more detailed discussion). In short, this is the case because movement hinges on further restrictions (accessibility only being a necessary condition). Since we are only concerned with Agree relations and not with movement operations in this paper, we will not discuss any further what exactly blocks movement out of islands (i.e., which sufficient precondition is not fulfilled in these cases).²¹ At this point, we just want to highlight the fact that Agree and movement involve different sufficient conditions and that an Agree relation between the subject and PRO can successfully be established in (47).

²¹ Of course, what movement might require on top of accessibility is a relevant question which has already been addressed elsewhere in the literature. For instance, Müller's (2010, 2011) account of CED effects makes the following proposal: intermediate movement steps are triggered by edge features (EFs) which have to be inserted on the (intermediate) target phase's head (see also Chomsky's 2000, 2001, 2008 for an earlier version of the Edge Feature Condition). Following Müller (2010, 2011), EF insertion is only possible if the respective phase head is still active, i.e. if it still bears some other probe or structure-building feature. So this might be the additional requirement on movement we are looking for: EF insertion in the target phase must be possible, otherwise movement into this phase is blocked, completely independent of the question of accessibility. So in (47) this would mean that PRO cannot leave the adjunct, simply because EF insertion on v is blocked (since the phase head is already inactive at this point of the derivation because the vP is already complete).

In fact, in Müller's original account, adjuncts are treated as being specifiers of special functional projections (in line with Alexiadou 1997; Cinque 1999; see Müller 2010, 46); our treatment of adjuncts might involve a much simpler reason: in trees like (47), movement out of the adjunct to a Specv position is simply not possible because this would violate the Extension Condition (Chomsky 1995) since the tree would not be extended at the root (and direct movement out of the vP phase is excluded by the PIC).

3.3 Adjunction in the VP-domain

Let us now turn to adjunction in the VP-domain, which results in obligatory object control. To illustrate this once again, consider example (48) (repeated from (16b) and (16a), respectively).

- (48) a. Eine Kerze genügt **ihm**_i, [**PRO**_i um sich zurechtzufinden]. *a candle suffices him.DAT in.order.to REFL to.orientate* 'A candle is sufficient for him to orientate himself.'
 - b. Man bezahlte **die Studenten**_i, [**PRO**_i um Flyer zu verteilen]. *one paid the students.ACC in.order.to flyer to hand.out* 'The students were paid to hand out flyers.'

3.3.1 Obligatory object control into adjuncts involving DP_{DAT}

First, we want to consider sentences in which the controlling object bears dative Case. As pointed out before, we follow Anagnostopoulou (1999), Pylkännen (2002), McFadden (2004, 2006), Høyem (2018), among others, and assume that Appl° introduces the dative argument; the underlying structure thus looks as indicated in tree (49).

(49)



Since VP is not a phase, PRO is still accessible when the object DP enters the derivation. The DP c-commands PRO, has a valued semantic $i\varphi$ -feature, and is thus the closest goal for PRO. As a result, an Agree relation can be established, which yields the desired result: we get obligatory object control into the VP-adjunct (again, following definition (41)). This is illustrated in detail in tree (50).



3.3.2 Obligatory object control into adjuncts involving DP_{ACC}

If the controlling object bears accusative Case, the underlying scenario looks as indicated in tree (51).

(51)



Following the c-command definition in (45), the object DP c-commands PRO since VP, the first branching node dominating the object DP, does not exclude PRO since the latter is dominated by a VP segment.²² Again, PRO enters the derivation with an unvalued semantic $i\varphi$ -feature whereas the object DP bears a valued semantic $i\varphi$ -feature. Since the object DP c-commands PRO and both are accessible at this point in the derivation, an Agree relation can be established and valuation can take place; i.e. OC is derived (see (52)).

 $^{^{22}}$ Recall also Reinhart's (1976) example cited as (ii) in footnote 19, where this c-command relation accounts for the observed Principle C effect.

(52)



3.4 Adjunction in the TP- and CP-domain

3.4.1 On the syntactic difference between OC and NOC

Let us now turn to those cases that involve higher adjunction sites, i.e. adjunction in the TP/CP-domain. As shown in Sect. 2.3, these instances of control all involve NOC, so we concluded that the empirical picture is as follows: control into adjuncts at the vP/VP-level classifies as OC, whereas adjunct control outside the verbal domain classifies as NOC. How does this distinction come about? We assume that it is the question of how PRO is ultimately licensed which determines whether we end up with OC or NOC; i.e. the underlying syntactic structure is the same in the two control types.²³ If we do not get OC outside the verbal domain, this suggests that, at this point in the derivation, DPs do not qualify as potential goals for PRO anymore, which then implies that the valuation of PRO's unvalued semantic *i* φ -feature under Agree fails. So we are left with the following two questions: (i) what happens to PRO if such an Agree relation cannot be established, and (ii) what is it that renders DPs in the TP/CP-domain useless for an Agree relation with PRO?

Concerning the first question, we follow Preminger (2014) in assuming that failed agreement does not necessarily lead to ungrammaticality; instead, we assume that the semantic interpretation we end up with if PRO's semantic *i* φ -feature remains unvalued in narrow syntax is determined by pragmatic factors (like logophoricity; see also Landau 2015, among others). As a result, we either get arbitrary control or control by a salient entity in the discourse (like the speaker). We will illustrate this with concrete examples in Sect. 3.4.2.

As far as the second question is concerned, the following observation can be made: DPs that would be high enough in the syntactic structure to be able to c-command PRO in these high adjuncts all share the common property that they

²³ By contrast, theories like Landau's (2015) two-tiered theory of control assume that OC and NOC involve different underlying syntactic structures to begin with, i.e. the control clauses are embedded differently (which then implies a different licensing mechanism).

have already been Case-marked before they undergo movement to this position.²⁴ So we argue that it is this property which excludes them from being potential goals for PRO. By contrast, we have the following scenario in the case of OC: accusative objects license PRO inside the VP and subjects license PRO inside the vP, i.e. before the respective Case-marking heads even enter the derivation. In the case of dative objects, we have assumed that their base position is SpecAppl; so they can first license PRO inside the VP-adjunct and then receive Case from Appl^o.²⁵

That Case and A-processes are somehow related is not a new idea and has been implemented in different ways in the literature, starting with Chomsky (1981). What has typically been in the center of discussion in the past is the question of how or whether Case-marking affects A-movement. The central correlation proposed in the 1980s was that DP-movement is driven by the need to satisfy the Case Filter. McGinnis (1998) suggested the principle of Case Identification, which implies that "[o]nce the Case feature has been checked and deleted, it cannot identify a phrase for pied-piping, so Move is blocked" (McGinnis 1998, 36). So here as well, Case checking renders a DP unsuitable for certain subsequent processes. With the advent of Agree, it was then commonly assumed that Case valuation and φ -feature valuation go hand in hand. This is most obvious in Chomsky (2000), where [uCase]features are checked via Reverse Agree as a side effect of φ -Agree. But even in proposals which do not assume such a direct relation (like Pesetsky and Torrego 2007), the respective features typically appear jointly on the same constituents and establish Agree relations at the same point in the derivation.²⁶ The assumption that Case also influences other processes has culminated in the postulation of the Activity Condition (see Chomsky 2000, 2001), according to which "DPs whose case feature is valued become inactive and thereby unable to undergo subsequent A-processes" (Keine 2018, 2, based on Chomsky 2000, 123, 127; Chomsky 2001, 6). In the meantime, the Activity Condition as such has been critically reviewed at various places (see, for instance, Nevins 2004; Preminger 2014; Keine 2018), and in particular its role in constraining A-movement has been questioned. It may well be true that the Activity Condition as such does not hold; however, we still think that the central property that DPs outside the verbal domain share is that they enter this domain already Case-marked. Hence, we suggest that this is what excludes them from establishing an Agree relation with PRO, which would license OC. As a result, control into TP/CP-adjuncts can only involve NOC.²⁷

²⁴ This also holds for subject DPs, which are Case-marked in Specv, following Agree-based approaches like Chomsky (2000, 2001) or Pesetsky and Torrego (2007).

²⁵ So although Dative arguments are Case-marked inside the verbal domain, the crucial point is that they do not *enter* this domain Case-marked.

²⁶ Following Pesetsky and Torrego (2007), nominative Case is encoded in terms of T-features. T°, bearing the features [u φ : _] and [iT: _], first agrees with the subject DP in Specv (with the features [i φ : *val*] and [uT: _]) and then with v° (which bears a valued T-feature); as a result, all unvalued features can be valued.

²⁷ Since we only look at data from German, Norwegian, and English, it may well be the case that adjunct control in other languages behaves differently and that this might have something to do with the fact that the correlation between Case and the ability to establish an Agree relation with PRO does not hold in these languages. We leave this question to future research.

In the next subsection, we will show how our examples involving NOC are derived under these assumptions. In the trees below, we call DPs whose Case features have already been valued A-inactive and thus suggest that A-inactive DPs cannot license PRO syntactically, i.e., establish an OC relation via upward Agree.

3.4.2 Non-obligatory control into TP/CP-adjuncts

As we have seen in Sect. 2.3, NOC into TP-adjuncts can involve arbitrary PRO (PRO_{arb}) or control by a salient entity in the discourse, like the speaker; since CP-adjuncts involve speech act adverbials, they are typically speaker-oriented and thus only involve PRO_{speaker}. Consider again the examples in (53) (repeated from (36d)), (54a) (repeated from (36b)) and (54b) (repeated from (36c)).

(53) *TP-adjunct:*²⁸

[PRO_{arb} Von Mainz kommend] empfiehlt sich die Fahrt from Mainz coming.PRS.PTCP recommends REFL the journey mit der S-Bahnlinie 8 bis Wiesbaden Hauptbahnhof. with the city-train.line 8 to Wiesbaden central.train.station 'When coming from Mainz, it is advisable to take the city metro line 8 to Wiesbaden central station.'

(54) a. **TP-adjunct:**

Er ist, [PRO_{speaker} ohne zu übertreiben], weit und breit der he is without to exaggerate widely and broadly the beste Billiard-Spieler.

best billiard-player

'He is, without exaggeration, the best billiard player ever.'

(Pittner 1999, 338)

b. CP-adjunct:

[PRO_{speaker} Um ehrlich zu sein,] ich habe nie viel von for honest to be I have never much of Kriminalromanen gehalten. crime.novels held 'To be honest, I have always disliked crime novels.' (Pittner 1999, 357)

Let us now see how control into TP-adjuncts is derived. When the TP is completed, the syntactic structure looks as indicated in tree (55). Independent of whether there is a DP in SpecT or not (which might not be the case in German, as pointed out in footnote 15), such a DP would already be Case-marked and thus be A-inactive when the adjunct including PRO is merged into the derivation. As a result, PRO cannot establish an Agree relation with a DP in SpecT.

²⁸ Note that the adverbial surfaces in SpecC in this V2-sentence, but as a sentence adverbial it was basegenerated as a TP-adjunct.

(55)



Since TP is not a phase, PRO remains accessible when the derivation proceeds. However, all DPs that could enter the derivation in the CP-domain are also Case-marked DPs, which means that they could not establish an Agree relation with PRO either (see tree 56). As a result, PRO's semantic $i\varphi$ -feature remains unvalued in narrow syntax.²⁹

As outlined in the previous section (and in line with Preminger 2014), we do not assume that this results in ungrammaticality; instead, we suggest that this gives rise to a different licensing strategy based on pragmatic factors.³⁰ If there is no discourse-salient referent, we end up with a default interpretation. This is what happens in (53), which means that PRO is ultimately interpreted as PRO_{arb} (see tree (56)).

²⁹ Note that the situation would not change if the CP in (56) introduced an embedded clause; since CP is a phase, PRO would become inaccessible as soon as the root node in (56) would merge with a potential matrix V. So DPs in the matrix clause would not be accessible goals for a PRO inside an embedded TP- or CP-adjunct either.

³⁰ That NOC results as a last resort strategy if the conditions for OC are not met has already been proposed earlier in the literature; for some recent implementations see, for instance, Fischer (2018) and McFadden and Sundaresan (2018). However, in contrast to these two proposals, we suggest that arbitrary PRO and speaker-oriented PRO are derived in the same way via the pragmatic licensing strategy (i.e., without a syntactic Agree operation). By contrast, Fischer (2018) and McFadden and Sundaresan (2018) assume that, in the latter case, there is an Agree relation between PRO and the attitude (or perspective) holder.



By contrast, in examples like (54), the attitude of some attitude holder (the speaker in this case) is reflected; i.e. we deal with attitudinal contexts. Generally speaking, the attitude holder corresponds to a salient entity in the discourse which could be the speaker (as in (54)) or a non-local antecedent (as, for instance, in long distance control). If the discourse provides such a salient referent, pragmatic licensing predicts that this is PRO's interpretation. In examples like (54), PRO is therefore ultimately predicted to be interpreted as PRO_{speaker}.³¹

As outlined in footnote 30, we assume that this control relation is not syntactically licensed.³²However, following Speas (2004), Sigurðsson (2004, 2014), Sundaresan and Pearson (2014), Landau (2015), Fischer and Pitteroff (2016),³³ among others, logophoric anchoring as such might of course be encoded in syntax in the following way: in attitudinal contexts, a logophoric center is projected in the left periphery, which introduces the attitude holder also syntactically. Since PRO_{speaker} behaves like a logophor,³⁴ licensing of PRO_{speaker} then boils down to standard logophoric licensing: the attitude holder is the antecedent a logophor needs to be licensed (cf. Zribi-Hertz 1989).

Hence, the underlying tree structure for sentences like (54a) would look as indicated in (57). Note that we remain agnostic as to the precise labeling of the heads in the extended CP; in tree (57), we therefore simply use the labels C_{α} and C_{γ} (for instance, following Sato and Kishida 2009, C_{γ} could be called *Point-of-View*

 $^{^{31}}$ In other examples, it might then be more neutral to replace the term PRO_{speaker} with PRO_{attitude holder}.

³² As pointed out by McFadden and Sundaresan (2018, 500), "flexibility of reference is characteristic of NOC"; if the interpretation of NOC PRO is not determined in narrow syntax but rather by pragmatic factors, this is not unexpected.

³³ Fischer and Pitteroff have argued for this view in their talk 'Psych verbs and control into subject clauses in German' at GGS 42, University of Leipzig.

³⁴ In fact, NOC PRO has long been shown to behave like a logophor; see, for instance, Kuno (1975), Landau (2013, 2015).

Projection (POVP)). Note, moreover, that the complete extended CP (CP_{α} plus CP_{γ}) forms the next phase.



Finally, we briefly turn to CP-adjunctions (as illustrated in examples like (54b)). In fact, the analysis does not really differ from the one outlined above for sentences like (54a) (involving a TP-adjunct). DPs in the CP-domain cannot function as a goal for PRO anymore since they are already A-inactive at this point in the derivation. Thus, PRO's semantic *i* φ -feature cannot be valued in narrow syntax and the pragmatic licensing strategy applies instead. Since CP-adjuncts involve speech act adverbials, they typically occur in attitudinal contexts; this means we have an attitude holder which ultimately determines the interpretation of PRO; see tree (58). In sentence (54b), we can thus conclude that it involves PRO_{speaker}.



4 Conclusion

4.1 Empirical situation

Considering data from German, Norwegian, and English, we have come to the conclusion that these three languages seem to behave alike with respect to adjunct control. In particular, we have made the following observation: although adjunct control comprises many different constructions and adverbials and the distinction between OC and NOC cuts through the set of examples, it all seems to boil down to the clear-cut distinction summarized in (59):

- (59) a. Adjunction in the vP-domain results in obligatory subject control.
 - b. Adjunction in the VP-domain results in obligatory object control.
 - c. A higher adjunction site yields NOC.

Crucially, the adjunction site itself is determined independently by the underlying semantics of the respective adverbial adjuncts. As has been shown in the literature on scope-based adjunct theories (see, among others, Frey and Pittner 1998, 1999; Pittner 1999; Haider 2000; Ernst 2002, 2014), process-modifying adverbials adjoin to VPs, event-modifying adverbials adjoin to vPs, sentence adverbials adjoin to TPs, and speech act adverbials adjoin to CPs.

So apart from providing an empirical overview involving adverbials of all types from the three languages under discussion, the first part of this paper brings together these insights from the literature on adverbials and control theory and can thus link different types of control with different adjunction heights.

4.2 Theoretical implementation

To implement these findings technically, we have proposed a phase-based approach that works as follows: OC is licensed under upward Agree with PRO (the probe)

looking for an accessible goal (ultimately the controller) to value its semantic $i\varphi$ -feature (following Wurmbrand's 2017 terminology) and thereby establish a binding relation which referentially identifies PRO.

For vP-adjuncts, the subject DP turned out to be the closest available goal and is thus predicted to be the obligatory controller (see tree (47)); hence, observation (59a) is correctly derived. Similarly, in the case of VP-adjuncts, the object DP turned out to be the closest available goal; hence, obligatory object control is straightforwardly predicted (see tree (50) for dative objects and tree (52) for accusative objects) and observation (59b) is thus derived.

If the adverbial is adjoined outside the verbal domain, i.e. if we consider control into TP- or CP-adjuncts, we generally face the following situation: DPs occurring in these domains have already become A-inactive at this point in the derivation, which means that they cannot function as a goal for PRO anymore even if they have moved into the accessible domain. Hence, PRO's unvalued semantic $i\varphi$ -feature remains unvalued in narrow syntax, which triggers a last resort licensing strategy based on pragmatic factors. As a result, the semantic interpretation of PRO is determined as follows: if there is a salient referent in the discourse (like the attitude holder, which is often the speaker itself), this will be PRO's interpretation (see tree (57) and (58)); otherwise, we ultimately end up with arbitrary PRO (see tree (56)). So, generally speaking, NOC occurs if the structural requirements for OC cannot be met (see also, among others, Fischer 2018; Mc Fadden and Sundaresan 2018). As this happens in the case of TP- and CP-adjunction, we correctly predict observation (59c).

Since we consider the different underlying adjunction sites to be the pivotal point, our analysis as such does not predict differences for the three languages under investigation; therefore, the lack of variation that we have observed when comparing German, Norwegian, and English adjunct control is, after all, expected.

Acknowledgments An earlier version of this paper has been presented at the Comparative Germanic Syntax Workshop 2017 at NTNU, Trondheim. Many thanks to the audience for feedback and fruitful discussions. Moreover, we are in particular grateful to three anonymous reviewers, Kristin Brodahl, Terje Lohndal, and Susi Wurmbrand for inspiring comments and suggestions. Naturally, they are in no way responsible for any errors or omissions that remain.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicate otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

Funding Open Access funding enabled and organized by Projekt DEAL.

References

- Åfarli, Tor Anders. 1997. Dimensions of phrase structure: The representation of sentence adverbials. *Motskrift* 2: 91–113.
- Alexiadou, Artemis. 1997. Adverb placement. Amsterdam: John Benjamins.
- Alexiadou, Artemis, and Elena Anagnostopoulou. 1998. Parametrizing AGR: Word order, V-movement, and EPP-checking. *Natural Language and Linguistic Theory* 16: 491–540.

Anagnostopoulou, Elena. 1999. On clitics, feature movement and double object alternations. In Proceedings of NELS 29, vol. 2, papers from the poster sessions, eds. Pius Tamanji, Masako Hirotani, and Nancy Hall, 41–55. Amherst, MA: GLSA Publications.

Baker, Mark. 2008. The syntax of agreement and concord. Cambridge: Cambridge University Press.

- Barbiers, Sjef. 1995. *The syntax of interpretation*. The Hague: Holland Academic Graphics (HIL Dissertation 14).
- Bech, Gunnar. 1957. Studium über das deutsche Verbum Infinitum, vol. 2. Kopenhagen: Munksgaard.
- Bjorkman, Bronwyn. 2011. *BE-ing default: The morphosyntax of auxiliaries*. Ph.D. dissertation, MIT, Cambridge, MA.
- Bjorkman, Bronwyn, and Hedde Zeijlstra. 2019. Checking up on (phi-)Agree. *Linguistic Inquiry* 50: 527– 569.
- Bošković, Željko. 2007. On the locality and motivation of Move and Agree: An even more minimal theory. *Linguistic Inquiry* 38: 589–644.
- Bošković, Željko. 2009. Unifying first and last conjunct agreement. Natural Language and Linguistic Theory 27: 455–496.
- Bowers, John. 1993. The syntax of predication. Linguistic Inquiry 24: 591-656.
- Brodahl, Kristin Klubbo. 2016. Zu deutschen Partizipialkonstruktionen mit dem Partizip 1 als Kern. Master's thesis, NTNU Trondheim.
- Brodahl, Kristin Klubbo. 2018. Zur Syntax und Semantik adverbialer Partizipialkonstruktionen mit dem Partizip 1 im Deutschen. *Deutsche Sprache* 46 (4): 289–314.
- Brodahl, Kristin Klubbo. 2020. Partizipialkonstruktionen im Deutschen: Eine syntaktisch-semantische Typologie. *Deutsche Sprache* 48 (3): 249–279.
- Brodahl, Kristin Klubbo, and Inghild Flaate Høyem. 2018. Adverbiale Partizipialkonstruktionen im Deutschen mit dem Partizip 1 als Kern. In Sprachen verbinden: Sprache und Sprachen in Forschung und Anwendung, vol. 6, eds. Vera Janíková, Alice Brychová, Jana Velickové, and Roland Wagner, 119–128. Hamburg: Wissenschaftsverlag Dr. Kovač.
- Bruening, Benjamin. 2014. Precede-and-command revisited. Language 90: 342-388.
- Businger, Martin. 2011. "Haben" als Vollverb. Berlin: Mouton de Gruyter.
- Chomsky, Noam. 1981. Lectures on government and binding. Dordrecht: Foris.
- Chomsky, Noam. 1986. Barriers. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step*, eds. Martin Roger, David Michaels, and Juan Uriagereka, 89–255. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2008. On phases. In Foundational issues in linguistic theory, eds. Robert Freidin, Carlos Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.
- Cinque, Guglielmo. 1999. Adverbs and functional heads. Oxford: Oxford University Press.
- Eide, Kristin Melum. 1996. Som-predikativer. Master's thesis, NTNU Trondheim.
- Eide, Kristin Melum. 1998. Kopulapartikler og dynamisk komposisjonalitet. In Norsk språkvitskap: Utvalde artiklar frå MONS 7, eds. Jan Terje Faarlund, Brit Mæhlum, and Torbjørn Nordgård, 35–54. Oslo: Novus.
- Eide, Kristin Melum, and Inghild Flaate 2017. German vs. Norwegian small clauses headed by als/som. Handout CGSW 32, NTNU Trondheim.
- Emonds, Joseph. 1985. A unified theory of syntactic categories. Dordrecht: Foris.
- Ernst, Thomas. 2002. The syntax of adjuncts. Cambridge: Cambridge University Press.
- Ernst, Thomas. 2014. The syntax of adverbs. In *The Routledge Handbook of Syntax*, eds. Andrew Carnie, Dan Siddiqi, and Yosuke Sato, 108–130. London: Routledge.
- Faarlund, Jan Terje, Svein Lie, and Kjell Ivar Vanneboe. 1997. Norsk referansegrammatikk. Oslo: Universitetsforlaget.

- Fabricius-Hansen, Cathrine, and Dag Haug. 2012. Co-eventive adjuncts: Main issues and clarifications. In Big events, small clauses, eds. Cathrine Fabricius-Hansen and Dag Haug, 21–54. Berlin: Mouton de Gruyter.
- Fischer, Silke. 2004. Towards an optimal theory of reflexivization. Ph.D. dissertation, University of Tübingen.
- Fischer, Silke. 2006. Matrix unloaded: Binding in a local derivational approach. *Linguistics* 44: 913–935. https://doi.org/10.1515/LING.2006.030.
- Fischer, Silke. 2018. Locality, control, and non-adjoined islands. *Glossa: A Journal of General Linguistics* 3(1): 82. 1–40, https://doi.org/10.5334/gjgl.182.
- Fischer, Silke, and Inghild Flaate Høyem. 2021. Event control. In Non-canonical control in a crosslinguistic perspective, eds. Anne Mucha, Jutta M. Hartmann, and Beata Trawinski, 197–222. Amsterdam: John Benjamins.
- Fischer, Silke, and Marcel Pitteroff. 2016. Psych verbs and control into subject clauses in German. https:// www.ling.uni-stuttgart.de/institut/ifla/PDF_Upload/Silke_Fischer/Praesentationen/fis-GGS-2016psych-control.pdf.
- Flaate, Inghild. 2007. Die "als"-Prädikative im Deutschen. Tübingen: Stauffenburg.
- Frey, Werner. 2003. Syntactic conditions on adjunct classes. In *Modifying adjuncts*, eds. Cathrine Fabricius-Hansen, Ewald Lang, and Claudia Maienborn, 163–209. Berlin: Mouton de Gruyter.
- Frey, Werner, and Karin Pittner. 1998. Zur Positionierung der Adverbiale im deutschen Mittelfeld. *Linguistische Berichte* 176: 497–544.
- Frey, Werner, and Karin Pittner. 1999. Adverbialpositionen im deutsch-englischen Vergleich. In Sprachspezifische Aspekte der Informationsverteilung, ed. Monika Doherty, 14–41. Berlin: Akademie-Verlag.
- Frey, Werner, and Hubert Truckenbrodt. 2015. Syntactic and prosodic integration and disintegration in peripheral adverbial clauses and in right dislocation/afterthought. In *Syntactic complexity across interfaces*, eds. Andreas Trotzke and Joseph Bayer, 75–106. Berlin: Mouton de Gruyter.
- Haegeman, Liliane. 2012. Adverbial clauses, main clause phenomena, and the composition of the left periphery. Oxford: Oxford University Press.
- Haegeman, Liliane, and Terje Lohndal. 2010. Negative concord and (multiple) Agree: A case study of West Flemish. *Linguistic Inquiry* 41: 181–211.
- Haider, Hubert. 2000. Adverb placement Convergence of structure and licensing. *Theoretical Linguistics* 26: 95–134.
- Haider, Hubert. 2015. Control does not involve movement—Pretty clear evidence from German. https:// www.academia.edu/9154596/Control_does_not_involve_movement_Pretty_clear_evidence_from_ German_rev_v_15_08_15_.
- Haug, Dag, Cathrine Fabricius-Hansen, Bergljot Behrens, and Hans Peter Helland. 2012. Open adjuncts: Degrees of event integration. In *Big events, small clauses*, eds. Cathrine Fabricius-Hansen and Dag Haug, 131–178. Berlin: Mouton de Gruyter.
- Heck, Fabian, and Gereon Müller. 2000. Successive cyclicity, long-distance superiority, and local optimization. In *Proceedings of WCCFL 19*, eds. Roger Billerey and Brook Danielle Lillehaugen, 218–231. Somerville, MA: Cascadilla Press.
- Heck, Fabian, and Gereon Müller. 2003. Derivational optimization of *wh*-movement. *Linguistic Analysis* 33: 97–148.
- Helland, Hans Petter, and Anneliese Pitz. 2012. Open adjuncts: Participial syntax. In *Big events, small clauses*, eds. Cathrine Fabricius-Hansen and Dag Haug, 93–130. Berlin: Mouton de Gruyter.
- Høyem, Inghild Flaate. 2015. Zum Kontrollproblem adverbialer Infinitive im Deutschen. Deutsche Sprache 43: 159–183.
- Høyem, Inghild Flaate. 2018. Adjunktkontrolle im Deutschen. Linguistische Berichte 255: 347-395.
- Høyem, Inghild Flaate. 2019. Zur Syntax und Semantik absoluter *mit*-Sätzchen im Deutschen. *Linguistische Berichte* 260: 471–501.
- Høyem, Inghild Flaate, and Kristin Klubbo Brodahl. 2019. Über den Kontrollstatus deutscher Partizipialkonstruktionen mit dem Partizip 2 als Kern. *Deutsche Sprache* 47 (2): 98–124.
- Hornstein, Norbert. 1999. Movement and control. Linguistic Inquiry 30: 69-96.
- Huang, Cheng-Teh James. 1982. Logical relations in Chinese and the theory of grammar. Ph.D. dissertation, MIT, Cambridge, MA.
- Keine, Stefan. 2018. Case vs. positions in the locality of A-movement. Glossa: A Journal of General Linguistics 3(1): 138. 1–34, https://doi.org/10.5334/gjgl.520.

König, Ekkehard. 1995. The meaning of converb constructions. In *Converbs in cross-linguistic perspective*, eds. Martin Haspelmath and Ekkehard König, 189–239. Berlin: Mouton de Gruyter.

Kortmann, Bernd. 1991. Free adjuncts and absolutes in English. London: Routledge.

- Kuno, Susumo. 1975. Super Equi-NP deletion is a pseudo-transformation. In *Proceedings of NELS 5*, eds. Ellen Kaisse and Jorge Hankamer, 29–44. Amherst, MA: GLSA Publications.
- Landau, Idan. 2000. Elements of control. Dordrecht: Kluwer.
- Landau, Idan. 2013. Control in generative grammar. Cambridge: Cambridge University Press.

Landau, Idan. 2015. A two-tiered theory of control. Cambridge, MA: MIT Press.

- Landau, Idan. 2017. Adjunct control depends on voice. In A pesky set: Papers for David Pesetsky. MIT Working Papers in Linguistics 80, eds. Claire Halpert, Hadas Kotek, and Coppe van Urk, 93–102. Cambridge, MA: MIT.
- Leys, Odo. 1971. Die Präpositionalinfinitive im Deutschen. In Fragen der strukturellen Syntax und der kontrastiven Grammatik, ed. Hugo Moser, 9–65. Düsseldorf: Schwann.
- Lyngfelt, Benjamin. 2002. Kontroll i svenskan. Ph.D. dissertation, University of Göteborg.
- McFadden, Thomas. 2004. The position of morphological case in the derivation: A study on the syntaxmorphology interface. Ph.D. dissertation, University of Pennsylvania.
- McFadden, Thomas. 2006. German inherent datives and argument structure. In *Datives and other cases*, eds. Daniel Hole, André Meinunger, and Werner Abraham, 49–77. Amsterdam: John Benjamins.
- McFadden, Thomas, and Sandhya Sundaresan. 2018. Reducing pro and PRO to a single source. The Linguistic Review 35: 463–518.
- McGinnis, Martha. 1998. Locality in A-movement. Ph.D. dissertation, MIT, Cambridge, MA.
- Müller, Gereon. 2004. Phrase impenetrability and *wh*-intervention. In *Minimality effects in syntax*, eds. Arthur Stepanov, Gisbert Fanselow, and Ralf Vogel, 289–325. Berlin: Mouton de Gruyter.
- Müller, Gereon. 2010. On deriving CED effects from the PIC. Linguistic Inquiry 41: 35-82.
- Müller, Gereon. 2011. Constraints on displacement. A phase-based approach. Amsterdam: John Benjamins.
- Nevins, Andrew. 2004. Derivations without the Activity Condition. In Perspectives on phases. MIT Working Papers in Linguistics 49, eds. Martha McGinnis and Norvin Richards, 287–310. Cambridge, MA: MIT.
- Nissenbaum, Jon. 2005. States, events and VP structure: Evidence from purposive adjuncts. http:// userhome.brooklyn.cuny.edu/jnissenbaum/Research/files/h2005-PurposeClause-VP-structure-NELS.pdf.
- Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and clausal architecture*, eds. Simin Karimi, Vida Samiian, and Wendy K. Wilkins, 262– 294. Amsterdam: John Benjamins.
- Pittner, Karin. 1999. Adverbiale im Deutschen. Tübingen: Stauffenburg.
- Preminger, Omer. 2014. Agreement and its failures. Cambridge, MA: MIT Press.
- Pylkännen, Liina. 2002. Introducing arguments. Ph.D. dissertation, MIT, Cambridge, MA.
- Reinhart, Tanya. 1976. The syntactic domain of anaphora. Ph.D. dissertation, MIT, Cambridge, MA.
- Sato, Yosuke, and Maki Kishida. 2009. Psychological predicates and the point-of-view hyper-projection. Gengo Kenkvu 135: 123–150.
- Schäfer, Florian. 2008. The syntax of (anti-)causatives: external arguments in change-of-state contexts. Amsterdam: John Benjamins.
- Sheehan, Michelle. 2018. On the difference between exhaustive and partial control. In *Null subjects in generative grammar: A synchronic and diachronic perspective*, eds. Federica Cognola and Jan Casalicchio, 141–170. Oxford: Oxford University Press.
- Sigurðsson, Haldór. 2004. The syntax of person, tense, and speech features. *Italian Journal of Linguistics* 16: 219–251.
- Sigurðsson, Haldór. 2014. About pronouns. Working Papers in Scandinavian Syntax 92: 65-98.
- Solstad, Torgrim. 2016. Lexikalische Semantik im Kontext: Die Spezifikation kausaler Relationen am Beispiel von durch. Tübingen: Stauffenburg.
- Speas, Margaret. 2004. Evidentiality, logophoricity and the syntactic representation of pragmatic features. *Lingua* 114: 255–276.
- Stolterfoht, Britta. 2020. Processing Temporality: position-tense-aspect.Presentation slides, Linguistic Research Colloquium, University of Stuttgart.
- Sundaresan, Sandhya, and Hazel Pearson. 2014. Formalizing linguistic perspective: Insights from spatial anaphora. http://ling.auf.net/lingbuzz/002270.

Thurén, Camilla. 2008. The syntax of the Swedish present participle. Ph.D. dissertation, University of Lund.

Wurmbrand, Susi. 2011. On agree and merge. Lecture Notes, University of Connecticut.

Wurmbrand, Susi. 2017. Formal and semantic agreement in syntax: A dual feature approach. In Language use and linguistic structure: Proceedings of the Olomouc Linguistics Colloquium 2016, eds. Joseph Emonds and Markéta Janebová, 19–36. Olomouc: Palacky University.

Zeijlstra, Hedde. 2012. There is only one way to agree. The Linguistic Review 29: 491-539.

Zribi-Hertz, Anne. 1989. Anaphor binding and narrative point of view: English reflexive pronouns in sentence and discourse. *Language* 65: 695–727.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.