Phrasal constructions without lexical integrity

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ABSTRACT
This paper reassesses the issue of lexical integrity. I argue that the approaches by Asudeh, Dalrymple, Giorgolo, and Toivonen indeed violate lexical integrity assumptions as they are commonly made in LFG. The conclusion is that analyses like the classical lexical analysis by Simpson are the only option for lexicalist theories like LFG and HPSG.

1 INTRODUCTION
Goldberg and Jackendoff (2004), Alsina (1996), and Asudeh, Dalrymple, and Toivonen (2008, 2013) suggest analyzing resultative constructions and/or caused motion constructions as phrasal constructions.\(^1\) As was argued in Müller 2006 this is incompatible with the assumption of lexical integrity, that is, that word formation happens before syntax and that the morphological structure is inaccessible to

\(^1\) Asudeh and Toivonen (2014, Section 2.3) argue that their account is not constructional. If a construction is a form-meaning pair, their account is constructional, since a certain c-structure is paired with a semantic contribution. Asudeh and Toivonen compare their approach with approaches in Constructional HPSG (Sag 1997) and Sign-Based Construction Grammar (Sag 2012), which they term constructional. The only difference between these approaches and the approach by Asudeh, Dalrymple & Toivonen is that the constructions in the HPSG-based theories are modeled using types and hence have a name.

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syntactic processes (Bresnan and Mchombo 1995). Let us consider a concrete example, such as (1):

(1) a. Er tanzt die Schuhe blutig / in Stücke.
    he dances the shoes bloody into pieces

b. die in Stücke / blutig getanzt Schuhe
    the into pieces bloody danced shoes

c. * die getanzt Schuhe
    the danced shoes

The shoes are not a semantic argument of *tanzt. Nevertheless the referent of the NP that is realized as accusative NP in (1a) is the element the adjectival participle in (1b) predicates over. Adjectival participles like the one in (1b) are derived from a passive participle of a verb that governs an accusative object. The example in (1c) shows that the participle cannot be formed with unergative intransitive verbs. This should be contrasted with a transitive verb like *lieben ‘to love’:

(2) der geliebte Mann
    the loved man
    ‘the beloved man’

The transitive verb allows the formation of the adjectival participle and the participle with resultative predicate in (1b) behaves completely parallel.

If the accusative object in resultative constructions is licensed phrasally by configurations like the one in (2a) it cannot be explained why the participle *getanzt can be formed despite the absence of an accusative object in the valence specification of the verb. See Müller 2006, Section 5 for further examples of the interaction of resultatives and morphology. The conclusion, which was drawn in the late 70s and early 80s by Dowty (1978, p. 412) and Bresnan (1982, p. 21), is that phenomena that feed morphology should be treated lexically. The natural analysis in frameworks like HPSG, CG, CxG, and LFG is therefore
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This argument is similar to the one that was discussed in connection with the GPSG representation of valence in Müller and Wechsler 2014a, Section 4.2: Morphological processes have to be able to see the valence of the element they attach to. For instance, the generalization about productive -bar derivation is that it only applies to verbs that govern a subject and an accusative object. While lösbar and vergleichbar can be formed, schlafbar and helfbar are ruled out:

(3)  
   a. lösbar
       solveable            (NP[nom], NP[acc])
   b. vergleichbar
       comparable          (NP[nom], NP[acc], PP[mit])
   c. * schlafbar
       sleepable           (NP[nom])
   d. * helfbar
       helpable            (NP[nom], NP[dat])

The resultative construction als interacts with -bar derivation: the adjective leerfischbar can be formed. If arguments are introduced by phrasal configurations after the morphology level, the accessibility of the valence information to the morphology component is not given.

2 LEXICAL INTEGRITY IN RECENT LFG PUBLICATIONS

Asudeh, Dalrymple & Toivonen’s papers are about the concept of lexical integrity and about constructions. Asudeh and Toivonen (2014) replied to the target article by Müller and Wechsler (2014a) and pointed out (again) that their template approach makes it possible to specify the functional structure of words and phrases alike. In the original paper they discussed the Swedish word vägen, which is the definite form of väg ‘way’. They showed that the f-structure is parallel to the f-structure for the English phrase the way. In our reply (2014b)
we gave in too early, I believe. Since the point is not about being able to provide the f-structure of words, the point is about morphology, that is – in LFG terms – about deriving the f-structure by a morphological analysis. More generally speaking, one wants to derive all properties of the involved words, that is, their valence, their meaning, and the linking of this meaning to their dependents. What we used in our argument was parallel to what Bresnan used in her classical argument for a lexical treatment of passive. So either Bresnan’s argument (and ours) is invalid or both arguments are valid and there is a problem for Asudeh, Dalrymple & Toivonen’s approach and for phrasal approaches in general. I want to give another example, that was already discussed in Müller 2006, p. 869 but was omitted in Müller and Wechsler 2014a due to space limitations. I will first point out why this example is problematic for phrasal approaches and then explain why it is not sufficient to be able to assign certain f-structures to words: In (4a), we are dealing with a resultative construction. According to the common phrasal approach, which we termed plugging approach, the resultative meaning is contributed by a phrasal construction into which the verb fischt is inserted. There is no lexical item that requires a resultative predicate as its argument. If no such lexical item exists, then it is unclear how the relation between (4a) and (4b) can be established:

(4)  a. [dass] jemand die Nordsee leer fischt
    that somebody the North.Sea empty fishes
    b. wegen der Leerfischung der Nordsee³
       because of the empty.fishing of the North.Sea

As Figure 2 on the facing page shows, both the arguments selected by the heads and the structures are completely different. In (4b), the element that is the subject of the related construction in (4a) is not realized. As is normally the case in nominalizations, it is possible to realize it in a PP with the preposition durch ‘by’:

(5) wegen der Leerfischung der Nordsee durch die
    because of the empty.fishing of the North.Sea by the
    Anrainerstaaten
    neighboring.countries

If one assumes that the resultative meaning comes from a particular configuration in which a verb is realized, there would be no explanation for (4b) since no verb is involved in the analysis of this example. One could of course assume that a verb stem is inserted into a construction both in (4a) and (4b). The inflectional morpheme -t and the derivational morpheme -ung as well as an empty nominal inflectional morpheme would then be independent syntactic components of the analysis. However, since Goldberg (2003, p. 119) and Asudeh, Dallymple, and Toivonen (2013); Asudeh and Toivonen (2014) assume lexical integrity, only entire words can be inserted into syntactic constructions and hence the analysis of the nominalization of resultative constructions sketched here is not an option for them.

One might be tempted to try and account for the similarities between the phrases in (4) using inheritance. One would specify a general resultative construction standing in an inheritance relation to the resultative construction with a verbal head and the nominalization construction. I have discussed this proposal in more detail in Müller 2006, Section 5.3 and Müller 2010. It does not work as one requires embedding for derivational morphology and this cannot be modeled in...
inheritance hierarchies (Krieger and Nerbonne 1993, see also Müller 2006 and Müller 2010 for a detailed discussion).

It would also be possible to assume that both constructions in (6), for which structures such like those in Figure 2 would have to be assumed, are connected via metarules.⁴ ⁵

(6)  a. [ Sbj Obj Obl V ]  

The construction in (6b) corresponds to Figure 2.⁶ The genitive NP is an argument of the adjective. It has to be linked semantically to the subject slot of the adjective. Alternatively, one could assume that the construction only has the form [Adj V -ung ], that is, that it does not include the genitive NP. But then one could also assume that the verbal variant of the resultative construction has the form [OBL V]

⁴ Goldberg (p.c. 2007, 2009) suggests connecting certain constructions using GPSG-like metarules. Deppermann (2006, p. 51), who has a more Croftian view of CxG, rules this out. He argues for active/passive alternations that the passive construction has other information structural properties. Note also that GPSG metarules relate phrase structure rules, that is, local trees. The structure in Figure 2, however, is highly complex.

⁵ The structure in (6b) violates a strict interpretation of lexical integrity as is commonly assumed in LFG. Booij (2005, 2009), working in Construction Grammar, subscribes to a somewhat weaker version, however.

⁶ I do not assume zero affixes for inflection. The respective affix in Figure 2 is there to show that there is structure. Alternatively one could assume a unary branching rule/construction as is common in HPSG/Construction Morphology.
and that Sbj and Obj are only represented in the valence lists. This would almost be a lexical analysis, however.

Turning to lexical integrity again, I want to point out that all that Asudeh & Toivonen can do is assign some f-structure to the N in Figure 2. What is needed, however, is a principled account of how this f-structure comes about and how it is related to the resultative construction on the sentence level.

3 ACTIVE PASSIVE ALTERNATIONS

Before I conclude the paper, I want to comment on a more recent paper by Asudeh, Giorgolo, and Toivonen (2014). The authors discuss the phrasal introduction of cognate objects and benefactives. (7a) is an example of the latter construction.

(7)  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.

\[
(8) \quad V' \rightarrow V \rightarrow DP \rightarrow DP
\]
\[
\uparrow = \downarrow \quad (\uparrow \text{obj}) = \downarrow \quad (\uparrow \text{OBJ}_\text{b}) = \downarrow
\]
\[
(\text{@Benefactive})
\]

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. The authors show how the mappings for the passive example in (7b) work, but they do not provide the c-structure that licenses such examples. In order to analyze these examples one would need a c-structure rule for passive VPs and this rule has to license a benefactive as well. So it would be:

\[
(9) \quad V' \rightarrow V[\text{pass}] \rightarrow DP
\]
\[
\uparrow = \downarrow \quad (\uparrow \text{OBJ}_\text{b}) = \downarrow
\]
\[
(\text{@Benefactive})
\]

Note that a benefactive cannot be added to any verb: Adding a benefactive to an intransitive verb as in (10a) is out and the passive that would correspond to (10a) is ungrammatical as well, as (10b) shows:
a. * He laughed the children.
b. * The children were laughed.

So one could not just claim that all c-structure rules optionally introduce a benefactive argument. Therefore there is something special about the two rules in (8) and (9). The problem is that there is no relation between these rules. 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, p. 43) criticized in 1957 and this was the reason for the introduction of transformations. Bresnan-style LFG captured the generalizations by lexical rules and later by Lexical Mapping Theory. 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.

4 CROSSLINGUISTIC GENERALIZATIONS

Steve Wechsler (p. c. 2015) pointed out to me that sing + benefactive that was used by Asudeh, Giorgolo, and Toivonen (2014) is not a good example for a verb with an added benefactive role. Rather the object the children is an optional recipient. This can be shown by using prepositions like to and for. While one can sing songs to children, one cannot bake cakes to them but only for them. So, the primary object of sing is an optional recipient while the primary object of bake in (11a) is a benefactive.

(11)  a. He baked her a cake.
b. He baked a cake for her.
c. * He baked a cake to her.
Judgments of authors vary when it comes to the question whether passives of true benefactive constructions like the one in (12) are possible.

(12) ? He was baked a cake.

The German equivalent clearly allows for a passive and corpus examples can be found without difficulty. (13b) is an attested example.

(13) a. weil jemand mir einen Kuchen buk
   because somebody.nom me.dat a.acc cake baked
   ‘because somebody baked me a cake’

   b. Mir wurde ein Kuchen gebacken.\(^7\)
      me.dat was a.nom cake baked

The dative object remains in the dative in the passive, but the accusative object is promoted to subject and gets nominative. Of course Asudeh, Giorgolo, and Toivonen could argue that German is not English and that their analysis was suggested for English only, but an analysis that can capture both English and German without any loss in accuracy should be preferred over alternatives. What is argued here is that the lexical analysis in LFG and other frameworks gets the facts right, while the phrasal one has problems with some dialects of English and with other languages like German.

In Müller and Wechsler (2014a) we argued that the approach to Swedish caused motion constructions by Asudeh, Dalrymple, and Toivonen (2008, 2013) would not carry over to German since the German construction interacts with derivational morphology. Asudeh and Toivonen (2014) argued that Swedish is different from German and hence there would not be a problem. However, the situation is different with the benefactive constructions. Although English and German do differ in many respects, both languages have similar dative constructions:

(14) a. He baked her a cake.

   b. Er buk ihr einen Kuchen.
      he baked her.dat a cake

Now, the analysis of the free constituent order was explained by assuming binary branching structures in which a VP node is combined

\(^7\) http://schokistueck.blogspot.de/, 28.07.2015.
with one of its arguments or adjuncts (see 1996, Section 2.1.3.1; 2003 and also Choi 1999). For instance, Berman (2003, p. 37) assumes the analysis depicted in Figure 4. The c-structure rule is provided in (15):

\[ \text{(15)} \]

Forst and Rohrer (2009) assume a flat VP for German. However, they develop a theory of coordination that assumes partial VPs. In the analysis of (i), the VP *seiner Frau buk* ‘his wife baked’ would be coordinated with *seiner Tochter zeigte* ‘his daughter showed’.

(i) dass er den Kuchen seiner Frau buk und seiner Tochter zeigte that he the cake his wife baked but his daughter showed ‘that he baked his wife a cake and showed it to his daughter’

These partial VPs 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:

(ii) Seiner Frau backen würden er solche Kuchen niemals. his wife bake would he such cakes never ‘He would never bake such cakes for his wife.’

Hence the idea that the benefactive is introduced in a special phrase structural configuration would not work for German. See Nerbonne (1986) and Johnson (1986), who introduced lexical valence representations in a Categorial Grammar style into GPSG since there was no way to make the phrasal GPSG approach compatible with German PVP data.
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(15) \[ VP \rightarrow NP \text{ VP} \quad (\uparrow \text{subj} | \text{obj} | \text{OBJ}_\beta) = \downarrow \quad \uparrow = \downarrow \]

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 (16):

(16) \[ VP \rightarrow \text{ NP} \text{ VP} \quad (\uparrow \text{subj} | \text{obj} | \text{OBJ}_\beta) = \downarrow \quad \uparrow = \downarrow \quad (\text{@Benefactive}) \]

However, since the verb-final variant of (14b) would have the structure in (17), one would get spurious ambiguities, since the benefactive could be introduced at several VP nodes:

(17) weil [VP er [VP ihr [VP einen Kuchen [VP [V buk]]]]]

because he her a cake baked

So the only option seems to be to introduce the benefactive at the rule that got the recursion going, namely the rule in (18), that projects the lexical verb to the VP level.

(18) \[ VP \rightarrow (V) \quad \uparrow = \downarrow \]

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. This was criticized in Müller (2015, Section 7.4) since case in German cannot be unambiguously related to grammatical functions. 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 (19) we have a so-called dative passive. The dative object is promoted to subject and hence gets nominative.

(19) Die Frau bekam einen Kuchen gebacken.

the.nom woman got a 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 case conversion. A phrasal approach
that wants to assign grammatical functions based on dative case is lost though.

Note also that benefactive datives appear in adjectival environments as in (20):

(20)  a. der seiner Frau einen Kuchen backende Mann
       the his.dat wife a.acc cake backing 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 backing man
          ‘the man who is baking a cake for his wife’

In order to account for these datives one would have to assume that the adjective to AP rule that would be parallel to (18) introduces the dative. The semantics of the benefactive template would have to somehow make sure that the benefactive argument is not added to intransitive verbs like lachen ‘to laugh’ or participles like lachende ‘laughing’. While this may be possible, I find the overall approach unattractive. First it does not have anything to do with the original constructional proposal but just states that the benefactive may be introduced at several places in the syntax, secondly the unary branching syntactic rule is applying to a lexical item and hence is very similar to a lexical rule and thirdly 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 and Copestake (1999, Section 5), 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 in 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 CONCLUSIONS

I have shown that morphology needs access to valence (adjectival formation and -bar ‘able’ derivation). If this valence information is not added to lexical items but dependents are introduced by phrasal con-
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structurations instead, there is no way to account for the insights regarding morphological rules.

Furthermore, I have argued that the relation between active and passive variants of a construction is not covered by the template-based analyses suggested in the framework of LFG and that the analysis for English benefactive constructions does not carry over to languages that are assumed to have different c-structures. Like for the phrasal GPSG approach to valence, partial phrases that play a role in coordination, partial fronting, and also certain accounts of fronting are problematic for pattern-based approaches to argument structure.

If one returns to the traditional lexical analysis, which assumed that all arguments are introduced lexically, all these problems disappear and crosslinguistic generalizations regarding the benefactive, resultative constructions and many other constructions can be captured.

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Phrase structure rules that invoke specific templates are thus the equivalent of phrasal constructions in our approach, but Lexical Integrity and the separation of word and phrase are preserved. Constructional effects are captured by systematically allowing words and phrases to contribute comparable information to LFG’s level of functional structure; this is just a generalization of LFG’s usual assumption that morphology competes with syntax (Bresnan, 2001). Lexical integrity as test for wordhood. (1) Jan door-dacht het probleem / *Jan dacht het probleem door. Â‘John thought about the problem thoroughly’. Â Both words and phrasal constructions are domains over which certain generalizations can be stated, and hence the domain of Â‘wordÂ’ and Â‘phraseÂ’ are both essential for the analysis of natural languages (Blevins 2006). Lexical integrity = No manipulation. - universal: all languages distinguish between words and phrases. - the no manipulation constraint on words is nothing else but the substance of the distinction between words and phrases. - Lexical integrity defines the notion Â‘word cohesivenessÂ’. Thank you. Address for correspondence First, we explore the so-called phrasal lexemes, namely constructions that have a phrasal structure, but are lexical in nature. The paper concentrates on the identification and analysis of Russian nominal phrasal lexemes (i.e. phrasal nouns), distinguishing them formally from both free noun phrases and nominal compounds. Second, we discuss the relationship between phrasal nouns and shortening, a mechanism that is generally regarded as marginal (or even extra-grammatical), but is very active in Russian. After giving an overview of shortening strategies in Russian, we focus on a special way to shorten phrasal nouns of the adjective-noun type, namely: ellipsis of the noun plus truncation of the adjective by means of the suffix -ka.