

On the role of semantic constraints in resultative constructions

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1 Introduction

Resultative constructions have well-known properties that set them apart from other kinds of constructions. Their most distinctive property, perhaps, is that their distribution cannot be accounted for in purely syntactic terms, but that their appearance is constrained by a number of semantic factors. Thus, resultatives as in (1) are constructions that contain 1) a verb form that contains an event structure component denoting an activity, 2) an argument that can be interpreted as the patient argument of the verb and can thus undergo a change of state or location as a result of the activity denoted by the verb, and 3) an event structure component denoting an endpoint of the activity, thereby delimiting it.

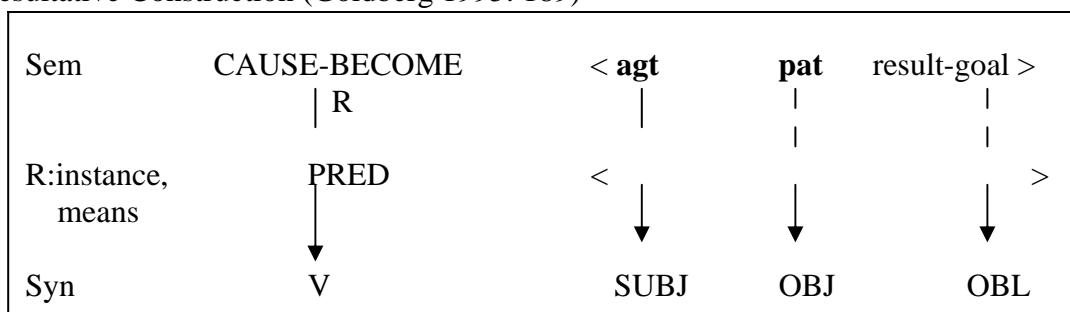
- (1) a. Claire painted the house red. d. Carol danced Jim tired.
 b. Pat broke the vase to pieces. e. Jim danced Carol off the stage.
 c. Chris drank himself silly. f. Rachel swept the floor clean.

In this paper I will be concerned only with transitive resultative constructions of the type in (1), i.e., constructions of the form NP V NP Res(ult)P. In the next section I will give a brief overview of Goldberg's (1995) treatment of the resultative construction that is grounded in the theoretical assumptions of Construction Grammar (Fillmore & Kay 1993). In section 3, I will present data which show that the distribution of transitive resultative constructions cannot be predicted purely in semantic terms at the level of constructions as Goldberg claims. Section 4 shows that the semantic relation between the actor and the patient argument in transitive resultative constructions is interpreted differently depending on the semantics of the matrix verb. These observations suggest that the relevant semantic constraints must be encoded in the lexicon and not at the level of constructions. In section 5, I propose that the resultative construction is fed by the lexicon and is thus sensitive to the kind of constituents that can appear in resultatives.

2 A Construction Grammar approach to resultatives

Goldberg's (1995) Construction Grammar approach views the grammar as a repertory of constructions that are form-meaning correspondences. In this framework, constructions are the basic units of language and they exist independently of the particular words which instantiate them. Thus, each construction is capable of bearing arguments. In other words, a construction has a specific syntactic configuration which is associated with a specific semantics: "A resultative construction is posited which exists independently of particular verbs that instantiate it" (Goldberg, 1995: 189). In this view, a resultative construction "can add a patient argument, besides adding the result argument to nonstative verbs which only have an "instigator" as profiled arguments." (1995: 189) The representation in (2) shows how the semantics of the resultative construction and the meaning of the matrix verb are combined in Goldberg's framework.

(2) Resultative Construction (Goldberg 1995: 189)



In (2), the top line of the construction represents the semantic relations of the participants of the construction. OBL stands for oblique; solid lines between the semantic roles and roles in the predicate's role array indicate that the semantic role must be fused with an independently existing verbal participant role. Dotted lines indicate that the construction is able to provide additional participant roles. Roles represented in bold are 'profiled' arguments, i.e., entities in a verb's semantics that are "obligatorily accessed and function as focal points within the scene, achieving a special degree of prominence (Langacker 1987)" (Goldberg, 1995: 44). Goldberg assumes that the distribution of resultative constructions is limited by a number of factors.

The first point she mentions is concerned with the thematic roles of verbs. These are essential in determining whether a verb can fuse with the resultative construction. Under her analysis, verbs such as *wipe* and *talk* have thematic roles, as in (3):

(3) Thematic Roles of verbs

a. wipe <**wiper** wiped>

He wiped the table clean.

b. talk <**talker**>

He talked himself blue in the face.

(Goldberg 1995: 189)

When the verbs in (3) fuse with the resultative construction in (2), then it contributes a result-goal argument in the case of *wipe* (since it has both a wiper role and a wiped role), and both a result-goal argument and a patient role in the case of *talk* (since it only has a talker role). Focusing on the licensing of the patient argument of the resultative construction, Goldberg suggests that a verb is only provided with an additional patient argument when the resultative can be "applied to arguments which potentially undergo a change of state as a result of the action denoted by the verb" (Goldberg, 1995: 188). In what follows, I will show that Goldberg's semantic restrictions are too general to predict the full distribution of patient arguments in resultative constructions. I claim that there are a number of semantic constraints that cannot be captured at the level of the construction.

3 The licensing of patient arguments

The first set of data that calls for a set of more fine-grained semantic constraints includes verbs that differ with respect to the kind of patient argument they license. Thus in (4)-(7) below, some verbs only occur with “regular” object NPs (cf. (5)). Other verbs only occur with Simpson's (1983) so-called “fake objects,” i.e., reflexives that are coreferential with the subject of the construction (cf. (4)). Other verbs can occur with both regular objects and with fake objects (cf. (6) and (7)).

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|-----|---|-----|--|
| (4) | a. He talked himself blue in the face.
b. *He talked Joe blue in the face. | (6) | a. John painted himself red.
b. John painted the house red. |
| (5) | a. *Kim broke herself into pieces.
b. Kim broke the vase into pieces. | (7) | a. Jenn danced herself tired.
b. Jenn danced Pat tired. |

The different kinds of patient arguments in (4)-(7) pose a problem for Goldberg's account because her general semantic restriction concerning the nature of the patient argument is not precise enough to determine the exact distribution of patient arguments. One way that Goldberg (1995: 189) attempts to license the occurrence of fake objects is by proposing that “the postverbal NP of the fake object cases is an argument *of the construction* although not necessarily of the main verb.” Thus,

"[W]e can understand fake object cases as having arisen from an expressive desire to predicate a change of state of an agent or instigator argument. A construction which adds a patient argument to the inherent argument structure of the verb allows the resultative to apply to a patient argument while allowing the patient argument to be coreferential with the agent argument." (Goldberg 1995: 192)

Note that Goldberg's explanation only refers to the syntactic structure that results from the construction adding the fake object to the verb's argument structure. It does not, however, address the question of how the construction chooses a fake object over a regular non-reflexive NP. While both kinds of objects are licensed by Goldberg's resultative construction, none of her licensing conditions, general semantic constraints or interpretation mechanisms account for the distribution of regular objects versus fake objects in (4)-(7). In order to overcome these shortcomings, let us address the causes of the different distribution patterns of patient arguments in resultative constructions.

4 Different meanings of transitive resultative constructions

I would like to suggest that the distribution of patient arguments in transitive resultative constructions results (at least partially) from transitive resultative constructions interpreted in different ways, depending on the kind of matrix verb in the construction. In other words, although the transitive resultatives exhibit the same syntactic pattern in (4)-(7), i.e., NP V NP ResP, there are different meanings associated with the construction depending on the

transitivity of the matrix verb. Sentences (4)-(7) include two kinds of verb classes, namely lexically intransitive verbs like *talk* and *dance*, and lexically transitive verbs like *paint*. Both intransitive and transitive verbs can occur in the transitive resultative construction, but the transitive resultative construction has different meanings depending on the transitivity of the matrix verb. More specifically, the semantic relation between the matrix verb and the postverbal NP differs depending on whether the matrix verb is intransitive or transitive. In other words, in transitive resultative constructions represented in (8), the meaning of an intransitive exemplified in (9a) can be paraphrased as in (9b).

(8) Resultative Construction

$NP_x V NP_y ResP_R$

(9) Intransitive Verb

a. Melissa laughed herself silly.

b. X V-ed and X's V-ing caused that Y became R

The meaning of a transitive verb in a transitive resultative construction as in (10a) can be paraphrased as in (10b).

(10) Transitive Verb

a. John painted the house red.

b. X V-ed Y and X's V-ing caused that Y became R

The crucial difference between the intransitive verb in (9) and the transitive verb in (10) is that the semantic relationship between the matrix verb and the postverbal NP (the patient argument in (10)) is closer than in (9). This is represented by the first part of the paraphrases, where in the transitive case in (10b) the X *directly affects* Y by performing some action of which Y is the direct undergoer (X V-ed Y). Sentences containing intransitive verbs do not exhibit such a close relationship between the matrix verb and the postverbal NP. This is indicated in (9b) by the first part of the paraphrase where X *does not directly affect* Y by performing some action of which Y is the direct undergoer. In this case, X performs some activity (X V-ed), and by performing that activity Y gets somehow affected. This means that Y, the postverbal NP, is only *indirectly affected*, i.e., the affectedness component of transitive resultatives is provided by the construction. In other words, by appearing in a transitive resultative construction, lexically intransitive verbs containing an activity component can be interpreted as affecting other entities. Thus, transitive resultative constructions can be associated with different meanings, depending on whether the matrix verb is transitive or intransitive.

Sentences (11) and (12) reveal another interesting property of resultative constructions containing lexically intransitive verbs and lexically transitive verbs. Compare, for example, the variety of patient arguments that can occur with *dance* in (11) with the variety of patient arguments that can occur with *paint* in (12).

- (11) Intransitive verb *dance* in transitive resultative construction
- a. Jenn danced herself tired.
 - b. Jenn danced Pat tired.
 - c. Jenn danced Pat off the stage.
 - d. Jenn danced Pat out of the room.
 - e. Jenn and Pat danced themselves into the heart of the audience.
 - f. Jenn danced her shoes threadbare.
- (12) Transitive verb *paint* in transitive resultative construction
- a. John painted himself red.
 - b. John painted the house red.
 - c. *John painted the house into the ground.
 - d. *John painted the house over the street.
 - e. *John painted his shoes threadbare.

Sentences (11) and (12) show that resultative constructions containing intransitive verbs like *dance* are potentially more flexible with respect to the semantic range of patient arguments than resultative constructions containing transitive verbs like *paint*. I propose that this difference can be explained by the observations regarding the different interpretations of transitive resultative constructions made about (9) and (10) above. Thus, our findings that intransitive verbs give rise to a different interpretation in transitive resultative constructions than transitive verbs do is reflected by the semantic flexibility of patient arguments that can occur with the respective verbs.

In Goldberg's framework, both kinds of verbs receive the same interpretation after they have fused with the transitive resultative construction. The only point in which the analysis of intransitive and transitive verbs differ in Goldberg's account is that the resultative construction adds the patient argument in the case of intransitive verbs, but not in the case of transitive verbs. In other words, in Goldberg's analysis, there is no component or interpretative mechanism that allows a distinction between the different interpretations of the transitive resultative construction. From the discussion above, however, it follows that an analysis of transitive resultative constructions needs to incorporate information about the semantic range of patient arguments, specifically that the semantic range is (at least partially) determined by the different interpretations that can be associated with the matrix verbs.

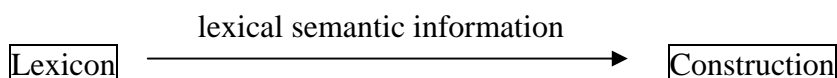
5 Constructions and lexical semantics

Let us now turn to a Construction Grammar account of the different interpretations associated with transitive resultative constructions. Sections 2 and 3, above, show that the role of the resultative construction lies in providing additional arguments for the verb, but there are no fine-grained constraints available to restrict the semantic range of patient arguments. I would like to suggest that the different interpretations associated with transitive resultatives and the semantic restrictions concerning the licensing of patient arguments are influenced by the same phenomenon, i.e., the lexical-semantic information associated with the constituents of the

construction. In this view, the construction is “sensitive” to the lexical-semantic information of the matrix verb, as well as to the other constituents in the construction.

The role of the construction, then, lies in determining whether the semantics of the individual constituents are compatible with each other, as well as with the semantics of the resultative construction itself. If the compatibility requirements are met, the construction links the underlying participants to their respective syntactic positions. In other words, in the production of resultative constructions, there are two components: a lexical component and a constructional component. This is illustrated in (13):

(13) Lexical information feeding the construction



Under this analysis, the semantic information contained in lexical entries serve as the input that gives the construction the information necessary to decide whether the constituents under consideration can participate in the resultative construction. Space limitations preclude a detailed description of a lexical entry. As such, I will give a rough sketch of the kind of semantic information needed in lexical entries of verbs. The sentences in (11)-(12) above show that the verbs that occur in resultative constructions can occur in a variety of contexts. In order to capture this observation, I adapt some of the basic insights of Fillmore’s Frame Semantics (1982), an approach to the understanding and description of the meanings of lexical items and grammatical constructions. Fillmore claims that in order to understand the meanings of the words in a language we must first have knowledge of the conceptual structures, or semantic frames, that underlay the meaning of words. Semantic frames contain frame elements, i.e., descriptions of the meanings of the frame’s participants in terms of situational roles. Consider, for example, the commercial transaction frame, whose frame elements include a buyer, a seller, goods, and money. The verbs linked to this frame are, among others, *buy*, *sell*, *pay*, *cost*, and *spend*. When a speaker uses one of these verbs, he refers to his knowledge of the meanings of the frame participants in the commercial transaction frame. Thus, the use of a word invokes a specific frame including its frame elements. Adapting these basic insights from Frame Semantics, I propose that the relevant semantic information of lexical items in a resultative construction are included in terms of frame semantic descriptions in the lexicon. In this view, the frame semantic information contained in lexical entries refers to the frame elements that are relevant to the respective frames. This allows an account that captures the contextually relevant background information about the multiple senses and situations to which a verb can refer as well. In other words, a given verb cannot only invoke one frame, but also multiple frames.

Let us consider some concrete examples of how frame semantics can be applied to the structure of the lexicon, using the transitive verb *paint* to exemplify the phenomenon. According to Levin (1993), *paint* belongs to at least one verb class, i.e., verbs of coloring. This verb class describes the “changing of the color of an entity, usually by the application of some coating that covers the surface of the entity and, therefore, changes its color.” (Levin 1993: 168). Based on Levin’s description, I suggest that verbs belonging to the verbs of

coloring verb class evoke the *coloring frame* which includes the frame elements COLORER, the person who colors something, and COLORED, the entity being colored, typically a surface. Thus, the relevant frame semantic information in the lexical entry of *paint* would be as given in (14). To the left of the bracket is the name of the frame that the verb evokes, i.e., *coloring*. The names of the frame elements of the coloring frame are listed within the brackets.

- (14) Frames associated with *paint*
coloring: $\left[\begin{array}{c} \text{COLORER} \\ \text{COLORED} \end{array} \right]$

Next, consider an intransitive verb such as *dance*. According to Levin (1993), *dance* belongs to at least four different classes of verbs, including (1) verbs of performance; (2) verbs of modes of being involving motion; (3) verbs of manner of motion; and (4) waltz verbs. Thus, in the lexical entry of *dance* in (15), there are descriptions of the different frame elements that are associated with each verb class.

- (15) Frames associated with *dance*
- | | | | |
|----------------------|---|---------------------------|---|
| <i>performance</i> : | $\left[\begin{array}{c} \text{PERFORMER} \\ \text{AUDIENCE} \end{array} \right]$ | <i>modes of being</i> | $\left[\begin{array}{c} \text{MOVER} \\ \text{ATTACHED} \end{array} \right]$ |
| | | <i>involving-motion</i> : | |
| <i>directed-m.</i> : | $\left[\begin{array}{c} \text{MOVER} \\ \text{DIRECTION} \end{array} \right]$ | <i>waltz</i> : | $\left[\begin{array}{c} \text{MOVER} \\ \text{MOVED} \end{array} \right]$ |

The verbs of performance have a PERFORMER frame element which denotes the person that performs, as well as an AUDIENCE frame element which denotes the observer of the performance.

The verbs of modes of being involving motion contain two frame elements, namely the person that moves, the MOVER, and an object that is ATTACHED to the MOVER. Verbs of directed motion all exhibit a MOVER frame element, as well as a DIRECTION frame element which denotes the path of movement starting from a source and leading to a goal. Finally, waltz verbs include the frame element MOVER and a person being MOVED (by the MOVER). The comparison between transitive *paint* and intransitive *dance* in (14) and (15) respectively shows that the latter is associated with different frames than the former.

The rough outline proposed in (14) and (15) forms the basis for my proposal regarding the interaction of the lexicon with the resultative construction diagrammed in (13). I suggest that the frame semantic information in a verb's lexical entry gives rise to the different interpretations associated with transitive resultative construction. In other words, the difference in interpretation between resultatives containing intransitive verbs and those containing transitive verbs is a result of the semantic relations that hold between the elements

of a given frame. For example, the semantic relation between the two frame elements COLORER and COLORED of the verb *paint* in (15) is very close since the latter is directly affected by the action of the former. This lexically encoded relation allows the “X V-ed Y...” interpretation of the transitive resultative construction in (10) above. The close semantic relationship between the frame elements also explains why *paint* can only occur in a very limited context: the only object that can be interpreted as a patient argument of COLORER by the resultative construction has to be an element that fulfills the semantic specifications of the frame element COLORED. Both *himself* in (12a) and *the house* in (12b) fulfill this requirement. Since *paint* is only associated with the coloring frame, there are no other frames available that could, in principle, evoke additional frame semantic information and thus provide other frame elements that could, in principle, be interpreted as potential patient arguments. This explains why (12c)-(12e) are ruled out.

In contrast, the semantic relation between the frame elements of the frames associated with *dance* is less close. That is, the frame elements AUDIENCE, DIRECTION, or ATTACHED are not directly affected by the agent frame element. Instead, these frame elements serve as background information to the frame and can thus be interpreted as patient arguments by the resultative construction under the proper semantic conditions. This rather loose semantic relation between the frame elements allows the “X V-ed” interpretation in (9) above. The list of frames in the lexical entry of *dance* in (15) also captures our observation that *dance* occurs with such a broad variety of patient arguments in (11): the resultative construction has access to different frames that contain frame elements which in turn can be interpreted as patient arguments by the construction. Thus, *dance* is semantically more flexible than *paint*, because its lexical entry has access to a greater number of frames.

6 Conclusion

In this paper, I have outlined an analysis of transitive resultative constructions which differs crucially from the account suggested by Goldberg (1995), which argues that the licensing of patient arguments can be stated in forms of general semantic constraints at the level of constructions. As I have shown, this view is problematic when it comes to explaining the distribution of different patient arguments, such as regular objects and fake objects. This shortcoming is reflected by the fact that transitive resultative constructions are interpreted differently depending on what kind of matrix verb they contain. In order to explain these observations, I have proposed that the general semantic constraints imposed by the resultative construction are not detailed enough. Instead, the relevant constraints need to be encoded in the lexicon, which serves as the input to the construction. In my approach, a lexical entry of a verb contains lexical-semantic information that is stated in terms of Fillmore’s (1982) Frame Semantics. That is, each lexical entry specifies which frames and which frame elements are evoked by the lexical item. I have only presented a rough sketch of how constructions are sensitive to lexical-semantic information. Clearly, further research remains to be done on how frame semantic information is encoded in the lexicon. Furthermore, the question of how lexical information is projected onto the construction needs to be investigated in detail.

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