ENGLISH RESULTATIVES: STATE VERSUS LOCATION[*]

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1. Introduction

Over last twenty years much attention has been devoted to English resultative constructions (Boas 2000; Carrier and Randall 1992; Goldberg 1995; Hoekstra 1984, 1988, 1992; Levin and Rappaport Hovav 1995; Mateu 2001; Rapoport 1999; Rappaport Hovav and Levin 1999, 2001; Simpson 1983; Wechsler 1997, and many others). In a resultative construction, the main verb denotes an activity and the result XP denotes a state achieved as a result of this activity. Simpson (1983) observed that in English the result XP is always predicated of the syntactic object. Levin and Rappaport Hovav (1995) refer to this generalization as the Direct Object Restriction (DOR):[1]

(1) a. Mary wiped the table *clean*.   REAL OBJECT
    b. Philemon drank the coffeepot *empty*.   UNSELECTED OBJECT
    c. John screamed himself *hoarse*.   FAKE REFLEXIVE

In (1a), the result XP is predicated of the thematic object of the verb. In (1b) the result XP is predicated of a so-called 'unselected object' – an object that the verb in isolation does not subcategorize for. Finally, in (1c), the result XP is predicated of what Simpson (1983) refers to as 'fake reflexive': the intransitive verb *scream* does not have a thematic object, and a fake reflexive is introduced to meet the DOR.

However, recently various researchers pointed out examples of transitive-based resultatives that undermine the DOR. In these constructions, the result XP is predicated of the subject, and not the object (e.g., Rappaport Hovav and Levin 1999, 2001; Wechsler 1997):

(2) a. The wise men followed [the star] *out of Bethlehem*.
    b. John danced [mazurkas] *across the room*.
    c. (you) Fly [American Airlines] *to Hawaii* for your vacation!

The crucial difference between the constructions in (1) and (2) is that the former express a change of state, whereas the latter express a change of location. In this paper, I discuss the contrast between (1) and (2), and argue that examples such as in (2) do not undermine the DOR because they are not resultatives. The following

[1]Throughout the paper the result XP is in italicized, and the XP it is predicated of is underlined.

questions will be addressed: First, are the change of state and the change of location the same type of change? Second, should constructions expressing the change of state and constructions expressing the change of location be given a unified analysis?

Gropen et al. (1991) and Pinker (1989), among others observe that children acquire meaning components relevant for the change of state with greater difficulty than those relevant for the change of location. Moreover, children frequently misinterpret a change-of-state verb as a change-of-location verb. These observations suggest that the change of state and the change of location are distinct notions, and that the change of state is a more complex concept than the change of location. These concepts, however, share some properties to allow for the confusion. Taking these observations as a point of departure, I show that the change of state and the change of location are fundamentally different, and that the two types of constructions should be given distinct accounts. Throughout the paper I refer to examples such as in (1) and (2) as *resultatives* and *goal PP constructions* respectively.

2.   Change of State and Change of Location: How are They Similar?

The notions of change of state and change of location share a number of important properties, which has led various researchers to argue that constructions expressing these notions should be given a unified account. In particular, many studies pointed out conceptual, semantic and aspectual similarities between the two types of constructions.

A conceptual similarity, namely, the notion of transition was pointed out by Gropen et al (1991), Gruber (1965), Jackendoff (1972, 1978), Pustejovsky (1991), among others. According to these studies, a common level of mental representation underlies both the physical change of location (3) and the abstract change of state (4), i.e., the notion ***transition*** from location/state A to location/state B:

(3) a. Philemon went from Calgary to Toronto.
     b. The desk was moved from the study to the hallway.

(4) a. Philemon went from being ill to being healthy.
         →   Philemon recovered.

     b. The desk went from being dirty to being clean.
         →   The desk was wiped clean.

As the examples in (3) and (4) show, both types of change may be expressed by means of the verb *go* which suggests movement, or transition.

Another important similarity between the change of state and the change of location is semantic: both types of constructions express *a change* resulting from

an activity. Examples in (5) are resultatives, whereas examples in (6) are goal PP constructions:

(5) a. Mary wiped <u>the table</u> *clean*. →
         <u>The table</u> became *clean* as a result of Mary wiping the table.

     b. Susan ran <u>her Nikes</u> *threadbare*. →
         <u>Susan's Nikes</u> became *threadbare* as a result of Susan running.

(6) a. <u>John</u> ran *into the store*. →
         John became *in the store* as a result of running.

     b. <u>The wise men</u> followed the star *out of Bethlehem*. →
         <u>The wise men</u> became *out of Bethlehem* as a result of following the star.

Finally, constructions expressing a change of state and those expressing a change of location have similar aspectual structure. Result XPs and goal PPs affect aspectual properties of the predicate: they derive accomplishments from activities by delimiting the event denoted by the main verb (e.g., Tenny 1994, 1995). The examples below illustrate this point: as is well known, adverbials such as *in an hour* are compatible with accomplishments or achievements, but not with activities (Verkuyl 1972; Dowty 1979). This adverbial is only acceptable if preceded by a result XP in (7b) – (8b) or a goal PP in (9b) – (10b):

(7) a. Susan hammered <u>the metal</u> [*in an hour].
     b. Susan hammered <u>the metal</u> *smooth* [in an hour].

(8) a. Terry watered <u>her lawn</u> [*in an hour].
     b. Terry watered <u>her lawn</u> *soggy* [in an hour].

(9) a. John walked [*in an hour].
     b. John walked *to the river* [in an hour].

(10) a. The wise men followed the star [*in an hour].
     b. The wise men followed the star out of Bethlehem [?in an hour].

To sum up, the notions of change of state and change of location share a number of important properties, which may account for the fact that children acquiring their language often misinterpret a change-of-state verb as a change-of-location verb. However, in the next section I show that there are a number of crucial differences between the two notions.

3.   Change of State versus Change of Location: How are They Different?

3.1. True versus False Resultatives

In various studies, a distinction is made between true and false resultatives (e.g., Jackendoff 1990; Pustejovsky 1991; Rapoport 1999; Rappaport Hovav and Levin 1998; Tortora 1998). In true resultatives, such as in (11) the result XP describes an independent event, not lexically specified by the verb, whereas in false resultatives, such as in (12) the final XP does not describe an independent event but modifies the final state lexically specified by the verb:[2]

(11) a. Terry watered the daffodils *flat*.
　　 b. I ate my plate *completely soggy*.　　　　　(Carrier and Randall 1992:173)
　　 c. Birthdays provide the perfect excuse to flatter Libras *silly*.
　　　　 (Blumountain Horoscope, http://www.links2love.com/dating_flirting2.htm
　　　　　 retrieved November, 28, 2001)

(12) a. John cut the bread *into thick slices*.
　　 b. Mary melted the snowman *into a puddle*.
　　 c. The bottle broke *open*.

In (11), there is nothing in the lexical meaning of the verbs *water*, *eat* and *flatter* that would suggest that the actions denoted by these verbs lead to the states of flatness, sogginess, and silliness respectively. In contrast, in (12a-b) when an object is cut or melted it inevitably ends up consisting of more than one piece or in the state of a puddle respectively. Perhaps, the situation is less straightforward in (12c): if an object is broken it is not necessarily open. However, in this context *open* refers to one of the two characteristic states of a bottle: sealed and open. If a bottle is broken it can only be open; it may not be sealed.

Following this line of argumentation, true resultatives must have two properties: First, they describe an activity and a result caused by this activity. Second, the main verb and the result XP describe two independent events. The first property is not unique to resultatives; for example, goal PP constructions have it as well. However, the second property seems to be the hallmark of true resultatives. In light of this analysis, constructions with goal PPs are not true resultatives because goal PPs can never describe an independent event, but only an event resulting from directed motion. In the next section I show that there are also

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[2]Rapoport (1999) shows that only true result XPs affect aspectual properties of the predicate:

i. a. Smith melted the statue into a puddle in five minutes.
　　 b. Smith melted the statue in five minutes.
　　　　　　　　　　　　　　　　　　　　　　(Rapoport 1999:672 (43))

syntactic differences between constructions expressing a change of state and constructions expressing a change of location.

3.2. State, Location, and Verb Meaning

As shown by Carrier and Randall (1992), Goldberg (1995), Levin and Rappaport Hovav (1995) among others, the addition of a result XP only affects aspectual properties of the predicate. Verbs within resultative constructions preserve their meaning and their argument structure. In contrast, the addition of a goal PP affects the meaning, or the interpretation of the main verb. More precisely, since a change of location necessarily results from directed motion, goal PPs can only combine with verbs of directed motion.

   To illustrate this point, let us first look at verbs of motion, e.g., *run* or *dance*, which are ambiguous between directed motion and manner of motion. In (13), these verbs are followed by a result XP expressing a change of state. As the examples show, the result XPs do not affect this ambiguity: the sentences in (13) are ambiguous between directed motion and manner of motion:

(13) a. Mary ran <u>her Nikes</u> *threadbare*…
    →   running around the lake every morning   DIRECTED MOTION
    →   using the treadmill everyday   MANNER OF MOTION

   b. Jane danced <u>her feet</u> *black and blue*…
    →   dancing around the room   DIRECTED MOTION
    →   dancing on the spot   MANNER OF MOTION

In (14) the same verbs are followed by a goal PP expressing a change of location. As these examples show, goal PPs are incompatible with the manner of motion reading; changing location without moving from one location to another is impossible:

(14) a. Mary ran *to the river*…
    →   running across the park.   DIRECTED MOTION
    →   # using the treadmill.   MANNER OF MOTION

   b. Jim danced <u>Agnes</u> *into the hallway*…
    →   dancing across the room   DIRECTED MOTION
    →   # dancing on the spot   MANNER OF MOTION

   Other verbs also show different behavior depending on whether they are followed by a result XP or a goal PP. So-called result verbs (verbs that lexically

specify the result) such as in (15) do not participate in resultative constructions.[3] However, they can enter into constructions with goal PPs, such as in (16):

(15) a. *Philemon broke <u>the jewellery</u> / <u>the head of the statue</u> *valueless*.
     b. *Mary melted <u>the ice cream</u> *runny / liquid.*

(16) a. Philemon broke <u>the head</u> *off the statue*.
     b. Mary melted <u>the ice cream</u> *onto her shirt*.

Crucially, in (16) *break* and *melt* are interpreted as verbs of directed motion: if Philemon breaks the head off the statue it entails that the head changes its location. Similarly, in (16b) the ice cream moves from Mary's hand (presumably) onto her shirt.[4]

    Furthermore, transitive verbs within resultatives do not allow unselected objects, as shown in (17).[5] However, unselected objects are acceptable with transitive verbs in constructions with goal PPs, such as in (18):

(17) a. *The clumsy child broke <u>his parents</u> *to destruction*.
                             (Rappaport Hovav and Levin 2001:780 (40b))
     b. *The sun melted <u>the roads</u> *slippery / dirty / runny.*

(18) a. Philemon broke <u>the leg</u> *off the table*.
     b. The sun melted <u>the buttons</u> *off the snowman*.

In (17), *his parents* and *the roads* are not arguments of the verbs *break* and *melt* respectively and sentences are ungrammatical. In (18), *the leg* and *the buttons* are not arguments of these verbs either: in (18a), the leg itself is not necessarily broken; it only changes its location. Similarly, in (18b), the buttons only change their location, but not the state. In both examples the objects of the preposition *off* change state, nonetheless the sentences are grammatical.

    Finally, only verbs that can be interpreted as verbs of directed motion may be used with goal PPs:

(19) a. Terry and Bonnie pushed <u>the elevator button/the piano</u>.
     b. Terry and Bonnie pushed *<u>the elevator button/the piano</u> *into the room*.

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[3]For the discussion of various restrictions on verbs that can participate in resultatives see Green (1972), Goldberg (1995) and Rappaport Hovav and Levin (1998), among others.
[4]Interestingly, note that (16b) expresses two changes simultaneously: the ice cream changes its location by virtue of changing its state.
[5]See, for example Carrier and Randall (1992). This is one of the arguments that supports the claim that verbs within resultatives preserve their meaning and argument structure.

(20) a. Joan took <u>a look at herself</u> /an apple/a C-Train.
     b. Joan took <u>*a look at herself/#an apple /a C-Train</u> *to the Stampede Grounds*.

The verb *push* is a verb of force transmission, and the action denoted by this verb may or may not result in a change of location of the entity denoted by the direct object. Similarly, the verb *take* under one of its readings may express a change of location (e.g., take a train). In the a-examples, these verbs may have various direct objects. However, when a goal PP is added only objects compatible with the change-of-location reading are acceptable: in (19), pushing an elevator button does not involve any change of location of the latter, therefore this object is unacceptable in (19b). Similarly, in (20), taking a look at oneself or an apple is not associated with a change of location and the presence of these direct objects makes (20b) odd.

4.   Change of State, Change of Location, and Event Structure

4.1. The Direct Object Restriction Reevaluated

Let us now return to the counterexamples to the DOR that express a change of location, repeated here as (21):

(21) a. <u>The wise men</u> followed [the star] *out of Bethlehem*.
     b. <u>John</u> danced [mazurkas] *across the room.*
     c. (<u>you</u>) Fly [American Airlines] *to Hawaii* for your vacation!

Based on these examples Rappaport Hovav and Levin (2001) reject the DOR and develop an alternative account of resultatives. According to their new proposal, English resultatives can have complex or simple event structure. Complex event structure involves two *temporally independent* events: the event denoted by the verb begins before the progress towards the result begins, and it does not extend until the result is achieved:

(22) a. Philemon and Mary danced (#<u>themselves</u>) *dizzy*.
     b. Bill screamed (#<u>himself</u>) *hoarse*.
     c. The baby cried (*<u>itself</u>) *to sleep*.

The sentences in (22) express a change of state and may describe a situation in which the action denoted by the verb and the result state do not occur at the same time: Philemon and Mary became dizzy half an hour after they finished dancing; Bill became hoarse two hours after he finished screaming; the baby fell asleep fifteen minutes after it finished crying.

In contrast, simple event structure involves two *temporally dependent* events: the event denoted by the verb begins when the progress towards the result begins, and it necessarily extends until the result is achieved:

(23) a. <u>Tracy</u> danced *to the other side of the stage*.
     b. <u>Kim</u> danced *out of the room*.
     c. <u>Kelly</u> ran *to the library*.

The examples in (23) express a change of location and none of these changes can occur later than the activity denoted by the verb came to its end; it must be simultaneously: Tracy may not arrive to the other side of the stage ten minutes after she finished dancing, or Kelly find herself at the library half an hour after she finished running.

This approach accounts for the contrast between intransitive-based resultatives with the reflexive (reflexive pattern) such as in (22), and without the reflexive (bare XP pattern) such as in (23). Rappaport Hovav and Levin (2001) argue that resultatives with the reflexive have a complex event structure, whereas resultatives without the reflexive have a simple event structure. Crucially, the happening in the world described by a bare XP resultative is <u>linguistically</u> construed as <u>a simple event</u>. They also propose the Argument-per-Subevent condition:[6]

(24) <u>Argument-per-Subevent condition:</u>
     There must be at least one argument XP in the syntax per subevent in the event structure.

According to (24), the main verb and the result XP within a resultative with a complex event structure must be predicated of distinct syntactic constituents. Thus, the reflexive is only present when there is a complex event, to satisfy the Argument-per-Subevent condition.

In light of this proposal, although the counterexamples to the DOR in (21) are based on transitive verbs with a genuine direct object they have simple event structure and therefore the main verb and the result XP are both predicated of the same syntactic constituent, the subject in this case.

4.2. Modifying the Event Structure Account

The unified event structure account proposed by Rappaport Hovav and Levin (2001) is problematic because true resultatives and goal PP constructions consistently show different behavior with respect to the reflexive / bare XP

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[6]Rappaport Hovav and Levin (2001) mention that similar conditions were proposed earlier in Rappaport Hovav and Levin (1998:112-113), and also in Grimshaw and Vikner (1993:144), van Hout (1996:201), and Kaufmann and Wunderlich (1998:25).

patterns, regardless of the temporal characteristics of the construction. On the one hand, only the reflexive pattern is possible with true resultatives, regardless of the temporal relation between the two subevents. Examples (25) – (27) illustrate this point (the a-examples are from Rappaport Hovav and Levin 2001:775-6):

(25) a. Sam sang enthusiastically during the class play. He woke up hoarse the next day and said, 'Well, I guess I've sung <u>myself</u> *hoarse.*'

　　b. *Sam sang *hoarse.*

(26) a. Matt Leblanc has his Friends' co-stars worried he is about to party <u>himself</u> *out of a job.*

　　b. *Matt Leblanc has his Friends' co-stars worried he is about to party *out of a job.*

(27) a. Peter quickly read <u>himself</u> *into an inferiority complex,* after a few slow deliberate readings of his classmates' theses.

　　b. *Peter read *into an inferiority complex,* reading his classmates' theses.

We can easily imagine a situation in which the resultatives above would have simple event structure. For example, in (25) Sam became hoarse exactly at the moment he finished singing. If the presence/absence of the reflexive is determined solely by the temporal relationship between the two subevents, both patterns should be freely available depending on the situation described by the construction in question. However, as shown by the contrast between the a- and-b examples above, this is not the case.[7]

　　On the other hand, both patterns are available with goal PP constructions, and again, the presence/absence of the reflexive does not reflect the temporal relation between the two subevents. Instead, as Boas (2000) points out, the presence of the

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[7]The examples below express a change of state, and allow both patterns (Rappaport Hovav and Levin 2001:774 (21)):

i. a. 　A man grabbed and groped her and tried to get under her clothing, but <u>she</u> kicked *free* and fled.
　 b. 　'Laughing uproariously, Beckett lunged around the office with one leg of his pants on fire, trying to kick <u>himself</u> *free.*'

Note however, that these examples contain the adjective *free* as the result XP. Other adjectives that are possible in such examples have a similar meaning (e.g., *clear* or *loose*). Resultatives with such meaning seem to be the only resultatives that allow both patterns. Besides, according to native speakers I consulted there is no contrast between (ia) and (ib) in terms of temporal relation between the two subevents. I conclude therefore that this has to do with some special properties of adjectives expressing this particular state, which still need to be explained.

reflexive has a pragmatic effect: in the a-examples in (28) – (30) the agent is portrayed as overcoming an obstacle against which they have to use their own will in order to move to the intended location (Boas 2000:356-7 (8.44 b-d; 8.45 b-d)):

(28) a. The soldiers slow-walked <u>themselves</u> *towards the machine guns of the enemy*.

    b. The soldiers slow-walked *towards the machine guns of the enemy*.

(29) a. The boy walked <u>himself </u>thirty-seven blocks *to the emergency room*.
    b. The boy walked thirty-seven blocks *to the emergency room*.

(30) a. After school I marched <u>myself</u> down *to the public library*.
    b. After school I marched down *to the public library*.

Finally, we have seen that verbs of motion, such as *walk* can occur with result XPs and goal PPs. When such verbs are followed by a goal PP the reflexive pattern and the bare XP pattern are both available. However, if the same verb of motion is followed by a result XP expressing a change of state, the bare XP pattern is impossible (the a-example is from Rappaport Hovav and Levin 2001: 773 (16b)):

(31) a. Walk <u>yourself</u> *into a coma* and see what your subconscious comes up with.
    b. *Walk *into a coma* and see what your subconscious comes up with.

These observations suggest that true resultatives and goal PP constructions may not be accounted for in terms of a unified analysis based on the difference in temporal properties between constructions with complex and simple event structure. Rappaport Hovav and Levin's (2001) theory may be modified in the following way: The distinction between complex and simple event structure is correct, as well as the Argument-per-Subevent condition. However, temporal relation between the two subevents is irrelevant. Instead, what is relevant is the relation between the change and the activity that causes it.

Recall that studies in language acquisition established that children acquire meaning components relevant for the change of state with greater difficulty than those relevant for the change of location, which suggests that the change of state is a more complex concept than the change of location. Perhaps, this reflects the fact that in the real world the connection between a change of state and the activity that causes it is not necessarily straightforward. Different activities may potentially lead to various states which are often pragmatically determined, and the change of state may not immediately follow the causing activity. As a result, the change of state is conceptualized as a complex event, regardless of the temporal relation between the two subevents. Therefore, true resultatives are always associated with complex event structure.

On the other hand, the laws of physics on this planet work in such a way that a change of location may only result from directed motion of the object that changes its location, and it immediately follows this motion.[8] The connection between a change of location and the activity that causes it is straightforward, which makes the change of location an easier concept to grasp. Consequently, the change of location is conceptualized as a simple event, and constructions with goal PPs are always associated with simple event structure.

To sum up, constructions expressing the change of state and constructions expressing the change of location should be given distinct accounts: in terms of complex and simple event structure respectively. This in turn entails that goal PP constructions do not undermine the DOR because they are not resultatives.

5. Conclusion

Despite conceptual, semantic and aspectual similarities, resultative constructions and constructions with goal PPs involve different relation between the activity and the resulting change. Change of state is a more complex concept and is associated with complex event structure. Change of location is always associated with simple event structure. These two types of construction should be given distinct analyses.

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[8]Note that directed motion itself may be a result of various factors, for instance it may be externally caused (e.g., *push*) or internally caused (e.g., *walk*).

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