Depictives in English: An LTAG Approach

Benjamin Burkhardt and **Timm Lichte** and **Laura Kallmeyer**
CRC 991, Heinrich Heine University Düsseldorf
{burkhardt,lichte,kallmeyer}@phil.hhu.de

Abstract

In this paper, we explore different ways to account for the peculiarities of depictive secondary predication in English, which we think can be characterized as long-distance modification. Other than with resultative secondary predication, the depictive and its target, typically the subject or direct object of a verbal phrase, do not form a contiguous constituent. Instead, the depictive attaches to the verbal domain that also embeds the target phrase. This sibling configuration, together with the constrained flexibility in choosing a target, obviously poses a challenge to the syntax-semantics interface and we therefore compare three general LTAG approaches to deal with this. We eventually favor a rather semantic approach that also allows for a more principled view in terms of Van Valin's ACTOR-UNDERGOER distinction. Our analysis predicts that only the verbal arguments which are the respective lowest and highest entries in the ACTOR-UNDERGOER hierarchy can act as targets for a depictive. To our knowledge, this is the first work that investigates the treatment of secondary predication within the TAG framework.

1 Introduction

The term SECONDARY PREDICATE refers to a typically sentence final, adjectival element that predicates one of the (main) verbal predicate's arguments, which we will refer to as the TARGET (see, e.g., Winkler 1997; Pylkkänen 2002; Müller 2002; Geuder 2004; Simpson 2005). Furthermore, within the set of secondary predicates two kinds are usually distinguished: DEPICTIVES and RESULTATIVES. While resultative secondary predicates characterize states that are brought about by the event that is expressed by the main verb as in (1), depictive secondary predicates, as in (2), express properties that hold for at least some part of the event time, but do not immediately result from the verb event.[1]

(1) Sean stomped the can_i flat_i.

(2) a. Kim ate the steak_i raw_i.
b. Kim_i ate the steak hungry_i.

In (1), the flatness that is predicated of the can is a result of the stomping it underwent. By contrast, the rawness of the steak or Kim's appetite in (2) are rather peripheral to the overall act of eating – even though they *could* influence the manner of eating. However, we will put event semantic subtleties of this distinction aside for the rest of the paper. What we are interested in is the capability of depictives to target different arguments of the main verb, for instance the object in (2-a) and the subject in (2-b). This is highly relevant to models of the syntax-semantics interface in that it raises the following questions: how can the relation between a depictive and its potential targets be established? And how can the possible choice of constituents that a depictive may target be correctly captured? These are the questions addressed in this paper, taking English as the object language and, for the first time, Lexicalized Tree-Adjoining Grammar (LTAG, Joshi and Schabes 1997; Abeillé and Rambow 2000) as the syntactic framework.

2 Data

In this section, we will give a more detailed overview over syntactic properties of depictives that also pertains to the possible choice of targets.

[1] In the examples, we will use coindexation to mark the secondary predicate and its target.

On this, we will base the discussion of previous analyses in Section 3 as well as our own proposal for an LTAG analysis in Sections 5 and 6.

2.1 Target ambiguity and stacking

In (2), we have seen clear-cut cases where the depictive can target either the subject or the object due to their respective semantic (in)compatibility. Consequently, when semantics does not constrain the possible readings, TARGET AMBIGUITY as in (3) arises.

(3) Kim$_i$ ate the apple$_j$ unwashed$_{i/j}$.

Here, both verbal arguments are viable targets for the depictive element *unwashed*, even though native speakers seem to generally prefer the subject target readings.

Interacting with target ambiguity, depictives can also be stacked as in (4).

(4) a. ? Kim$_i$ ate the steak$_j$ raw$_j$ hungry$_i$.
b?? Kim$_i$ ate the steak$_j$ hungry$_i$ raw$_j$.
c?? Kim ate the steak$_j$ raw$_j$ salted$_j$.

While STACKING OF DEPICTIVES generally decreases the acceptability of sentences, such stacks with alternating targets and in the wellnested order as in (4-a), i.e. object depictive followed by subject depictive, seem more acceptable than the illnested order in (4-b), or those in which both depictives have the same target, as in (4-c).

2.2 Depictives and unrealized arguments

Another important property of depictives is that the targeted constituent does not need to be syntactically realized, as the passive constructions in (5) show. In both examples, the depictive element target the unrealized AGENT argument of the verb.

(5) a. The game$_j$ was played barefoot$_{i/*j}$.
b. The book$_j$ is to be read naked$_{i/*j}$.

The example in (5-a), discussed in Roberts (1987), was originally used to raise the question whether adjectival elements of this kind should actually be treated as such or rather as adverbials that modify the event itself. In any case, assuming a non-metaphorical meaning and sticking with the adjectival use of *barefoot*, we must conclude that the depictive in fact targets the unrealized AGENT argument rather than the THEME constituent. The same is true for *the book* and *naked* in the passive infinitive construction in (5-b). Finally, as (6) shows, it is also possible for depictives to target unrealized direct objects.

(6) We$_i$ usually bake gluten-free$_{*i/j}$.

2.3 Depictives and oblique arguments

The examples discussed so far were only concerned with depictives targeting either the subject or the verb's direct object. What about "oblique" arguments, that is, indirect objects and PP-objects? Judging by the observations made this far, one could assume that depictives can target either one of the verb's arguments. This does not seem to be the case however, as shown in (7).

(7) a. The cash machine$_i$ gave John$_j$ the money$_k$ hungry$_{*i/*j/*k}$.
b. Peter crashed into him$_i$ tired$_{*i}$.

As for (7-a), even though the verb's indirect object is the only animate argument, it cannot be targeted by the depictive *hungry*. A similar observation can be made for most verbs that require a prepositional argument. In almost all cases, native speakers dismiss readings in which the nominal constituent inside the PP is targeted, as in (7-b).

However, there are counterexamples like (8).

(8) a. You can't give them$_j$ injections unconscious$_j$. (Simpson, 2005, (46))
b. Tom$_i$ talked to Meg$_j$ drunk$_{i/j}$.

For (8-a), the possibility to target the indirect object could be explained with the presence of a light verb construction *give injections*, which doesn't assign argument status to *injections*. Similarly, the targeting of the prepositional object in (8-b) could be ascribed to the reanalysis into a verb-particle construction *talk to*. This needs to be more carefully examined in future work.

2.4 Depictives and non-arguments

Finally, depictives cannot target constituents of complex arguments, such as the genitive noun in (9-a) or the single conjuncts in (9-b), nor modifying constituents like PP-adjuncts as in (9-c).

(9) a. John met Maria's$_i$ father naked$_{*i}$.
b. [John$_i$ and Paul$_j$]$_k$ met [Maria$_m$ and her boyfriend$_n$]$_o$ naked$_{*i/*j/k/*m/*n/o}$.
c. John drilled a hole with a power tool$_i$ new$_{*i}$.

Again, single counterexamples like the one in (10)

can be found, where the depictive seems in fact to be able to target the reflexive pronoun inside the complex NP-argument.

(10) If you're an investment banker, don't choose a profile of yourself$_i$ [drunk at a house party]$_i$.[2]

It is yet unclear whether the putative locality violation in (10) could be explained with the involvement of a multi-word expression. One reviewer has noticed that the acceptability of (10) decreases as soon as the PP *at a house party* is left out, which could hint at the presence of a construction different from the depictive one, for example some sort of small clause. A closer inspection of such examples is left to future work.

3 Previous analyses

We will briefly report on two very different proposals from other frameworks that precede our work.

In the framework of Generative Grammar, Geuder (2002, 2004), following Winkler (1997), asserts that depictives always occur in postverbal position and are preceded by resultatives, as shown in (11). This leads him to the assumption that depictives must be right-adjoined.

(11) John$_i$ kicked the door$_j$ open$_j$ tired$_j$.

Furthermore, pointing to earlier work by Roberts (1988), he states that depictives, without discriminating between subject and object depictives, must be adjoined at VP-level and bases this on several constituency tests, i.e. VP fronting, though-movement, and pseudoclefts, as well as on the behavior of depictives under negation. Geuder further strengthens this position through an observation made by Ernst (2001): depictives precede manner adverbs, which themselves cannot adjoin higher than at VP-level (see (12)).

(12) Al$_i$ sits$_j$ clothed$_i$ quietly$_j$ [...].

While the argument is valid in the context of the Generative Grammar framework, LTAG is not necessarily restricted in such a way. That said, the analysis proposed here eventually adopts Geuder's view such that the depictive is adjoined at VP-level as well. The main point in Geuder (2004), however, is to tease apart the differences of the semantics of depictives in comparison to "normal" adverbial modification and modification by the class of so called transparent adverbs. Furthermore, Geuder (2004) states that target resolution is not driven by syntax, but that the restictions on possible targets of depictives "arise on an interpretational level". This runs contrary to, e.g., Wunderlich (1997) who assumes distinct adjunction sites for subject and object depictives. However, Geuder's analysis remains at a rather informal level compared to what we are aiming at.

In contrast to Geuder (2004), the analysis of depictives in Müller (2008) is based on Head-Driven Phrase Structure Grammar (HPSG) and aims to give a mainly syntax-driven account of depictive targeting phenomena. Following an extensive discussion of both English and German data, he summarizes that *all* verb arguments, including indirect objects, are possible targets of depictives. This contradicts the observations made in section 2 about indirect objects as targets of depictives, e.g. in example (7-a). Additionally, he emphasizes that the target has to precede the depictive itself. In the provided analyses, which largely cover German examples, Müller deviates from Pollard and Sag (1994) by adopting a version of HPSG in which the verb arguments in the SUBCAT list are marked as realized, but are not deleted from it. This assumption is essential for Müller's analysis of English, because depictives are included after the target has been combined with the verbal head. Under standard assumptions, the target would have been removed from the SUBCAT list too early. With the distinction of realized and unrealized items on the SUBCAT list, however, also the stacking of depictives seems to be manageable, even though Müller remains silent on this.

4 Modification in LTAG

Since we want to treat depictive secondary predicates as long-distance modification, the approaches we present in the following section are based on assumptions commonly followed in the TAG literature, namely that, in accordance with valency-driven design principles for elementary trees (Abeillé and Rambow, 2000; Frank, 2002), modifiers (or adjuncts) are attached via adjunction. From this and the shape of the target trees, it immediately follows that it must be possible to adjoin a modifier to its target non-immediately, for

[2] From the book *The Short and Great Guide to Online Business Networking* by Michel Semienchuk from 2016.

the simple fact that modifiers are seen as optional material without argument status. As such, they are not uniquely reflected in the elementary tree of the target, for example, by a non-terminal leaf node, which makes them act very differently from arguments. Thus, when modifiers are stacked similarly to the topicalized *yesterday* and *in Paris* in (13), one is not adjoined to the elementary tree of *elected*, but rather to the other modifier:[3]

(13) Yesterday, in Paris, Kim ate the steak.

This can be seen from the analysis sketch in Figure 1. Hence, in LTAG analyses, even rather stan-

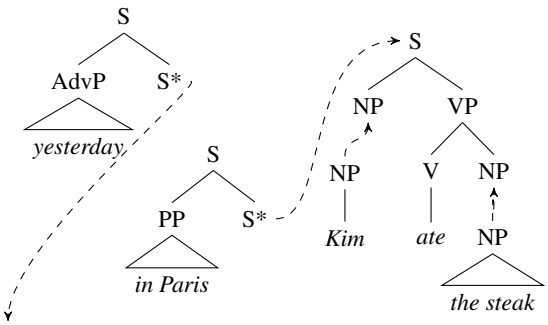

Figure 1: Analysis of topicalized modifier stacking in (13)

dard instances of modification can turn out "long distance".

The situation with depictives is even worse, as will become clear in the next section: (i) the auxiliary tree of the depictive can *never* adjoin immediately to the elementary tree of the target if it is the subject, and (ii) the depictive tree does not add to the lexical projection of the target, namely the NP. We suspect that the connection between a depictive and its target can be more directly established with some sort of MCTAG, but we also see good reasons *not* to use tree sets here. One reason that has been mentioned in Section 2.2 is that the realization of the target can be optional. We will therefore not fully explore this possibility in this work and only provide some general thoughts in Section 7.

5 LTAG approaches to depictives

Staying with LTAG, there are thus two primary challenges when dealing with depictive secondary predicates: firstly, one has to make sure that the depictive finds its target through the syntax-semantics interface; secondly, one has to cope with the fact that sometimes more than one constituent can be chosen as target at a time. In other words, there is the possibility of target ambiguity. With respect to target ambiguity, one can think of three general approaches, namely treating it either in syntax or in semantics, or in the syntax-semantics interface proper. Let us go through them one by one.

5.1 Syntactic ambiguity approach

With a SYNTACTIC AMBIGUITY APPROACH, subject and object depictives induce different syntactic derivations. Hence, either they anchor different trees, that is, trees that differ in the structure or labeling of the nodes, or they adjoin to different nodes of the verbal tree, or both.

So one effect could be that the target of a depictive is uniquely determined through the syntactic position at which the elementary tree of a depictive is adjoined. Hence, depictives targeting the subject are always adjoined at a different node than depictives that target the object. A rough example analysis of this kind is shown in Figure 2, which models the postverbal stacking of subject and object depictives in (14), repeated from (4-a) above:

(14) Kim_i ate the steak_j raw_j hungry_i.

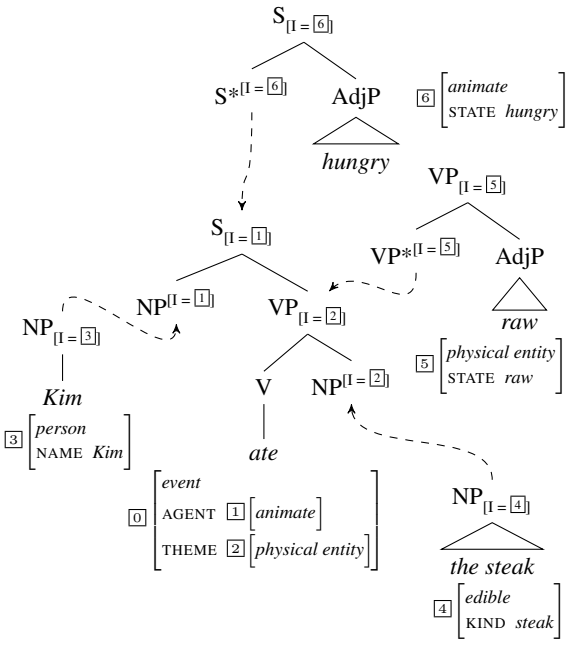

Figure 2: Analysis of (14) with a syntactic ambiguity approach

[3] Yet multiple adjunction (Schabes and Shieber, 1994) would allow for a direct adjunction of both modifiers to the verbal elementary tree.

The analysis we propose employs the syntax-semantics interface of Kallmeyer and Osswald (2013) where syntactic nodes are enriched with interface features and the semantic representations consist of semantic frames. Interface features such as I(NDIVIDUAL) and E(VENT) contribute base labels (i.e. boxed numbers) that also appear in the semantic frames. Upon substitution and adjunction, the unification of interface features triggers the identification of base labels and, consequently, the unification of the linked semantic frames.

The example in Figure 2 is thus to be understood in the following way: when adjoining the elementary tree of the depictive *hungry* to the S-node of the elementary tree of *ate*, the unfication of their I-features triggers the identification of base labels $\boxed{1}$, which is linked to the semantic content of the subject, and $\boxed{6}$, which points at the semantic contribution of the depictive. Interface features therefore serve to establish but also limit the visibility of a potential target to specific nodes.

The syntactic ambiguity then emerges from a specific distribution of base labels as values of the I-feature. In Figure 2, the subject is only visible in the S-node (via $\boxed{1}$) and the object only in the VP-node (via $\boxed{2}$). Hence, the target of the depictive is determined by whether it is adjoined to S or VP.

Considering coverage and sparseness, this implementation of the syntactic ambiguity approach comes with certain drawbacks, some of which can be overcome easily, and some with more difficulties – if at all. Concerning grammar sparseness, every depictive anchors at least two elementary trees that differ only in their respective root/foot category. Hence, in the grammar, the depictive *hungry* would not only anchor the auxiliary tree with S-root, but also the one with a VP-root in order to be usable as an object depictive. Of course, this duplication can be overcome easily by generally replacing the S-category for the VP-category (and representing the S-category by, e.g., an extra feature). With this change, depictives would only adjoin to VP-nodes. Another challenge is posed by unrealized arguments, e.g. involving passives such as in (5). But here the answer would be to leave the interface unchanged compared to the active alternate. Hence, the subject position of the passive would still be linked to the VP-node, while the S-node would remain linked to the *logical* subject. Lastly, and most severely, the syntactic ambiguity approach forces a certain linear order onto the depictives, depending on which argument they target: in postverbal position, depictives targeting the object can only precede subject depictives since the latter are adjoined at a higher syntactic position. Similarly, the presented syntactic ambiguity approach predicts that only subject depictives may appear in a topicalized position. Both predictions seem to be too strong (see, e.g., (4-b)), but are hardly adjustable when one wants to retain the common verbal phrase structure.

Given these issues, an alternative worth considering seems to be one that assumes specific interface features for the subject and the object. For example, there could be interface features I_{subj} and I_{obj} and they could be made accessible in both S and VP. This would indeed help to relax the mentioned linearization constraints, but it would also necessitate the duplication of entries on the side of depictives, in order to be able to let a depictive target either the subject or the object.

5.2 Interface ambiguity approach

Instead of representing target ambiguity by means of distinct interface features or by assigning different values to the I-feature in distinct syntactic nodes, one could as well trigger target ambiguity with one value of the I-feature only. This is what we want to call an INTERFACE AMBIGUITY APPROACH. It consists of giving a local choice regarding the value of the I-feature, namely that it is linked either to the subject or the object. We formally write this as a disjunctive expression [I = $\boxed{1} \vee \boxed{2}$], using $\vee$ as the disjunction operator. The sample analysis from above then turns into the one in Figure 3.

The challenge here is to pass the disjunctive value from the foot node to the root of the depictive elementary tree without also projecting the final value of the I-feature, which it receives after top-bottom unification – otherwise only either subject or object depictives could be adjoined to VP. To this end, we include a special variable $\boxed{\alpha}$ that is valid during substitution and adjunction, but becomes void when top-bottom unification is applied.

Obviously, this sort of disjunction helps to remedy the duplication issue that can arise in the syntactic ambiguity approach. Hence, in the interface ambiguity approach, one can maintain a uniform auxiliary tree for depictives without having to harmonize syntactic categories (but see below). An-

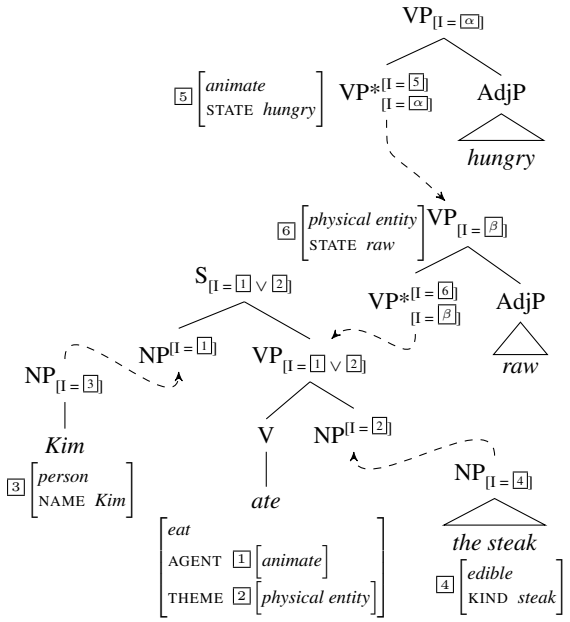

Figure 3: Analysis of (14) with an interface ambiguity approach

other advantage over the syntactic ambiguity approach in Figure 2 is that postverbal linearization is left underspecified and the topicalized position can be occupied by both the subject and the object depictive. However, the critical drawback is that one has to allow for logical operators to be included into elementary trees. This is a big step, formally speaking, because it means to treat the syntactic feature structures in elementary trees as descriptions and to introduce special variables for descriptions such as $\boxed{\alpha}$ in Figure 3. Otherwise, when first resolving disjunctions such as the one in the I-feature, the duplication issue would return back on the scene, not to mention the narrowing to either subject or object depictives that can adjoin at VP. Having said this, tree and feature structure descriptions are widely used in metagrammars (cf. Crabbé et al., 2013) and certain TAG variants (cf. Rambow et al., 2001). So it is a possible strategy.

Nevertheless, we want to propose yet another type of approach, namely the semantic ambiguity approach, that circumvents this extension and is also more explanatory with respect to the linking aspects of target ambiguity.

5.3 Semantic ambiguity approach

At first glance, the SEMANTIC AMBIGUITY APPROACH differs from the interface ambiguity approach in just one detail: disjunction does not appear in elementary trees (or their descriptions), but in their semantics. Remember that we follow Kallmeyer and Osswald (2013) in that we use descriptions of semantic frames as semantic representation, and in these descriptions, disjunction is a natural ingredient.

We can thus recast the LTAG analyses from Figures 2 and 3 into the one in Figure 4, which now embeds the disjunction AGENT ∨ THEME in the semantics of the depictive.

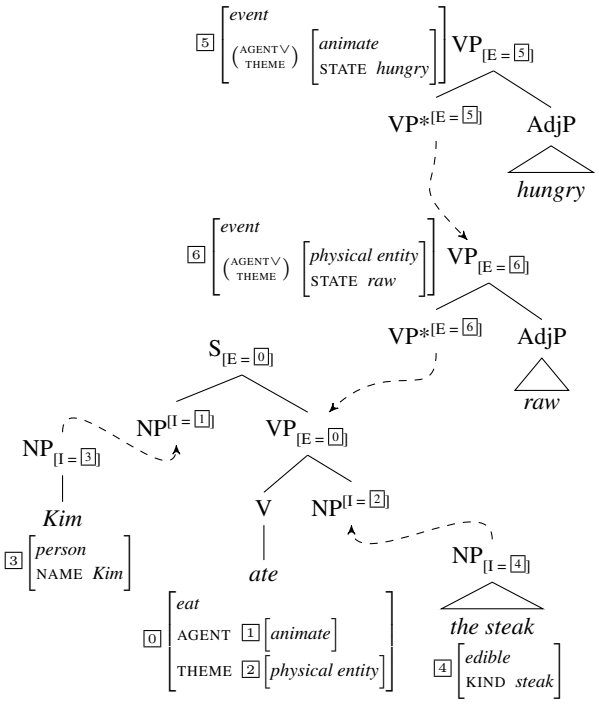

Figure 4: Analysis of (14) with the semantic amibuity approach

This move has far reaching consequences regarding the interface and the semantics of the depictive: instead of accessing the I-feature of the respective target NPs, the depictive now reads off the E-feature, which commonly points to the semantics of the verbal head. The semantics of the depictive has to reflect this, that is, the root type has to be of type *event*, while its actual semantic content, which either contributes to the AGENT role or the THEME role of the event, is more deeply embedded compared to the other two approaches.

As with the interface ambiguity approach, it should be obvious that the semantic ambiguity approach avoids the unwanted proliferation of elementary trees that have to be assumed for a single depictive. Similarly, no post- or preverbial linearization constraints are imposed. But on the other hand, the semantic ambiguity approach improves on the interface ambiguity approach since no additional descriptive means need to be in-

cluded ad hoc. Furthermore, it does not hinge on making the I-features of subject and object accessible within the whole verbal phrase. Yet one could criticize that this simplification in the syntax puts additional burden on the semantics: the possible targets of depictives are not immediately determined by the syntactic argument structure of the verbal head any more, but entirely follow from the semantic roles that are specified in the frame-semantic event descriptions assigned to the verbal head and the depictive. Going back to Figure 4, this means that semantic roles such as AGENT and THEME and their linking to syntactic argument positions have to be taken into account, for instance, in order to avoid depictive predication on non-arguments. The following section will show, how to achieve this in a principled manner.

6 A semantic approach with actor-undergoer linking

The semantic solution discussed in the previous section simply lists all semantic roles that are potential targets for depictive modification. The question is whether we can generalize this in some way. One abstraction over semantic roles is provided by the MACROROLES actor and undergoer introduced in Van Valin, Jr. (2005) (see also the similar concepts of proto-agent and proto-patient in Dowty, 1991). Van Valin, Jr. (2005) explains how to determine actor and undergoer based on the semantic characterization of an event, more specifically based on the semantic roles of its participants. A constraint-based LTAG implementation of his linking theory within the metagrammar (using XMG) has been proposed in Kallmeyer et al. (2016). With the additional linking constraints in the metagrammar, the frame for *eating* for instance gets enriched with marcorole information, as shown in Figure 5.

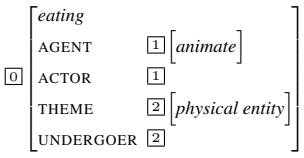

Figure 5: *eating* frame with macroroles

The hypothesis we want to pursue in the following is that depictives target either the actor or the undergoer of the event that they modify (see Figure 6 for the revised elementary tree for *raw*). This hypothesis is not just a generalization over the analysis proposed in Section 5.3 but it comes with the additional claim that non-macroroles cannot be targeted by depictive modifiers or, more precisely, the depictive has to target one of the macroroles.

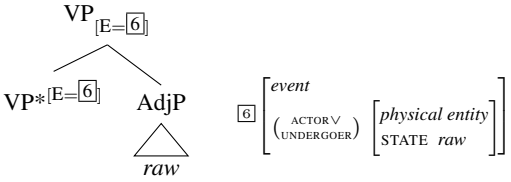

Figure 6: Revised elementary tree for *raw*

This hypothesis clearly holds for the examples in (2). The two arguments of the verb *eat* are the actor and the undergoer and both are possible targets for depictives. The question is whether it also holds that event participants that are neither actor nor undergoer cannot be targeted by a depictive. This seems to be supported by the data in (7-a).

Let us consider further examples involving participants that are neither actor nor undergoer.

(15) John$_i$ ran into the building$_j$ burning$_{i/*j}$.

(16) John$_i$ worried about the apples$_j$ unwashed$_{i/*j}$.

In (15), *the building*, which is neither actor nor undergoer, is actually not available as antecedent for a depicitive. In (16), *John* is the undergoer while *the apples* are neither actor nor undergoer. And in fact, they do not seem to be available for modification by a depictive.

(17) a. Chris$_i$ ate the apples$_j$ with a fork unwashed$_{i/j}$.
b. Chris$_i$ ate the soup with a spoon$_j$ unwashed$_{i/*j}$.

(17) gives examples where we have an actor and an undergoer and, as a third participant, an instrument. The instrument cannot be targeted by depictive modification.

(15)–(17) suggest that particpants that are realized as PPs are in general not available for modification by depictives. This seems to be the case even for semantic roles that are relatively low on the actor–undergoer hierarchy, as in (18). According to Van Valin, Jr. (2005), arguments that are selected as undergoers are by definition not marked by an oblique case or an adposition. For example, *Chris* is not the undergoer in the sentences in (18). But this is different for (19), where *Chris* becomes the undergoer due to the passivization. And here

Chris is in fact accessible as a target for a depictive.

(18) a. The car crashed into Chris$_i$ unprepared$_{*i}$.
b. The bewitched machine hammered on Chris$_i$ drunk$_{*i}$.

(19) Chris$_i$ was crashed into unprepared$_i$.

Even though these data indicate that actor and undergoer are more easily accessible for depictive modifiers, we need broader empirical evidence for our hypothesis. Corresponding tests, including a corpus study and acceptability judgment tests, are planned for the very near future.

7 Remaining issues

Considering the still underresearched wealth of depictive secondary predication, the presented analyses are certainly not meant to be conclusive. They are rather supposed to highlight general LTAG-related options when dealing with some critical challenges posed by depictive secondary predication: the non-local relation between the depictive and its target, the rather strict choice of targets, and the flexibility in stacking and linearizing depictives. Therefore, it might be that the proposed analyses have to be revised in the light of more data and more languages. In what follows, we want to mention some of the potential "breaking points".

One challenge to the analysis in Section 6 would be that a depictive can target an argument of the verb that does not bear a macrorole. While English seems to be largely consistent in only allowing macroroles, there seem to be languages that are less strict (e.g. Warlpiri, see Simpson 2005). For these languages, a more syntactic approach might be preferable. A more severe challenge would be if a depictive was able to target a constituent that cannot even be considered an argument of the verb, for instance, a modifying expression or some more deeply embedded part of an argument. While it is hard to find acceptable data where a depictive targets a modifier, there are indeed cases that seem to challenge the locality restriction. If they were possible in general and not just side effects of multi-word expressions as argued in Section 2.4, either the set of interface features would have to be considerably extended in order to make the embedded targets accessible or the semantics of the depictive would have to be more complex in order to access elements embedded below the event participants. On the other hand, restrictions on linearization (and stacking) could be rather easily implemented using purely syntactic features.

Finally, our choice for LTAG as such could be seen as another weakness. As mentioned in Section 4, we deliberately decided against MCTAG, even though we thereby rule out the possibility to establish a more direct derivational relation between the depictive and its target. Within an MCTAG, depictives could be represented as tree sets consisting of two trees: one tree anchored by the depitive word, namely roughly the auxiliary tree that was used above in the presented LTAG analyses, and one degenerated elementary tree, the scope taking part. The degenerated elementary tree possibly only consists of a single node and is supposed to either adjoin to the root node of the target NP or to substitute into the target NP slot of the verbal tree, yielding again a substitution node. Similar tree sets can be found in works that deal, for example, with reflexives (Ryant and Scheffler, 2006; Kallmeyer and Romero, 2007; Storoshenko et al., 2008; Frank, 2008) and extraposed relative clauses (Kroch and Joshi, 1987; Chen-Main and Joshi, 2014). The approach in Frank (2008) adopts a tree-local solution where reflexives introduce on the syntactic side, in addition to the initial tree of the reflexive, an initial single-node NP tree that substitutes into the antecedent slot. A similar solution might be possible for depicitves. The approach in Chen-Main and Joshi (2014) is interesting because it remains tree-local even for illnested dependency structures, thanks to flexible composition and multiple adjunction. As was shown with (4-b), depictives can give rise to illnested dependencies as well. Even so, the strongest argument against using MCTAG for depictives is that the target does not have to be realized. Consequently, there are cases where the target NP is missing as a landing site for the scope part of the depictive tree set, unless it is made part of the verbal elementary tree for this very reason. Therefore, in place of decorating the verbal elementary tree in such a way, we prefer to remain with LTAG.

8 Conclusion

Depictives challenge the syntax-semantics interface in many ways: as for English, locality is extended, but still restricted to the verbal domain, that is, maximally extending to the syntactic arguments of the verbal head. But as flexible as it

might look, within this there is some additional restrictiveness that is hard to capture in only syntactic or semantic terms. Therefore, among the three LTAG approaches we developed in this paper, we favour a semantic approach that is enhanced with Van Valin's argument linking mechanism. The prediction then made is that depictives are restricted to the syntactically and semantically determined macroroles actor and undergoer. While, from what we have seen in this paper, the prediction seems to be empirically valid at least for English, the data survey is still very preliminary. This needs to be tackled in future work while also broadening the scope crosslinguistically. Finally, as one of the reviewers pointed out to us, there are other constructions that also seem to involve long-distance modification, such as absolutes and free adjuncts (examples taken from Stump 1985):

(20) a. His father being a sailor, John knows all about boats.
b. Walking home, he found a dollar.

The differences and commonalities with constructions of this kind need to be investigated in future work as well.

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