

# Prolepsis

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## 1 Introduction: the phenomenon

The linguistic term *prolepsis* refers to a construction where a structural complement of the matrix verb is semantically related to the predicate of the embedded clause without there being an obvious movement relationship (as the name suggests, the constituent anticipates information that will be integrated later; there is also a wider use of the term roughly equivalent to cataphora). In the following German example, the proleptic object (sometimes also referred to as *prothetic object*) is governed by a preposition and is semantically related to a position occupied by a coreferential pronoun.

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In what follows, both the proleptic object and the coreferential pronoun will be underlined (the translation shows that the construction occurs in English as well, see, e.g., Khalaily 1997):<sup>1</sup>

## (1) German

Ich glaube von ihm, dass er ein ganz guter Trainer ist.  
 I believe.1SG of he.DAT that he a quite good coach be.3SG  
 'I believe of him that he is a pretty good coach.'  
 (<http://www.austriansoccerboard.at/index.php/topic/96343-sk-sturm-graz-wac/page-4>, accessed August 29, 2016)

The semantics of the construction is very similar to that of regular complementation (as in *I believe that he is a good coach*), the major difference being that the proleptic constituent has obligatory wide scope with respect to the matrix verb, see (30)–(32) below.

In what follows, I will illustrate the properties of prolepsis mainly by means of German data where the construction is particularly prominent and natural and has been studied in most detail. It occurs most frequently as an alternative to long A'-movement or scope marking, with the proleptic object undergoing A'-movement. It is most unmarked with relativization where long movement is strongly degraded if not ungrammatical, but it also occurs with topicalization and, to a lesser extent, with *wh*-movement (see Salzmann 2006, 151–154 for details about German):<sup>2</sup>

## (2) German

- a. Von welchem Maler glaubst du, dass Maria ihn mag?  
 of which.DAT painter think.2SG you that Mary him like.3SG  
 'Of which painter do you think that Mary likes him?'
- b. ein Maler, von dem ich glaube, dass Maria ihn mag  
 a painter of who.DAT I think.1SG that Mary him like.3SG  
 'a painter of whom I think that Mary likes him'
- c. Von dem Maler glaube ich, dass Maria ihn mag.  
 of the.DAT painter think.1SG I that Mary him like.3SG  
 'Of the painter, I think that Mary likes him.'

The construction is similarly prominent in Dutch *waarvan*-relatives (see Hoeksema and Schippers 2012; and Schippers 2012 for details including the diachronic development), in French *dont*- and in Serbian *za-koga*-relatives:

## (3) a. Dutch

Kort geleden had ik deze droom waarvan ik  
 recently have.PST.1SG I this dream which.of I  
 denk dat hij belangrijk is.  
 think.1SG that it important be.3SG  
 'Not long ago I had this dream of which I think that it is important.'  
 (<http://www.jancvanderheide.com/vragen-aan-jan/144-mb-te-a-kort-geleden-had-ik-deze-droom-waarvan-ik-denk-dat-hij-belangrijk-is>, accessed January 20, 2015)

## b. French

un professeur dont les parents savent que les  
 a professor of.who the parents know.3PL that the  
 élèves lui font confiance  
 students he.DAT make.3PL trust

'a professor of whom the parents know that the students trust him'

(Tellier 1991, 98)

## c. Serbian

Čovjek za koga znaš da ga Marija voli.  
 man for whom know.2SG that him Marija love.3SG  
 'the man of whom you know that Mary loves him'

(Bošković 2009, 89)

While the proleptic object is related to a subject or an object in these examples, any other grammatical relation would be possible as well (such as possessor and adjunct relations). The construction is also compatible with non-finite complement clauses (see Salzmann 2006, 205–206).

Even though prolepsis can be found in many languages, it has received rather little attention in the literature. This is probably related to the fact that its analysis seems straightforward: the proleptic constituent is taken to be an argument of the matrix verb while the coreferential pronoun is simply anaphoric. Such an analysis seems to receive support from the following observations: First, the examples involving A'-movement as in (2) can be related to the in-situ variant with the PP in the middle field as in (1); this suggests that the PP originates within the projection of the verb and can optionally undergo A'-movement. Second, the relationship between the proleptic object and the coreferential pronoun is not only unbounded but also insensitive to locality, see Salzmann (2006, 206–208) (islands are enclosed in angled brackets):

## (4) German

## a. CNPC-island

der Mann, von dem ich denke, dass Marie  
 the man of who.DAT I think.1SG that Mary

<jedes Buch liest, das er schreibt>  
 every book read.3SG which he write.3SG

'the man of whom I think that Mary reads every book that he writes'

b. *wh*-island

der Mann, von dem ich glaube, dass niemand weiß,  
 the man of who.DAT I believe.1SG that no.one know.3SG

<wie er heißt>

how he be.called.3SG

'the man of whom I think that no one knows what he is called'

Third, the form of the coreferential element shows the same range of possibilities that we find in anaphoric dependencies, see Salzmann (2006, 154–157, 299–301): it is normally a weak pronoun and occurs in the Wackernagel-position, that is, right

below TP and thus at the left edge of the middle field. But the proform can also be strong, for example if modified by a focus particle:

- (5) German  
 der Mann, von dem ich glaube, dass Maria wahrscheinlich  
 the man of who.DAT I believe.1SG that Mary probably  
 nur IHN liebt  
 only HIM love.3SG  
 'probably the only man of whom I think that Mary loves him'

Furthermore, demonstratives and epithets are possible as well:

- (6) German  
 a. der Typ, von dem ich vermute, dass der Maria  
 the guy of who.DAT I suspect.1SG that DEM Mary  
 heiraten will  
 marry.INF want.3SG  
 'the guy of whom I suspect he wants to marry Mary'  
 b. der Typ, von dem ich weiß, dass der Idiot sein Vermögen  
 the guy of who.DAT I know.1SG that the idiot his fortune  
 verprasst hat  
 squander.PTCP have.3SG  
 'the guy of whom I know that the idiot squandered his fortune'

Finally, one can also use resuming forms with more content:

- (7) German  
 Das ist ein Schweinchen, von dem ich glaube, dass alle hoffen,  
 this is a piglet of which.DAT I believe.1SG that all hope.3PL  
 dass niemand das putzige Tierchen essen will.  
 that no.one the sweet little.animal eat.INF want.3SG  
 'This is a piglet of which I believe that everyone hopes that no one wants to eat the sweet little animal.'

Cases where the antecedent is subsumed by the class denoted by the anaphoric form are familiar from discourse, of course.

Given these properties, treating the proleptic constituent as an argument of the matrix verb (optionally undergoing short A'-movement as in (2)–(7)) that is anaphorically referred to by a proform in some dependent clause seems very straightforward. Arguably, this is the predominating (though usually tacit) assumption in the literature. However, as will be shown in what follows, the construction has properties that call this simplistic analysis into question.<sup>3</sup>

This chapter is organized as follows: Section 2 provides evidence against an analysis in terms of argumenthood and anaphoric binding. Section 3 argues that the proleptic object is base-generated in the matrix clause. Section 4 provides an account where the proleptic object is licensed by predication and entertains an ellipsis relationship with a base-generated operator in the complement clause. Section 5 briefly discusses prolepsis in other languages and related phenomena. Section 6 concludes.

## 2 Against a simple solution in terms of argumenthood + anaphoric binding

### 2.1 Absence of lexical restrictions

There are two arguments that clearly suggest that the obvious solution in terms of argumenthood + anaphoric binding is insufficient: First, as opposed to long A'-movement, which is limited to bridge verbs, the construction is extremely productive: while it is most frequent with epistemic and desiderative verbs and *verba dicendi*, a quick search on the internet reveals that prolepsis occurs with nearly every verb (or adjective + copula/noun + verb combination) selecting a CP-complement. At this point there is no evidence that there is a class of (CP-selecting) predicates that is systematically incompatible with prolepsis. Here are a few examples, (8a)–(8b) are from Salzmann (2006, 201–206):

#### (8) German

- a. Ich hab hier einen Link, von dem ich *bezweifle*,  
 I have here a link of which.DAT I doubt.1SG  
 dass viele den kennen  
 that many DEM.ACC know.3PL  
 'I have a link here of which I doubt that many know it.'  
 ([www.usa-talk.de/yabbse/index.php?topic=551.15](http://www.usa-talk.de/yabbse/index.php?topic=551.15))
- b. Entweder ist etwas passiert, von dem ich das  
 either be.3SG something happen.PTCP of which.DAT I the  
 Gefühl habe, dass man darüber schreiben kann.  
 feeling have.1SG that one it.about write.INF can.3SG  
 'Either something has happened of which I think that one can write about it.'  
 (<http://www.hallo-muenchen.de/muenchen/mitte/schwabing-maxvorstadt-ort559046/harald-martenstein-ich-lasse-mich-gerne-ablenken-4622205.html>, accessed August 29, 2016)
- c. Das ist das Stichwort, von dem ich mich *frage*  
 this is the keyword of which.DAT I me ask.1SG  
 warum der Autor es nicht mal erwähnt!  
 why the author it not even mention.3SG  
 'This is the keyword of which I ask myself why the author does not even mention it.'  
 (<http://www.spiegel.de/auto/aktuell/bmw-setzt-maximal-laufleistung-von-150-000-km-voraus-a-855355.html>, accessed October 10, 2013)
- d. Jeder hat einen Traum von dem es *scheint*, dass er  
 everyone has a dream of which.DAT it seem.3SG that it  
 nie in Erfüllung geht.  
 never become.3SG true  
 'Everyone has a dream of which it seems that it never becomes true.'  
 (<http://eltern-forum.kinder.de/archive/index.php/t-18132.html>, accessed October 15, 2013)

It seems implausible that the proleptic object is an argument of all these verbs, at least in the canonical sense of being part of the argument structure. Arguments usually bear rather clearly delimited semantic roles that can be associated only with certain predicates, which is not the case with the proleptic object. Classifying it as a vague aboutness argument rather obfuscates than clarifies its function. One can add a diachronic argument here: Hoeksema and Schippers (2012, 159–165) observe for Dutch that the prolepsis construction not only has become much more frequent in recent centuries, the range of verbs it occurs with has also increased drastically. Since there is no indication that the verbs' meaning has changed, it is quite unlikely that their argument structure has changed.

## 2.2 The obligatoriness of a coreferential element

The previous examples clearly suggest that the proleptic object is not an argument of the matrix verb. Interestingly, one cannot simply classify it as a normal adjunct either because unlike other adjuncts that express an aboutness relationship, the proleptic object requires a coreferential element in the embedded clause. This is why the following examples are ungrammatical, see Salzmann (2006, 159):

- (9) German
- a. \*Von Computern finde ich, dass jeder einen PC  
of computers.DAT find.1SG I that everyone a PC  
kaufen sollte.  
buy.INF should.3SG  
lit.: 'Of computers, I think that everyone should buy a PC.'
- b. \*ein Wetter, von dem ich hoffe, dass Peter zu  
a weather of which.DAT I hope.1SG that Peter at  
Hause bleibt  
home stay.3SG  
lit.: 'a weather of which I hope that Peter will stay at home'

The following sentence involves a normal aboutness topic (a hanging topic) and no coreferential element in the embedded clause is needed:

- (10) German
- Was Computer angeht, so finde ich,  
what computers concern.3SG PRT find.1SG I  
dass heutzutage jeder einen PC kaufen sollte.  
that today everyone a PC buy.INF should.3SG  
'As for computers, I think that everyone should buy a PC these days.'

This contrast shows that the proleptic constituent is not independently (semantically) licensed inside the matrix clause. Obviously, there is some obligatory relationship with the embedded clause that is crucially involved in its licensing. Since normal anaphoric dependencies are not subject to such restrictions, the coreferring proform cannot simply be treated as instantiating anaphoric binding.<sup>4</sup>

### 3 The proleptic object is base-generated in the matrix clause

Even though the proleptic object is not independently licensed in the matrix clause, there is solid evidence that it is base-generated in the matrix clause: its position in the matrix middle field shows the properties of an A-position that is unlikely to be derived. A derivation involving movement from the embedded clause would constitute a violation of Improper Movement. While such derivations have been proposed for the similar *tough*-movement construction in recent years (Brody 1993; Hornstein 2001; Hicks 2009), we will see that despite a number of similarities between the constructions, these analyses cannot be extended to prolepsis (and also prove to be problematic for *tough*-movement).

#### 3.1 Arguments in favor of a base-position in the matrix clause

The most obvious argument for the base-generation of the proleptic object in the matrix middle field comes from the presence of the in-situ construction as in (1). The ex-situ construction is obviously based on it, it is simply derived from it by short A'-movement.<sup>5</sup> Direct evidence comes from Dutch, which allows preposition stranding: when the preposition is stranded in the ex-situ construction, it surfaces exactly in the position that it occupies in the in-situ construction:

- (11) a. het boek waarvan<sub>1</sub> ik \_\_\_\_<sub>1</sub> denk, dat Piet het leuk vindt  
 the book whereof I think.1SG that Peter it cool find.3SG  
 'the book of which I think that Peter likes it'  
 b. het boek waar<sub>1</sub> ik *van* \_\_\_\_<sub>1</sub> denk, dat Piet het leuk vindt  
 the book where I of think.1SG that Peter it cool find.3SG  
 c. dat ik *van* dit boek denk dat Piet het leuk vindt  
 that I of this book think.1SG that Peter it cool find.3SG  
 'that I believe of this book that Peter likes it'

Importantly, this middle-field-internal position has the properties of an A-position. First, anaphors can be bound in this position, both in the in-situ and in the ex-situ construction; see Salzmann (2006, 188, 195) (heads of relative clauses are henceforth enclosed in brackets when they contain reconstructed material):

- (12) German  
 a. dass Peter<sub>i</sub> von sich<sub>i</sub> denkt, dass er der Größte ist  
 that Peter of self think.3SG that he the greatest be.3SG  
 'that Peter<sub>i</sub> thinks of himself<sub>i</sub> that he is the greatest'  
 b. das [Bild von sich<sub>i</sub>], von dem Peter<sub>i</sub> denkt,  
 the picture of self of which.DAT Peter think.3SG  
 dass ich es am besten finde  
 that I it the best find.1SG  
 'the picture of himself<sub>i</sub> of which Peter<sub>i</sub> thinks I like it best'  
 c. Von welchem Wesenszug von sich<sub>i</sub> denkt Peter<sub>i</sub>,  
 of which.DAT trait of self think.3SG Peter  
 dass ich ihn noch nicht kenne?  
 that I it still not know.1SG  
 'Of which trait of himself<sub>i</sub> does Peter<sub>i</sub> think that I don't know it yet?'

Crucially, German (see 13b) differs from English (see 13a) in disallowing binding into A'-positions, see (Salzmann 2006, 93):

- (13) a. John<sub>i</sub> wonders [<sub>CP</sub> [which picture of himself<sub>i</sub>]<sub>1</sub> I like \_\_\_\_<sub>1</sub> best].  
 b. Hans<sub>i</sub> fragt sich, [<sub>CP</sub> [welches Foto von \*sich<sub>i</sub>/ihm<sub>i</sub>]<sub>1</sub>  
 John ask.3SG self which picture of self/him  
 ich am besten \_\_\_\_<sub>1</sub> mag].  
 I the best like.1SG

This implies that the proleptic object when located in the middle field cannot be in a derived A'-position.<sup>6</sup> The same point can be made with superiority effects. While German is well known not to have short-distance superiority effects, it is equally well established that superiority effects re-emerge under long-distance movement (irrespective of D-linking), see Fanselow (2004, 78):

- (14) a. [Welchen Studenten]<sub>1</sub> hat welcher Professor \_\_\_\_<sub>1</sub> eingeladen?  
 which.ACC student.ACC have.3SG which.NOM professor.NOM invite.PTCP  
 'Which student did which professor invite?'  
 b. \*[Welchen Studenten]<sub>1</sub> hat welcher Professor gehofft,  
 which.ACC student.ACC have.3SG which.NOM professor.NOM hope.PTCP  
 dass Irina \_\_\_\_<sub>1</sub> einlädt?  
 that Irina invite.3SG  
 lit.: 'Which student did which professor hope that Irina will invite?'

Importantly, if the proleptic object consists of a *wh*-phrase and is moved across another *wh*-phrase in the matrix clause, the result is perfectly grammatical (see Salzmann 2006, 198):

- (15) German  
 Von [welchem Studenten] denkt welcher Professor,  
 of which.DAT student.DAT think.3SG which.NOM professor.NOM  
 dass Irina ihn eingeladen hat?  
 that Irina him invite.PTCP have.3SG  
 'Of which student does which teacher think that Irina invited him?'

If the proleptic object were to originate in the complement clause, this asymmetry would be highly mysterious. The fact that the proleptic object behaves like a clause-mate of the *wh*-subject with respect to superiority very much suggests that it is generated in an A-position in the matrix middle field. There is one analytical option that needs to be ruled out: The facts above are also compatible with an analysis where the proleptic object occupies a *derived* A-position. The following raising to object-cases illustrate this for anaphor binding and superiority:

- (16) a. German  
 dass Peter<sub>i</sub> sich<sub>i</sub> gestern ein Lied pfeifen hörte  
 that Peter self yesterday a song whistle.INF hear.PST.3SG  
 'that Peter<sub>i</sub> heard himself<sub>i</sub> whistle a song yesterday'



- b. *Wen<sub>1</sub> sah wer gestern \_\_\_\_<sub>1</sub> ein Auto stehlen?*  
 whom see.PST.3SG who yesterday a car steal.INF?  
 lit.: 'Whom did who see steal a car yesterday?'

While raising to object involves direct A-movement from the embedded clause, things are different in prolepsis where, given current assumptions about locality, there would have to be an intermediate A'-movement step to the embedded Spec,CP followed by A-movement. This would, however constitute a violation of Improper Movement (see, e.g., Müller and Sternefeld 1993 and Müller 2014a for recent accounts). Nevertheless, derivations of this type have indeed been proposed, namely for English *tough*-movement as in the following example:

- (17) John is easy to please.

### 3.2 Improper Movement analyses of *tough*-movement

In the traditional analysis of *tough*-movement going back to Chomsky (1977), there is null operator movement in the embedded clause while the subject *John* is base-generated in the matrix subject position. It receives its theta-role via predication: the complement clause, which is turned into an open sentence by operator movement, combines with the adjective to form a complex predicate and then assigns a theta-role to the base-generated subject. Rezac (2006) provides an updated version within the Agree-framework introduced in Chomsky (2000).

A'-movement in the complement clause is well-motivated: First, the dependency is unbounded but sensitive to locality, see Hicks (2009, 542):

- (18) a. A guy like John is hard to imagine any woman believing she could marry \_\_\_\_.  
 b. ??A guy like John is hard to imagine any woman wondering why she would agree to marry \_\_\_\_.

Secondly, this movement creates an island for extraction, see Rezac (2006, 307–309) for discussion of the various factors involved:

- (19) \*[How intelligent]<sub>2</sub> is John<sub>1</sub> easy [Op<sub>1</sub> to think of/regard \_\_\_\_<sub>1</sub> as \_\_\_\_<sub>2</sub>]?

Furthermore, this movement licenses parasitic gaps (see Hicks 2009, 542).

Direct base-generation in the matrix clause is, however, problematic given that the *tough*-subject can reconstruct into the embedded clause (and not just below the matrix clause experiencer), see Mulder and Den Dikken (1992, 310, n. 8):

- (20) a. [Pictures of himself<sub>i</sub> nude] are tough for me [to think that any man<sub>i</sub> would like \_\_\_\_].  
 b. [Pictures of his<sub>i</sub> wife nude] are tough for me [to think that any man<sub>i</sub> would show his friends \_\_\_\_].

This has been taken as evidence that there is a representation of the *tough*-subject within the embedded clause and that the most straightforward way of bringing this

about is by movement from the embedded clause. This implies, of course, a derivation in violation of Improper Movement. This is most obvious in the proposal by Brody (1993), where there is movement from the theta-position in the complement clause via Spec,CP to the matrix subject position.<sup>7</sup>

(21) John<sub>1</sub> is easy [<sub>CP</sub> \_\_\_\_<sub>1</sub> to please \_\_\_\_<sub>1</sub>].

Traditionally, Improper Movement was ruled out by Principle C of the Binding Theory: the trace left behind by A'-movement gets bound from an A-position later on. According to Brody (1993, 8–9), the derivation in (21) is licit because – by stipulation – the variable only needs to be A-free in the domain of its operator. Given that the trace in Spec,CP counts as an operator, no Principle C violation obtains. Intermediate A'-traces in ungrammatical Improper Movement contexts, as in \*John<sub>1</sub> seems t<sub>1</sub> Mary saw t<sub>1</sub>, however, do not count as operators so that the structures are correctly ruled out by Principle C (however, note that if the intermediate trace is not an operator, it is unclear why the lowest trace should qualify as a variable).

A somewhat different implementation can be found in Hornstein (2001, 108–113). He proposes a sideward movement derivation whereby the complement CP is treated as an adjunct from which the *tough*-subject moves to the internal argument position of the matrix adjective before the adjunct is combined with it (i.e., it moves to an unconnected phrase marker). It is thus assumed that the *tough*-subject also receives a theta-role in the matrix clause. Movement to Spec,CP is triggered by *wh*-features of the type found in relative clauses (which by assumption can be freely inserted):

(22) [<sub>TP</sub> [<sub>TP</sub> John<sub>1</sub> is [<sub>AP</sub> John<sub>1</sub> easy]] [<sub>CP</sub> [[*wh*] John]<sub>1</sub>] [<sub>TP</sub> pro to please [[*wh*] John]<sub>1</sub>]]].

A Principle C violation is avoided here because the CP containing the variable is adjoined to matrix TP and thus outside the c-command domain of *John*. Other cases of (true) Improper Movement are still ruled out because they obtain in complements where there is c-command between the antecedent and the variable.

A variant of this derivation can be found in Hicks (2009) who argues that the *tough*-subject originates within a complex DP, as a complement of the null operator N. The complex DP then moves to the edge of the CP-complement and the *tough*-subject subextracts and A-moves from there to the matrix subject position to get Case/satisfy the EPP:

(23) John<sub>2</sub> is easy [<sub>CP</sub> [<sub>DP</sub> D [<sub>NP</sub> Op [<sub>DP</sub> John]<sub>2</sub>]]<sub>1</sub> to please [<sub>DP</sub> D [<sub>NP</sub> Op [<sub>DP</sub> John]]<sub>1</sub>]].

Since two distinct movement chains are involved, Improper Movement is not violated here.<sup>8</sup> Ruling out Improper Movement derivations in other contexts (e.g., hyper-raising) can be done by means of selection: only certain predicates select C-heads that trigger terminal operator movement so that subsequent subextraction by A-movement can create a second independent chain.

Before discussing the virtues and downfalls of these approaches, I will first show that the parallelism between *tough*-movement and the prolepsis construction is so striking that the approaches just sketched must be considered serious options for prolepsis as well.

## 3.3 An Improper Movement analysis for the proleptic construction?

The first remarkable fact is that the presence of the proleptic object significantly degrades extraction from the complement clause. The effect is reminiscent of that of a weak island with argument extraction becoming marginal and adjunct extraction fully ungrammatical (the (a)-sentences involve regular long extraction, the (b)-sentences involve prolepsis):

## (24) German

- a. Wen<sub>1</sub> glaubst du, dass Hans \_\_\_\_<sub>1</sub> liebt?  
 who believe.2SG you that John love.3SG  
 'Who do you believe John loves?'  
 b. ??Wen<sub>1</sub> glaubst du von Hans, dass er \_\_\_\_<sub>1</sub> liebt?  
 whom believe.2SG you of John that he love.3SG  
 lit.: 'Who do you believe of John that he loves?'

## (25) German

- a. Wie vorsichtig<sub>1</sub> glaubst du, dass Hans den Brief \_\_\_\_<sub>1</sub>  
 how carefully believe.2SG you that John the letter  
 formulieren wird?  
 formulate.INF will.3SG  
 'How carefully do you believe that John will formulate the letter?'  
 b. \*Wie vorsichtig<sub>1</sub> glaubst du von Hans, dass er den  
 how carefully believe.2SG you of John that he the  
 Brief \_\_\_\_<sub>1</sub> formulieren wird?  
 letter formulate.INF will.3SG  
 lit.: 'How carefully do you believe of John that he will formulate the letter?'

The contrast follows if the proleptic construction involves movement in the complement clause, thereby creating a weak island.<sup>9</sup> Of course, the proleptic construction differs from *tough*-movement in that it is insensitive to island constraints as illustrated in (4) above. This makes movement unlikely. However, one might entertain the possibility that the resuming proform functions as a resumptive that amnesties the locality violation.<sup>10</sup> Some support for this comes from the fact that the proleptic object reconstructs into the position of the proform for idiom interpretation, variable binding, and Principle A, see Salzmann (2006, 160–165).<sup>11</sup>

## (26) German

- a. die [Rede], von der ich sagte, dass er sie  
 the speech of which.DAT I said.1SG that he it  
*geschwungen* habe  
 swing.PTCP have.SBJV.3SG  
 'the speech of which I said he gave it'  
 (swing a speech = 'give a speech')  
 b. Die [Periode seines<sub>i</sub> Lebens], von der ich glaube,  
 the period his.GEN life.GEN of which.DAT I believe.1SG  
 dass keiner<sub>i</sub> gerne an sie denkt, ist die Pubertät.  
 that no.one likes.to at it think.3SG be.3SG the puberty  
 'The period of his<sub>i</sub> life of which I believe that no one<sub>i</sub> likes to remember it is puberty.'

- c. das [Spiegelbild von sich<sub>i</sub>], von dem ich glaube,  
 the reflection of self of which.DAT I believe.1SG  
 dass Peter<sub>i</sub> es an der Wand sah  
 that Peter it on the wall see.PST.3SG  
 'the reflection of himself<sub>i</sub> of which I think that Peter<sub>i</sub> saw it on the wall'

While the examples above involve relativization in the matrix clause, the same facts obtain with *wh*-movement and topicalization, see Salzmann (2006: 160–165; in press b).

Movement analyses of resumption have become rather prominent in recent years – see, for example, Pesetsky (1998), Boeckx (2003), or Müller (2014b) – and reconstruction effects have arguably been the major argument in their favor. It is contested whether reconstruction correlates with locality. Aoun, Choueiri, and Hornstein (2001) claim that it does (and limit movement derivations of resumption to configurations where the resumptive is in a transparent position), while Guilliot and Malkawi (2006) argue that reconstruction into islands is possible. Although the data become very delicate, reconstruction into islands seems to be possible in the proleptic construction (cf. Salzmann 2006, 278–280; in press b, sect. 4.3.3.2). The major problem with movement accounts of island-insensitive resumption is that there is to date no fully convincing account of why resumption should make movement out of islands possible. Furthermore, while reconstruction effects are traditionally considered solid diagnostics for movement, work in recent years has cast serious doubts on this, especially studies showing that reconstruction is found in configurations where movement (and thus the interpretation of a lower copy) is arguably not at stake (e.g., pseudoclefts). Given this, a base-generation analysis of resumption seems more viable as it is directly compatible with the locality facts. For reasons of space, I cannot reproduce the arguments in any detail here, the reader is instead referred to Rouveret (2011) and Salzmann (2013, 81–85; in press b, ch. 3) for recent overviews of this discussion. Despite these reservations about a movement analysis, we will – provisionally – consider it a possibility for the proleptic construction to allow for a thorough discussion of the analyses sketched in the previous subsection. As we will see presently, though, they are confronted with serious difficulties, casting doubts on a direct movement analysis.

The approach by Brody (1993) incurs a violation of the Activity Condition: on standard minimalist assumptions (e.g., Chomsky 2001), a DP becomes inactive for further Agree/Case-checking, once its Case feature has been valued through Agree. In his derivation, the *tough*-subject receives case both by the embedded verb and matrix T. While the Activity Condition is sometimes rejected, it still remains a very useful condition to rule out other instances of Improper Movement such as hyper-raising (*\*John seems likes Mary*) (see, e.g., Richards 2008 for discussion). It is thus hard to see how such an analysis could still be upheld for *tough*-movement, and the same goes for prolepsis where the proleptic object receives case both in the embedded clause and in the matrix clause by the preposition *von*. Next to its contentful uses (meaning 'from'), it functions as a default preposition that serves to case-mark nouns that otherwise fail to receive case, basically

like English *of*. The very presence of this preposition suggests that the proleptic object is in need of case, but this wouldn't be the case given the derivation in Brody (1993).

The proposal in Hornstein (2001) also cannot be adapted for prolepsis. First, sideward movement always involves movement to a theta-position, but as pointed out in section 2.1 above, the proleptic object is not an argument of the matrix clause. Second, Hornstein treats the complement of the *tough*-adjective as an adjunct. At least in prolepsis, there is good reason to believe that the CP is not a (base-generated) adjunct. First, the complement CP satisfies the subcategorization requirements of the matrix verb (and therefore sometimes appears as an infinitival or a [+wh]-CP as in (8c)). Second, it can be shown that the proleptic object is structurally higher than the CP at LF: the proleptic object c-commands into the complement clause as shown by the following examples involving NPI-licensing and variable binding (presupposing that there is no QR in German, see Sternefeld 2006, 813, fn. 45):

(27) German

- a. Ich glaube von keinem Holländer,  
 I believe.1SG of no.DAT Dutchman  
 dass er *auch* *nur* *einen* *einzigen* Euro verschwenden würde.  
 that he even only a single Euro squander.INF would.3SG  
 'I believe of no Dutchman that he would squander even a single Euro.'
- b. Ich weiß von jedem Mitarbeiter<sub>i</sub>, dass er seine<sub>i</sub>  
 I know.1SG of every.DAT colleague that he his  
 Arbeit ordentlich macht.  
 work decently make.3SG  
 'I know of every colleague<sub>i</sub> that he does his<sub>i</sub> work decently.'

While complement CPs are arguably extraposed to matrix VP in German, they reconstruct for binding at LF (see Sternefeld 2006, 781). These facts clearly show that the CP is merged as a complement of the matrix verb in prolepsis, thereby ruling out a sideward movement analysis.

The analysis in Hicks (2009) seems in principle applicable to prolepsis as it avoids a violation of the Activity Condition (and, of course, Improper Movement) by splitting the movement into two separate chains. However, there remain serious objections. First, if movement is triggered by the preposition in the matrix clause, movement from Spec,CP would target a non-commanding position, thereby violating a fundamental constraint on Internal Merge.<sup>12</sup> If instead the proleptic object is generated together with the preposition (which may then be reanalyzed as a case marker as in Bayer, Bader, and Meng 2001), there does not seem to be any reason for it to move to the matrix clause as there is no obvious probe.<sup>13</sup> Second, and this is an independent problem of Hicks' analysis, it involves a blatant violation of the Constraint on Extraction Domains (Huang 1982)/the Freezing Principle (Wexler and Culicover 1980). Unfortunately, and surprisingly, this issue is not addressed in Hicks' paper. Third, there are empirical arguments from reconstruction against Hicks' analysis (which also argue against Hornstein's and Brody's proposals): the proleptic object fails to reconstruct for Principle C and scope, see Salzmann (2006,

171–175, 215–228). The following examples illustrate non-reconstruction for Principle C:

## (28) German

- a. die [Verwandten von Peter<sub>i</sub>], von denen ich weiß,  
 the relatives of Peter of who.DAT I know.1SG  
 dass er<sub>i</sub> sie mag  
 that he them likes.3SG  
 ‘the relatives of Peter<sub>i</sub> of whom I know that he<sub>i</sub> likes them’
- b. Von welcher Nachforschung über Peter<sub>i</sub> denkst du, dass er<sub>i</sub> sie  
 of which.DAT investigation about Peter think.2SG you that he it  
 vor dir verheimlichen wollte?  
 from you conceal.INF want.PST.3SG  
 ‘Of which investigation about Peter<sub>i</sub> do you think that he<sub>i</sub> wanted to conceal it from you?’
- c. Von diesem Wesenszug von Peter<sub>i</sub> denke ich,  
 of this.DAT trait of Peter think.1SG I  
 dass er<sub>i</sub> ihn noch nicht kennt.  
 that he it still not know.3SG  
 ‘Of this trait of Peter<sub>i</sub>, I think that he<sub>i</sub> does not know it yet.’

Importantly, one cannot simply argue that reconstruction is optional here. Even if reconstruction is forced by means of variable binding, Condition C effects do not obtain, see Salzmann (2006, 184–185):

## (29) German

- a. <sup>?</sup>[die Briefe von Hans<sub>i</sub> an ihre<sub>j</sub> Eltern], von denen ich vermute,  
 the letters of John to her parents of which.DAT I suspect.1SG  
 dass er<sub>i</sub> jeder Schülerin<sub>j</sub> gedroht hat, sie in  
 that he every.DAT student threaten.PTCP have.3SG them in  
 der Klasse vorzulesen  
 the class to.read.out.INF  
 ‘the letters by John<sub>i</sub> to her<sub>j</sub> parents of which I suspect that he<sub>i</sub> threatened every female student<sub>j</sub> to read them out in class’
- b. Von welcher Meinung von Hans<sub>i</sub> über ihren<sub>i</sub> Aufsatz  
 of which.DAT opinion of John about her essay  
 denkst du, dass er<sub>i</sub> jeder Schülerin<sub>j</sub> rät, sie ernst  
 think.2SG you that he every.DAT student advise.3SG it seriously  
 zu nehmen?  
 to take.INF  
 ‘Of which opinion of John<sub>i</sub> about her<sub>j</sub> essay do you think that he<sub>i</sub> advises every female student<sub>j</sub> to take it seriously?’

The lack of scope reconstruction is illustrated by the following examples which show that indefinites necessarily receive a specific or – in case of bare plurals – generic interpretation. In intensional contexts, only a *de re* reading is available.

## (30) German

- a. Von einem Mädchen weiß ich, dass Peter es geküsst hat.  
 of a.DAT girl know.1SG I that Peter her kiss.PTCP have.3SG  
 'Of one girl, I know that Peter kissed her.'  
 (\*existential/OK specific)
- b. Von Feuerwehmännern weiß ich, dass sie verfügbar sind.  
 of firemen.DAT know.1SG I that they available be.3PL  
 'Of firemen, I know that they are available.'  
 (\*existential/OK generic)
- c. Von einer neuen Sekretärin sagte Peter, dass er sie suche.  
 of a.DAT new secretary said.3SG Peter that he her seek.SBJV.3SG  
 'Of a new secretary, Peter said he was looking for her.'  
 ( $\exists >$  seek; \*seek  $>$   $\exists$ )

Regular complementation with the relevant XP in the complement clause is not subject to this restriction (in the (c)-example, the fronted indefinite is reconstructed at LF):

## (31) German

- a. Ich weiß, dass Peter *ein Mädchen* geküsst hat.  
 I know.1SG that Peter a girl kiss.PTCP have.3SG  
 'I know that Peter kissed a girl.'  
 (existential OK)
- b. Ich weiß, dass *Feuerwehrmänner* verfügbar sind.  
 I know.1SG that firemen available be.3PL  
 'I know that firemen are available.'  
 (existential OK)
- c. *Eine neue Sekretärin* sagte Peter, dass er suche.  
 a new secretary said.3SG Peter that he seek.SBJV.3SG  
 'A new secretary, Peter said he was looking for.'  
 (*de dicto* OK)

As a side-effect of the constraints on the referential properties of the proleptic object, expletives and opaque idioms are also incompatible with prolepsis.

Interaction between quantifiers shows the same behavior. While scope ambiguity obtains if both XPs are in the matrix clause, the distributive reading is ruled out once the universal QP is within the complement clause:

## (32) German

- a. Von welcher Band glaubt *jeder* Lehrer,  
 of which.DAT band think.3SG every teacher  
 dass die Studenten sie am besten finden?  
 that the students it the best find.3PL  
 'Of which band does every teacher think that the students like it best?'  
 ( $\forall >$  wh; wh  $>$   $\forall$ )
- b. Von welcher Band glaubst du,  
 of which.DAT band think.2SG you  
 dass *jeder* Student sie am besten findet?  
 that every student it the best find.3SG  
 'Of which band do you think that every student likes it best?'  
 (\* $\forall >$  wh; wh  $>$   $\forall$ )





#### 4.1 The base-generated empty operator

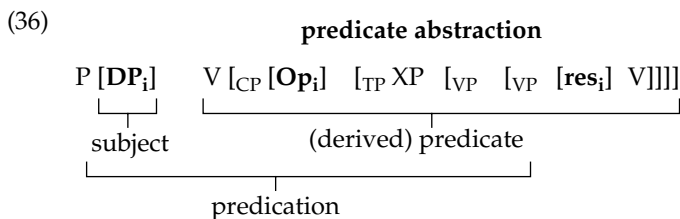
The first part of the analysis bears many similarities to the traditional *tough*-movement analysis of Chomsky (1977; 1981) as well as to the implementation in Cinque (1990), Mulder and Den Dikken (1992, 305–308) and especially Rezac (2006), Yoon (2007), and Landau (2011).

Given that the proleptic argument is not a thematic argument of the matrix verb, it has to be licensed differently. This alternative is predication: Concretely, there is an empty operator in Spec,CP of the complement CP that turns the CP into a derived predicate (“an open sentence” in the terms of Cinque 1990). The null operator thus functions as the syntactic equivalent of a lambda-operator. Then, the predicative CP composes with the matrix verb. This satisfies the c-selectional requirements of the verb (it requires a CP-complement). However, semantically the matrix verb selects a proposition. In cases of regular complementation, the matrix verb directly takes a propositional CP. In prolepsis (and *tough*-movement), however, the propositional argument is composed out of a property and an individual: the complement CP is the property and the proleptic object, more precisely, the DP within the PP, is the individual. The proleptic object is thus the subject that satisfies the open slot of the predicate. Consequently, while the meaning of a regular complement-taking verb like *believe* can be characterized as  $\lambda x.\lambda p.$ BELIEVE ( $x,p$ ), the meaning under prolepsis is  $\lambda x.\lambda y.\lambda P.$ BELIEVE ( $x,P(y)$ ) ( $p$  refers to proposition,  $P$  stands for predicate). The proleptic construction (like *tough*-movement and copy-raising) therefore shares properties with raising – the matrix verb takes a propositional argument – but also with control – with respect to semantic composition (see Asudeh and Toivonen 2012, 350). While predication is sufficient to license the proleptic object semantically, being a DP, it also needs Case. As a last resort, it is case-marked by the default preposition *von/van* ‘of’. Thereafter, the little *v* is merged and introduces the external argument of the verb.

Empty operators traditionally undergo movement, but given the insensitivity to islands in (4) and the lack of a fully convincing theory that explains how resumptives void islands, see the references in section 3.3 above, it is more reasonable to assume that resumption in the proleptic construction involves base-generation: The operator is directly inserted into Spec,CP from where it binds the pronoun. This is sufficient to turn the CP into a predicate. As discussed in Heim and Kratzer (1998, 106–115), movement is not a prerequisite for predicate abstraction. It is for instance also possible with *such that*-relatives (see Pullum 1985) that involve resumption and are also island-insensitive (see also Landau 2011, 808–810):

(35) the [man] such that Mary reviewed <the book he wrote>

The derivation of prolepsis can thus be illustrated as follows:



Recall from (27) above that the proleptic object *c*-commands the complement clause. This is important since *c*-command is a prerequisite for predication. See the following pair from Dutch secondary predication (Neeleman 1994a, 217):

- (37) a. dat Jan<sub>i</sub> Marie<sub>j</sub> naakt<sub>i/j</sub> ontmoette  
 that John Mary nude meet.PST.3SG  
 'that John<sub>i</sub> met Mary<sub>j</sub> nude<sub>i/j</sub>'  
 b. dat Jan<sub>i</sub> [met Marie<sub>j</sub>] naakt<sub>i/\*j</sub> sprak  
 that John with Mary nude talk.PST.3SG  
 'that John<sub>i</sub> talked with Mary<sub>j</sub> nude<sub>i/\*j</sub>'

Note that the lexical preposition *met* blocks *c*-command. Functional prepositions like *van/van/of*, however, do not; see the English example (38a) from Williams (1980, 204) and the Dutch example (38b) provided by the anonymous reviewer:

- (38) a. John thinks of Bill<sub>i</sub> as silly<sub>i</sub>.  
 b. dat Jan van Marie<sub>i</sub> naakt<sub>i</sub> droomt  
 that John of Mary nude dream.3SG  
 'that John dreams of Mary<sub>i</sub> nude.<sub>i</sub>'

Postulating a base-generated operator that turns the complement CP into a predicate accounts for two central properties of the proleptic construction. First, it derives the opacity facts from (24) and (25) above. Second, it explains why there has to be a co-referring element (see (9)). Since the proleptic object is licensed via predication, it depends on the operator in Spec,CP, which in turn has to bind a variable (see the ban on vacuous quantification), namely the co-referring element (see also Landau 2011, 808). The obligatoriness of the variable also holds for *tough*-movement (see Cinque 1990, 153) and *such-that* relatives (see Pullum 1985, 291), although the issue is very contested in the case of the latter (see Salzmann 2006, 290, fn. 235 for references). Questions regarding the overtness of the variable will be addressed in 4.4 below.

Given that the proleptic object is base-generated in the matrix clause, the analysis also – trivially – accounts for the A-properties (binding and superiority) of the proleptic object discussed in (12) and (15) above.

## 4.2 Ellipsis accounts for selective reconstruction effects

What still needs to be fleshed out is the exact nature of the empty operator and how it is linked to the proleptic object. I will show that these two issues are intimately connected and are responsible for the selective reconstruction pattern found in prolepsis.

Reconstruction effects are a challenge for all traditional analyses involving null operators because it is unclear how content which is external to the operator can be made available in the base-position of the silent operator. This issue has been discussed in most detail with respect to restrictive relative clauses where the problem obtains as well. In the traditional head-external analysis (HEA), the external head of the relative clause is coindexed with the relative operator:

- (39) the [book about himself]<sub>i</sub> [<sub>CP</sub> [Op<sub>i</sub>/which]<sub>i</sub>] John<sub>j</sub> likes \_\_\_\_<sub>i</sub>]

It is not clear how this should handle the reconstruction facts; that is, it is not obvious how material that is *part* of the external head (like *himself* in the example above) should be available relative-clause-internally. Since the introduction of the copy theory of movement in the Minimalist Program in Chomsky (1995), reconstruction effects have been modeled by means of interpreting the lower copy of a movement chain. Given these assumptions, reconstruction facts cannot be handled under the HEA (see, e.g., Bhatt 2002 for discussion). Instead, this has led to a revival of the Head Raising Analysis (HRA) (see Kayne 1994), whereby the head of the relative originates within the relative clause and raises from there to its surface position. The following structure is the implementation proposed in Bhatt (2002) (see Salzmann 2006, 6–9 and Salzmann in press b, ch. 2 for more references):

- (40) the [<sub>XP</sub> [book about himself]<sub>i</sub>]<sub>2</sub> [<sub>X'</sub> X<sup>o</sup>  
 [<sub>CP</sub> [<sub>DP</sub> Op/which \_\_\_\_<sub>2</sub>]<sub>1</sub> C<sup>o</sup> [John<sub>j</sub> likes \_\_\_\_<sub>1</sub>]]]]

Importantly, the (null) operator takes the relative head as its complement which subextracts from Spec,CP. This involves almost the same derivation as the *tough*-movement analysis proposed by Hicks (2009). Recall the objections raised against Hicks' proposal in 3.3 above. Such a derivation not only violates the CED, it also fails to capture the reconstruction pattern in prolepsis: while there is reconstruction for idiomatic interpretation, Principle A, and variable binding (see (26)), there is no reconstruction for Principle C and scope (see (28)–(32)). A different solution thus has to be found to model reconstruction effects in prolepsis (and also in *tough*-movement). There is a proposal that resolves the contradictory requirements, one that was originally developed for relative clauses, the so-called Matching Analysis (MA, see Salzmann 2006, 10 for references; and Salzmann in press a; in press b for a very recent version that also highlights the general advantages of the MA over the HRA). Under this analysis, there is a relative-clause-internal representation of the external head in Spec,CP, but it is not related to the external head by means of movement, but rather by ellipsis under identity. More precisely, ellipsis targets the NP-complement of the relative operator (ellipsis = PF-deletion is indicated by means of strike-through in the following example):

- (41) the [book about himself]<sub>i</sub> [<sub>CP</sub> [Op/which ~~[book about himself]<sub>i</sub>]<sub>1</sub>] John<sub>j</sub> likes \_\_\_\_<sub>1</sub>]~~

The material of the external head is thus available within the relative clause and by interpreting the lowest copy within the relative clause, reconstruction effects follow.<sup>14</sup> In addition, the MA provides a handle on non-reconstruction: as in *tough*-movement and prolepsis, but unlike in *wh*-movement, there is no reconstruction for Principle C in relatives (see Sauerland 2003, 211).<sup>15</sup>

- (42) a. I have a [report on Bob's<sub>i</sub> division] he<sub>i</sub> won't like \_\_\_\_.  
 b. \*[Which report on Bob's<sub>i</sub> division]<sub>1</sub> will he<sub>i</sub> not like \_\_\_\_<sub>1</sub>?

In the version of the MA adopted here, this follows from an independent property of ellipsis, namely Vehicle Change (Fiengo and May 1994). Ellipsis systematically allows for a mismatch between pronouns and R-expressions: R-expressions in

the antecedent can correspond to a personal pronoun in the ellipsis site, as in the following example with VP-ellipsis:

- (43) a. \*John likes Mary<sub>i</sub> and she<sub>i</sub> does (like her<sub>i</sub>), too.  
 b. John likes Mary<sub>i</sub>, and she<sub>i</sub> knows that I do (like her<sub>i</sub>), too.

Applied to (42a), this leads to the following (simplified) LF-representation with just a pronoun in Spec,CP and, consequently, in the theta-position:<sup>16</sup>

- (44) I have a [report on Bob's<sub>i</sub> division] [<sub>CP</sub> [Op, ~~report on his<sub>i</sub> division~~] he<sub>i</sub> won't like [x, report on his<sub>i</sub> division]].

Interpretively, the result is equivalent to the grammatical *he<sub>i</sub> won't like this report on his<sub>i</sub> division*. Crucially, Vehicle Change also accounts for the lack of reconstruction for Principle C in prolepsis as in (28)–(29). Note that this lack is particularly relevant because it also obtains with *wh*-movement and topicalization ((28b), (28c), and (29b)), which elsewhere trigger robust Condition C effects (as in (42b)). Importantly, the lack of Condition C effects is not a general property of prolepsis because such effects do obtain if the coreferential pronoun is located in the matrix clause, see Salzmann (2006, 175–176).

- (45) German
- a. \*Von welchen Nachforschungen über Peter<sub>i</sub> denkt er<sub>i</sub>,  
 of which.DAT investigations about Peter think.3SG he  
 dass sie politisch motiviert sind?  
 that they politically motivated be.3PL  
 'Of which investigations about Peter<sub>i</sub> does he<sub>i</sub> think that they are politically motivated?'
- b. \*Von diesem Wesenszug von Peter<sub>i</sub> denkt er<sub>i</sub>, dass er  
 of this.DAT trait of Peter think.3SG he that it  
 peinlich ist.  
 embarrassing be.3SG  
 'Of this trait of Peter<sub>i</sub>, he<sub>i</sub> thinks that it is embarrassing.'

This shows that there is regular A'-movement in the matrix clause of the proleptic construction. It is just the link between the proleptic object and its representation within Spec,CP of the complement clause that is subject to ellipsis. More evidence for ellipsis is discussed in Salzmann (2006, 254–255).

While ellipsis establishes the link between the proleptic object and the empty operator, what still needs to be made precise is the link between the base-generated operator and the resumptive. Obviously, simple binding will not be sufficient to account for the reconstruction effects which we have assumed to require a representation of the reconstructed material in the lowest theta-position. Here, the NP-ellipsis theory of resumption by Guilliot and Malkawi (2006) comes to the rescue. They propose that reconstruction effects under resumption – where it involves base-generation – can be modeled if it is assumed, as in Elbourne (2001), that the resumptive is a transitive determiner whose NP-complement is elided under identity with the antecedent – in our case the base-generated operator in Spec,CP.

Reconstruction for anaphor binding in an example like (26c), repeated here as (46), thus receives the LF in (47) (since relativization is involved, there are three ellipsis operations altogether):

- (46) German  
 das [Spiegelbild von sich<sub>i</sub>], von dem ich glaube,  
 the reflection of self of which.DAT I believe.1SG  
 dass Peter<sub>i</sub> es an der Wand sah  
 that Peter it on the wall see.PST.3SG  
 'the reflection of himself<sub>i</sub> of which I think that Peter<sub>i</sub> saw it on the wall'

- (47) German  
 das [Spiegelbild von sich<sub>i</sub>]<sub>k</sub>, [<sub>CP</sub> von [dem [Spiegelbild von  
 the reflection of self of which.DAT reflection of  
 sich<sub>i</sub>]<sub>k</sub>]<sub>l</sub>] <sub>2</sub> ich [von [x [Spiegelbild von sich<sub>i</sub>]<sub>k</sub>]<sub>l</sub>] <sub>2</sub> glaube,  
 self I of reflection of self believe.1SG  
 [<sub>CP</sub> [Op Spiegelbild von sich<sub>i</sub>]<sub>j</sub> dass Peter<sub>i</sub> [<sub>DP</sub> es [Spiegelbild von  
 reflection of self that Peter it reflection of  
 sich<sub>i</sub>]<sub>j</sub>] an der Wand sah]]  
 self on the wall see.PST.3SG

The absence of Principle C effects in an example like (29b), repeated here as (48), follows from Vehicle Change that relates the R-expression *Hans* to the pronoun *er* in Spec,CP of the complement clause. It receives the simplified LF in (49).

- (48) German  
 Von welcher Meinung von Hans<sub>i</sub> über ihren<sub>j</sub> Aufsatz denkst du,  
 of which.DAT opinion of John about her essay think.2SG you  
 dass er<sub>i</sub> jeder Schülerin<sub>j</sub> rät, sie ernst zu nehmen?  
 that he every.DAT student advise.3SG it seriously to take.INF  
 'Of which opinion of John<sub>i</sub> about her<sub>j</sub> essay do you think that he<sub>i</sub> advises every female student<sub>j</sub> to take it seriously?'

- (49) German  
 [Von [welcher Meinung von Hans<sub>i</sub> über ihren<sub>j</sub> Aufsatz]<sub>k</sub>]<sub>l</sub> <sub>2</sub>  
 of which.DAT opinion of John about her essay  
 denkst du [Von [x Meinung von Hans<sub>i</sub> über ihren<sub>j</sub> Aufsatz]<sub>k</sub>]<sub>l</sub> <sub>2</sub>,  
 think.2SG you of opinion of John about her essay  
 [<sub>CP</sub> [Op Meinung von ihm<sub>i</sub> über ihren<sub>j</sub> Aufsatz]<sub>k</sub> dass er<sub>i</sub>  
 opinion of he.DAT about her essay that he  
 jeder Schülerin<sub>j</sub> rät, [sie [Meinung von ihm<sub>i</sub> über  
 every.DAT student advise.3SG it opinion of he.DAT about  
 ihren<sub>j</sub> Aufsatz]<sub>k</sub>] ernst zu nehmen]?  
 her essay seriously to take.INF

The entire derivation of prolepsis thus looks as follows:

- (50) a.
- 
- b.
- 

What still needs to be made more precise is the exact size of the elided constituents. While the proleptic object certainly is a DP, in the examples above, it is related to the NP complement of the operator and the resumptive. This issue is discussed in connection with the lack of scope reconstruction in the next subsection.

### 4.3 The absence of scope reconstruction

While the absence of reconstruction for Principle C follows from Vehicle Change, the lack of scope reconstruction documented in (30)/(32) above requires a different explanation.

There is an obvious solution that works for the proleptic construction: the lack of scope reconstruction is a general property of resumption. This was first observed in Doron (1982), who pointed out that in intensional contexts in Hebrew, a resumptive forces a *de re* reading while the gap allows for both a *de dicto* and a *de re* reading:

- (51) a. dani yimca et ha-iša še hu mexapes \_\_\_\_  
 Dani will.find.3SG ACC the-woman that he seek.3SG  
 'Dani will find the woman that he is looking for'  
 (✓ *de re*; ✓ *de dicto*)
- b. dani yimca et ha-iša še hu mexapes ota  
 Dani will.find.3SG ACC the-woman that he seek.3SG her  
 'Dani will find the woman that he is looking for'  
 (✓ *de re*; \* *de dicto*)

This fact has been confirmed for many other languages (see, e.g., Cinque 1990; Sharvit 1999; Boeckx 2003; and Bianchi 2004). The fact that a definite pronoun heads the tail of an A'-dependency forces the variable to be interpreted as being of type <e>, which rules out non-specific/*de dicto*/non-referential interpretations, distributive

readings, as well as resumptives in amount relatives and comparatives. This solution can be extended to other constructions with resuming elements like *such that*-relatives, which also fail to reconstruct for scope (see Salzmann 2006, 288–290 for data, and Salzmann in press b, ch. 2 for more general discussion).<sup>17</sup>

Note that the interpretive restrictions do not already follow from the assumption that only the NP-part of the proleptic object is represented within the complement clause (as claimed for *tough*-movement in Hicks 2009). Relative clauses also have just the NP-part of the external head inside the relative clause, but non-specific/reconstructed readings are still possible, as in (51a). Assuming that only the NP-part is reconstructed seems to predict that DP-specifiers in the proleptic object do not reconstruct either. Although the facts are somewhat delicate, it seems that they do reconstruct, as the following examples with Secondary Strong Crossover and variable binding suggest, see Salzmann (2006, 258, 260):

- (52) a. German  
 \*Von wessen<sub>i</sub> Mutter denkst du, dass er<sub>i</sub> sie mag?  
 of whose mother think.2SG you that he her like.3SG  
 'Of whose<sub>i</sub> mother do you think that he<sub>i</sub> likes her?'  
 b. Von seiner<sub>i</sub> Mutter denke ich, dass kein Teenager<sub>i</sub> sie  
 of his.DAT mother think.1SG I that no teenager her  
 toll findet.  
 great find.3SG  
 'Of his<sub>i</sub> mother, I believe that no teenager<sub>i</sub> adores her.'

The same holds for *tough*-movement, as the following example shows (adapted from Mulder and Den Dikken 1992, 308, but see Hicks 2009, 552 for a different judgment):

- (53) [His<sub>i</sub> car] is tough for me to believe that any German<sub>i</sub> would be willing to part with \_\_\_\_.

While this could motivate a structure like that proposed in Hicks (2009) where the null operator takes a DP-complement, see (23) above, there are reasons to be skeptical because the interpretation of this structure is far from obvious. A possibility to account for reconstruction of DP-specifiers under NP-ellipsis is to follow Elbourne (2001, 271–274), who shows that DP-specifiers can be anaphorically referred to by NP-ellipsis:

- (54) John gave *his* paycheck to his mistress. Everybody else put *it* in the bank.

He argues (on the basis of independent evidence) that the possessors occupy NP-internal positions at LF, therefore licensing ellipsis:

- (55) John gave [<sub>DP</sub> the [<sub>NP</sub> paycheck of him]] to his mistress. Everybody else put [<sub>DP</sub> it [<sub>NP</sub> paycheck of him]] in the bank.

These mechanisms account for the reconstruction properties observed in prolepsis.<sup>18</sup> The lack of scope reconstruction in *tough*-movement does not yet follow as this

construction involves gaps rather than resumptives. Furthermore, it seems that we have merely shifted the problem of accounting for the lack of scope reconstruction because now the question arises as to why resumption is necessary in prolepsis. Both issues will be addressed in the next subsection.

#### 4.4 The necessity of a pronominal variable

Recall from 3.2 above that Improper Movement (in the sense of A-movement following A'-movement) can be ruled out by means of Principle C of the Binding Theory: The constituent in the landing site c-commands and thus binds the variable left behind by the initial A'-movement step. The question thus arises how a Principle C violation can be ruled out in prolepsis and *tough*-movement, where given the present implementation the *tough*-subject/the proleptic object c-commands into the complement clause (recall (27)). Importantly, the fact that two independent chains are involved does not make a difference, see the anti-c-command condition on parasitic gap-licensing on the one hand and the ungrammaticality of examples of the following type on the other (Rezac 2004, 192–193):

- (56) a. \*Kate<sub>i</sub> was asked/wondered/understood who<sub>j</sub> Nolwenn saw t<sub>i</sub>.  
 b. Kate<sub>i</sub> asked who<sub>\*i/j</sub> left.

Here, a Condition C violation obtains although the A-binder is located *outside* the domain of the operator that binds the variable.

Crucially, in prolepsis, a Condition C violation is avoided by the fact that the tail of the A'-dependency is occupied by a pronoun, namely the resumptive. In other words, the Binding Theory motivates one of the central characteristics of the construction.<sup>19</sup>

By the very same logic, the variable in *tough*-movement also has to be pronominal (see Rezac 2006, 301). Browning (1987) was the first to argue that the null operator is actually *pro*. Cinque (1990) and Rezac (2006) propose that the gap is in fact a base-generated *pronoun* that is A'-bound by a base-generated operator or just the C-probe. The only difference between prolepsis and *tough*-movement is that while there is just semantic binding in prolepsis, Agree is involved in *tough*-movement, accounting for the island-sensitivity of the construction, recall (18b). Since silent pronouns in theta-positions in a language like English may seem ill-motivated, one could instead adopt a modified version of Browning's proposal where the operator is a moving *pro* which takes an NP-complement and therefore allows for capturing reconstruction by means of ellipsis and the Preference Principle, basically as proposed above for prolepsis. Under either analysis, the pronominal nature of the tail of the A'-dependency blocks scope reconstruction in both constructions.<sup>20</sup>

While Principle C enforces the pronominal nature of the tail of the A'-dependency in both constructions, nothing in principle requires overt resumption in prolepsis (and thus implies island-insensitivity). One therefore in principle expects instances of prolepsis with a gap. However, such cases are not attested in German and Dutch, not even when the complement clause is non-finite. Furthermore, prolepsis in other languages also usually seems to involve resumption and,



as a consequence, island insensitivity (see section 5.1). Whether this points toward a fundamental property of the construction in need of explanation or just an accidental lexical gap is unclear because sufficient information about prolepsis is currently only available for rather few languages. Note also that nothing in principle rules out overt resumption in *tough*-movement (e.g., in languages that have resumptive pronouns). At least in English there is a preference for silent moving operators when their landing site is in a non-finite clause (see Landau 2011, 797), but it is conceivable that base-generated operators occur in other languages (with reference to overtness of the variable, see also the copy-raising construction discussed in section 5.2). Since at this point there is no clear evidence that the variation between gap/island-sensitivity and resumption/island-insensitivity is due to fundamental syntactic properties (apart from the availability of resumption), we will treat them as lexical differences; that is, some languages have only moving operators while others have only base-generated ones or, in the implementation of McCloskey (2002), have C-heads equipped just with an EPP-feature (base-generation) or with an EPP-feature and an Agree-probe attracting an operator (movement). However, if future research shows that prolepsis universally occurs with resumptives/base-generation, a syntactic explanation will need to be found.

The presence of a personal pronoun at the tail of the A'-dependency in prolepsis (as well as in *tough*-movement) has another effect: it forces its antecedent to be of type <e>; that is, an individual. Crucially, however, this restriction is independent of the choice of proform: even though languages usually have proforms for other semantic types, they cannot be used in these constructions. As a consequence, manners, predicates, amounts, and degrees are ruled out, as the following examples illustrate for prolepsis, see Salzmann (2006, 209–216, 276).

(57) German

- a. \*Ich glaube von einem Arschloch nicht, dass du das bist.  
 I believe.1SG of a.DAT asshole not that you that be.2SG  
 lit.: 'I don't believe of an asshole that you are one.'
- b. \*Ich glaube von achtzig Kilos, dass Peter das/so viel wiegt.  
 I believe.1SG of eighty kilos that Peter that/that.much weigh.3SG  
 lit.: 'I believe of eighty kilos that Peter weighs that/that much.'

It is not clear why this is impossible because the proforms can be used in anaphoric dependencies. Arguably, this restriction is part of a more general constraint: resumption tends to be ruled out with these semantic types. Why this should be the case is poorly understood, unfortunately; see Boeckx (2003, 91 ff.) and Salzmann (in press b, sect. 3.2.4) for more discussion of this issue.<sup>21, 22</sup>

#### 4.5 Restricting prolepsis

It was shown in section 2.1 above that prolepsis is possible with just about any matrix predicate. This may suggest that prolepsis is completely unrestricted. However, this is not quite correct. The correct generalization seems to be that prolepsis is

possible with verbs that take a complement clause (finite or non-finite). This accounts for the following asymmetry (see Salzmann 2006, 208, fn. 161):

(58) German

- a. das [Bild], von dem ich fürchte, dass alle lachen,  
 the picture of which.DAT I fear.1SG that all laugh.3PL  
 wenn ich es zeige  
 when I it show.1SG  
 ‘the picture of which I fear that everyone laughs when I show it’
- b. ??das [Bild], von dem alle lachen, wenn ich es zeige.  
 the picture of which.DAT all laugh.3PL when I it show.1SG  
 lit.: ‘the picture of which everyone laughs when I show it’

In (58b), there is only an adjunct clause; the matrix verb, however, is intransitive. The result is ungrammatical. Once this structure is embedded under a verb taking a complement clause as in (58a), a grammatical sentence obtains.

One therefore has to specify (by a lexical redundancy rule) that verbs taking a CP-complement can optionally take a CP whose head is specified for requiring a silent (base-generated) operator in its specifier.<sup>23</sup> Note that similar lexical specifications are necessary for *tough*-movement (see Landau 2011, 796–798). Such lexical specifications also accommodate the fact mentioned in 2.1 above that prolepsis in Dutch nowadays occurs with a much wider range of verbs than a few centuries ago: As a consequence of the grammaticalization of the construction, a property that was restricted to a few lexical items has become a general property of verbs selecting a sentential complement.

Predicative CPs can thus only occur in certain – lexically restricted – environments. Importantly, this also illustrates an important difference between truly predicative structures like prolepsis and mere aboutness relationships. At first sight, prolepsis (in German) also seems possible with other prepositions, especially *bei* ‘at’, a preposition that can be used for local relations but also to express aboutness like ‘as far as X is concerned’. Crucially, *bei*-PPs differ from the *von*-PPs in that they are not restricted to predicates taking a CP-complement. For instance, replacing *von* with *bei* in (58b) leads to a perfectly well-formed sentence. Furthermore, aboutness phrases do not require a coreferential element in the complement clause:

(59) German

- Wobei ich bei *Twilight* finde, dass die Filme besser sind,  
 PRT I at *Twilight* find.1SG that the movies better be.3PL  
 als die Bücher.  
 than the books  
 ‘Because I think concerning *Twilight* that the movies are better than the books.’  
 (<http://schreiberwald-und-lesewinkel.phpbb8.de/viewtopic.php?t=228&p=7628>,  
 accessed August 29, 2016)

The same holds for other aboutness prepositions like *hinsichtlich* and *bezüglich*, both meaning ‘concerning’. This shows that these constructions express a mere aboutness relationship between an individual and a proposition. Propositional clauses (as opposed to predicative clauses) only need to be interpreted as being about

the topic/the individual, a pragmatic requirement that can be met without a coreferential element.<sup>24</sup> The same difference can be observed between hanging topics and left-dislocation, see Landau (2011, 806–810):

- (60) a. As for John, something terrible happened (to him).  
 b. John, something terrible happened \*(to him).

## 5 Prolepsis in other languages

### 5.1 Cross-linguistic variation

The available literature suggests that many of the properties listed above for prolepsis in German (and Dutch) are also found in other languages. Davies (2005), which is one of the most explicit sources, mentions the following properties for English and Madurese (an Austronesian language of Indonesia): the proleptic object is unambiguously located in the matrix clause, a coreferring pronominal element (possibly null)/a variable is obligatory, the pronominal/variable can bear any grammatical relation, the construction is insensitive to locality constraints, the proleptic object does not bear a theta-role in any obvious sense, there are semantic restrictions on the proleptic object, i.e., it must be referential and opaque idioms are ruled out, and the construction is productive (occurring with many predicates that take a clausal complement). On English, see also Lappin (1984, 250, fn. 10), Masmam (1985, 180–185), Farkas (1988, 54), Branigan and MacKenzie (2002, 392), and Landau (2009). Largely the same properties are documented for Japanese in Tanaka (2002) and Takano (2003, 806–811, 822), although the former argues for a raising analysis while the latter explicitly argues for a prolepsis analysis (in addition, Japanese seems to have two different prolepsis constructions, one where the object bears nominative case and one where it bears accusative case). Korean behaves like Japanese, see Yoon (2007), who, however, argues in favor of an analysis where the embedded topic (“major subject”) raises into the matrix clause. It seems, though, that most of the facts described also follow under the predication analysis proposed above. The prolepsis construction has also been extensively described for French where it occurs most prominently in *dont*-relatives that end in a pronoun, as in (3b) above (in the non-relative variant, the proleptic object is governed by the functional/genitival preposition *de*), see also Godard (1988), Tellier (1991, 96–98), Koopman and Sportiche (2009). Again, the properties are the same as in the previous languages.

Information about other languages is rather scarce. Landau (2011, 808) shows for Hebrew that the proleptic object is governed by a preposition (‘about’), that a variable/pronoun is obligatory and that it can have any grammatical relation. Goodluck and Stojanovic (1996) and Bošković (2009) show that in Serbo-Croatian *za koga*-relatives, a coreferential pronoun is obligatory and that the construction is not sensitive to locality. Similar properties are reported for Slovene, see Hladnik (2015, 128–131).

The major properties of prolepsis thus seem to cluster, which is expected given the analysis proposed in the previous section, perhaps apart from productivity as it is subject to lexical variation. Indeed, it seems that in some languages the

construction only occurs with a small number of verbs. An example may be the *za koga*-relatives in Serbo-Croatian (see Goodluck and Stojanovic 1996; Bošković 2009) and the corresponding construction in Slovene, see Hladnik (2015). In French, on the other hand, *dont*-relatives occur with a relatively large class of verbs (essentially with propositional attitude verbs) (see Godard 1988; Koopman and Sportiche 2009). In German, Dutch, and Madurese, the class of verbs that allow the construction is even larger. Languages with prolepsis can also differ with respect to the following properties. First, the proleptic object also occurs as a direct (accusative) object of the matrix verb in some languages, for example Japanese and Korean (see the references above), Middle Dutch (see Van Koppen, Seuren, and De Vries 2014), and also Biblical English (see Massam 1985, 180–181) or Ancient Greek and Latin (see Fraser 2001). In Madurese, the proleptic object can often either appear as a PP or as a bare NP (in which case it is frequently referenced by the voice system of the language, see Davies 2005, 648, 652). Second, in some languages there is a very prominent ex-situ variant that occurs much more frequently and with more verbs than the in-situ variant. Examples are relative clauses in French, German, and Dutch where the proleptic variant is an almost fully grammaticalized alternative to long relativization and is much less marked than the in-situ construction.

## 5.2 Related constructions

In many languages one finds what seems to constitute finite ECM; that is, the subject of a finite complement clause appears with accusative (or absolutive) case (see, e.g., Massam 1985, 87–88 for a list of some languages). Here is an example from Greek (see Katzoglou and Papangeli 2007, 111):

- (61) O    petros    ithele    ti    maria    na    traghudhai    oli    mera.  
       the Peter.NOM wanted.3SG the Maria.ACC SBJV sing.3SG all day  
       ‘Peter wanted Maria to sing all day long.’

The construction bears many similarities to prolepsis: there is little evidence that the object is an argument of the matrix verb (even though Katzoglou and Papangeli 2007 argue for some kind of Control analysis) and we find similar semantic restrictions (such as the impossibility of opaque idioms). Syntactically, the accusative object occupies a complement position in the matrix clause and there is solid evidence that it has not raised from the embedded clause. Furthermore, extraction from finite ECM is blocked. Where the construction in Greek differs from prolepsis as described above is that it is restricted to subjects of the complement clause. Other grammatical relations cannot be raised, and the construction is not unbounded. Clearly, while base-generation of the object in the matrix clause seems straightforward, the null operator analysis from above would have to be modified. The facts could be derived if it is assumed that the C-head of the complement clause probes for a nominative goal. Furthermore, to implement the clause-boundedness one would need to stipulate that intermediate C-heads cannot attract this type of operator.<sup>25</sup> Finite ECM will then be clause-bound, and the sensitivity of the C-probe to Case correctly picks out embedded subjects (anything but a pronoun/*pro* will be ruled out by Principle C).

Other cases of finite ECM arguably require a slightly different analysis. In most of the languages described by Massam (1985), raising is not restricted to subjects but can involve objects and obliques as well. But as opposed to prolepsis, the construction is not unbounded, it is restricted to constituents of the immediately embedded clause. Similar restrictions are found in languages with long-distance agreement like Passamaquoddy, Innu-aimûn, and Tsez (see Bruening 2001; Polinsky and Potsdam 2001; Branigan and MacKenzie 2002). In these languages, the matrix verb agrees with a constituent (not necessarily the subject) of the complement clause:

- (62) Tsez  
 eni-r                    [už-ā            magalu            b-āc'-ru-li]                    b-iy-xo  
 mother(II)-DAT boy(I)-ERG bread(III)[ABS] III-eat-PST.PTCP-NOMLZ[ABS] III-know-PRS  
 'The mother knows that the boy ate the bread.'  
 (Polinsky and Potsdam 2001, 605)

Furthermore, this constituent often or obligatorily (depending on the language) bears a topic interpretation. However, the authors Bruening (2001, 9–10), Polinsky and Potsdam (2001, 614–620), Branigan and MacKenzie (2002, 389–395) explicitly argue against a prolepsis analysis. Instead, they propose (essentially adopting the analysis of Massam 1985) that the “object” that is agreed with is moved (sometimes covertly) to a high A'-position of the embedded clause where it is accessible for Agree with the matrix verb. Convincing evidence against a matrix clause representation of the “raised object” comes from scope facts, for example in Tsez: the object does not interact with matrix clause elements; that is, it does not behave like a clause-mate of, for example, the subject. The Phase Impenetrability Condition (Chomsky 2001) correctly limits object agreement to constituents of the immediately embedded clause under the assumptions about feature-deletion made in Bruening (2001, 31): checked features remain active until the next higher phase (= CP); alternatively, it must be assumed that the requisite A'-movement is clause-bound. The semantic effects follow from the fact that the high position in the left edge is a topic position. For other cases of long-distance agreement, however, a prolepsis analysis seems straightforward, see the data discussed in Polinsky (2003, 283–290).

Another construction that is similar to prolepsis is raising to subject from finite clauses as, for example, in Turkish (see Moore 1998). Here is an example from English copy-raising:

- (63) John looks like he is intelligent.

There is quite some evidence that the subject position is non-thematic (although the issue is contested and one has to distinguish two types of copy-raising, see Landau 2009; 2011; Rezac 2011); the matrix subject displays similar semantic restrictions as the proleptic object (it must be of type <e> and takes obligatory wide-scope, see Rezac 2011, 252) so that it is likely to be base-generated in the matrix clause. Furthermore, the *like*-clause is a barrier for extraction (Rooryck 2000: ch. 2, ex. 43b), suggesting the presence of an A'-dependency. The analysis proposed for Greek ECM above would work here as well as long as the copy is always the embedded subject. In some languages (Haitian Creole, see Deprez 1992, and

perhaps English) the matrix subject can be related to non-subjects in the complement clause. However, as with finite ECM, the construction seems to be restricted to constituents of the immediately embedded (finite) clause; that is, the construction is not unbounded. Once the C-probe is no longer specified for specific cases but still limited to occur on final C-heads, this type of copy raising can be derived as well.

Prolepsis-like analyses have also been proposed for constructions that on the surface seem very different. First, Koopman and Sportiche (2009) propose that French pseudo-relatives as well as exceptional ECM-constructions and even long-distance subject extraction involve a predication structure similar to prolepsis. Here is an example with a pseudo-relative:

- (64) French  
 J'ai           vu           Jean qui embrassait Marie.  
 I.have.1SG see.PTCP John who kiss.PST.3SG Mary  
 'I saw John kiss Mary.'

It is proposed that the head noun + the relative clause form a small clause with *Jean* as the subject and the relative clause as the predicate. They argue that the head of the relative is not an argument of the matrix verb because it displays the familiar semantic restrictions like an obligatory *de re* reading and incompatibility with non-referential idiom chunks. Second, Den Dikken (2009, 11–14) proposes a prolepsis-like analysis for one type of – apparent – long *wh*-movement in Hungarian (the same construction also obtains with long focus raising and contrastive topics):

- (65) hány           lány-t   akar-sz           hogy   eljöjjenek?  
 how.many girl-ACC want-2SG.INDEF that PREV.come.3PL  
 'How many girls would you like to come?'

On Den Dikken's analysis, the *wh*-phrase is generated in the matrix clause and agrees with the matrix verb (i.e., the so-called indefinite conjugation), thereby receiving accusative case. The gap in the embedded clause is analyzed as a (resumptive) *pro* because, unlike traces, silent pronouns allow for notional/semantic agreement, that is plural agreement instead of singular agreement that otherwise obtains with quantified antecedents (despite the fact that they are notionally plural). Some speakers also allow for an overt pronoun, and epithets are possible as well (see Gervain 2009, 703). Resumption is thus an indicator of prolepsis. If the "extracted" phrase is related to a non-subject position, the resumptive is optionally overt (direct objects) or obligatorily overt (oblique objects, which cannot be pro-dropped). The accusative case on the fronted phrase remains unaffected by the grammatical function of the resumptive, though (some matrix verbs instead assign an oblique case, see Jánosi 2013, 77–78, 80–81). The construction is similar to prolepsis in German/Dutch in that it is unbounded and does not display any movement effects such as island-sensitivity (see Gervain 2009, 696–697) and in that the fronted constituent is subject to semantic restrictions: It cannot form an (opaque) idiom together with the embedded verb (Szűcs 2013) and cannot be non-referential (Gervain 2009, 704). The main difference with respect to prolepsis in German/Dutch seems to be that there

are more lexical restrictions and there is no in-situ construction (Peter Szűcs informs me that it is marginally acceptable if the verb is stressed); there is a similar construction with the proleptic object appearing in an oblique case, but Gervain (2009, 693) and (Den Dikken 2009, 12–13) argue that it should be kept separate). What does not become fully clear in these works is how the base-generated DP is semantically licensed and why it has to undergo A'-movement.<sup>26</sup>

Finally, prolepsis also bears a certain similarity to the scope-marking construction (see Partial *Wh*-Movement for details), at least under an analysis that does not involve a direct dependency (where the *wh*-phrase replaces the scope marker at LF):

(66) German

Was glaubst du, wen Maria geküsst hat?  
 what believe.2SG you whom Mary kiss.PTCP have.3SG  
 'Who do you believe that Mary kissed?'

If the scope marker originates in a low position in the matrix clause (as is suggested by languages like Hungarian where it is assigned accusative and agrees with the matrix verb), moves to the scope position but is simultaneously related to the *wh*-operator in the complement clause (e.g., as in Felser 2001; Den Dikken 2009), we obtain a configuration that is rather close to what has been proposed for prolepsis above. There remain important differences, however. First, concerning the relationship between the scope marker, the matrix verb, and the CP, in both indirect dependency approaches and Felser's proposal, the scope marker receives a theta-role from the matrix verb while the CP modifies the scope marker (indirect dependency) or is an unselected complement that functions as a secondary predicate (Felser 2001). In prolepsis as proposed above, however, the proleptic object is only indirectly licensed via predication and the CP is a complement of the verb. Second, perhaps the most obvious difference is that scope marking is sensitive to locality. In the works cited, there is a concord relationship between the scope marker and the *wh*-phrase which can be taken to be responsible for this (as it is, basically, an Agree relationship).

### 5.3 Prolepsis-based reanalyses of long A'-movement

Prolepsis-like analyses have also played a certain role in the treatment of (apparent) long A'-movement. The first case comes from Swiss German relativization, which presents the following puzzle (see Van Riemsdijk 1989; 2008; Salzmann 2006; in press b, ch. 5): in local relativization, the relativization of subjects and objects involves gaps while oblique relations (datives and PPs) require resumptives, see (67). Interestingly, once a clause boundary is crossed, subjects and objects also require resumptives, see (68):

(67) Swiss German

a. d Frau, wo (\*si) immer z spaat chunt  
 the woman C (she) always too late come.3sg  
 'the woman who is always late'  
 (subject)

- b. es Bild, wo niemert (\*s) cha zale  
 a picture C nobody (it) can.3SG pay.INF  
 'a picture that nobody can afford'  
 (direct object)
- c. de Bueb, wo mer \*(em) es Velo versproche händ  
 the boy C we (he.DAT) a bike promise.PTCP have.1PL  
 'the boy who we promised a bike'  
 (indirect object)
- (68) Swiss German
- a. d Frau, wo t gsäit häsch, dass \*(sie) kän  
 the woman C you say.PTCP have.2SG that she no  
 Fründ hät  
 boyfriend have.3SG  
 'the woman who you said has no boyfriend'  
 (embedded subject)
- b. s Bild, wo t gsäit häsch, dass \*(es) de Peter  
 the picture C you say.PTCP have.2SG that it the Peter  
 wett verchaffe  
 want.3SG sell.INF  
 'the picture that you said Peter wants to sell'  
 (embedded direct object)

One way of accounting for this local/long-distance contrast (as first proposed in somewhat different terms in Van Riemsdijk 2008) is to reanalyze what looks like a long-distance dependency in (68) as an instance of prolepsis with local movement of a (silent locative) proleptic constituent in the matrix clause. The obligatoriness of the resumptive in (68) then follows automatically (for residual cases of long movement in Swiss German, see Van Riemsdijk 1989, and Bayer and Salzmann 2013).

In recent work, Bošković (2007) and Den Dikken (2009; 2010) have proposed prolepsis(-like) reanalyses of what looks like successive-cyclic movement through Spec,CP. In both cases, the original motivation is more theoretical than empirical. Bošković (2007) proposes a theory of successive-cyclic movement where only the final movement step to the landing site is feature-driven while intermediate movement steps via phase edges are not. Similarly, Den Dikken (2010) argues that long-distance movement only makes a stopover in Spec,vP while movement to Spec,CP is always terminal. Both proposals run into difficulties when confronted with the large bulk of evidence in favor of successive-cyclic movement via Spec,CP (see Georgi 2014, ch. 2 for an overview). To cope with that, Bošković (2007) proposes, citing unpublished work by Cédric Boeckx, that these cases involve iterative prolepsis; that is, strictly local movement in every clause with empty operators in non-final clauses and the contentful phrase in the final clause; the operators in non-final clauses are bound by the immediately superior operator:

- (69) [<sub>CP</sub> Op<sub>i</sub> t<sub>i</sub> [<sub>CP</sub> Op<sub>i</sub> t<sub>i</sub> [<sub>CP</sub> Op<sub>i</sub> t<sub>i</sub> ]]]

Den Dikken (2009; 2010) proposes that such cases involve iterative full concordial scope marking, a variant of scope marking whereby all syntactic and phonological





To make the structure of the construction more transparent, the English translations use the proleptic construction as well, even though this may sound somewhat non-standard or stilted.

2. The properties of prolepsis do not seem to vary much across languages, at least not in the languages where the construction has been described in some detail. The major points of variation seem to be the encoding of the proleptic object (Case vs. preposition), the productivity of the construction, and the role of prolepsis in replacing long A'-movement. See section 5 for details about prolepsis in other languages and related constructions.
3. There are, to my knowledge, no detailed previous analyses of prolepsis. In the literature on other languages, there is some discussion of a few properties of prolepsis (see section 5.1 for references). It is usually concluded that (i) the simple solution discussed in this section cannot be on the right track, and that (ii) the proleptic object is base-generated in the matrix clause (rather than raised from the complement clause). But no attempt is made to provide an explicit account of how the object is licensed and related to the embedded clause. For reasons of coherence and readability, the structure of this chapter therefore largely follows the presentation in Salzmann (2006; in press b, ch. 4), which are the most thorough studies of the phenomenon to date.
4. A potential solution in terms of finite Control as in Salzmann (2005) can be readily ruled out, given the following properties pointed out above: first, the proleptic object is unlikely to be an argument; second, prolepsis can involve coreferential non-subjects, third, the coreferential element need not be local to the proleptic object.
5. There are a number of interesting and poorly understood differences between the in-situ and the ex-situ construction in German, see Salzmann (2006, 309–316). The most striking one is that the in-situ construction is much more lexically restricted than the ex-situ variant. This may have to do with the fact that the ex-situ variant is a close to grammaticalized alternative to long relativization while the in-situ construction does not have a comparable function in the language. The same asymmetry seems to hold in French, see Godard (1988) and Koopman and Sportiche (2009), and to a lesser extent in Serbo-Croatian, see Bošković (2009, 88–89). This state of affairs is somewhat reminiscent of exceptional ECM as with English *wager* and French *croire* and Case Switch in English (see Kayne 1984, 5 *the man whom I believe has left*) and in Hungarian (see subsection 5.2); in all these constructions, case assignment by the matrix verb (to the embedded external argument) is only possible under long A'-extraction. There is also a certain similarity to Parasitic Gaps, which require an A'-moved antecedent in the matrix clause. However, a PG-analysis of prolepsis fails for several reasons, see Salzmann (2006, 314–315).

At this point, it is unclear whether a syntactic explanation is adequate to account for the in-situ/ex-situ asymmetry in prolepsis.

6. The proleptic construction thus crucially differs from Dutch focus scrambling which can involve long A'-movement to the matrix middle field:
  - (i) dat Jan [zulke boeken]<sub>1</sub> zelfs onder vier ogen niet zegt  
 that John such books even under four eyes not say.3SG  
 dat hij <sub>—1</sub> gekocht heeft  
 that he buy.PTCP have.3SG  
 'that John would not even admit in private that he bought such books'

As discussed in Neeleman (1994b, 398–400) and Barbiers (2002, 57–58), the derived position bears all the hallmarks of an A'-position: The displaced constituent obligatorily reconstructs for binding. Quite apart from that, A'-movement from the embedded clause is unlikely in the proleptic construction given that it is possible with verbs that normally disallow long A'-movement, i.e. non-bridge verbs, see (8).

7. Further evidence for A-movement may come from the intervention effects discovered in Hartman (2011). Note, however, that Bruening (2014) argues that the ungrammaticality of such examples is not due to intervention, which is important given the analysis without A-movement to be proposed below.
8. At least in the descriptive sense that A-movement may not follow A'-movement. Because of the two separate chains involved, Hicks' proposal is also compatible with the Improper Movement account by Müller (2014a). However, since a copy of the antecedent is required inside the complement CP to account for reconstruction effects as in (20), it is not clear why this type of derivation should not be ruled out by Principle C.
9. One might object that the degradation of extraction is not due to a weak island in the complement clause but rather obtains because there is additional material in the matrix clause. Such effects have indeed been observed, namely when the subcategorization frame of a verb is changed and its semantics are thereby altered (see Lühr 1988, 83). For example, once *glauben* 'believe' additionally takes an indirect object, it means 'to believe someone something'. This results in opacity as well. However, there is no such indication that this is responsible for the ban on extraction in prolepsis because neither is the proleptic object an (optional) argument of the matrix verb nor is the semantics of *glauben* altered. Furthermore, the presence of the proleptic object does not affect the possibility of *glauben* to take a V2-complement, a property that correlates with the bridge-quality (see Featherston 2004). The presence of an indirect object, however, does:

- (i) Ich glaubte von Hans erst, er sei faul.  
I believe.PST.1SG of John first he be.SUBJ.3sg lazy  
'I first thought of John that he was lazy.'
- (ii) Ich glaubte (\*Hans), er war zufrieden.  
I believe.PST.1SG John he be.PST.3SG satisfied  
'I believed (John) that he was satisfied.'

One can conclude from this that the opacity observed in the proleptic construction is not simply due to the presence of the proleptic object.

10. Importantly, the island-violating cases in prolepsis are very natural and unmarked and thus do not have the repair flavor often reported for so-called intrusive resumption in English, which is generally not considered fully grammatical (see Chao and Sells 1983; Heestand, Xiang, and Polinsky 2011). Resumptive prolepsis thus behaves like resumption in languages with resumption proper such as Hebrew or Irish. I am grateful to the anonymous reviewer for requiring clarification of this issue.
11. Reconstruction effects generally must be treated with care. First, as in relativization, not all idioms are possible in the proleptic construction, essentially only relatively transparent collocations. Furthermore, as we will see in (30)–(32) below, the proleptic object is necessarily specific/referential, which rules out many idioms. Second, the example with reconstruction for anaphor binding is designed such that interfering factors like an implicit PRO inside the external head are ruled out. Finally, reconstruction for variable binding is often found to be most acceptable with equatives if relativization is involved; no such restrictions are observed if prolepsis involves topicalization or *wh*-movement. For thorough discussion of reconstruction effects more generally, see Salzmann (in press b, sect. 2.3.1.4).
12. However, see Postal (2004, 83–108) for arguments for raising to prepositional object.
13. Apart from violating the subcategorization requirements of the embedded predicate, this would cause further difficulties for a movement analysis of resumption, as the antecedent would differ from the resumptive in relevant features. This is most obvious if resumptives are the spell-out of a trace as, e.g., in Pesetsky (1998). But the problem also obtains in big

- DP-approaches, see Aoun, Choueiri, and Hornstein (2001), where antecedent and resumptive are normally assumed to agree in phi- and especially categorial features.
14. There are various versions of the MA in the literature, not all of which are assumed to handle reconstruction effects. The major problem is the unlicensed material inside the external head (e.g., anaphors as in (41)). A version of the MA where deletion of such material is possible under narrowly defined conditions is proposed in Salzmann (2006, 125–138) and Salzmann (in press a; in press b).
  15. There is no perfect consensus concerning the data, see Salzmann (2006, 28–34; in press b, sects 2.4 and 2.5) for an overview. The judgments given here reflect what I take to be the majority view.
  16. LF-deletion is indicated by single strikethrough. The LFs are obtained by means of the Preference Principle, see Chomsky (1995), which favors unrestricted quantification; consequently, the restriction is only retained in the base-position. In the examples with reconstruction below, the external head is LF-deleted as well. See Salzmann (2006; in press a; in press b) for the principles regulating LF-deletion.
  17. Things are somewhat more complex in that non-specific interpretations do become possible with resumption in certain constructions (such as equatives) and with oblique relations, see Bianchi (2011) for discussion. In Salzmann (2006, ch. 4.6; in press b, chs 4 and 5), where the issue is discussed with respect to Swiss German relatives, such cases of scope reconstruction were related to independent properties of the resuming elements. Reconstruction is (marginally) possible if the proforms are compatible with antecedents of other semantic types, a property that is orthogonal to the direct/oblique dichotomy. In German, this was the case with so-called R-pronouns. However, in most cases, proforms of other semantic types cannot be used in resumption, see the next subsection.
  18. Note that the NP-ellipsis approach requires proper names to be analyzed as NP-complements of a silent D, see Elbourne (2005, ch. 6), since they can also constitute a proleptic object (cf. *I believe of John that he is a good coach*). Furthermore, since referential pronouns can function as proleptic objects as in (1), we need to assume that they also consist of definite articles taking an NP-complement; in Elbourne (2005), the NP-complement of referential pronouns corresponds to the index, which will work for our purposes. An alternative to the NP-deletion account that avoids the complications with specifiers and proper names is the proposal in Salzmann (2006) where ellipsis between proleptic object and the operator in Spec,CP involves the entire DP, ellipsis additionally licensing the mismatch between the D-elements (external D vs. operator). The scarcity of DP-ellipsis tends to argue against this, however. See also note 21.
  19. The fact that the resumptives are analyzed as definite determiners does not imply that they behave like referential expressions in all respects, i.e. they still behave like pronouns for the purposes of binding theory, see Elbourne (2005) for discussion. The cases where the resuming element is an epithet, see (6b)–(7) above, are more problematic because epithets are subject to Principle C of the Binding Theory, see Lasnik and Stowell (1991, 708–709). One possibility consistent with the facts is to treat resumptive epithets as appositions to a silent pronoun (see Aoun and Choueiri 2000, who show that epithets can only be used as resumptives in Lebanese Arabic when combined with a demonstrative pronoun). Since on some accounts appositions are invisible for binding (see, e.g., De Vries 2006 on appositive relatives) the absence of a Condition C effect would follow. Treating epithets as appositions to a possibly silent pronoun would also help to account for reconstruction with such elements, see Salzmann (2006, 306).
  20. Given that the tail of the A'-chain is a pronoun/pronominal, it may come as a surprise that prolepsis as in (52a) and *tough*-movement as in (i) are subject to (Secondary) Strong Crossover (SCO). For the latter see Cinque (1990, 150), Rezac (2006, 313), Lasnik and Stowell (1991, 709):

- (i) \* $\text{Sam}_i$  was easy [ $\text{Op}_i$  to tell him $_i$  [ $\text{PRO}_i$  to make Mary visit  $e_i$ ]].

Normally, SCO effects are thought to obtain because the tail of the  $A'$ -dependency counts as a variable/R-expression subject to Principle C. This seems to argue against the pronominal analysis under which binding of the empty category by  $\text{PRO}/\text{him}/\text{er}$  should be licensed by Principle B.

The SSCO-Case in (52a) is in fact unproblematic because there the violation occurs because of (the trace of) a quantifier contained within DP; the embedded clause will contain a structure along the lines of:

- (ii)  $\text{he}_i$  likes [the [ $\text{mother of who}_i$ ]]

While the entire DP is pronominal, the (trace of) the quantifier inside the NP-complement is not, so that a Condition C violation ensues. Note that Vehicle Change is blocked here because it generally cannot apply to quantifiers, see Safir (1999, 605)

The example in (i) is more problematic because whether the pronominal variable is bound by the R-expression *Sam* or by  $\text{PRO}/\text{him}$  should not make a difference. There is reason to believe that it is the *crossing* of  $\text{PRO}/\text{him}$  that leads to the ungrammaticality in (i): SCO-effects even obtain under resumption, i.e. when an  $A'$ -bound *pronoun* is simultaneously A-bound (by a closer pronoun), see, e.g., Shlonsky (1992, 460). Whatever the underlying principle may be, the facts suggest that not all cases of SCO can be subsumed under Principle C. See Cinque (1990, 150), Postal (2004), and Rezac (2006, 313) for further discussion and references.

21. Cinque (1990, 193, fn. 33) argues for *tough*-movement and parasitic gaps that the restriction to individuals follows from the fact that null resumptives only exist for DPs. But given that overt proforms do exist for other semantic types, it is far from obvious that their null counterparts should not exist. In fact, Engdahl (2001) shows that Swedish has non-NP-parasitic gaps and relates this to the fact that Swedish has (overt) definite proforms for these types, the parasitic gaps then involving their silent counterparts. This correlation does not work for German/Dutch prolepsis where there are similar proforms as in Swedish but the proleptic object still has to be an individual.

Similarly, one cannot derive the restrictions from the selectional requirements of the matrix preposition as it is only a case marker that would not be necessary with other semantic types (which are either not DPs and therefore do not need Case or, in the case of amounts, can be licensed by semantic Case). Note that the examples in (57) do not improve without the preposition.

22. One may want to try to derive this restriction from predication, under the assumption that subjects of predication have to be referential entities, cf., e.g., Lappin (1984, 243–244). The subject–predicate relationship is then essentially interpreted as a topic–comment structure where the same semantic restrictions obtain. However, given that there are also derived predicates of amounts/degrees as in comparatives and amount/degree relatives, it is not obvious that this will not be sufficient.
23. The most precise way of capturing the restriction would be to employ the feature types from Abels (2012) which are movement-type specific (e.g., *wh* vs. *pred* vs. *top*) and also indicate whether they must be satisfied by means of Internal Merge, External Merge, or Agree. In the case at hand, [ $u\text{pred}\uparrow$ ] would indicate that C-heads like *that* can optionally carry a feature requiring a base-generated operator in their specifier which triggers predicate abstraction.
24. Although this is frequently the case, which is unsurprising since a statement about X often involves X as a participant.

25. Technically, this requires a distinction between final and intermediate movement triggers, see Georgi (2014; in press). Unbounded movement can then be blocked if the trigger for predicate abstraction can only be of the terminal type (while triggers for other movement types need not be similarly restricted and therefore could lead to unbounded/successive-cyclic movement).
26. There is a variant of this construction where one finds obligatory formal agreement on the lower verb. Since it shows movement effects, it is either analyzed as involving movement from the embedded clause with the DP receiving two cases or as an instance of (concordial) scope marking. On the latter see the next subsection. See Jánosi (2013, chs 4–5) for an overview of the various aspects of the construction.

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