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Replication of R-pronouns in German dialects

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Abstract: A considerable number of German dialects exhibit doubled R-pronouns with pronominal adverbs (*dadamit*, *dadafür*, *dadagegen*). At first sight, this type of *in situ* replication seems to be completely redundant since its occurrence is independent of R-pronoun extraction/movement. The main purpose of this paper is to account for (i) the difference between dialects with regard to replication of R-pronouns and (ii) why an (apparently redundant) process of replication occurs. Following Müller (2000a), who considers R-pronouns to be a repair phenomenon, we present an analysis in the framework of Optimality Theory. We argue that replication of R-pronouns is a consequence of different rankings of universal requirements like e.g. the *Inclusiveness Condition*, the *Lexical Integrity Hypothesis* and *Antilocality* and that the interaction of these constraints results in the occurrence of replication.

Keywords: R-pronouns, Optimality Theory, doubling, German, dialectal variation

1 Introduction

German shows two different strategies to pronominalize a noun phrase complement of a preposition: (i) either a regular personal pronoun follows the preposition (1a), or an R-pronoun *da* appears before the preposition (1b).

- (1) a. *Maria hat damals* [PP *für* [NP *ihn*]] *gestimmt*.
 Maria has back.then for him voted
 ‘Maria voted for him back then.’
- b. *Maria hat damals* [PP *da-für*] *gestimmt*.
 Maria has back.then *da*-for voted
 ‘Maria voted for that back then.’
 (Müller 2000a: 139–140)

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While extraction of the complement of the preposition is impossible in the former case (2a), it is licit in the latter. However, there is dialectal variation with regard to the exact form that this extraction takes. In Northern varieties, the displaced R-pronoun leaves a gap (2b) whereas it leaves a doublet of itself in Southern varieties (2c). All examples that show some kind of doubling of the R-pronoun stem from one of the authors of this paper, Katja Barnickel, who grew up in the Swabian town of Schwäbisch Gmünd. They are presented in a broad phonetic transcription that is supposed to capture the salient phonetic deviations from the Standard German. We take them to be representative of the Swabian German dialect spoken in this region although there might well be idiolectal variation.

All other examples are, if not marked otherwise, the authors'.

- (2) a. **Ihn*₁ *hat Maria damals* [_{PP} *für t*₁] *gestimmt*.
 him has Maria back.then for voted
 'For him Maria voted back then.'
- b. *Da*₁ *hat Maria damals* [_{PP} *t*₁ *für*] *gestimmt*.
 da has Maria back.then for voted
 (Müller 2000a: 141)
- c. *Da*₁ *hat Maria damals* [_{PP} *da-für*] *gestimmt*.¹
 da has Maria back.then da-for voted

Interestingly, this doubling is independent of the R-pronoun being separated from the preposition (as in [2b]) but also occurs if the pronominal adverb stays intact (3).

- (3) Swabian German
- a. *D'Maria hot dāmals* [_{PP} *dā-də-für*] *g'schdimmt*.
 the.Maria has back.then da-da-for voted
 'Maria voted for it back then.'
- b. [_{PP} *Dā-də-für*]₁ *hot d'Maria dāmals t*₁ *g'schdimmt*.
 da-da-for has the.Maria back.then voted
 'For this, Maria voted back then.'

These R-pronoun data raise three questions that the present paper will address. First, given that extraction of pronouns and full noun phrases from prepositional phrases is ungrammatical in German, why is it allowed in case of R-pronouns? Second, what leads to the presence of a doublet of the R-pronoun in

examples like (3c)? And third, how can we best account for the difference between the German dialects concerning this R-pronoun doubling?

In the next section, we will first give an overview of the distribution and properties of regular NP pronouns and R-pronouns based largely on Müller (2000a). Section 3 then presents relevant data on R-pronoun doubling and investigates its syntactic properties specifically with regard to extraction, splitting of R-pronoun and preposition, and the behaviour of the interrogative R-pronoun *wo*. After a brief discussion of previous proposals concerning the structure of pronominal adverbs in general as well as the doubling in particular, we develop a new account of R-pronoun doubling and its cross-dialectal variation in Section 4 making use of ranked violable constraints in the framework of Optimality Theory (Prince and Smolensky 2004 [1993]).

2 The distribution of R-pronouns

German has two different kinds of pronouns in prepositional phrases. Either a regular personal pronoun follows the preposition (4), or the R-pronoun *da* appears in front of the preposition (5).

(4) a. *Fritz hat gestern* [PP *an* [NP *sie*]] *gedacht*.
 Fritz has yesterday at her thought
 ‘Fritz thought of her yesterday.’

b. *Maria hat damals* [PP *für* [NP *ihn*]] *gestimmt*.
 Maria has back.then for him voted
 ‘Maria voted for him back then.’
 (Müller 2000a: 139)

(5) a. *Fritz hat gestern* [PP *da-r-an*] *gedacht*.
 Fritz has yesterday *da-r-at* thought
 ‘Fritz thought of that yesterday.’

b. *Maria hat damals* [PP *da-für*] *gestimmt*.
 Maria has back.then *da-for* voted
 ‘Maria voted for that back then.’
 (Müller 2000a: 140)

The term *R-pronoun* (originally coined by van Riemsdijk [1978] for similar elements in Dutch) refers to the elements *da* ‘there’ and the interrogative counterpart *wo* ‘where’. In combination with a preposition, these form what is called

a *pronominal adverb* or alternatively a *prepositional adverb*. *Da* and *wo* are termed R-pronouns since an epenthetic *r* is inserted if the adjacent preposition starts with a vowel (e.g. *da/wo-r-an*), see (6a) and (6b). There is also a distributionally more restricted form with the deictic *hier* ‘here’ (6c).

- (6) a. *Fritz hat gestern da-r-an gedacht.*
 Fritz has yesterday *da-r-at* thought
 ‘Fritz thought of that yesterday.’
 (Müller 2000a: 140)
- b. *Wo-r-an hat Fritz gestern gedacht?*
wo-r-at has Fritz yesterday thought
 ‘What did Fritz think of yesterday?’
- c. *Maria hat damals hier-für gestimmt.*
 Maria has back.then here-for voted
 ‘Maria voted for this back then.’

For the most part, it looks like regular pronouns and R-pronouns are in complementary distribution. Wherever a regular pronoun can occur, an R-pronoun cannot (7) and vice versa (8).

- (7) a. *Fritz hat gestern* [PP *an* [NP *sie*]] *gedacht.*
 Fritz has yesterday at her thought
 ‘Fritz thought of her, yesterday.’ (sie = Maria)
- b. **Fritz hat gestern* [PP *da-r-an*] *gedacht.* (da = Maria)
 (Müller 2000a: 141)
- (8) a. **Fritz hat gestern* [PP *an* [NP *es*]] *gedacht.*
 Fritz has yesterday at it thought
 ‘Fritz thought of it, yesterday.’ (es = *das Spiel* ‘the game’)
- b. *Fritz hat gestern* [PP *da-r-an*] *gedacht.* (da = *das Spiel* ‘the game’)
 (Müller 2000a: 141)

However, as Müller (2000a: 142) notes, this is not entirely true. In interrogative contexts, the NP pronoun *was* (but not *wen*) freely alternates with the R-pronoun *wo* (9).

- (9) a. [PP *Wo-r-an*] / [PP *An was*] *hast du gedacht t?*
wo-r-at / at what have you thought
 ‘What did you think of?’

- b. [_{PP} *Wo-für*] / [_{PP} *Für was*] *hast du dich entschieden t?*
 wo-for / for what have you yourself decided
 ‘What did you opt for?’
- c. [_{PP} *Wo-r-um*] / [_{PP} *Um was*] *geht es in der Sitzung t?*
 wo-r-about / about what goes it in the meeting
 ‘What is the meeting about?’
- d. [_{PP} **Wo-r-an*] / [_{PP} *An wen*] *hast du gedacht t?*
 wo-r-at / at who have you thought
 ‘Who did you think of?’
 (Müller 2000a: 142)

Furthermore, when taking a closer look it is observed that with non-neuter referents there is no clear complementary distribution of the respective personal pronouns *ihn, ihm, sie, ihr* and the R-pronoun *da*. Rather, it depends on their specific interpretation whether they can be replaced by an R-pronoun or not. While the personal pronouns can be used in any case (see the a. examples in [10]–[13]), an R-pronoun is licit only if the referent is an entity that is not conceived of as acting autonomously (see the b. examples). The concept of volitionality, however, is vague and may also apply to animals in certain contexts (e.g. fairy tales etc.). Thus in the following examples *da* is ungrammatical when it refers to a human being or to an animal that is understood to act volitionally. It is, however, fine if its referent is an inanimate entity or an animal that is understood to not act volitionally. The ambiguity with animals is represented by the superscript ‘?’.

(10) Dative masculine referents

- a. *Ich bin* [_{PP} *da-mit*] *nicht richtig zufrieden.*
 I am *da*-with not right satisfied
 ‘I am not really content with it.’ (*da* = *der Vorschlag* ‘the proposal’,
 **der Hausmeister* ‘the caretaker’,
 ?*der Esel* ‘the donkey’)
- b. *Ich bin* [_{PP} *mit ihm*] *nicht richtig zufrieden.*
 I am with 3SG.MASC not right satisfied
 ‘I am not really content with him’ (*da* = *der Vorschlag* ‘the proposal’,
der Hausmeister ‘the caretaker’,
der Esel ‘the donkey’)
- (Müller 2000a: 142)

(11) Accusative masculine referents

- a. *Maria musste noch oft* [PP *da-r-an*] *denken*.
 Maria must.PST still often *da-r-at* think
 ‘Maria had to still often think of it.’

(*da* = *der Vorschlag* ‘the proposal’,
 **der Hausmeister* ‘the caretaker’,
 ?*der Esel* ‘the donkey’)

- b. *Maria musste noch oft* [PP *an ihn*] *denken*.
 Maria must.PST still often at 3SG.MASC think
 ‘Maria had to still often think of him.’

(*da* = *der Vorschlag* ‘the proposal’,
der Hausmeister ‘the caretaker’,
der Esel ‘the donkey’)

(Müller 2000a: 142)

(12) Dative feminine referents

- a. *Alle waren* [PP *da-von*] *sehr beeindruckt*.
 all were *da-by* very impressed
 ‘Everyone was very impressed by it.’

(*da* = *die Ausstellung* ‘the exhibition’,
 **die Frau* ‘the woman’,
 ?*die Katze* ‘the cat’)

- b. *Alle waren* [PP *von ihr*] *sehr beeindruckt*.
 all were by 3SG.FEM very impressed
 ‘Everyone was very impressed by her.’

(*ihr* = *die Ausstellung* ‘the exhibition’,
die Frau ‘the woman’,
die Katze ‘the cat’)

(Müller 2000a: 143)

(13) Accusative feminine referents

- a. *Maria musste noch oft* [PP *da-r-an*] *denken*.
 Maria must.PST still often *da-r-at* think
 ‘Maria had to still often think of it.’

(*da* = *die Ausstellung* ‘the exhibition’,
 **die Frau* ‘the woman’,
 ?*die Katze* ‘the cat’)

- b. *Maria musste noch oft* [PP *an sie*] *denken*.
 Maria must.PST still often at 3SG.FEM think
 ‘Maria had to still often think of her.’

(*sie* = *die Ausstellung* ‘the exhibition’,
die Frau ‘the woman’,
die Katze ‘the cat’)

(Müller 2000a: 142)

Even with neuter referents one finds that personal pronouns and R-pronouns are only in complementary distribution in case the personal pronoun is the accusative *es*, which is illicit with an inanimate referent (14). In the dative, however, both a regular NP pronoun and an R-pronoun are possible with an inanimate referent like *das Buch* ‘the book’, although a personal pronoun is noticeably marked (15).

(14) Accusative neuter referent

- a. *Maria musste noch oft* [PP *da-r-an*] *denken*.
 Maria must.PST still often *da-r-at* think
 ‘Maria had to still often think of it.’ (*da* = *das Buch* ‘the book’,
 **das Kind* ‘the child’,
 ?*das Pferd* ‘the horse’)
- b. *Maria musste noch oft* [PP *an es*] *denken*.
 Maria must.PST still often at 3SG.NEUT think
 ‘Maria had to still often think of it.’ (*es* = **das Buch* ‘the book’,
das Kind ‘the child’,
 ?*das Pferd* ‘the horse’)

(15) Dative neuter referent (adapted from Müller 2000a)

- a. *Ich bin* [PP *da-mit*] *nicht richtig zufrieden*.
 I am *da-with* not right satisfied
 ‘I am not really satisfied with it.’ (*da* = *das Buch* ‘the book’,
 **das Kind* ‘the child’,
 ?*das Pferd* ‘the horse’)
- b. *Ich bin* [PP *mit ihm*] *nicht richtig zufrieden*.
 I am with 3SG.NEUT not right satisfied
 ‘I am not really satisfied with it.’ (*ihm* = ?*das Buch* ‘the book’,
das Kind ‘the child’,
das Pferd ‘the horse’)

The overall generalization about the distribution of pronouns in PPs is the following (adapted from Müller 2000a: 144):

(16) In a PP there is

- obligatorily an NP pronoun with animate referents,
- optionally an NP pronoun or an R-pronoun with inanimate non-neuter referents,
- obligatorily an R-pronoun with inanimate neuter referents in accusative contexts.

The important difference between regular NP pronouns and R-pronouns is that, while the former can never be dislocated out of the embedding PP (17), the latter are freely extractable and can therefore strand the preposition (18).

- (17) a. **Fritz hat sie₁ gestern* [PP *t₁ an*] *gedacht*.
 Fritz has her yesterday at thought
 ‘Fritz thought of her yesterday.’
- b. **Ihn₁ hat Maria damals* [PP *t₁ für*] *gestimmt*.
 him has Maria back.then for voted
 ‘For him Maria voted back then.’
- c. **Wen₁ hat Maria damals* [PP *t₁ für*] *gestimmt?*
 Whom has Maria back.then for voted
 ‘Whom did Maria vote for back then?’
 (Müller 2000a: 141)
- (18) a. *Fritz hat da₁ gestern* [PP *t₁ dr-an*] *gedacht*.
 Fritz has da yesterday dr-at thought
 ‘Fritz thought of it yesterday.’
- b. *Da₁ hat Maria damals* [PP *t₁ für*] *gestimmt*.
 da has Maria back.then for voted
 ‘Maria voted for it back then.’
- c. *Wo₁ hat Maria damals* [PP *t₁ für*] *gestimmt?*
 wo has Maria back.then for voted
 ‘What did Maria vote for back then?’
 (Müller 2000a: 141)

This phenomenon has already been discussed extensively in the literature, see e.g. Fanselow (1983, 1991), Koster (1987), Grewendorf (1989), Bayer (1990, 1991), Oppenrieder (1991), Trissler (1993, 1999), Müller (1991, 2000a), Abraham (1995), Kathol (1995), S. Müller (1999), Gallmann (1997), Fleischer (2002), and Negele (2012), to name just a few.¹

Note that in case of vowel-initial prepositions extraction of the R-pronoun leaves behind the epenthetic *-r-* element plus an additional *d-* (18a). It is not correlated with the landing site of the movement. Thus if *da* is moved into the *Vorfeld*, that is SpecCP (19a), it leaves the same *dr* element as in (18a) if the preposition is vowel-initial. On the other hand, if the preposition is consonant-

¹ For discussion of the analogous phenomenon in Dutch see van Riemsdijk (1978).

initial, as in (18b), scrambling of *da* into the left periphery of the *Mittelfeld* does not leave a *dr* element (19b).

- (19) a. *Da*₁ *hat Fritz gestern* [_{PP} *t*₁ *dr-an*] *gedacht*.
 b. *Maria hat da*₁ *damals* [_{PP} *t*₁ *für*] *gestimmt*.

We will come back to this element in the next section.

3 R-pronoun replication

There is a related observation, however, that has not yet received much attention in the theoretical literature. In numerous varieties of German, we find that extraction of the R-pronoun does not strand the preposition. Instead, there are two exponents of the R-pronoun present, one inside the PP and another in the *Mittelfeld* (20a) or in the *Vorfeld* (20b), (20c).

(20) Swabian German

- a. *Dr Fritz hot dā net* [_{PP} *də-mit*] *g'rechnet*.
 the Fritz has *da* not *da*-with reckoned
 'Fritz did not reckon with that.'
- b. *Dā hot d'Maria dāmals* [_{PP} *də-für*] *g'schdimmt*.
da has the.Maria back.then *da*-for voted
 'Maria voted for it back then.'
- c. *Dā hot dr Karl nix* [_{PP} *də-vo*] *g'wisst*.
da has the Karl nothing *da*-of known
 'Karl did not know anything of that.'

Despite the fact that both copies of the R-pronoun differ phonetically, we treat them as syntactic copies, that is, as distinct realizations of the same syntactic object/head that has been doubled in the course of the derivation. Any phonological differences, we assume, are superficial and probably related to stress and changes in vowel quality induced in unstressed positions. A comparable construction that is commonly treated as doubling of the same element despite phonological and even morphological differences are so-called predicate cleft constructions (21) where a verb, being focussed or topicalized, appears clause-initially and a copy of the same verb occurs in the canonical position inside the clause.

- (21) a. *Liknot hi kanta et ha-praxim.*
 to.buy she bought ACC the-flowers
 ‘As for buying, she bought the flowers.’
 (Hebrew, Landau 2006: 37)
- b. *Bi-ba Musa à ba nakàn o.*
 RED-cut Musa FUT cut meat FOC
 ‘It is CUTTING that Musa will do to the meat (as opposed to say, *cooking*.)’
 (Nupe, Kandybowicz 2008: 79)
- c. *Wypić (to) Marek wypije herbatę, ale nie wypije*
 drink.INF TO Marek will.drink tea but not will.drink
kawy.
 coffee
 ‘As for drinking, Marek will drink tea, but he will not drink coffee.’
 (Polish, Bondaruk 2012: 55)

We thus take it that the two tokens of the R-pronoun in (20) can justly be regarded as syntactic copies of one underlying element.

These German doubling structures are considered colloquial in the first edition of the Duden Grammar (Duden 1959). While still mentioned in the third edition (Duden 1973), they no longer appear in subsequent editions. However, they are briefly described in the more theoretically oriented grammar of Eisenberg (1999) and in the diachronic literature, where they are often discussed in conjunction with stranding (see e.g. Paul 1919; Behaghel 1899, 1932; Dal 1966, 2014; Lockwood 1968).² Fleischer (2002) calls the construction exemplified by (20) *Distanzverdopplung* ‘distance doubling’. It has been reported for Westphalian, Rhenish Franconian, Middle Bavarian, Swabian, Thuringian, Upper Saxonian, Berlin, High Alemmanic, Lower Alemannic, North Bavarian, East Franconian, Lower Franconian, Silesian, Central Hessian, Moselle Franconian and numerous other dialects (for an even finer-grained areal distribution, see Fleischer [2002]).

In most of these varieties, the R-pronoun is also doubled if it is not extracted. The two tokens then appear adjacent to each other and the preposition. The prepositional phrase can either stay *in situ* (38a) or be dislocated as a whole constituent (22b), (22c). Fleischer (2002) calls this construction *Kurze Verdopp-*

² An overview over more descriptions of this construction in the dialectological literature is given by Fleischer (2002).

lung ‘short doubling’. Extraction of both tokens while stranding the preposition is ungrammatical in all dialects (22d).

(22) Swabian German

- a. *Dr Fritz hot net* [PP *dā-də-mit*] *g’rechnet*.
 the Fritz has not *da-da-with* reckoned
 ‘Fritz did not reckon with that.’
- b. [PP *Dā-də-für*] *hot d’Maria dāmals g’schdimmt*.
da-da-for has the.Maria back.then voted
 ‘Maria voted for it back then.’
- c. [PP *Dā-də-vo*] *hot dr Karl nix g’wisst*.
da-da-of has the Karl nothing known
 ‘Karl did not know anything of that.’
- d. **Dā₂ dā₁ hot dr Karl nix* [PP *t₂ t₁ vo*] *g’wisst*.
da da has the Karl nothing of known
 ‘Karl did not know anything of that.’

This short doubling structure is very rarely discussed in German grammars.³ Paul (1919) and Curme (1922) and also the Duden (2009, 2016) briefly mention a short doubling construction. However, they understand this to refer to pronominal adverbs built from vowel initial prepositions which besides the usual *r*-epenthesis (e.g. *da-r-auf*) often also allow a second *d* before the *r* (i.e. *da-dr-auf*). This *d* is apparently interpreted by these sources as a contracted copy of the R-pronoun (i.e. *da-d(a)-r-auf*). Only Oppenrieder (1991) includes examples like the ones in (22) with consonant initial prepositions, which are not considered at all by Paul (1919), Curme (1922), and Duden (2009, 2016).

Whether forms with *-dr-* and vowel-initial prepositions actually constitute cases of doubling of an R-pronoun is, however, debatable. First, they are also attested in dialects that do not allow distance doubling or short doubling with consonant-initial prepositions. Second, as Noonan (2017: 218) notes, the *dr* is not restricted to pronominal contexts (23a) but also occurs in spatial PPs with a non-pronominalized object (23b), i.e. when no R-pronoun is present at all and hence can not have been doubled.

- (23) a. *Es liegt* [PP *da-dr-auf*].
 it lies *da-dr-on*
 ‘It is lying on that.’

³ In the dialectological literature, the short doubling structure is described more often, for references see Fleischer (2002).

- b. *Es liegt* [_{PP} *auf dem Schrank dr-auf*]
 it lies on the cupboard *dr-on*
 ‘It is lying on (top of) the cupboard.’
 (Noonan 2017: 218)

Furthermore she notes that the presence of *d* is optional in directional pronominal adverbs like (24) whereas it is obligatory in non-directional locative pronominal adverbs like (25).

- (24) *Da*₁ *ist er* [_{PP} *t*₁ (*d*)*r-auf*] *gesprungen*.
da is he *dr-on* jumped
 ‘He jumped on(to) that.’
 (Noonan 2017: 218)

- (25) a. *Da*₁ *steht er* [_{PP} *t*₁ *(*d*)*r-auf*].
da stands he *dr-on*
 ‘He is standing on that.’

- b. *Da*₁ *sind die Bücher* [_{PP} *t*₁ *(*d*)*r-in*].
da are the books *dr-in*
 ‘The books are in that.’
 (Noonan 2017: 218)

The fact that *d* also occurs in the presence of a full NP object (23b) shows that it cannot be a doublet or a reduced form of the R-pronoun *da*. Rather, its distribution seems to be regulated by other properties, among them directionality (see [24] vs [25]). While Noonan (2017: 223) suggests that the *d* in *d-r-auf* instantiates a D_{PLACE} head within the extended projection of PP we remain agnostic as to its actual nature. What we, however, take to be clear from the above argumentation is that *d(r)* is different from both *dã* and *də* in (22) as, in contrast to the latter two, it occurs in contexts where a full, non-pronominalized NP object is present. It can therefore not be an instance or a replication of an R-pronoun.

Doubling (short and distance) does not only apply to declarative pronominal adverbs with *da*, but also to their interrogative counterparts with *wo* ‘where’. The examples in (26) show that *wo* behaves like *da* concerning extraction out of PP (stranding the preposition without any doubling) and pied-piping.

- (26) a. *Wo*₁ *hat Fritz nicht* [_{PP} *t*₁ *mit*] *gerechnet?*
wo has Fritz not with reckoned
 ‘What did Fritz not reckon with?’

- b. *Womit₁ hat Fritz nicht t₁ gerechnet?*
- c. *Wo₁ hat Maria damals [PP t₁ für] gestimmt?*
wo has Maria back.then for voted
 ‘What did Maria vote for back then?’
- d. *Wofür₁ hat Maria damals t₁ gestimmt?*
- e. *Wo wusste Karl nichts [PP t₁ von]?*
wo knew Karl nothing of
 ‘What did Karl know nothing of?’
- f. *Wovon₁ wusste Karl nichts?*

In the case of interrogative R-pronouns, however, *doubling* does not mean that there are two tokens of *wo* in the sentence, but that *wo* and *da* appear together.

The examples in (27) illustrate distance doubling, those in (28) short doubling.

(27) Swabian German

- a. *Wo hot dr Fritz net [PP də-mit] g’rechnet?*
wo has the Fritz not da-with reckoned
 ‘What did Fritz not reckon with?’
- b. *Wo hot d’Maria dāmals [PP də-für] g’schdimmt?*
wo has the.Maria back.then da-for voted
 ‘What did Maria vote for back then?’
- c. *Wo hot dr Karl nix [PP də-vo] g’wisst?*
wo has the Karl nothing da-of known
 ‘What did Karl know nothing of?’

(28) Swabian German

- a. [PP *Wo-də-mit*] *hot dr Fritz net g’rechnet?*
wo-da-with has the Fritz not reckoned
 ‘With what did Fritz not reckon?’
- b. [PP *Wo-də-für*] *hot d’Maria dāmals g’schdimmt?*
wo-da-for has Maria back.then voted
 ‘For what did Maria vote back then?’
- c. [PP *Wo-də-von*] *hot dr Karl nix g’wisst?*
wo-da-of has the Karl nothing known
 ‘Of what did Karl nothing?’

Instead, sentences that contain two copies of *wo* are ungrammatical (29b), (29d) (independent of extraction of *wo*).

(29) Swabian German

- a. *Wo isch dr Fritz allergisch* [_{PP} *də-gegə*]?
wo is the Fritz allergisch da-against
 ‘What is Fritz allergic to?’
- b. **Wo isch dr Fritz allergisch* [_{PP} *wo-gegə*]?
wo is the Fritz allergisch wo-against
 ‘What is Fritz allergic to?’
- c. [_{PP} *Wo-də-gegə*] *isch dr Fritz allergisch?*
wo-da-against is the Fritz allergisch
 ‘To what is Fritz allergic?’
- d. * [_{PP} *Wo-wo-gegə*] *isch dr Fritz allergisch?*
wo-wo-against is the Fritz allergisch
 ‘To what is Fritz allergic?’

Pronominal adverbs with *hier* ‘here’ behave like those with *wo*. Doubling occurs regardless of whether there is extraction of *hier* (30a) or not (30c). However, the copy in base position is *da* and never a second *hier* (30b), (30d).

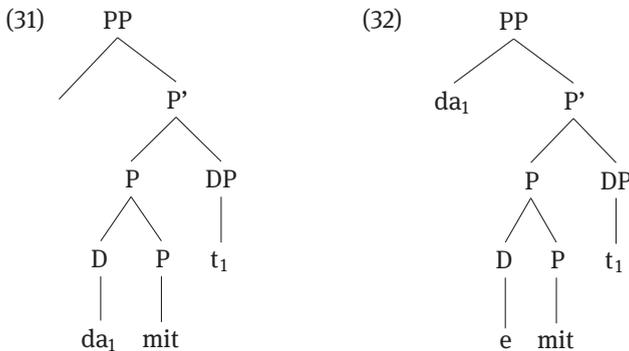
(30) Swabian German

- a. *Hier mog dr Fritz* [_{PP} *də-für*] *bezahlə*
here wants the Fritz da-for pay
 ‘Fritz wants to pay for that.’
- b. **Hier mog dr Fritz* [_{PP} *hier-für*] *bezahlə*.
here wants the Fritz here-for pay
 ‘Fritz wants to pay for that.’
- c. *Dr Fritz mog* [_{PP} *hier-də-für*] *bezahlə*.
the Fritz wants here-da-for pay
 ‘Fritz wants to pay for that.’
- d. **Dr Fritz mog* [_{PP} *hier-hier-für*] *bezahlə*.
the Fritz wants here-here-for pay
 ‘Fritz wants to pay for that.’

4 Analysis

4.1 The structure of R-pronouns and the doubling puzzle

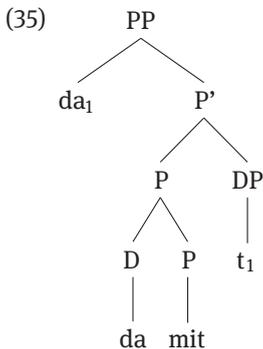
Before we turn to our analysis we want to address the structure of pronominal adverbs. We follow Gallmann (1997), Müller (2000a) and Fleischer (2002) in assuming that R-pronouns are base-generated in the complement position of the preposition (for a different stance on the issue see Oppenrieder [1991], Trissler [1993] and Abels [2003]). Since the R-pronoun is never spelled out in this position, it inevitably has to move out of there. Gallmann (1997) proposes that the R-pronoun has two options. It can either incorporate into the preposition (see Baker [1988] for incorporation) or move into the specifier position of the PP. In (31), the R-pronoun *da* has vacated the complement position and incorporated into the preposition resulting in a complex P-head. In (32) *da* has moved up into SpecPP while an empty element has been incorporated into P.



What is the benefit of having these two different structures? First, the stranding option can be easily explained. In the cases where *da* appears in the *Mittelfeld* or in the *Vorfeld*, the structure in (32) is the underlying one. *Da* is simply moved on from its position in SpecPP. This is an advantage compared to previous analyses which are based on incorporation of the preposition into the verb (Abraham 1995) or on the concept of direct selection (Trissler 1993). These analyses presuppose verb left-adjacency of the stranded preposition. Although the preposition is indeed left-adjacent to the verb in most cases, data where the preposition does not appear at the left edge of the verb complex as in (33) or (34) pose problems for these analyses (for a detailed discussion of these proposals and its theoretical and empirical problems see Fleischer [2002], who also reports that examples such as (34) are less infrequent, particularly in dialectal German, than one might expect).

- (33) a. *Da₁ hat er ihm [PP t₁ mit] auf den Kopf [V geschlagen].*
da has he him with on the head hit
 ‘He’s hit him on the head with that.’
- b. *Da₁ ist er doch hoffentlich [PP t₁ mit] zum Doktor*
da is he PRT hopefully with to.the doctor
[V gegangen].
 gone
 ‘He’s hopefully gone to the doctor with that.’
 (Trissler 1993: 271)
- (34) *Dã₁ håt er nix [V gsåcht] [PP t₁ driwer].*
da has he nothing said dr-over
 ‘He did not say anything about it.’
 (East Fanconian, Beyschlag and Werner 1961: 217)

A desirable consequence of Gallmann’s (1997) analysis is that extraction out of SpecPP is completely independent from the position of the verb. The second benefit that Gallmann (1997) and Fleischer (2002) point out is, that short doubling (*dadamit*) directly follows from the structure proposed in (32). According to Gallmann (1997) and Fleischer (2002), the short doubling structure corresponds to the one in (32) with the difference that there is no empty element incorporated into P, “sondern noch einmal ein *da*” (Fleischer 2002: 398) (translation: ‘but yet another *da* again’). A few pages later, Fleischer (2002) describes the short doubling structure as follows: “Hier ist neben Inkorporation in P⁰ auch SpecPP besetzt” (Fleischer 2002: 405) (translation: ‘As well as incorporation into P⁰, SpecPP is also occupied’). In this description, it seems that the underlying structure is the one in (31) plus *da* in the specifier of PP. Both descriptions lead to the structure in (35).



We agree that the structure in (35), assumed by Gallmann (1997) and Fleischer (2002), is a suitable representation of the short doubling construction. However, we do not agree with the statement that it follows directly or automatically from the possibility of two different movement types (incorporation into P and movement to SpecPP). As far as we understand, Gallmann (1997) and Fleischer (2002) argue in favour of these two different movement types *because* doubling can be derived under this assumption (see Fleischer 2002: 404). To independently justify the existence of two different positions for R-pronouns, Fleischer (2002) offers the argument that only clitic or proclitic pronouns can be incorporated into P⁰ (he regards *dr* in e.g. *da-dr-auf* as a proclitic version of *da* with a reduced vowel). In contrast, full pronouns (like unreduced *da* in e.g. *da-r-auf*) cannot be incorporated into P⁰ and therefore move to SpecPP. We do not see the reason why this should be the case. Furthermore, the distinction between full *da* and clitic *d(a)* seems somewhat ad hoc and the status of *d* in *dr* as a reduced second syntactic token of *da* is at least debatable as already mentioned in section 3 above. But even if this account were right, it does not provide an answer to the question of why doubling emerges. Under Fleischer's (2002) assumptions, reduced clitic pronouns are always expected to be incorporated into P⁰ and full pronouns are expected to move to SpecPP. If we find both positions occupied, then there must have been two R-pronouns to start with, one clitic and one full version. The doubling itself thus remains unexplained. What Fleischer (2002) does not discuss at all is *why* incorporation and Comp-to-Spec movement should both apply to one R-pronoun in one structure and, if they did, how this leads to a doubling of the R-pronoun. The advantage or benefit of having *da* in SpecPP obviously is the fact that it can (still) be extracted out of this position. This is needed for the cases of stranding and for distance doubling. But in the case of short doubling both *da*-elements stay in situ next to the preposition. The proposed structure (35) thus raises the following questions:

- (36) a. If *da* does not appear in the *Mittel-* or the *Vorfeld* (i.e. is not extracted out of PP), why should it leave the complement position and move into SpecPP/incorporate into P at all?
- b. If there is an independent reason for *da* to leave the complement position (see e.g. Müller 2000a) and move up to SpecPP, why is incorporation of an additional *da* required or desirable?

Or to put it differently: If extraction of *da* out of the complement position is required, why is incorporation of *da* into P not enough to satisfy this requirement?

Gallmann (1997) and Fleischer (2002) do not address these questions, but at first sight the application of *both* movement types, incorporation and Comp-to-

Spec movement, seems to be completely redundant. In our opinion, an analysis of German R-pronouns should ideally account for (i) the difference between the distribution of R-pronouns and regular NP pronouns with regard to their movement properties, (ii) the difference between dialects with regard to replication of R-pronouns and (iii) it should explain why an (apparently redundant) replication process occurs. Issue (i) is addressed by Müller (2000a), which is briefly summarized in section 4.2. Concerning issue (ii), Gallmann (1997) and Fleischer (2002) simply restate the facts: dialects with doubling incorporate “noch einmal ein *da*” (Fleischer 2002: 398) (‘yet another *da* again’), while this option is not available in dialects without doubling. In section 4.3, we will provide an account of the phenomenon of R-pronoun replication which is in line with Müller’s (2000a) account for the distribution of R-pronouns and corroborates the proposed structure for short doubling of Gallmann (1997) and Fleischer (2002). In addition, it will provide an explanation for replication of R-pronouns based on the interaction of conflicting constraints in Optimality Theory (OT). Dialectal differences will be accounted for in a principled way by rerankings of these constraints.

4.2 R-pronouns vs regular NP pronouns (Müller 2000a)

In Müller (2000a), R-pronouns are analysed as a repair to what is called the “Wackernagel-Ross dilemma”. The basic insight is that two well-established constraints of German syntax lead to a dilemma in the case of PP-internal NP pronouns because they cannot both be respected by one and the same pronoun at the same time. The first constraint states that weak NP pronouns need to be in a position at the left periphery of the *Mittelfeld*, an observation that goes back to Wackernagel (1892). That position is consequently called the “Wackernagel position” and can be understood as a specifier of TP or as adjoined to TP here (the exact status being of no importance to the argument). PP-internal weak NP pronouns would thus have to move out of PP into that position. Such a movement, however, is foreclosed by the second constraint that nothing that receives case from the preposition can be extracted out of a PP in German. A weak NP pronoun that starts out as the complement of P will inevitably violate one of the two constraints: Either it moves into the Wackernagel position, thereby complying with the Wackernagel constraint but violating the constraint against extraction from PP, or it stays inside PP, thereby abiding by the second constraint but violating the first one. Such a conflict can be resolved by attributing a greater importance to one of the constraints as implemented by constraint ranking in an OT framework (Prince and Smolensky 2004 [1993]), which is what is done in Müller (2000a). However, as one can easily see from the data above,

neither does a weak NP pronoun move to the Wackernagel position in violation of the PP-island (i.e. there is no P-stranding), nor does it stay in the PP in violation of the Wackernagel requirement (i.e. there is never a weak NP pronoun inside the PP).⁴ What actually happens is that a repair form *da*, the R-pronoun, is substituted. In OT terms, this means that replacing the NP pronoun with *da* is more optimal than violating one of the two above-mentioned constraints.⁵ Since the R-pronoun is by definition not a weak NP pronoun, its being outside the Wackernagel position does not violate the Wackernagel constraint. Additionally, as it usually does not receive case from the preposition it can be extracted out of the PP, which explains why displacement of *da* in contrast to regular NP pronouns is possible.⁶ However, there must be an even lower ranked constraint, like the Inclusiveness Condition (Chomsky 1995), that punishes *da*-insertion.⁷ Whether an NP pronoun is replaced by the R-pronoun depends on whether it is subject to the Wackernagel condition and therefore gives rise to the dilemma, or not. This is determined based on a hierarchy of pronoun strength given in (37). As mentioned before only weak pronouns and everything below them on the scale have to move to the Wackernagel position.

(37) Personal Pronoun Scale (Müller 2002: 205)

Pron_{strong} > Pron_{unstressed} > Pron_{weak} > Pron_{reduced} (> Pron_{clitic})
 IHN[+stress] ihn[+anim] ihn[-anim] es ('s)

⁴ In all cases where an NP pronoun appears inside a PP, as in some of the examples (10)–(13), the NP pronoun is a strong rather than a weak one and therefore does not fall under the Wackernagel requirement. Hence no conflict arises.

⁵ An anonymous reviewer suggests that in case of a PP-internal weak NP pronoun the whole PP could pied-pipe into the Wackernagel position thereby resolving the dilemma because the NP pronoun is both in Wackernagel position and inside the PP. However, commonly only prosodically “light” elements may appear in this position. A full PP is probably too “heavy” to be licensed in it.

⁶ This is supported by cases where *da* seems to have received (genitive) case from the preposition, as in the pronominal adverb *deswegen* ‘because of that’. In these cases, *des*-cannot be extracted from the PP (i).

(i) **Des ist Peter wegen nach Florida gezogen.*

da.GEN is Peter because to Florida moved

Intended ‘That is why Peter moved to Florida.’

⁷ The Inclusiveness Condition (IC) mitigates against the introduction of material into the derivation that was not already selected from the lexicon at the start of the derivation (i.e. the numeration). Whether copies of elements in the numeration violate the IC is currently unclear. Under the copy theory of movement, where each movement step leaves a copy of the moved element instead of a trace, they must not incur a violation. However, as we explicitly reject the copy theory in the analysis to be presented, we assume here that copies do violate the IC.

The hierarchy is encoded as a set of inherently ranked subconstraints in Müller's (2000a) analysis of the distribution of NP pronouns vs. R-pronouns which thus elegantly derives the distribution of the R-pronoun and its differences compared to the NP pronouns in non-doubling dialects.

4.3 An account of R-pronoun replication

From a very intuitive point of view, one might attribute the existence of *da*-replication to the fact that German disallows preposition stranding (for full NP and NP pronoun extraction). In some German dialects this ban is weak and does not extend to extraction of *da* while it is stronger in others and also forbids P-stranding under *da*-extraction. It then seems to be obvious that a second *da* is inserted in the latter dialects to prevent the preposition from being stranded in the cases where *da* moves out of the PP due to topicalization or scrambling. This explanation works well for the distance doubling construction. However, it does not account for short doubling, the case of replication where both copies of the R-pronoun stay inside the PP, see the examples in (22), repeated in (38) below for the reader's convenience.

(38) Swabian German

- a. *Dr Fritz hot net* [_{PP} *dã-də-mit*] *g'rechnet*.
 the Fritz has not *da-da*-with reckoned
 'Fritz did not reckon with that.'
- b. [_{PP} *Dã-də-für*] *hot d'Maria dãmals g'schdimmt*.
da-da-for has the.Maria back.then voted
 'Maria voted for it back then.'
- c. [_{PP} *Dã-də-vo*] *hot dr Karl nix g'wisst*.
da-da-of has the Karl nothing known
 'Karl did not know anything of that.'

In these cases, the preposition is never stranded and it is not possible, given the explanation above, to insert a second *da* or rather make a copy of it. Thus, as (38) shows, whatever the reason for replication is, it cannot be dependent on the R-pronoun leaving the PP, i.e. stranding the preposition. We propose that all previous analyses were right to at least some degree and that what actually happens can be explained by a melange of these analyses. Following Müller (2000a), we regard the R-pronoun as a repair form that is not selected by the preposition. Rather, it is inserted to resolve the Wackernagel-Ross dilemma outlined in section 4.2 above. As this leaves the preposition's selection require-

ments unfulfilled the constraint that demands satisfaction of these requirements (SEL[EKTIONSBSCHRÄNKUNG] in Müller 2000a: 149) must be violable and ranked below those that demand Wackernagel movement and prohibit extraction of case-marked elements from PP respectively (for details see Müller 2000a). Taking up a suggestion made by Müller (2000a: 159) concerning the order of *da* and the preposition, we assume that elements are only licit in the complement position of a head if they are selected by that head, an assumption rooted in Chomsky's (1981) *Projection Principle*. The R-pronoun, which is inserted into the complement position of P as a repair and is therefore not selected by P, cannot stay in its position.

In order to rectify this situation, the R-pronoun can undergo two possible types of movement (following Gallmann [1997] and Fleischer [2002]): It can move from its complement position into the specifier of PP or it can incorporate into the P-head. However, we will argue that both possibilities do not come for free but rather conflict with different requirements on R-pronouns and movement operations in general. Concerning Comp-to-Spec movement, the ban on “antilocal” movement (see Grohmann 2003; Abels 2003 and Ticio 2005) forbids movement from complement position into the specifier position within the same phrase. Incorporation, on the other hand, is also costly since, as a consequence, *da* is no longer accessible for further processes like extraction out of the PP (see Lapointe 1981, more detailed explanation below). In sum, we claim that in the case of the derivation of a pronominal adverb conflicting requirements have to be fulfilled. In Optimality Theory, conflicting requirements can be modeled straightforwardly as ranked and violable constraints. Thus, OT is well suited to tackle parts (ii) and (iii) of the aforementioned requirements for an analysis of doubling. Cross-linguistic, or for that matter cross-dialectal, differences can be accounted for by simply reranking universal constraints. Our analysis of R-pronoun replication will thus be formulated in OT. In (39) and (40) the already mentioned requirements *complement selection* and *antilocality* are reformulated as violable OT-constraints:

(39) Co(MPLEMENT)-SEL(ECTION)

Assign a violation for every element in a complement position of a head that is not selected by that head.

(40) ANTILOCALITY (A-LOC)

Assign a violation for every movement from complement position into specifier position of the same head.⁸

⁸ Crucially, although the term might suggest it, antilocal movement refers to Comp-to-Spec movement only while Comp-to-Head incorporation or excorporation out of a complex head, even though it is technically even more local, does not violate ANTILOCALITY. The conceptual

A further requirement we want to consider is the *Lexical Integrity Hypothesis*, first proposed by Lapointe (1981). It states that syntactic operations do not have access to the internal structure of words. It has been reformulated in a number of different ways, e.g. as part of *Revised Lexical Integrity* stating that “syntactic rules have no access to the internal structure of X^0 categories” (Spencer 2005: 81). According to this principle, extraction out of complex heads (excorporation) is not allowed. We reformulate this principle as a violable constraint against traces in complex heads (41).

- (41) *_[X⁰ t]
Assign a violation for every trace inside a complex head.

The fourth constraint that influences the derivation is one against the creation of copies, *COPY. It can be understood as a more specific version of the Inclusiveness Condition (Chomsky 1995) prohibiting the introduction of material not present in the numeration.

- (42) *COPY
Assign a violation for every copy of an element.

Crucially, we assume that copies are not created as a consequence of movement, as is the case in the copy theory of movement. Rather, the Generator in OT consists of the basic minimalist operations Merge and Agree, plus a dedicated operation Copy, as argued for by Müller (2016). He observes that copying occurs in both syntax and morpho-phonology (i.e. reduplication) but is standardly derived by very different mechanism: In syntax, copies are ubiquitous as a consequence of movement and get filtered out by a dedicated operation (Chain reduction or Copy deletion) whereas in morpho-phonology, copies are generated by a dedicated copy operation triggered by specific morphemes. Under the conjecture that natural language is very unlikely to employ two very different mechanisms to achieve the same goal and should therefore only comprise of one such mechanism, he argues that this cannot be the filtering approach for five reasons. First, reduplication (i.e. copying) often targets subword and even submorphemic material to which syntax usually has no access. Sec-

idea behind this was that an element cannot undergo any additional operations with its selecting head in specifier position than it can in complement position (Abels 2003). Moving from Comp to Spec is therefore redundant and should be prohibited. Incorporation and excorporation on the other hand do influence the possible relations and operations between an element and its selecting head, e.g. case assignment.

ond, there are many cases of doubling where it is unlikely that syntactic movement is involved. Third, hitherto there is no satisfactory way to determine exactly which copies in a given structure are subject to deletion and which are not. Fourth, copying typically involves maximally word-sized units which is unexpected if it were a syntactic operation that should equally well apply to phrasal units. And finally, copies usually have to be adjacent; a fact that definitely holds for reduplication and replicative idioms (see [43]), and, as Müller (2016: 131) claims, can also be argued to apply to syntactic copies, blurred by subsequent operations that can undo it again. Consequently, he suggests that the copy theory of movement should be abandoned in favour of an additional elementary operation alongside Merge and Agree, namely Copy.

The last constraint we introduce concerns the status of incorporated elements with respect to their referential properties. R-pronouns within pronominal adverbs always refer either deictically or anaphorically/cataphorically, see examples in (43).

- (43) a. *Leg(e) die Decke bitte darauf!*
 lay the blanket please thereon
 ‘Please put the blanket on there.’ (deictic)
- b. *Das Thema ist noch nicht erschöpft; darüber müssen wir
 the topic is yet not tired.out; there.over must we
 nochmal sprechen.*
 again speak
 ‘The topic isn’t exhausted yet; we have to talk about it again some
 time.’ (anaphoric)
- c. *Sie dachte nicht daran, aufzuräumen.*
 she thought not there.on tidy.up-INF
 ‘She refused to tidy up.’ (cataphoric)
 (Duden 2009: 581)

An R-pronoun can refer to different categories. Anaphoric reference is possible to nouns, noun phrases or whole clauses. In the case of cataphoric reference, the pronominal adverb can be the correlate of a subordinate clause, a main clause or of a group of infinitivals (for examples see Duden 2009: 581). In the literature, it has already been observed that anaphoric reference to incorporated nouns is strongly disfavoured (Mithun 2010). For the Austronesian language of the Philippines, Kapamganpam, Mithun notes that “there is no evidence that the incorporated nominal ever serves as an antecedent for subsequent reference. When speakers wish to refer to an entity evoked in this construction, the

noun is repeated.” (Mithun 2010: 11) The same observation holds for Mohawk, an Iroquoian language of northeastern North America and for Central Alaskan Yup'ik, an Eskimo-Aleut language of Alaska. Note that these three languages are genetically and areally unrelated.

Krifka et al. (1995) provide evidence that this generalization also holds for German. They describe German as “a language in which noun incorporation is not infrequent. Here we find that with the incorporated nouns, anaphoric reference to objects is blocked indeed [...]” (Krifka et al. 1995: 88) They give the following example.

- (44) *Hans fuhr Mercedes_i. *Er_i war grau.*
 Hans drove Mercedes. He was grey.
 ‘Hans always drove Mercedes cars. It was grey.’
 (Krifka et al. 1995: 88; our glosses)

Krifka et al. (1995) claim the following about the above example:

The noun *Mercedes* [...] is incorporated, even though this is not reflected in the orthography. (For example, it is a bare word stem which cannot be extended to a phrase – e.g. **Hans fuhr schnellen Mercedes*; this is a clear sign of incorporation [...]). (Krifka et al. 1995: 88)

It seems that the failure to establish a reference relation into incorporation structures is a common property of language. Furthermore, it seems plausible to attribute this to a more general referential non-accessibility of incorporated elements. Hence, it also holds for pronominal elements like R-pronouns. Consequently, we assume that incorporated (pro)nominal elements can neither refer nor be referred to by other elements. The resulting demand that anaphorically, cataphorically or deictically referring elements need to be outside of a complex head in order to be referential is formulated as the constraint *PRONOUN-INCORPORATION.

- (45) *PR(ONOUN)-INC(ORPORATION)

Assign a violation for every anaphorically or cataphorically referring element that is entirely included in a complex head.

In contrast to standard global optimization processes, which assume that optimization applies to complete structures (see Grimshaw 1997; Pesetsky 1998; Legendre et al. 1998 among others), the optimization which is assumed here, is more local in the sense that it applies iteratively to small portions of structures. We assume that evaluation takes place at every phrase (see Müller 2000b;

Heck and Müller 2000, 2013a, 2013b; Fischer 2004 and Heck 2008). That means, that in this model of grammar, structure is built bottom-to-top until the first phrase is complete (e.g. VP). This phrase is then put through one cycle of optimization whose output serves as the base for further structure-building until the next phrase is complete (e.g. vP) and is put through another optimization cycle and so on. Replication of R-pronouns is then the result of the following ranking of the above-mentioned constraints:

(46) CO-SEL, A-LOC, *_[X⁰ t], *PR-INC » *COPY

The competition for the evaluation at PP looks as in (47) for the cases where the pronominal adverb stays inside the PP.⁹

(47) Optimization of the PP in short doubling

[_{PP} mit da]	CO-SEL	A-LOC	* _[X⁰ t]	*PR-INC	*COPY
a. [_{PP} mit da]	*!				
b. [_{PP} da ₁ [_{P'} mit t ₁]]		*!			
c. [_{PP} [_P da ₁ mit] t ₁]]				*!	
d. [_{PP} da ₁ [_{P'} [_P t ₁ mit] t ₁]]]			*!		
 e. [_{PP} da ₁ [_{P'} [_P da ₁ mit] t ₁]]]					*

Candidate (a) is completely faithful and therefore violates CO-SEL because the R-pronoun in the complement position of the preposition is not selected by it. In candidate (b) the R-pronoun has undergone movement from the complement to the specifier of the preposition in violation of A-LOC. Candidate (c) is out because the pronoun *da* has incorporated into the preposition and is now fully included in the complex P head, i.e. there is no part or token of the R-pronoun that is outside of that complex head and thereby accessible to the syntax. Furthermore, in candidate (d) the R-pronoun has first incorporated into the preposition and then exorporated into the specifier of PP leaving a trace inside the complex head in violation of *_[X⁰ t]. This leaves candidate (e) as the optimal

⁹ In the tableaux grey shading of a cell indicates that any violations in this cell will have no effect on the output anymore because the candidate is already non-optimal due to violating a higher ranked constraint (indicated by the exclamation mark behind the fatal violation). Dotted lines between two or more constraints indicate that there is no ranking argument for them, i.e. that for the candidate set under consideration the relative ranking of the constraints is of no importance.

candidate, where incorporation is followed by excorporation, i.e. movement of *da* out of the complex P head, with the latter leaving behind a copy rather than a trace. This candidate satisfies Co-SEL because the unselected element is no longer in P's complement position and A-LOC because there is no direct movement from complement to specifier. In order to satisfy *PR-INC, it leaves behind a copy rather than a trace which violates only the lower ranked constraint *COPY.¹⁰

When there is movement of the R-pronoun such as scrambling, topicalization, or wh-movement, there is a general optionality between movement of the R-pronoun alone or movement of the whole PP (pied-piping). Following the standard view in the literature (Kayne 1983; Cowper 1987; Webelhuth 1992; Grimshaw 2000, but see Heck 2008 for a different stance), this optionality goes back to an optionality of feature percolation. The movement-triggering feature that is present on the R-pronoun may or may not percolate up to the PP-level. If it percolates up, the whole PP is displaced. If it does not percolate, only the R-pronoun is moved out of SpecPP. A high-ranked constraint such as F(ORMAL)-F(EATURE)CRIT(ERION) (48) ensures that elements that bear movement-triggering features actually move to a position where they are licensed, which usually is SpecCP.

(48) F(ORMAL)-F(EATURE)-CRIT(ERION)

Assign a violation for every element bearing a formal movement-triggering feature such as [+wh], [+top], [+foc], etc. that is not in a position where it checks that feature/where that feature is licensed.

This movement takes place successive-cyclically via intermediate landing sites due to the Phase Impenetrability Condition (Chomsky 2000), a version of which is given in (49).

(49) Phase Impenetrability Condition (PIC)

In a phase α with head H, the complement of H is not accessible to operations outside α ; only H and its specifier are accessible to such operations.

10 According to what was established above, it follows from this that the incorporated copy of *da* in P cannot and does not refer while the *da* in SpecPP is referential. Ideally, one would be able to find evidence that this is indeed the case though we do not have any ideas yet on how to test for that. Despite the difference in referentiality, however, both *das* are still identical insofar as they stem from the same numeration entry *da* and are related by the derivational history, i.e. one having come into existence by copying of the original *da*.

The PIC forces the moving element to intermediately land in the specifier of every phase head on its way to SpecCP, because if it stayed in its base position, it would become inaccessible for movement to outside of the current phase as soon as the phase is completed.

Now crucially it has been argued that prepositions are phase heads too (see e.g. Raposo 2002; Abels 2003; McGinnis 2004). Direct movement out of the complement of a preposition without going via its specifier is thus not possible even though it would satisfy CO-SEL without incurring any violations of the other four constraints. Also, since evaluation takes place at every phrase, the PP undergoes optimization anyway, before anything is extracted from it. Any movement-requiring constraints like the F(ORMAL)-F(EATURE)-CRIT(ERION) will be violated by all candidates at this point (50). Therefore, topicalization and scrambling movements do not interfere with any of the five constraints that regulate PP-internal affairs. Hence, whether the R-pronoun leaves the PP or the whole PP moves has no effect on whether a copy is made or not.

(50) *Optimization of the PP in distance doubling/pied-piping*

[_{PP} mit da ^[+top]]	FF-CRIT	CO-SEL	A-LOC	* [_{X⁰} t]	* PR-INC	* COPY
a. [_{PP} mit da ^[+top]]	*	*!				
b. [_{PP} da ₁ ^[+top] [_{P'} mit t ₁]]	*		*!			
c. [_{PP} [_P da ₁ ^[+top] mit] t ₁]]	*				*!	
d. [_{PP} da ₁ ^[+top] [_{P'} [_P t ₁ mit] t ₁]]]	*			*!		
 e. [_{PP} da ₁ ^[+top] [_{P'} [_P da ₁ mit] t ₁]]]	*					*

Another crucial point of our analysis can be observed in candidate (e): copying of an element does not affect structure-building or movement-triggering features. If it did, we would expect the lower copy of the R-pronoun to move into a position where a [+top] feature is licensed just as the original does. This, however, never happens as shown by the ungrammaticality of (51).

- (51) *Da₁ hat Fritz da₁ nicht [_{PP} t₁ mit] gerechnet
 da has Fritz da not with reckoned
 ‘Fritz did not reckon with that.’

This assumption is further corroborated by doubling data of interrogative R-pronouns like (52). Here, the copy of the wh-R-pronoun that stays low does not show any overt exponence of the [+wh] feature which leads us to conclude that it does not bear such a feature at all.

- (52) *Wo ist Fritz allergisch* [_{PP} *da-gegen*]?
 where is Fritz allergic *da-to*
 ‘What is Fritz allergic to?’

In other words, *wo* is just *da* with a [+wh] feature.¹¹ The derivation evaluation of the PP of (52) would thus be (53).

- (53) Optimization of the PP in doubling of an interrogative R-pronoun

[_{PP} gegen da ^[+wh]]	FF-CRIT	CO-SEL	A-LOC	*[_{X⁰} t]	*PR-INC	*COPY
a. [_{PP} gegen da ^[+wh]]	*	*!				
b. [_{PP} da ₁ ^[+wh]] [_{P'} gegen t ₁]	*		*!			
c. [_{PP} [_P da ₁ ^[+wh]] gegen] t ₁]	*				*!	
d. [_{PP} da ₁ ^[+wh]] [_{P'} [_P t ₁ gegen] t ₁]]	*			*!		
e. [_{PP} da ₁ ^[+wh]] [_{P'} [_P da ₁ gegen] t ₁]]	*					*

4.4 Dialects without replication

As already pointed out above, many (mainly northern) dialects do not show R-pronoun replication. Instead, they display preposition stranding in the cases where the R-pronoun moves out of the PP. In the present analysis this can be easily accounted for by reranking *COPY and *[_{X⁰} t]. In order to satisfy CO-SEL, A-LOC, and *PR-INC it is not allowed to make a copy, but it is allowed to incorporate by leaving a trace.

- (54) Optimization of the PP in non-doubling dialects

[_{PP} mit da]	CO-SEL	A-LOC	*COPY	*PR-INC	*[_{X⁰} t]
a. [_{PP} mit da]	*!				
b. [_{PP} da ₁ [_{P'} mit t ₁]]		*!			
c. [_{PP} [_P da ₁ mit] t ₁]				*!	
d. [_{PP} da ₁ [_{P'} [_P t ₁ mit] t ₁]]					*
e. [_{PP} da ₁ [_{P'} [_P da ₁ mit] t ₁]]			*!		

¹¹ Gallmann (1997) presents a similar proposal concerning interrogatives: in order to account for the identity of R-pronouns in the doubling cases he assumes spec-head-agreement between the R-pronoun that has moved to SpecPP and the element that has incorporated into the complex P-head. However, as we have already seen, if SpecPP is filled by the interrogative

In those dialects, candidate (d) with a single R-pronoun in SpecPP, wins the competition. Further extraction of the R-pronoun and hence stranding of the preposition is unproblematic since it already resides in the specifier of the phrase (this is analogous to what Gallmann [1997] and Fleischer [2002] propose). Again, as mentioned for the dialects with replication, movement of the R-pronoun or the whole PP does not interfere with PP-internal evaluation.

(55) Optimization of the PP in non-doubling dialects (P-stranding/piedpiping)

[_{PP} mit da ^[+top]]	FF-CRIT	Co-SEL	A-LOC	*COPY	*PR-INC	*[_{X⁰} t]
a. [_{PP} mit da ^[+top]]	*	*!				
b. [_{PP} da ₁ ^[+top] [_{P'} mit t ₁]]	*		*!			
c. [_{PP} [_P da ₁ ^[+top] mit] t ₁]	*				*!	
 d. [_{PP} da ₁ ^[+top] [_{P'} [_P t ₁ mit] t ₁]]	*					*
e. [_{PP} da ₁ ^[+top] [_{P'} [_P da ₁ mit] t ₁]]	*			*!		

Thus, as long as there is no higher ranked constraint against preposition stranding that might be violated by extraction of the R-pronoun, splitting the pronominal adverb is possible in those dialects.

5 Typological predictions

A central aspect of Optimality Theory is that all natural languages can be described by different rankings of a set of universal constraints. Hence, an OT analysis always entails a prediction about possible languages that come about by a reranking of the proposed constraints. In our case, there are five constraints and therefore $5! = 120$ different rankings which give rise to a factorial typology of five different surface patterns (dialects) represented by the five candidates in (54) (calculated in OTWorkplace_X_66, Prince et al. 2014). Each dialect is the common result of 24 different rankings. However, one of these predicted dialects does not seem to exist: An R-pronoun following its preposition as in candidate (a) is ungrammatical in any dialect of German. Since this candi-

wo, in the complex P-head it is always *da* that appears, never *wo*. He concludes: “Als Kongruenzmorpheme sind *da-*, *dar-*, *dr-* offenbar hinsichtlich Interrogativität unterspezifiziert.” (Gallmann 1997: 46) (Translation: As agreement morphemes *da-*, *dar-*, *dr-* are obviously underspecified with regard to interrogativity.)

date is ruled out by CO-SEL, we are forced to assume that this constraint is undominated. Of the remaining four dialect types, those represented by candidates (b) and (d) are not easily distinguishable on the surface. Both show no replication of the R-pronoun and both allow for splitting of the pronominal adverb and thus stranding of the preposition. The difference between them is that movement of the R-pronoun into the specifier proceeds via incorporation into P followed by excorporation in the dialect represented by candidate (d), while there is direct antilocal Comp-to-Spec movement in the dialect illustrated by candidate (b). In any case, those patterns are instantiated by many northern dialects that show pronominal adverb splitting. The dialect type represented by candidate (c) could be manifested by Standard German that is usually claimed to not show split pronominal adverbs (Wahrig 2003, 2005; Duden 2007). In this type, the R-pronoun incorporates into the preposition forming a complex P-head with no possibility of excorporating it again. Hence, it is not accessible for separate movement in syntax anymore. However, in this position, *da* should also not be able to refer in Standard German, contrary to fact. Therefore, the dialect type represented by candidate (c) seems not to be instantiated by an existing dialect of German. As a further consequence, there is now apparently no candidate representing so-called Standard German, where allegedly neither R-pronoun doubling nor pronominal adverb splitting is possible. However, the status of Standard German is somewhat unclear to us. Usually, the German spoken in the area of Hannover in Lower Saxony is regarded as coming closest to the standard. Splitting of a pronominal adverb, nonetheless seems to be available to speakers from that region, albeit to a lesser degree. We thus conclude that the ban on split pronominal adverbs in Standard German is prescriptive in nature rather than a bona fide grammatical constraint. What is termed Standard German is therefore well represented by candidate (b) or candidate (d). The last dialect type which is exemplified by candidate (e) is, of course, instantiated by all those dialects that show doubling of the R-pronoun. This view receives further support from the fact that starting in the early 18th century split pronominal adverbs became increasingly stigmatized (for evidence of this, see Fleischer and Schallert [2011: 256]; for an overview of the prescriptive treatment of split pronominal adverbs see Negele [2012: 215–235]). Crucially, the analysis predicts that whenever there is doubling in a dialect there also is the possibility of extracting one copy of the R-pronoun from the PP. A prediction that is borne out to our knowledge.

6 Conclusion

While the exceptional extractability of German R-pronouns out of PPs, which usually constitute islands, has hitherto received a lot of attention, an equally interesting fact, replication of R-pronouns in some dialects has, to the extent it has been noticed at all, been largely neglected in the theoretical literature. The few analyses that there are either remain rather descriptive or provide only superficial representational analyses of the structure of the doubling construction. In this paper, we presented an analysis in the framework of Optimality Theory that explains the different distribution of R-pronouns and NP pronouns with regard to their movement properties as a consequence of their status as a repair, the difference between dialects as a consequence of different constraint rankings, and the occurrence of an apparently redundant replication as a consequence of an interaction of constraints that force the R-pronoun to move to the specifier via incorporation leading to the creation of a copy. Under this analysis, the replication of an R-pronoun emerges not as a quirk of grammar, but as an expected result of expected rankings of universal constraints.

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