

Flexible phrasal constructions, constituent structure and (cross-linguistic) generalizations: A discussion of template-based phrasal LFG approaches

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Abstract

This paper discusses recent LFG proposals on resultative and benefactive constructions. I show that neither resultative nor benefactive constructions are fully fixed and that this flexibility requires traces or a stipulation of constructional templates at several unrelated places in the grammar, something that is not necessary in lexical approaches. A second part of the paper deals with the active/passive alternation and shows that language-internal generalizations are missed if constraints are assumed to be contributed by phrase structure rules. A third part examines the parallel constructions in German and shows that cross-linguistic generalizations are not captured by phrasal approaches.

1 Introduction

Goldberg (1995, 2006), Tomasello (2003) and others argue for a phrasal view on argument structure constructions: lexical entries for verbs come with minimal specifications as to which arguments are required by a verb but they come with a specification of argument roles. Verbs can be inserted into phrasal constructions and these constructions may express the arguments that belong to a verb semantically or even add further arguments. A frequently discussed example is the one in (1):

- (1) He runs his sneakers threadbare.

run is an intransitive verb, but in (1) it enters the resultative construction, which licenses an additional argument (*his sneakers*) and a result predicate (*threadbare*). The resultative semantics is said to be contributed by the whole phrasal pattern rather than by one of its elements. The lexical approach assumes that there are several lexical items for verbs like *run*. There is the lexical item that is needed to analyze simple sentences with the intransitive verb and its subject and there is a further lexical item that is used in the analysis of sentences like (1). The latter lexical item selects for a subject, an object and a result predicate and contributes the resultative semantics. Both lexical items are related by a lexical rule. See Simpson, 1983, Verspoor, 1997, Wechsler, 1997, Wechsler & Noh, 2001, Wunderlich 1997, 120–126, Kaufmann & Wunderlich, 1998, Müller, 2002, Chapter 5, and Kay, 2005 for lexical analyses in several frameworks).

²I thank Ash Asudeh for extensive personal discussion and Mary Dalrymple, and Ida Toivonen for a long discussion via email. I thank the reviewers of HeadLex 2016 for their comments in the pre-conference and post-conference reviewing. I thank Steve Wechsler, Martin Haspelmath, and Dick Hudson for discussion of an earlier version of this paper. Thanks to Jonas Kuhn for discussion of the attachment of constraints to c-structures and Economy of Expression. Thanks to Tom Wasow and Philip Miller for answering my request to the HPSG mailing list regarding extraction of primary objects. I also want to thank the participants of HeadLex 2016 for (intense) discussion. Miriam Butt, Mary Dalrymple, Ron Kaplan, and Anna Kibort deserve special mention. This paper was also presented at the Computational Linguistics Colloquium in Düsseldorf. I thank the working group for the invitation and the audience for discussion.

The question whether constructions like (1) should be treated as lexical or as phrasal constructions has been discussed in the literature in several papers (Goldberg & Jackendoff, 2004; Müller, 2006; Müller & Wechsler, 2014; Goldberg, 2013) but since most Construction Grammar publications (intentionally, see Goldberg, 2006) are not formalized the discussion of aspects not treated in the original proposal (e.g., interaction with morphology, application of the approach to non-configurational languages like German, partial verb phrase fronting) was rather hypothetical. There have been Construction Grammar-inspired proposals in HPSG (Haugereid, 2007, 2009) and Simpler Syntax (Culicover & Jackendoff, 2005) and these were shown to have empirical problems, to make wrong predictions or to be not extendable to other languages (Müller, 2013, 2016b). Formal CxG proposals (Bergen & Chang, 2005; van Trijp, 2011) are discussed in Müller, 2016b, Chapter 10.6.3 and Müller, To appear. Recently, several articles have been published suggesting a template-based phrasal approach in LFG that makes use of glue-semantics, a resource-driven semantic theory (Christie, 2010; Asudeh, Giorgolo & Toivonen, 2014). While these proposals seem to avoid many of the challenges that earlier proposals faced, they in fact have many of the problems that were discussed with respect to hypothetical proposals in Construction Grammar. Fortunately, the LFG proposals are worked out in detail and are embedded in a formal theory that provides formalized analyses of the languages and phenomena under discussion. It is therefore possible to show what the new template-based theories predict and to pin down exactly the phenomena where they fail.

The traditional analysis of the resultative construction in the framework of LFG is a lexical one (Simpson, 1983) but, more recently, several researchers have suggested a different view on argument structure constructions in the framework of LFG. For instance, Alsina (1996) and Christie (2010) suggest analyzing resultative constructions as phrasal constructions and Asudeh, Dalrymple & Toivonen (2008, 2013) argue for a phrasal analysis of the (Swedish) caused motion construction. Toivonen (2013) discusses benefactive constructions of the type in (2b).

- (2) a. The performer sang a song.
- b. The performer sang the children a song.

Toivonen notices that the benefactive NP cannot be fronted in questions (3) and that passivization is excluded for some speakers of English (4).¹

- (3) a. I baked Linda cookies.
- b. * Who did I bake cookies?
- c. The kids drew their teacher a picture.
- d. * Which teacher did the kids draw a picture?

- (4) * My sister was carved a soap statue of Bugs Bunny (by a famous sculptor).

¹See Hudson (1992, 257) for references to several papers with varying judgments of question formation involving the fronting of the primary object. See Langendoen et al. (1973) for an experimental study.

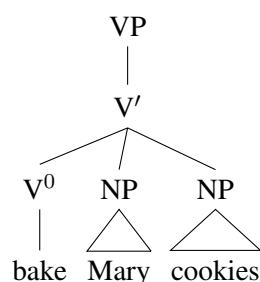


Figure 1: Phrasal configuration for benefactives according to Toivonen (2013, 505)

While she provides a lexical rule-based analysis of benefactives in her 2013 paper, she states in the discussion section:

The manipulations that involve the word order consistently render the examples ungrammatical; see section 2.3 for the relative ordering test, section 2.4 and examples (47–48) for wh-extraction, section 2.5 for VP anaphora, and section 2.6 for pseudo-clefts. The distribution of benefactive NPs is thus very limited: it can only occur in the frame given in (5). This does not directly follow from the analysis given in section 3, and I will not attempt to offer an explanation for these intriguing facts here. However, it is perhaps possible to adopt an analysis similar to the one Asudeh et al. (2013) propose for the Swedish directed motion construction (Toivonen 2002). Asudeh et al. (2013) posit a template that is directly associated with a construction-specific phrase structure rule. (Toivonen, 2013, 416)

The configuration that she provides in (5) is given in Figure 1 here. Asudeh, Giorgolo & Toivonen (2014) develop the respective phrasal analysis of the benefactive construction.

Note that Asudeh, Dalrymple, and Toivonen do not argue for a phrasal treatment of argument structure constructions in general. They do not assume that there is a phrasal transitive construction that licenses arguments for normal sentences like *Kim likes Sandy*. or a phrasal ditransitive construction that licenses the objects of normal ditransitive verbs like *give*. They just treat certain specific constructions phrasally, namely those that have a fixed conventionalized form or special idiosyncratic constraints on order that are difficult to capture lexically.

I think the 2014 paper does not reflect the intuition behind the statement in Toivonen, 2013 since Asudeh et al. (2014) are dealing with the grammar of speakers that permit passivization (and as I show below also extraction of the secondary object) and hence the structure of the benefactive construction is not fixed. What I am criticizing here is an approach relying on configurations for phenomena that interact with valence change and extraction and other phenomena that distort phrasal configurations.

The approach of Asudeh et al., 2014 could be seen as a way to formalize phrasal constructional approaches like those by Goldberg (1995, 2004) and Culicover & Jackendoff (2005). What I want to show in this paper is that the phrasal LFG approach has too many drawbacks in comparison to the lexical approaches. Since the phrasal approach is rejected for two specific argument structure constructions (benefactives and resultatives), it follows that it cannot be a viable approach for all argument structure constructions.

The remainder of the paper is structured as follows: I first discuss interactions of the resultative and benefactive construction with extraction and passivization (Section 2), then go on to discuss possible treatments of passivization and point out that generalizations are missed language internally (Section 3). Section 4 examines how the analyses could be adapted to German and I argue that cross-linguistic generalizations are not captured in phrasal analyses. Section 5 shows how restrictions on extraction and passivization can be captured in a lexical analyses. The paper concludes in Section 6.

2 The flexibility of the constructions

Christie (2010) and Toivonen (2013) and Asudeh et al. (2014) suggest phrasal constructions for resultative and benefactive constructions with a fixed number of daughters on the right-hand side of the c-structure rule. Christie (2010) suggested the following c-structure rule for the introduction of the result predicate and its subject:

$$(5) \quad V' \rightarrow \quad V \quad DP \quad \{ DP|APIPP \}$$

$$\quad \quad \quad \uparrow = \downarrow \quad (\uparrow OBJ) = \downarrow \quad (\uparrow XCOMP) = \downarrow$$

$$\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad (\downarrow SUBJ) = (\uparrow OBJ)$$

$$\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad @RESULT-T((\uparrow PRED FN))$$

In Christie's analysis, verbs are assumed to only optionally provide semantic and f-structure constraints. If they enter the resultative construction in (5), the construction takes over and provides a PRED value and specifications for grammatical functions.

The rule for the benefactive construction in (6) is provided in (7).

(6) The performer sang the children a song.

$$(7) \quad V' \rightarrow \quad V \quad DP \quad DP$$

$$\quad \quad \quad \uparrow = \downarrow \quad (\uparrow OBJ) = \downarrow \quad (\uparrow OBJ_\theta) = \downarrow$$

$$\quad \quad \quad (@BENEFACTIVE)$$

According to the authors, the noun phrase *the children* is not an argument of *sing* but contributed by the c-structure rule that optionally licenses a benefactive (Asudeh et al., 2014, 81).

As will be shown in the following, neither the resultative construction nor the benefactive construction is fixed in this form. Let us look at resultatives first. Carrier & Randall (1992, 185) discuss extraction data like those in (8):

- (8) a. ? How shiny do you wonder which gems to polish?
 b. ? Which colors do you wonder which shirts to dye?

These examples show that both the result phrase and the object can be extracted. The examples in (9) show that the objects can be extracted with the result predicate remaining in the V':

- (9) a. I wonder which gems to polish shiny?
 b. I wonder which shirts to dye that color?

It is also possible to extract the result predicate and leave the object in place:

- (10) a. I wonder how shiny to polish the gems?
 b. I wonder which color to dye the shirts?

Apart from extraction, passivization is possible as well:

- (11) a. The shoes were polished shiny.
 b. The shirts were dyed a different color.

This means that the object, the result predicate, or both the object and the result predicate may be missing from the resultative construction in (5). The same is true for the benefactive construction. Asudeh et al. (2014) deal with grammars of speakers of English that allow for passivization of benefactive constructions. For those speakers all examples in (12) are fine:

- (12) a. Her husband prepared her divine and elaborate meals.
 b. She had been prepared divine and elaborate meals.
 c. Such divine and elaborate meals, she had never been prepared before, not even by her ex-husband who was a professional chef.

The examples show that some speakers permit the promotion of the benefactive to subject as in (12b,c) and the remaining object can be extracted as in (12c).

While the extraction of the benefactive is out (3d), (13) shows that the secondary object in a benefactive construction can be extracted.

- (13) a. What kind of picture did the kids draw the teacher?
 b. the picture that the kids drew the teacher

The benefactives seem to pattern with normal ditransitives here. For an overview citing several other sources see Hudson, 1992, 258. Hudson reports that the extraction of the primary object of normal ditransitives is also judged as marked or even ungrammatical by many authors and subjects:

- (14) a. We give children sweets.
 b. Which sweets do you give children _?
 c. % Which children do you give _ sweets?

Some variants of LFG account for extraction by assuming that the extracted element is not realized locally. The respective daughter in a rule is optional and the place in the f-structure is filled via functional uncertainty (Kaplan & Zaenen, 1989; Dalrymple 2001, 415; Dalrymple, Kaplan & King, 2001; Zaenen & Kaplan 2002). This means that in (8) and (12c), we have a situation in which it is just the verb that remains in the VP. All other elements are either promoted to grammatical functions that are realized outside of the VP or they are extracted. This means that nothing of the original configuration is left, it is just the verb. Christie's analysis of the resultative would be in deep trouble since she assumed that the resultative template is optionally introduced at the result predicate and overwrites optional information coming from the verb. As is clear from looking at the examples in (8), attaching the constraint to the extracted result predicate would be inappropriate since the result predicate can be fronted and would appear in another local domain (the one of *wonder* rather than *dye*, compare also the discussion of (27)). The constraints would apply to the wrong f-structure. The phrasal approach could be saved by assuming traces (as Berman (2003, Chapter 6) does for extraction crossing clause boundaries). This would be compatible with Christie's proposal since the structure would remain the same with some arguments being realized by empty elements.²

The situation with the benefactive construction is similar: in (12c) we have a bare verb and all other items are promoted or extracted. The template is associated with the verb. One could either insist on the phrasal pattern in (7) and assume an additional rule for the passive (see Section 3) and a trace for extraction or assume that constituents are optional and that rules like (7) can be used to account for all examples in (12). If one follows the latter proposal, the c-structure is not really restrictive. In the analysis of (12c) only the verb is present and one therefore could assume a lexical approach in which the benefactive template is associated with the verb right away. (see the discussion of (19), which suggests that there is an advantage for the lexical proposal)

Asudeh et al. (2014, 81) state that *The call to BENEFACTIVE is optional, such*

²Mary Dalrymple and Miriam Butt (p. c. 2016) pointed out another solution to me: one can annotate the c-structure rule for the CP that combines an extracted phrase and a C'. Extracted phrases find the place in the f-structure that belongs to the place from which they are extracted by functional uncertainty. The resultative template could be associated with the respective place in the f-structure by functional uncertainty as well. However, we would then have a grammar that introduces resultative constructions in at least two places: SpecCP and in a special resultative V'. A generalization about English (and German) is that constituents can be extracted out of their local contexts and be fronted. Although technically possible, I consider it inappropriate to state at the SpecCP node any information about the internal structure of subconstituents from which the extraction took place. For certain types of resultative constructions, a resultative template in fronted position would license an additional object and result predicate in an embedded V'. Note also that authors who assume a phrasal resultative construction probably would also want to assume other phrasal constructions as well. If these allow extraction of crucial parts the respective annotations at SpecCP would be necessary. The generalization about extraction would be missed. (See also the discussion of Figure 4 below.)

In addition the lexical approach assumes one place where the resultative predicate is licensed: the lexical rule. The phrasal approach would assume at least two (unrelated) places. On Occamian grounds the lexical analysis has to be preferred.

that the double-object rule is general and can also apply to non-benefactive cases. If passivization and extraction are treated by declaring arguments to be optional the phrase structure rule in (7) has to be formulated to account for normal ditransitive verbs. If the rule in (7) is supposed to rule out passives like (4) the benefactive NP has to be obligatory. This would also rule out passives of normal ditransitives.

(15) My sister was given a soap statue of Bugs Bunny (by a famous sculptor).

So, if the rule were responsible for normal ditransitives as well as for benefactives, all constraints regarding the obligatory presence of daughters would have to reside in the template since this is the only part that is different between benefactives and normal ditransitives. The templates defined by Asudeh et al. (2014) contain semantic constraints and constraints relevant for argument structure mappings. Nothing syntactic is encoded there. So, either the authors assume that benefactives pattern like normal ditransitives syntactically in the speaker group that they examine and then there would be no need to introduce the benefactive argument phrasally or there is a difference and then a special benefactive c-structure rule should be assumed that is incompatible with normal ditransitive verbs.

3 Phrasal introduction of arguments and missing generalizations about the passive

Asudeh, Giorgolo & Toivonen (2014) discuss the phrasal introduction of benefactives. (16) provides examples of the benefactive construction in an active and a passive variant.

- (16) a. The performer sang the children a song.
b. The children were sung a song.

According to the authors, the noun phrase *the children* is not an argument of *sing* but contributed by the c-structure rule that optionally licenses a benefactive (Asudeh et al., 2014, 81). The c-structure rule in (7) is the rule that licenses fixed configurations like the one in Figure 1. Whenever this rule is called, the template BENEFACTIVE can add a benefactive role and the respective semantics, if this is compatible with the verb that is inserted into the structure. One of Toivonen's observations that motivated the phrasal approach was that passivization of benefactive constructions is excluded for some speakers (see example (4)).

Asudeh et al. (2014) deal with those variants of English that allow for a passive and discuss examples like (16b). They show how the mappings for the passive example in (16b) work, but they do not provide the c-structure rule that licenses such examples. Some authors assume that all nodes in c-structures are optional (Bresnan, 2001) but this would contradict the original intention of Toivonen, 2013 since if all constituents on the right-hand side are optional the c-structure rule in (7) would not rule out the ungrammatical instances of question formation in (3). Asudeh (p. c. 25.11.2016) informed me that their intention was to see the arguments

in rule (7) as obligatory. Optional arguments are marked by including them in parentheses, which is not the case in (7). So, if one wanted to stick to the c-structure rule with a fixed number of obligatory daughters, one would need a special c-structure rule for passive VPs and this rule has to license a benefactive as well.³ So it would be:

$$(17) \quad V' \rightarrow \begin{array}{cc} V[\text{pass}] & DP \\ \uparrow = \downarrow & (\uparrow \text{OBJ}_\theta) = \downarrow \\ (@\text{BENEFACTIVE}) & \end{array}$$

The problem is that there is no relation between the rules in (7) and (17). They are independent statements saying that there can be a benefactive in the active and that there can be one in the passive. This is what Chomsky (1957, 43) criticized in 1957 with respect to simple phrase structure grammars and this was the reason for the introduction of transformations. Bresnan-style LFG captured the generalizations by lexical rules (Bresnan, 1982) and later by lexical rules in combination with Lexical Mapping Theory (Bresnan & Kanerva, 1989). But if elements are added outside the lexical representations, the representations where these elements are added have to be related too. One could say that our knowledge about formal tools has changed since 1957. We now can use inheritance hierarchies to capture generalizations. So one can assume a type (or a template) that is the supertype of all those c-structure rules that introduce a benefactive. But since not all rules allow for the introduction of a benefactive element, this basically amounts to saying: c-structure rule A, B, and C allow for the introduction of a benefactive. In comparison lexical rule-based approaches have one statement introducing the benefactive. The lexical rule states what verbs are appropriate for adding a benefactive and syntactic rules are not affected.

As was already mentioned above, (7) and (17) can be generalized over if the daughters in (7) are regarded as optional. With optional daughters, (7) is equivalent to a specification of nine rules. If we ignore the cases in which the verb is omitted, we are left with four rules namely (7) and the three versions of the rule in (18):

$$(18) \quad \begin{array}{l} \text{a. } V' \rightarrow \begin{array}{cc} V & DP \\ \uparrow = \downarrow & (\uparrow \text{OBJ}_\theta) = \downarrow \\ (@\text{BENEFACTIVE}) & \end{array} \\ \text{b. } V' \rightarrow \begin{array}{cc} V & DP \\ \uparrow = \downarrow & (\uparrow \text{OBJ}) = \downarrow \\ (@\text{BENEFACTIVE}) & \end{array} \\ \text{c. } V' \rightarrow \begin{array}{c} V \\ \uparrow = \downarrow \\ (@\text{BENEFACTIVE}) \end{array} \end{array}$$

³See for instance Bergen & Chang, 2005 and van Trijp, 2011 for Construction Grammar analyses that assume active and passive variants of phrasal construction. See Cappelle (2006) on allostructions in general.

(18a) is the variant of (7) in which the OBJ is omitted, (18b) is the variant in which the OBJ_θ is omitted and in (18c) both DPs are omitted. Hence, (7) can be used for V's containing two objects and for V's in the passive containing just one object. The template-based approach does not overgenerate since the benefactive template is specified such that it requires the verb it applies to to select for an ARG2. Since intransitives like *laugh* do not select for an ARG2 a benefactive cannot be added. So, in fact the actual configuration in the c-structure rule does not play any role at all: the account entirely relies on semantics and resource sensitivity.⁴ This means that it is not the case that an argument is added by a certain configuration the verb enters in. Since any verb may enter (18) and since the only important thing is the interaction between the lexical specification of the verb and the benefactive template, the same structures would be licensed if the benefactive template were added to the lexical items of verbs directly.

Since the actual configuration does not constrain anything, all (alleged) arguments from language acquisition and psycholinguistics for phrasal analyses would not apply to such a phrasal account.⁵

Concluding this section it can be said that the difference between the lexical use of the benefactive template or the phrasal introduction as executed in (7) is really minimal. However, there is one area in grammar where there is a difference: coordination. As Müller & Wechsler (2014, Section 6.1) pointed out it is possible to coordinate ditransitive verbs with verbs that appear together with a benefactive. (19a) is one of their examples and (19b) is an additional example:

- (19) a. She then offered and made me a wonderful espresso — nice.⁶
 b. My sisters just baked and gave me a nutella cupcake with mint chocolate chip ice-cream in the middle and milk chocolate frosting on

⁴The account would permit (i.b,c) since *give* with prepositional object has an ARG₂ (Kibort, 2008, 317).

- (i) a. He gave it to Mary.
 b. * He gave Peter it to Mary.
 c. * Peter was given it to Mary.

give could combine with the *to* PP semantically and would then be equivalent to a transitive verb as far as resources are concerned (looking for an ARG₁ and an ARG₂). The benefactive template would map the ARG₂ to ARG₃ and hence (i.b) would be licensed. Since there are verbs that take a benefactive and a PP object as shown by (ii), (i.b) cannot be ruled out with reference to non-existing c-structure rules.

- (ii) I buy him a coat for hundred dollar.

I assume that (i.b,c) are ruled out on semantic grounds by constraints that forbid two recipients for one verbs. See Toivonen (2013) on the observation that benefactive NPs are recipients.

⁵Note again that Asudeh et al. (2013) and Asudeh et al. (2014) do not argue for a general phrasal account for all argument structure constructions. They did not argue for such a general approach on the basis of language acquisition or psycholinguistic data. I just point out here that their approach should not be mistaken as a formalization of such a general approach.

⁶<http://www.thespinroom.com.au/?p=102> 07.07.2012

top.⁷

If the benefactive information is introduced at the lexical level the coordinated verbs basically have the same selectional requirements. If the benefactive information is introduced at the phrasal level *baked* and *gave* are coordinated and then the benefactive constraints are imposed on the result of the coordination by the c-structure rule. While it is clear that the lexical items that would be assumed in a lexical approach can be coordinated as symmetric coordination, problems seem to arise for the phrasal approach. It is unclear how the asymmetric coordination of the mono- and ditransitive verbs can be accounted for and how the constraints of the benefactive template are distributed over the two conjuncts. The fact that the benefactive template is optional does not help here since the optionality means that the template is either called or it is not. The optionality does not allow for a distribution to one of the daughters in a coordination.

Mary Dalrymple (p.c. 2016) pointed out that the coordination rule that coordinates two verbs can be annotated with two optional calls of the benefactive template.

(20) V → V Conj V
(@BENEFACTIVE) (@BENEFACTIVE)

In an analysis of the examples in (19), the template in rule (7) would not be called but the respective templates in (20) would be called instead. While this does work technically, similar coordination rules would be needed for all other constructions that introduce arguments in c-structures. Furthermore, the benefactive would have to be introduced in several unrelated places in the grammar and finally the benefactive is introduced at nodes consisting of a single verb without any additional arguments being licensed, which means that one could have gone for the lexical approach right away. Timm Lichte (p.c. 2016) pointed out an important consequence of a treatment of coordination via (20): since the result of the coordination behaves like a normal ditransitive verb it would enter the normal ditransitive construction and hence it would be predicted that none of the constraints on passive and extraction that are formulated at the phrasal level would hold if an item is coordinated with either another benefactive verb or a normal ditransitive verb like *give*.

4 Missing cross-linguistic generalizations

In Müller & Wechsler (2014) we argued that the approach to Swedish caused motion constructions by Asudeh, Dalrymple & Toivonen (2008, 2013) would not carry over to German since the German construction interacts with derivational morphology. Asudeh & Toivonen (2014) argued that Swedish is different from German and hence there would not be a problem. However, the situation is different with the

⁷<http://bambambambii.tumblr.com/post/809470379>. 05.06.2012.

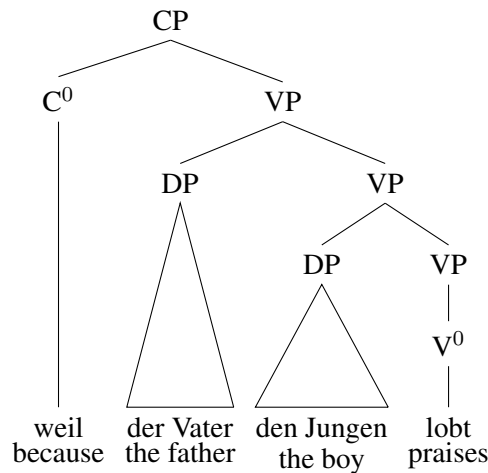


Figure 2: Analysis of German embedded clauses according to Berman (2003, 37)

benefactive construction. Although English and German do differ in many respects, both languages have similar benefactive constructions:

- (21) a. He baked her a cake.
 b. Er buk ihr einen Kuchen.
 he baked her.DAT a.ACC cake

Now, the analysis of the free constituent order in German was explained by assuming binary branching structures in which a VP node is combined with one of its arguments or adjuncts (see Berman 1996, Section 2.1.3.1; 2003 and also Choi, 1999). For instance, Berman (2003, 37) assumes the analysis depicted in Figure 2. The c-structure rule is provided in (22):

$$(22) \quad \text{VP} \rightarrow \quad \text{DP} \quad \text{VP}$$

$$(\uparrow \text{SUBJ } \text{IOBJ } \text{IOBJ}_\theta) = \downarrow \quad \uparrow = \downarrow$$

The dependent elements contribute to the f-structure of the verb and coherence/completeness ensure that all arguments of the verb are present. One could add the introduction of the benefactive argument to the VP node of the right-hand side of the rule as in (23):

$$(23) \quad \text{VP} \rightarrow \quad \text{DP} \quad \text{VP}$$

$$(\uparrow \text{SUBJ } \text{IOBJ } \text{IOBJ}_\theta) = \downarrow \quad \uparrow = \downarrow$$

$$(\text{ @BENEFACTIVE })$$

However, since the verb-final variant of (21b) would have the structure in (24), one would get spurious ambiguities, since the benefactive could be introduced at several VP nodes:

$$(24) \quad \text{weil} \quad [_{\text{VP}} \text{er} [_{\text{VP}} \text{ihr} [_{\text{VP}} \text{einen Kuchen} [_{\text{VP}} [_{\text{V}} \text{buk}]]]]]]$$

$$\text{because} \quad \text{he} \quad \text{her} \quad \text{a} \quad \text{cake} \quad \text{baked}$$

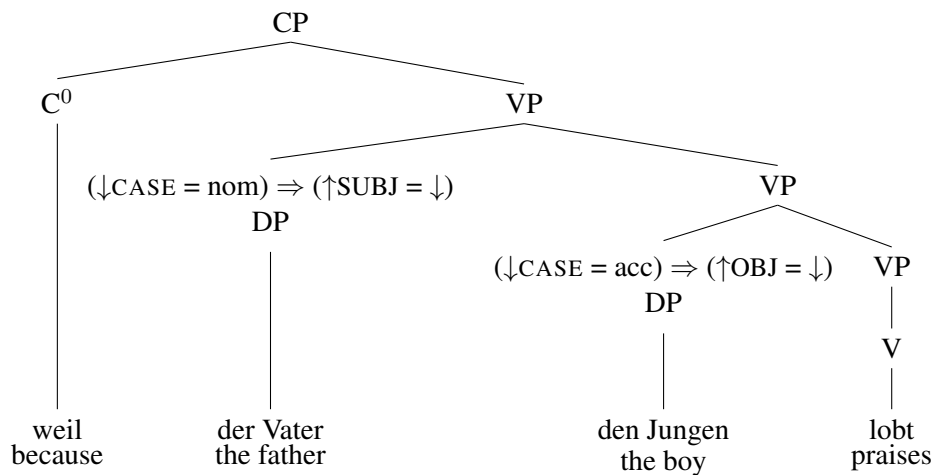


Figure 3: Correspondence between case and grammatical function according to Berman (2003, 37)

So the only option seems to be to introduce the benefactive at the rule that got the recursion going, namely the rule in (25), that projects the lexical verb to the VP level.

$$(25) \quad \text{VP} \rightarrow (\text{V})$$

$$\quad \quad \quad \uparrow = \downarrow$$

Introducing the benefactive at a rule that projects a lexical item to the VP to get some recursion going is almost a lexical approach (for differences see the discussion of (19) above). Note also that the argument above would apply to other constructions as well. So templates for several constructions may be added disjunctively to this projection. Again not much of the original constructional proposal would be left.

Berman (2003) develops an analysis in which the grammatical functions are assigned via implicational constraints that infer the grammatical function from the case of an NP/DP. Figure 3, which is a simplified version of the figure she discusses on p. 37, shows the implicational constraints and that they are attached to certain phrase structure positions. See Bresnan et al., 2015, 113 for the general mechanism. In the case at hand the presence of a dative could be used to infer the grammatical function of a benefactive argument. However, the situation is not as simple as it first may appear. In examples like (26) we have a so-called dative passive. The dative object is promoted to subject and hence gets nominative.

- (26) Der Mann bekam einen Kuchen gebacken.
 the.NOM man got a.ACC cake baked

This can be accounted for straightforwardly in a lexical approach in which the dative is a dependent of *backen*. Either a lexical rule or the auxiliary verb takes care of the fact that the dative argument has to be realized as nominative in dative-passive

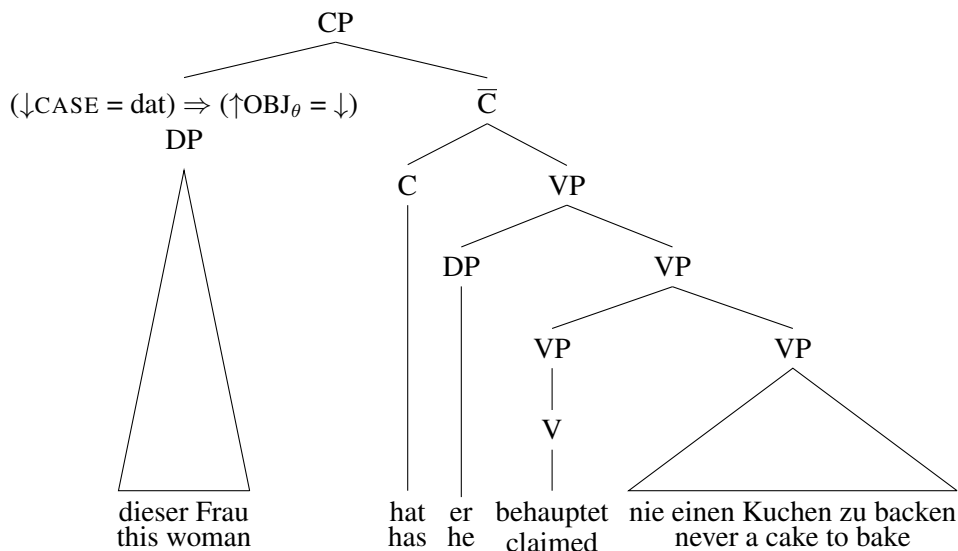


Figure 4: Benefactive construction with fronted dative. Assignment of grammatical functions based on case would exclude such structures

constructions like (26) (see Müller, 2002, Section 3.2.3 for details of an auxiliary-based approach in HPSG). A phrasal approach that wants to assign grammatical functions based on dative case is lost though.

Note also that the dative can be fronted over clause boundaries:

- (27) Dieser Frau hat er behauptet, nie einen Kuchen zu backen.
 this.DAT woman has he.NOM claimed never a.ACC cake to bake
 ‘He claimed that he never bakes this woman a cake.’

A simple model that adds an OBJ_θ to the f-structure in which a dative appears would fail here since the OBJ_θ belongs into the f-structure of *backen* ‘bake’ rather than into the f-structure of *behauptet* ‘claimed’ (see also Müller, 2016b, 228). This is due to the fact that the benefactive is extracted and not realized within the VP with the appropriate f-structure (*nie einen Kuchen zu backen* ‘never a cake to bake’). The situation is depicted in Figure 4. There seem to be two solutions to the problem: Firstly, one could assume a dative trace in the *backen* VP as is suggested by Berman (2003) for long-distance movement. The assumption of empty elements is usually avoided in LFG (Kaplan & Zaenen, 1989, Dalrymple, 2001, Chapter 14.3, Dalrymple et al., 2001) and in any case empty elements would not be compatible with the view that the phrasal approach restricts extraction since it specifies which daughters have to be present. Secondly one could assume functional uncertainty (Kaplan & Zaenen, 1989) to find the right f-structure. For instance one could say that a dative can be an OBJ_θ of the local f-structure or an f-structure somewhere on the path of COMPS or XCOMP:

- (28) $(\downarrow\text{CASE} = \text{dat}) \Rightarrow (\uparrow(\text{COMP}|\text{XCOMP})^* \text{OBJ}_\theta = \downarrow)$

This means that benefactive arguments have to “know” where they could come from. This is an unwanted consequence since the treatment of nonlocal dependencies should be independent of the benefactive construction.

Furthermore, if all datives could be associated with deeply embedded f-structures, we would predict that (29) is ambiguous:

- (29) Dieser Frau hat er dem Mann versprochen, nie einen Kuchen
 this.DAT woman has he the.DAT man promised never a.ACC cake
 zu backen.
 to bake
 ‘He promised the man to never bake this woman a cake.’
 Predicted: ‘He promised the woman to never bake the man a cake.’

The dative *dem Mann* could reach down into the VP f-structure in the same way as the dative NP *dieser Frau*, but *dem Mann* is unambiguously an object of *versprochen*. *dieser Frau* is in initial position and it is the c-structure position (SpecCP) that is connected via functional uncertainty to the deeply embedded VP. If both dative NPs had the potential to fill a grammatical function in embedded f-structures we would expect the ambiguity. Assuming Inside-Out functional uncertainty as suggested by Nordlinger (1998) would not make a difference here.

Note also that benefactive datives appear in adjectival environments as in (30):

- (30) a. der seiner Frau einen Kuchen backende Mann
 the his.DAT wife a.ACC cake bakeing man
 ‘the man who is baking a cake for his wife’
 b. der einen Kuchen seiner Frau backende Mann
 the a.ACC cake his.DAT wife bakeing man
 ‘the man who is baking a cake for his wife’

The examples in (30) show that the arguments of *backende* may be scrambled, as is common in verbal environments. Like German verbal projections, adjectival projections with adjectival participles can contain adjuncts at various places. (31) provides two examples:

- (31) a. der jetzt seiner Frau einen Kuchen backende Mann
 the now his.DAT wife a.ACC cake bakeing man
 ‘the man who is baking a cake for his wife now’
 b. der seiner Frau jetzt einen Kuchen backende Mann
 the his.DAT wife now a.ACC cake bakeing man
 ‘the man who is baking a cake for his wife now’

In order to account for these datives one would have to assume that the adjective to AP rule that would be parallel to (25) introduces the benefactive. Hence the benefactive template would be introduced in several c-structure rules. In comparison the lexical approach assumes that the benefactive argument is introduced as an argument of the verb. The derivation of the adjectival form just takes over the arguments of the verb (Müller, 2002, 160).

A reviewer of HeadLex 2016 suggested that one could assume VP structures including a benefactive for German as well. While many researchers working in GB, LFG and HPSG assume binary branching structures for German (Haider, 1993; Fanselow, 2001; Berman, 2003; Kiss, 1995), there are indeed LFG accounts that assume a flat VP for German (Zaenen & Kaplan, 2002). Zaenen & Kaplan's rule has the form in (32):

$$(32) \quad \text{SIVP} \rightarrow \quad \text{NP}^* \quad (\text{V}') \quad (\text{SIVP}) \\ (\uparrow \text{COMP}^* \text{NGF}) = \downarrow \quad \uparrow = \downarrow \quad (\uparrow \text{XCOMP}^* \text{COMP}) = \downarrow$$

As such the rule looks quite different from the benefactive rule in (7). Note also that this rule could account for benefactives but it does not account for the fact that adjuncts can appear anywhere between arguments in German. This is something that is accounted for by approaches that assume binary branching structures. If one augmented (32) by adjuncts the rule would be even more different from what was assumed for the benefactive rule in English.

Furthermore, Zaenen & Kaplan develop a theory that assumes partial VPs. The partial VPs in (33) are parallel to the VPs in approaches with binary branching. Any LFG of German would have to admit such partial VPs since German allows for partial VP fronting:

- (33) a. Backen würde er seiner Frau solchen Kuchen niemals.
 bake would he his wife such cake never
 'He would never bake such cakes for his wife.'
- b. [Seiner Frau backen] würde er solche Kuchen niemals.
 his.DAT wife bake would he.NOM such cakes never
- c. [Solche Kuchen backen] würde er seiner Frau niemals.
 such cakes bake would he.NOM his.DAT wife never

In (33a) the verb is fronted without any argument, in (33b) the verb is realized together with the benefactive but the accusative object is realized outside the verbal projection and in (33c) the accusative is realized together with *backen* but the benefactive stays behind. Hence the idea that the benefactive is introduced in a special phrase structural configuration together with a verb and all other objects would not work for German. See Nerbonne (1986) and Johnson (1986), who introduced lexical valence representations in a Categorical Grammar style into GPSG since there was no way to make the phrasal GPSG approach compatible with German PVP data. See also Müller & Wechsler, 2014, Section 4.3.

Note that I do not claim here that LFG has any problems with partial verb phrase fronting. Zaenen & Kaplan (2002) show that partial verb phrase fronting can be modeled in LFG. What I hope to have shown is that approaches that assume that benefactives are solely licensed in structures like the one in Figure 1 are inappropriate for German and hence do not capture cross-linguistic generalizations.

Concluding this section I must say that the proposal for English in its final form in Asudeh et al., 2014 and its extension to German do not have anything to do with the original constructional proposal envisaged by Toivonen (2013) in

which a VP consisting of a verb, the benefactive NP and a further NP is assumed. If one wants to use a similar approach to German one would have to weaken the constructional position and admit that the benefactive may be introduced at several places in the syntax (e.g., at verbs and adjectives). Thirdly, under the assumption of binary branching structures, a unary branching syntactic rule is applying to a lexical item and hence is very similar to a lexical rule and fourthly the analysis does not capture cross-linguistic commonalities of the construction. In a lexical rule-based approach as the one that was suggested by Briscoe & Copestake (1999, Section 5) in the framework of HPSG, and Toivonen (2013) in LFG a benefactive argument is added to certain verbs and the lexical rule is parallel in all languages that have this phenomenon. The respective languages just differ in the way the arguments are realized with respect to their heads. In languages that have adjectival participles, these are derived from the respective verbal stems. The morphological rule is the same independent of benefactive arguments and the syntactic rules for adjectival phrases do not have to mention benefactive arguments.

5 Capturing the constraints on benefactives for speakers with restrictions

Toivonen (2013) stated that a construction-specific phrase structure rule may be the best way to capture the constraints in restrictive idiolects of English. As I showed the restrictions are too strong even for speakers with restrictions on the benefactive construction since extraction of the secondary objects is possible. However, the passive is excluded for some speakers. One easy way to rule out passivization is to explicitly state the case of the benefactive element in the lexical rule. If passive is seen as a promotion of an element with structural case to a position (in a tree or an underlying structure like HPSG's ARG-ST) and subsequent assignment of nominative, passive would be excluded.

An alternative would be to assume that the passive lexical rule for English requires the input to be of type *transitive-verb-lexeme* (Kay, Sag & Flickinger, 2015) and that the lexical rule that licenses benefactive arguments licenses pseudo-transitive lexemes. Pseudo-transitives do not qualify as input to the passive lexical rule and hence passives would be excluded. Both approaches would be just stipulations (as is the phrasal approach) but I prefer the case-based approach since the approach to passive that is developed in Müller & Ørsnes, 2013; Müller, 2016a works for both English and German and does not make any reference to transitivity. (German allows for impersonal passives)

The extraction of primary objects is marked for all verbs that take two objects irrespective of the semantic role. For some speakers the extraction of benefactives is worse than the extraction of other primary objects. If one wanted to block extraction via a hard constraint rather than assuming that performance factors play a role here (Langendoen et al., 1973), one could state that the SLASH value of the primary object is the empty list (Müller, 1999, 98) or – if extraction out of the primary

object is to be permitted – different from the *LOCAL* value of the primary object. Because of this specification a trace would be incompatible with this object. The same applies to an appropriately specified lexical rule for argument extraction or a process like *SLASH* amalgamation as suggested by (Bouma et al., 2001).

Note that this approach also predicts that constraints on extraction and passivization in coordinated structures affect the result of coordination. The reason is that the constraints on the selected arguments are identified in symmetric coordinations. Hence the *SLASH* constraints and the case constraints on the benefactive argument are effective on the mother node of verb coordinations as well.

6 Conclusion

This paper argues that fixed-arity rules for the resultative construction and the benefactive construction are empirically inadequate if one does not want to assume traces. Furthermore it is shown that the introduction of arguments at the c-structure results in missing generalizations in the grammar of a single language and that cross-linguistic generalizations are missed in general since c-structures may differ wildly and in some languages they may be less suited for the attachment of templates that introduce arguments.

Because of all these problems I suggest returning to the lexicalist approaches, that is, to analyses that assume that arguments are introduced by lexical means like lexical rules. Examples of such analyses are the lexical analyses of resultatives by Simpson (1983) in LFG and of Wechsler (1997); Wechsler & Noh (2001) and Müller (2002) in HPSG and the lexical analysis of benefactives by Briscoe & Copestake (1999) in HPSG and by Cook (2006) and Toivonen (2013) in LFG.

It may be the case that phrasal constructions are needed in other areas of grammars in other languages (see for instance Butt, 1995 on complex predicates in Urdu), but nothing follows from this for grammars for German and English. In general one should aim for assuming the same descriptive tools if they are appropriate for a given set of languages and supported by language-internal considerations. So, if both German and English allow for a lexical analysis of resultatives and benefactives, an analysis that covers the facts in both languages is to be preferred. If Urdu differs from German and English, this does not necessarily mean that these differences are reflected in the grammars of English and German. See Müller, 2015 on cross-linguistic generalizations without the assumption of Universal Grammar.

The full paper (Müller, 2016c) also contains a discussion of the syntax of resultative constructions, which are argued to form a predicate complex in German but not in English. This is a difference in syntactic structure, which is unproblematic for lexical accounts but results in missing generalizations in phrasal accounts.

The full paper also develops a lexical account of German and English resultatives and benefactives in the framework of HPSG and shows how this account captures the commonalities between German and English despite the superficial dissimilarities between the two languages.

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