What is the relationship between primary and secondary predicates in English Control Resultative Constructions?

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ABSTRACT

This thesis examines the relationship between primary and secondary predicates in English Control Resultative Constructions, i.e. resultative constructions in which the subject of the (resultative) secondary predicate is also a subcategorised argument of the primary predicate (and thus controlled by it; see especially Wechsler 1997, 2005a).

Crucially, only predicates that express the potential for change (identifiable by the 'what happened to x is ϕ' test) can occur as primary predicates in English Control Resultative Constructions (Beavers 2011: 360): As such, they already denote at least an event, its affected theme participant (expressed by the argument 'shared' between primary and secondary predicate), and the (kinds of) scale(s) on which this affected theme participant (or one of its properties) can 'change', i.e. progress along a (bounded or unbounded) scale that measures the change undergone by the affected theme participant or one of its properties (see Beavers 2011: 356–362, see also Beavers 2013: esp. 688-690). Thus, due to the nature of the 'shared' argument, only XPs that appropriately express a bound on (one of) the scale(s) provided by the primary predicate (or that correspond to a pre-existing bound in the case of primary predicates expressing a quantised change) can serve as resultative secondary predicates in English Control Resultative Constructions (see Beavers 2013: 689). This is not to say, however, that the secondary predicate has no influence on the change expressed in the Control Resultative Construction: By providing an appropriate bound to (one of) the scale(s) provided by the primary predicate, the secondary predicate effectively selects the (kind of) scale along which a quantised change is expressed, i.e. it selects the facet or property of the affected theme participant that changes.

Furthermore, English Control Resultative Constructions typically express a quantised change that is 'directly' caused. This 'directness' of causation arises because the progress of the event is correlated with the progress of the affected theme participant (or a property of it) along the scale of change: The event progresses as progress is made along the scale, and the event ends when the scalar bound is reached (see Wechsler 2005a, and Beavers 2002, 2008; see also Krifka 1998, and Kratzer 2005). This homomorphism of event and scale not only ensures the 'directness' of causation (see Kratzer 2005: 194–199), but also requires that the resultative secondary predicate expresses a bound on a scale whose complexity type (i.e. complex vs. minimally complex) matches the complexity type of the event denoted by the primary predicate (i.e. durative vs. punctual), otherwise the acceptability of the construction suffers, or the construction appears marked (see especially Beavers 2008: 250–254). Thus, the secondary predicate is not only restricted by the (kinds of) scale(s) provided by the primary predicate, but it must also express a bound on a scale that matches the complexity type of the event denoted by the primary predicate.

Contents

1 Introduction

'Resultativity' is used here as a term to capture the phenomenon of two events being linked by some notion of either direct or inferred causation (or, in some cases, pseudo-causation). The term 'event' is used here in the broadest sense possible, including the original Davidsonian conception of events (see Davidson 1967), (Davidsonian) states, Kimian states, and tropes (see especially Maienborn 2019). Perhaps the most flexible way of expressing such resultativity in English is to put the event that causes the result and the event that expresses the result in two separate clauses, as the following examples show:

(1) Flexible expression of resultativity (direct causation) using resultative clauses; Examples taken from Wechsler & Noh (2001: 392, exs. 4a, c, f):
   a. John hammered the metal; consequently the metal became flat.
   b. John hammered the metal, thereby flattening it.
   c. John flattened the metal by hammering it.

(2) Flexible expression of resultativity (inferred causation) using resultative clauses:
   a. John hammered the metal; consequently the neighbours woke up. (Wechsler & Noh 2001: 392, ex. 2c)
   b. John hammered the metal, thereby waking the neighbours up.
   c. John woke up the neighbours by hammering the metal.

Apart from expressing resultativity by means of two different clauses, English offers another fairly fixed structure for expressing resultativity in a compositional setting, which is commonly referred to as the 'resultative construction'. In the following examples, the resultativity of examples (1) and (2) is expressed using such resultative constructions:

(3) Examples of so-called resultative constructions expressing the resultativity of examples (1) and (2):
   a. John hammered the metal flat. (Wechsler & Noh 2001: 392, ex. 2a) (Paraphrase: 'John hammered the metal; as a result, the metal became flat.'; see Wechsler 2005a: 256, ex. 1)

b. John hammered the neighbours awake.
(Paraphrase: 'John hammered the metal; as a result, the neighbours woke up.')

These two resultative constructions above differ in the type of causation they express (i.e. direct vs. pragmatically inferred) and in the subcategorisation behaviour of their matrix verb (i.e. 'hammered'). Example (3a) expresses direct causation and the subject of the result XP 'flat' (i.e. 'the metal') is also a subcategorised argument of the matrix verb 'hammered', whereas example (3b) expresses (pragmatically) inferred causation and the subject of the result XP 'awake' (i.e. 'the neighbours') is not a subcategorised argument of the matrix verb 'hammered'.

This thesis is concerned with English resultative constructions in which the subject of the result XP is also a subcategorised argument of the matrix verb (i.e. resultative constructions like the one shown in example 3a). These types of resultative constructions are referred to here as 'Control Resultative Constructions' (Wechsler 1997, 2005a refers to them as 'Control resultatives'), because the subject of the result XP is controlled by (an argument of) the matrix verb. In the context of a Control Resultative Construction such as (3a), 'hammered' is referred to as the primary predicate and 'flat' as the secondary predicate (see, among others, Wechsler & Noh 2001: 394, and Rothstein 2004: 59–90; see also Rothstein 2011, 2017). This thesis examines the relationship between primary and secondary predicates in such English Control Resultative Constructions.

The question of the relationship between primary and secondary predicates in English (Control) resultative constructions is often conflated with the determination of the argumental status of the resultative secondary predicate (for an overview of this 'argumenthood' discussion, see Beavers 2012: esp. 912). Indeed, resultative secondary predicates can be shown to reflect at least some (if not all) of the behaviours commonly associated with prototypical arguments, in that they:

(i) adhere to selectional (and subcategorisation) restrictions imposed by the primary predicate (see, among others, Simpson 1983: 148–152, and Carrier & Randall 1992: 183–185; see also Beavers 2002, 2008, 2011, 2013, and Wechsler 1997, 2005a,b, 2012);

(ii) exhibit verbal argument-like behaviour with respect to long-distance movement (as shown by Carrier & Randall 1992: 184–185); and

(iii) behave like arguments on common argumenthood tests such as 'do-so substitution' and 'VP preposal' (as shown by Levin & Rappaport Hovav 1995: 49; but see Przepiórkowski 2016 for a critique of common argumenthood tests and a more general critique of the dichotomous conception of arguments and adjuncts).

Although the determination of the argumental status of the resultative secondary predicate clearly presupposes a reflection on the relationship between primary and secondary predicate, it is necessarily tainted by the way in which the 'cut-off' between arguments and adjuncts is treated within the adopted framework of grammatical analysis (see Przepiórkowski 2016: esp. 562–567). It is not at this syntactic level, then, but at a more semantic level that the relationship between primary and secondary predicate is best examined. Thus, the question of the relationship between primary and secondary predicate in English Control Resultative Constructions cannot be reduced to the question 'Is the resultative secondary predicate an argument of the primary predicate?', but rather needs to be answered by asking questions such as 'Why does the resultative secondary predicate exhibit such argument-like behaviour?', or more precisely, 'How is the primary predicate able to impose selectional (or subcategorisation) restrictions on the resultative secondary predicate in the first place?'.

In order to address this complex of questions, which allows us to examine the relationship between primary and secondary predicates in English Control Resultative Constructions, the following second chapter ('The terrain: English (resultative) secondary predication') first introduces the terrain we are navigating in greater detail. Chapter three ('The origin of 'results' in English Control Resultative Constructions') then addresses the question of how the primary predicate is able to impose selectional restrictions on the resultative secondary predicate (and thus also explain its argument-like behaviour): Crucially, any kind of result that can be expressed in such an English Control Resultative Construction by the addition of a resultative secondary predicate is already predetermined by the (kinds of) scale(s) that the primary predicate provides (see in particular Beavers 2013: 689; see also Beavers 2011). This is, of course, a key feature of the relationship between primary and secondary predicates in English Control Resultative Constructions, as it sets the stage for the 'power dynamics' that (can) play out between these two predicates. Chapter four ('The correlation between event and scale complexity types in English Control Resultative Constructions') discusses the observation that the secondary predicate is not only restricted to expressing a scalar bound compatible with a scale specified by the primary predicate, but that this scalar bound must also be expressed on a scale that matches the complexity type of the event denoted

by the primary predicate. Chapter five ('Conclusion') concludes the examination of the relationship between primary and secondary predicates in English Control Resultative Constructions.

2 The terrain: English (resultative) secondary predication

The scope of this thesis is limited to an examination of the relationship between primary and secondary predicates in (English) Control Resultative Constructions. Although the difference between primary and secondary predication and the notion of Control Resultative Constructions was touched upon in the introductory chapter, that explanation was necessarily cursory in nature. This chapter therefore introduces these concepts, which are key to understanding and addressing the research question, in the necessary detail. First, the distinction between primary and secondary predication is defined in more detail and adapted specifically to the context of (English) Control Resultative Constructions. Next, the phenomenon of resultative secondary predication is considered in the more general context of English secondary predication, and contrasted with the other possible type of secondary predication in English, that of depictive secondary predication.

With this knowledge, the particular type of resultative construction that is the subject of this thesis (i.e. the English Control Resultative Construction) can be explained in sufficient detail. The notion of Control Resultative Constructions is established by distinguishing them from another type of resultative construction, that of Resultative Exceptional Case-marking Constructions (or, for short, Resultative ECM Constructions). Whether Resultative ECM Constructions are counted as an instance of resultative secondary predication or not is treated differently by different authors (Wechsler & Noh 2001, for example, do not consider Resultative ECM Constructions to be an instance of resultative secondary predication). For the purposes of this thesis, it does not matter whether one considers Resultative ECM Constructions to be instances of resultative secondary predication or not, since the scope of this thesis is limited to Control Resultative Constructions, whether or not they are the only possible instantiation of resultative secondary predication. For the sake of exposition, therefore, it will be assumed that Resultative ECM Constructions are an instance of resultative secondary predication,

without delving into the underlying discussion.

In order to examine the relationship between primary and secondary predication in English Control Resultative Constructions, it is first necessary to define what is meant by primary and secondary predication. The notion of primary and secondary predication was introduced in the introductory chapter by means of an example: in the resultative construction 'John hammered the metal flat.' (example taken from Wechsler & Noh 2001: 394, ex. 5a), 'hammered' is the primary predicate and 'flat' is the (resultative) secondary predicate. For the purposes of this thesis, it is sufficient to take a rather simplistic view of this matter, since we are not concerned with a discussion of specific, framework-dependent analyses that would depend on such definitions (or render them redundant by conflating them). In keeping with this, the distinction between primary and secondary predicates can be understood as follows: A primary predicate is a predicate whose subject is necessarily the subject of the clause, whereas a secondary predicate is a predicate whose subject need not necessarily be the subject of the clause, though it certainly can be (see, among others, Rothstein 2017: 2 for a similar conceptualisation). If one assumes any kind of small clause analysis, which is not the case here, such a distinction between primary and secondary predicates is necessarily useless. Applied to the hammering example from the introduction (viz. 'John hammered the metal flat.'), this definition correctly characterises 'hammered' as a primary predicate (since its subject 'John' is also the subject of the clause) and flat as a secondary predicate (since its subject 'the metal' is the direct object and not the subject of the clause).

On closer inspection, however, the above definition is still vague when applied to cases of secondary predication where the subject of the secondary predicate is controlled by the subject of the primary predicate. So as not to pre-empt the discussion of subject control in English Control Resultative Constructions, an example involving depictive secondary predication is used here to illustrate the vagueness of the earlier, admittedly oversimplified, though informative, definition (the secondary predicate is printed in italics and its subject is underlined):

(1) Example illustrating primary vs. secondary predication:
   a. Solène ate <u>her steak</u> *raw*.
   b. <u>Solène</u> ate her steak *drunk*.

Since in example (1b) both 'ate' and 'drunk' are predicated of the clause subject 'Solène', our earlier oversimplified definition fails to distinguish between them. Furthermore, there

is nothing to prevent 'ate' in example (1a) from also being analysed as a secondary predicate, since according to the above definition secondary predicates can also be predicated of clause subjects. In order to circumvent these difficulties, but to avoid elaborating (for our purposes) unnecessarily detailed definitions (but see inter alia Rothstein 1983, 2017 and Williams 1980 for such attempts), it is sufficient to limit the scope of our definition to those instances of secondary predication that involve a control relation between (one of the arguments of the) primary predicate and the subject of the secondary predicate. Since the research question is limited to English Control Resultative Constructions, i.e. resultative constructions involving such a control relation, a definition of this scope is sufficient for our present purposes. The above definition can therefore be reformulated as follows:

(i) If a given predicate is NOT predicated of the clause subject (but only of a clause object), it is a secondary predicate (since primary predicates must be predicated of clause subjects).

(ii) If a given predicate is predicated of the clause subject AND the clause would still be acceptable if that predicate were omitted, it is a secondary predicate.

(iii) If a given predicate is predicated of the clause subject AND the clause would NOT be acceptable if that predicate were omitted, it is a primary predicate.

With this modified definition, the distinction between primary and secondary predicates is now quite straightforward for sentences that satisfy the presupposed control requirement: It correctly picks out 'ate' as the primary predicate in both (1a) and (1b), since rule (iii) applies (i.e. 'ate' is predicated of the clause subject 'Solène' AND the sentence would NOT be acceptable if 'ate' were omitted). As for secondary predicates, rule (ii) correctly picks out 'raw' and 'drunk' as secondary predicates in examples (1a) and (1b) (i.e. 'drunk' is predicated of the clause subject AND the sentence would still be acceptable if 'drunk' were omitted, i.e. 'Solène ate her steak.'). Conversely, rule (iii) does not apply to either 'raw' or 'drunk', thus ruling out the possibility that they are primary predicates. Conversely, neither rule (i) nor (ii) applies to either instance of 'ate', thus ruling out the possibility that it is a secondary predicate. This modified definition also applies to cases where the primary predicate is intransitive (or, to avoid assuming which predicate is primary, cases where both predicates have the arity of one in terms of non-hidden arguments), such as 'The water froze solid.' (example taken from Wechsler 2005a: 257, ex. 6). In such cases rule (i) obviously does not apply, although it is

obviously still valid.

English distinguishes between (at least) two types of secondary predicate (the terms depictive and resultative go back to Halliday 1967: 62–66):

(i) depictive secondary predicates that attribute to their subject a property that holds throughout the duration of the event introduced by the primary predicate; and

(ii) resultative secondary predicates, which attribute to their subject a property that holds only at the culmination point of the event introduced by the primary predicate (see, inter alia, Rothstein 2011: 1142–1143, Rothstein 2017: 2–3, and Wechsler 2005a: 255–256, 264–265).

These two types of secondary predicates and their conjoint occurrence are illustrated in example (2):

(2) Example illustrating a depictive secondary predicate, a resultative secondary predicate, and their conjoint occurrence; Example (2b) is adopted from Rothstein (2017: 2, ex. 2b) and example (2c) is adopted from Rothstein (2017: 4, ex. 9a):

a. John cleaned the table *drunk*. (depictive secondary predicate)

b. John wiped the table *clean*. (resultative secondary predicate)

c. John$_i$ wiped the table$_j$ *clean*$_j$ *drunk*$_i$. (both)

In example (2a), the property of being drunk described by the depictive secondary predicate 'drunk' holds for 'John' throughout the duration of the cleaning event introduced by the primary predicate 'cleaned', whereas in example (2b) the property of being clean introduced by the resultative secondary predicate 'clean' holds for (the surface of) 'the table' only at the culmination of the wiping event introduced by the primary predicate 'wiped'. Example (2c) shows that resultative and depictive secondary predicates ('clean' and 'drunk' in this example) can occur together in the same sentence: while the property of being drunk holds for 'John' throughout the wiping event, the property of being clean holds for (the surface of) 'the table' only at the culmination of that wiping event.

Rothstein (2017: 1442–1444, 1455–1458), inter alia, discusses a possible third type of secondary predication, so-called circumstantials, which are arguably best subsumed under a broader conception of depictive secondary predication. This thesis is not concerned with depictive secondary predication, but see, inter alia, Rapoport (2019), and

Rothstein (2011, 2017) for a discussion of depictive secondary predication in the context of the more general phenomenon of English secondary predication.

English resultative secondary predicates can be observed in two contexts (as noted in Carrier & Randall 1992: esp. 180, Simpson 1983: 145–146, Wechsler & Noh 2001: 393-397, and Wechsler 2005a: 257–258, among others). Either:

(i) the subject of the resultatative secondary predicate is also a subcategorised argument of the primary predicate and thus controlled by it (i.e. the primary and secondary predicate 'share' an argument) — resultative constructions in this context are referred to here as 'Control Resultative Constructions' (the term Control Resultative Construction used here is adapted from Wechsler (1997, 2005a) who refers to them as 'Control resultatives'); or

(ii) the subject of the resultative secondary predicate is a NP assuming the prototypical clause object position while not being a subcategorized argument of the primary predicate (and hence not controlled by it) — resultative constructions in this context are referred to here as 'Resultative Exceptional Case-marking Constructions' (the term Resultative Exceptional Case-marking Construction used here is adapted from Wechsler (1997, 2005a) who refers to them as 'ECM resultatives').

Resultative Exceptional Case-marking Constructions seem to belong to a broader class of phenomena commonly analysed in the generative literature as involving 'subject-to-object raising' and, concomitantly, 'exceptional case-marking' (ECM) (see especially Wechsler & Noh 2001: 394–395, and Simpson 1983: 150–151 for a discussion of this observation). Consider the following example as an illustration of this distinction between Control Resultative Constructions and Resultative Exceptional Case-marking Constructions:

(3) Examples illustrating a Control Resultative Construction (3a), and a Resultative Exceptional Case-marking Construction (3b):
   a. John hammered <u>the metal</u> *flat*. (Wechsler 2005a: 256, ex. 1)
   b. We laughed <u>the speaker</u> *off the stage*. (Wechsler & Noh 2001: 394, ex. 6e)

In example (3a) the subject of the resultative secondary predicate 'flat' ('the metal') is also a subcategorised argument of the primary predicate 'hammered', whereas the subject of the resultative secondary predicate 'off the stage' ('the speaker') in example (3b) is not a subcategorised argument of the primary predicate 'laughed'. Thus, according to

the definitions above, (3a) is classified as a Control Resultative Construction and (3b) as a Resultative Exceptional Case-marking Construction. The study of the relationship between primary and secondary predicates in this thesis is limited to English Control Resultative Constructions and does not (primarily) deal with Resultative Exceptional Case-marking Constructions.

In Control Resultative Constructions, the control relation is either one of object control or one of subject control, as the argument the resultative secondary predicate is predicated of is either a subject or an object of the respective primary predicate. In Control Resultative Constructions with intransitive primary predicates, the argument that is 'shared' between the resultative secondary predicate and the primary predicate is necessarily the subject of the primary predicate, as shown in example (4):

(4) Examples of resultative secondary predicates being predicated of intransitive primary predicates' subjects:
   a. Robin danced *out of the room*. (Rappaport Hovav & Levin 2001: 782, ex. 43a)
   b. The water froze *solid*. (Wechsler 2005a: 257, ex. 6)

In Control Resultative Constructions with transitive primary predicates, the resultative secondary predicate is (usually) predicated of the primary predicate's direct object, as illustrated in example (5):

(5) Examples of resultative secondary predicates being predicated of transitive primary predicates' objects:
   a. John hammered the metal *flat*. (Wechsler 2005a: 256, ex. 1)
   b. He wiped the table *clean*. (Wechsler 2005a: 257, ex. 6)

In some cases, the resultative secondary predicate in Control Resultative Constructions can be found to be predicated of the transitive primary predicate's subject as well (see Wechsler 1997: 313 for this observation; see also Verspoor 1997: esp. 151). Consider the following examples from Wechsler (1997: 313):

(6) Wechsler's examples of resultative secondary predicates being predicated of transitive primary predicates' subjects:
   a. The wise man followed the star *out of Bethlehem*. (Wechsler 1997: 313, ex. 15a)
   b. He followed Lassie *free of his captors*. (Wechsler 1997: 313, ex. 15c)

The examples under (4) and (6) exhibit subject control, because the subject of the primary predicate (controller) is also the understood subject of the resultative secondary predicate. The examples under (5) exhibit object control, because the object of the primary predicate (controller) is also the understood subject of the resultative secondary predicate. In summary, it has been shown that in intransitive Control Resultative Constructions the resultative secondary predicate is (necessarily) predicated of the primary predicate's subject, and that in transitive Control Resultative Constructions the resultative secondary predicate can be predicated of either the subject or the object, with the latter form of predication being considerably more common.

The observation that resultative secondary predicates can be predicated of the transitive primary predicate's subject contradicts a previously popular analysis of resultative secondary predication based on the syntactic requirement that resultative secondary predicates must be predicated of direct objects or 'underlying' direct objects (see esp. Simpson 1983: 146, and Levin & Rappaport Hovav 1995: 33-78). Levin & Rappaport Hovav (1995: 33-34) refer to this syntactic requirement as the 'Direct Object Restriction'.

At the time the Direct Object Restriction was originally conceived, no such examples of resultative secondary predicates being predicated of a transitive primary predicate's subject had apparently been observed. Starting with Simpson (1983: esp. 144-146), it was therefore generalised that resultative secondary predicates must always be predicated of direct objects or 'underlying' direct objects (this generalisation was meant to apply to both Control Resultative Constructions and Resultative ECM Constructions, since this distinction, although observed, had not yet been given the analytical importance it arguably deserved; see Simpson 1983: 144), and that in resultative constructions with intransitive primary predicates (i.e. resultative constructions where the resultative secondary predicate must necessarily be predicated of the 'surface' subject), the primary predicate must be an unaccusative and not an uneragtive verb (i.e. its 'surface' subject must behave as though 'underlyingly' an object; for the notion of unaccusative vs. unergative verbs, see Perlmutter 1978). Consider examples (7) and (8), which synthesise the commonly assumed evidence for assuming the Direct Object Restriction. The set of examples in (8) is taken from Wechsler (2005: 257):

(7) Example illustrating that the resultative secondary predicate is predicated of the same (semantic or 'underlying') argument in both active voice (7a) and passive voice (7b); Examples are adapted from Simpson (1983: 114, ex. 11):

a. John painted the car *red*. (active voice)

b. The car was painted *red*. (passive voice)

(8) Examples of an intransitive resultative construction with an unaccusative verb (8a), the apparent impossibility of intransitive resultative constructions with unergative verbs (8b), and 'indirect' predication via a so-called 'fake-reflexive' (8c; see also Simpson 1983: 145); Examples taken from Wechsler (2005a: 257, exs. 5b-d):

a. The water froze *solid*. (unaccusative)

b. * The dog barked *hoarse*. (* unergative)

c. The dog barked itself *hoarse*. ('fake reflexive')

Example (7) shows that the resultative secondary predicate is predicated of the same (semantic or 'underlying') argument in both active and passive sentences. Simpson (1983: 144) took this as evidence for the Direct Object Restriction, because in Lexical Functional Grammar (LFG; see Bresnan et al. 2016), the framework in which she worked, the passive voice is treated as a lexical rule that converts (active voice) objects into subjects and thus treats these passive voice subjects as 'underlying' (active voice) objects. However, this cannot be taken as particularly strong evidence for the Direct Object Restriction, since this stipulation of a particular syntactic relationship between active and passive is highly dependent on the assumed framework of analysis (see also Davis et al. 2021: 344–350 for a discussion of different approaches to the active-passive relationship; i.e. subject demotion vs. object advancement, etc.).

The set of examples taken from Wechsler (2005a: 257) and repeated here in (8) illustrates the commonly exhibited evidence for assuming the Direct Object Restriction not only for resultative constructions with transitive primary predicates, but also for resultative constructions with intransitive primary predicates: According to the Direct Object Restriction, then, (8a) would be acceptable because 'the water' behaves like an 'underlying' object, since 'froze' is unaccusative, whereas examples like (8b) show the apparent impossibility of intransitive resultative constructions with unergative primary predicates. Furthermore, what (8b) is supposed to express can only be expressed within the confines of a resultative construction by inserting a so-called 'fake reflexive' in the direct object position (see Simpson 1983: 145), as is done in example (8c). The existence of so-called 'fake reflexives' seems to make the supposed necessity of this syntactic stipulation even more evident (Wechsler 2005a: 257), since this 'fake reflexive' establishes what could be described as a kind of pseudo-control in the context of a Resultative

ECM Construction. The problem with using the unaccusative/unergative distinction as evidence for the Direct Object Restriction is that it requires a sophisticated system for handling exceptions, since at least all unergative motion verbs are exceptions to the Direct Object Restriction (first noted by Levin & Rappaport Hovav 1995: 186–187; see especially Wechsler 2005a: 271–272). The following examples, taken from Levin & Rappaport Hovav (1995: 186) and Wechsler (2005a: 272), illustrate this:

(9) Examples showing the possibility of resultative constructions with unergative motion verbs (counter the Direct Object Restriction):

a. She danced/swam *free of her captors*. (Levin & Rappaport Hovav 1995: 186, ex. 15a)

b. However, if fire is an immediate danger, you must jump *clear of the vehicle*. (Levin & Rappaport Hovav 1995: 186, ex. 15c, emphasis altered; example can be found in: State of Illinois. Rules of the road (ed. 2016). p. 82.)

c. The driver and the fireman had jumped *clear* before the crash. (Wechsler 2005a: 272, ex. 33c)

Since the Direct Object Restriction has weaknesses even without Wechsler's examples of subject control in transitive (Control) resultative constructions, Wechsler's evidence would render the Direct Object Restriction untenable. There is, however, a last resort to save the Direct Object Restriction even in the face of Wechsler's evidence, which is explored in Rappaport Hovav & Levin (2001: 771): It can be argued that — while both the entities denoted by the subject and the object change location, and the position of the entity denoted by the subject is necessarily constrained by the position of the entity denoted by the object — it is possible to conceive the resultative secondary predicate in Wechsler's examples as being 'underlyingly' predicated of the direct object. Assuming, however, that resultative secondary predicates are complements, and further assuming what Rappaport Hovav & Levin (2001: 771) call Visser's generalisation according to which subject-predicated complements cannot be passivised, a passivisation should be possible if we assume that the resultative secondary predicate is predicated of the object, due to the conception of motion correlation just outlined. However, the following attempts to passivise Wechsler's sentences show that conceiving passive versions of these sentences yields odd results (see Rappaport Hovav & Levin 2001: 771):

(10) Attempts at passivising the Wechsler's sentences from example (6) above:

a. # The star was followed out of Bethlehem. (Rappaport Hovav & Levin 2001: 771, ex. 13a)

b. # Lassie was followed free of his captors.(Rappaport Hovav & Levin 2001: 771, ex. 13c)

This suggests that the resultative secondary predicates in these sentences are indeed predicated of the subjects of their corresponding primary predicates (see Rappaport Hovav & Levin 2001: 771–772). This invalidates the Direct Object Restriction.

To summarise so far, this chapter has introduced the general terrain we are navigating in answering the research question (i.e. 'What is the relationship between primary and secondary predicates in English Control Resultative Constructions'). The distinction between primary and secondary predication was explained and defined within the specific context of English Control Resultative Constructions. Furthermore, the chapter contrasted resultative secondary predication with another type of secondary predication in English, namely depictive secondary predication: depictive secondary predicates attribute to their subject a property that holds throughout the duration of the event introduced by the primary predicate and resultative secondary predicates attribute to their subject a property that holds only at the culmination point of the event introduced by the primary predicate (see, inter alia, Rothstein 2011: 1142–1143, Rothstein 2017: 2–3, and Wechsler 2005a: 255–256, 264–265). Based on these more general insights into English secondary predication, the particular type of resultative secondary predication that is the subject of this thesis (i.e., the English Control Resultative Construction) was explained in greater detail and distinguished from Resultative ECM Constructions: Control Resultative Constructions are those resultative constructions in which the subject of the (resultative) secondary predicate is also a subcategorised argument of the primary predicate (and thus controlled by it; see especially Wechsler 1997, 2005a). Moreover, it has been shown that in intransitive Control Resultative Constructions the resultative secondary predicate is (necessarily) predicated of the primary predicate's subject, and that in transitive Control Resultative Constructions the resultative secondary predicate can be predicated of either the subject or the object, with the latter form of predication being considerably more common. This observation invalidates a previously popular analysis of resultative secondary predication based on the syntactic requirement that resultative secondary predicates must be predicated of direct objects or 'underlying' direct objects, which Levin & Rappaport Hovav (1995: esp. 33-34) refer to as the Direct Object Restriction. The next chapter addresses the question of how the primary predicate is able to impose selectional restrictions on the resultative secondary predicate (and thus explain its argument-like behaviour).

3 The origin of 'results' in English Control Resultative Constructions

In English Control Resultative Constructions, the secondary predicate typically expresses the result of an action expressed by the primary predicate (Wechsler 2005a: 255–256). For example, in 'John hammered the metal flat.' the result of the hammering action described by the primary predicate ('hammered') is that the hammered metal becomes flat (expressed by the resultative secondary predicate 'flat' which takes 'the metal' as its subject). However, there are some special cases of (Control) resultative constructions where this role assignment (primary predicate = causing action, secondary predicate = caused result) is somewhat blurred. Consider the following examples, taken from Beavers (2012: 920), of resultative constructions with sound emission verbs as primary predicates:

(1) Examples of resultative constructions with sound emission verbs as primary predicates; Examples taken from Beavers (2012: 920, ex. 29):

   a. The truck rumbled into the driveway. ≠ 'The truck's rumbling caused it to be in the driveway.'
   (Paraphrase: 'The truck's moving into the driveway caused it to rumble.')

   b. The bullets whistled past the house. ≠ 'The bullet's whistling caused it to be past the house.'
   (Paraphrase: 'The bullet's moving past the house caused it to whistle.')

In the sentences in (1), the sound emission does not cause the movement, but rather the movement causes the sound emission, as indicated by the paraphrases below the sentences (Beavers 2012: 920). Apart from this observation of a somewhat diffuse role distribution between primary and secondary predicate in these highly specialised examples, our above generalisation (i.e., primary predicate = causing action, secondary predicate = caused result) is not challenged by these examples if the sound emission verbs are seen as metonymically referring to the movement that caused the sound (Markus Egg, p.c.).

Although English Control Resultative Constructions typically seem to express specific results corresponding to a specific change of state (e.g., 'painted the barn red', 'hammered the metal flat', 'froze solid', etc.) or a specific change of location (e.g., 'out of the room', 'into the ground', etc.), there are cases of English Control Resultative Constructions with rather unspecific results, such as the following examples discussed by Beavers (2012: 926), which he took from Goldberg & Jackendoff (2004: 543, exs. 23b,c and 24c,d):

(2) Examples of Control Resultatives Constructions involving resultative secondary predicates with comparative morphology; Examples taken from Goldberg & Jackendoff (2004: 543, exs. 23b,c) as cited in Beavers (2012: 926, ex. 47):

   a. For hours, Bill hammered the metal *ever flatter*.

   b. For years, Penelope wove the shawl *longer and longer*.

(3) Examples of Control Resultative Constructions involving resultative secondary predicates with unbounded path PPs; Examples taken from Goldberg & Jackendoff (2004: 543, exs. 24c,d) as cited in Beavers (2012: 926, ex. 48):

   a. Bill floated *down the river* (for hours).

   b. Bill pushed Harry *along the trail* (for hours).

Although in both (2) and (3) the affected theme participants (i.e. 'the metal' and 'the shawl' in 2, and 'Bill' and 'Harry' in 3) undergo some kind of change, this change is rather unspecific. In example (2a) the metal has become flatter, but it is not necessarily flat, and in example (2b) the scarf has become longer, but it has not reached a specified length. In example (3a) Bill changed his location on the river but did not reach a specified location, and in (3b) Harry changed his location (by force) but also did not reach a specified location. Note that the sentences in (3) would also allow for an 'in' temporal modification (i.e. 'Bill floated down the river in an hour.' or 'Bill pushed Harry along the path in an hour.'), in which case the path along which the affected theme participant in question moves would receive a bounded reading, and the examples in (3) would describe a clear result in the form of a definite endpoint being reached (i.e. the mouth of the river or the end of the path).

An observation similar to that made in the examples in (3) can be made with regard to the status of the 'shared' argument. If the 'shared' argument is a mass noun or a bare plural DP/NP, the resultative status of the structure becomes diffuse: although (at least some) metal is arguably flattened in the course of the hammering event described in (4b), the quantity of metal that has been flattened is not specified:

(4) Example of a mass noun/bare plural DP/NP as the 'shared' argument (4b):

a. John hammered the metal *flat*. (specific NP/DP = specific result)

b. John hammered metal *flat*.
(mass noun/bare plural DP/NP = diffuse result)

According to Beavers (2012: 246, fn. 2), this phenomenon parallels the more general observation that the presence of a mass noun or bare plural DP/NP as an argument of an otherwise telic predicate induces atelicity (telicity is reserved here as a property of predicates; in a more liberal use, English Control Resultative Constructions could be said to be generally telic, i.e. to express a definite endpoint; see Beavers 2008: 247, fn. 4).

To summarise so far, the resultative secondary predicate in English Control Resultative Constructions typically expresses a definite result (i.e. a change of state or location of an affected theme participant or one of its properties) that is caused by the action denoted by the primary predicate. This generalisation is made modulo the effects of mass noun and bare plural 'shared' arguments, as well as those result phrases that exhibit the very specific morphology discussed in examples (2) and (3), i.e. 'Xer Xer' or unbounded path PPs.

Although the resultative secondary predicate expresses the result of the (Control) resultative construction, it would be going too far to say that the secondary predicate single-handedly introduces this result, as the above discussion might seem to suggest. This is because there are English Control Resultative Constructions like 'The water froze solid.' where the primary predicate ('froze' in this case) already entails the result expressed by the resultative secondary predicate ('solid'), since any act of freezing (at least in this sense) necessarily involves a fluid changing its physical state from non-solid to solid. On the basis of observations such as the freezing example just discussed, a distinction has been made in the literature between resultative constructions in which the result is already implied or inherent in the primary predicate, and those in which the result is seemingly 'added' by the resultative secondary predicate. Washio (1997), for example, distinguishes between 'weak' and 'strong' resultatives: 'weak' resultatives already imply a result, whereas in 'strong' resultatives the result introduced by the resultative secondary predicate seems to be somewhat independent of the primary predicate (Rapoport 2019: 446; see also Beavers 2012: 914). Rapoport (1999) makes a somewhat similar distinction between 'false' and 'true' resultatives: according to her distinction, in 'true' resultatives the resultative secondary predicate adds a result to an event de-

scription, whereas in 'false' resultatives the resultative secondary predicate reiterates a result that is already implicit in the event description (Rapoport 2019: 447).

The real question is where the result expressed in an English Control Resultative Construction originates: If the result originates in the primary predicate (as seems to be the case at least for 'weak' or 'false' resultatives according to Washio 1997 and Rapoport 1999, 2019), how does the secondary predicate access this result? If the result is 'added' by the secondary predicate (as seems to be the case for 'strong' or 'true' resultatives according to Washio 1997 and Rapoport 1999, 2019), how is it ensured that the result expressed by the resultative secondary predicate is in fact a result that is directly caused by the action expressed by the primary predicate? Moreover, if the secondary predicate 'adds' a result to the event introduced by the primary predicate, as is suggested/implied by Washio's and Rapoport's accounts of 'strong' and 'true' resultatives, how is this 'added' result restricted by the primary predicate?

This last question is of particular interest when comparing the imaginable results of an action with the results that can actually occur in an English Control Resultative Construction. Consider again our hammering example from above (viz. 'John hammered the metal flat.'). Although John's application of force to 'the metal' must arguably have had some effect on it, this does not necessarily mean that it must have become flat, for it could instead have become warped — or, if the hammering was done on soft ground, it could have been hammered into the ground. All of these imaginable results can easily be expressed using resultative clauses:

(5) Examples of results that could be caused by hammering metal (resultative clauses):
   a. John hammered the metal; consequently the metal became flat/warped/shiny/beautiful.
   b. John hammered the metal and with each hit, it sunk more and more into the ground (so that by noon, he had finally hammered it into the ground).

Compare the range of conceivable results in (5) with the results that can actually occur in an English Control Resultative Construction:

(6) Examples of results that can actually occur in English Control Resultative Constructions:
   a. John hammered <u>the metal</u> *flat/into the ground.*

b. John hammered the metal **warped* / *?shiny* / *?beautiful.* (? = acceptable if context is rich)

As can be seen, not every result that could be expressed by resultative clauses can actually occur in an English Control Resultative Construction. How, then, does the primary predicate restrict the results that could possibly be expressed by a resultative secondary predicate? And, more importantly, why is this restriction imposed in the first place? This question can only be answered if the nature of these results is better understood.

Beavers' (2011, 2013) model of 'change' and 'affectedness' is seminal in this regard. 'Change' in this context must be understood as a permanent transformation of an affected theme participant or one of its properties (see also Beavers 2011: 338). More formally, according to Beavers' model of change (see Beavers 2002, 2009, 2011, 2013), any form of change can be characterised as a movement of an affected theme argument (or one of its properties) along a scale that reflects the nature of the change, i.e. a change in height, temperature, position, etc. (Beavers 2011: 350). Beavers (2011: 350), following Kennedy & McNally (2005: 351–355), formally describes a scale as a triple $< S, R, \delta >$, where δ is a property or dimension (e.g. height, temperature, etc.), S is a set of degrees for heaving property δ, and R is an ordering of members of S (definition taken from Beavers 2011: 350, ex. 42). Crucially, then, different real-world changes can be modelled by different kinds of scales, as the following examples illustrate:

(7) Examples of different kinds of scales (not specific to Control Resultative Constructions):

a. John wiped the table dry. (dryness scale)

b. John warmed the soup. (temperature scale)

c. John drank the wine. (volume scale)

d. John dimmed the light. (brightness scale)

Scales can be distinguished not only by the real-world concept they model, but also by the nature of their complexity (i.e. their complexity type). Change is inherently complex because it requires a change of one state to another or one location to another (i.e. from state x to state y, or from location x to location y): Detecting a change in a given entity or one of its properties thus requires at least two temporally adjacent 'snapshots' of that entity or one of its properties (see Dowty 1979, see also Beavers 2008: 262). As Beavers (2008: 262) illustrates, one snapshot of a walking event cannot distinguish it from a standing event, and even a second snapshot cannot distinguish it from (just) a

stepping event; only a third snapshot (at the earliest) could identify this walking event as a walking event (rather than a stepping or standing event). A minimally complex scale thus has exactly two degrees ($\neg x \rightarrow x$, i.e. an initial state and a final state), and a complex scale has more than two degrees, i.e. an initial state/position, a middle part, and a final state/position (Beavers 2002, 2008). This is illustrated in the following examples:

(8) Different types of scale complexity:
   a. Minimally Complex Scale ($\neg x \rightarrow x$); e.g. 'noticed' ($\neg$ noticed $\rightarrow$ noticed)
   b. Complex Scale ($x_0 \rightarrow x_i \rightarrow ... \rightarrow x_{max}$); e.g. 'wet' (dry $\rightarrow$ wet $\rightarrow$ wetter $\rightarrow$ even wetter $\rightarrow$ …)

In addition to distinguishing change by the kind (i.e. temperature, length, warmth, path, etc.) and complexity type of the scale (i.e. minimally complex scale vs. complex scale) it implies, change can also be distinguished according to how the affected theme participant (expressed by the 'shared' argument) interacts with the scale of change (see especially Beavers 2011). Beavers (2011, 2013: 688–690) distinguishes four degrees of affectedness based on the interaction (or non-interaction) of the affected theme participant (or one of its properties) with a scale of change. Consider the following examples, taken from Beavers (2013: 688), which illustrate these four degrees of affectedness:

(9) Examples illustrating the four degrees of affectedness distinguished by Beavers (2011, 2013); Examples taken from Beavers (2013: 688, ex. 21):
   a. John peeled the apple.
   b. John cut the apple.
   c. John hit the apple.
   d. John saw the apple.

Example (9a) describes a clearly defined degree of affectedness, as the peeled apple is completely de-skinned at the culmination of the peeling event (Beavers 2011: 688). Although an apple that is cut is also affected (and may even be 'more' impinged than the peeled apple), the affectedness remains unspecified, as the apple in (9b) could have been cut 'in half' or 'into many pieces' (Beavers 2011: 688). Example (9c) is interesting in that the apple is affected because it is a 'force recipient' (Rappaport Hovav & Levin 2001: 786–787) and could change (in one of its properties) as a result of this application of force (Beavers 2011: 688). In contrast to (9a–c), the apple in (9d) is not physically affected by the described action (Beavers 2011: 688).

Beavers (2011, 2013: 688–689) bases this distinction between degrees of affectedness on linguistic differences. Crucially, 'the apple' is a force recipient in examples (9a–c) but not in (9d), which can be identified with the 'what happened to x is ϕ' test, which shows that in (9d) the apple is not affected because nothing happened to it (Beavers 2011: 688):

(10) Application of the 'what happened to x is ϕ' test to the sentences from (9); Examples taken from (Beavers 2011: 688):

a. What happened to the apple is that John peeled/cut/hit it.

b. # What happened to the apple is that John saw it.

Moreover, of (9a–d), only (9a) and (9b) entail a result, as Beavers shows with the 'but nothing happened to it' test:

(11) Testing for result entailment in (9a–d); Examples taken from (Beavers 2011: 688):

a. # John peeled/cut the apple, but nothing happened to it.

b. John hit/saw the apple, but nothing happened to it.

Although no change is involved in (9c), the affected theme participant ('the apple') has the potential for change, since 'John hit the apple and something happened to it' is also acceptable. Note that although 'John saw the apple and something happened to it' would be acceptable, what happened would not (normally) be considered to be caused by the seeing event.

What distinguishes (9a) from (9b) is the specificity of the change described: In (9a) the change is bounded by a definite endpoint (i.e. the apple is completely de-skinned), whereas in (9b) there is no such definite endpoint. The specificity of the change (i.e. whether or not it describes a definite endpoint) can be tested using standard telicity tests. The examples used here refer to predicates, and since telicity is a property of predicates, (9a) can be said to be telic and (9b) (as well as (9c) and (9d)) can be said to be atelic. Since affectedness as a concept can also be applied 'above' the predicate level, i.e. the degree of affectedness described by a Control Resultative Construction as a whole can be described as well as the degree of affectedness of just the construction's primary predicate, I refrain here from referring to a change like (9a) as a 'telic change'.

Nevertheless, whether a change has a definite endpoint (i.e. whether a specific result is attained or not) can be tested by the same tests that would otherwise be used to test the

telicity of predicates. Telicity is usually diagnosed through the use of frame adverbials (see Vendler 1957, and Truswell 2019: 6), as telic predicates are usually more acceptable if the event they express is modified by 'in an hour', and atelic predicates are usually more acceptable if the event they express is modified by 'for an hour' (see Beavers 2011: 681–682):

(12) Diagnosing telicity in predicates with 'in'/'for' frame adverbials; Examples adapted from Beavers (2013: 682, ex. 2):

a. John drank the glass of wine (in an hour / ?for an hour). (telic)

b. John ran around (?in an hour / for an hour). (atelic)

Furthermore, atelic predicates are usually entailed by their progressive forms, whereas telic predicates are not (see Vendler 1957, see also Hay et al. 1999: 127):

(13) Diagnosing telicity via progressive entailment:

a. John is drinking the glass of wine. $\not\rightarrow$ John has drunk the glass of wine.
(perfective entailment does not follow = telic)

b. John is running around. $\rightarrow$ John has run around.
(perfective entailment does follow = atelic)

Applied to the examples in (9), these telicity tests draw out the distinction between a change with a definite endpoint and a change without a definite endpoint (Beavers 2013: 689):

(14) Distinguishing a change with a definite endpoint from a change without a definite endpoint through the application of standard telicity tests; Examples (14a,b) are taken from Beavers (2013: 689):

a. John peeled the apple (in an hour / ?for an hour). (telic)

b. John cut/hit/saw the apple (?in an hour / for an hour) (atelic)

c. John is peeling the apple. $\not\rightarrow$ John has peeled the apple.
(perfective entailment does not follow = telic)

d. John is cutting/hitting/seeing the apple.
$\rightarrow$ John has cut/hit/seen the apple.
(perfective entailment does follow = atelic)

As Hay et al. (1999: 127–129) point out, the application of the above telicity diagnostics to so-called 'degree achievements' often yields either variable or inconsistent results:

(15) The application of the above telicity diagnostics to so-called degree achievements yields variable or inconsistent results; The example in (15a) is taken from Hay et al. (1999: 127, ex. 4):

a. The soup cooled (in an hour / for an hour).
(frame adverbial test does not draw a distinction)

b. The soup is cooling. ?→ The soup has cooled.
(entailment follows only if there is no contextual standard for what constitutes a cool soup)

This is an important point to note because degree achievements correspond to the degree of affectedness described in (9b), i.e. a change without a definite endpoint.

To summarise this chapter so far, change can be characterised by the kind of scale with which the affected theme participant (or one of its properties) interacts (i.e. scales of temperature, warmth, height, position, etc.), by the complexity type of the scale on which the affected theme participant (or one of its properties) undergoes the change (i.e. minimally complex scales vs. complex scales), and by the 'affectedness' of the affected theme participant (see Beavers 2011, 2013). Beavers (2011, 2013: 689) distinguishes four degrees of affectedness, which can be diagnosed by the three tests mentioned above (i.e. the 'what happened to x is ϕ' test, the result entailment test, and the 'in'/'for' frame adverbial test, which is also used to test for predicate telicity). Beavers (2013: 689) argues that these four degrees of affectedness form a subset relation, where predicates satisfying $n+1$ tests are a subset of predicates satisfying n tests. That is, predicates that satisfy the result entailment test are a subset of those predicates that satisfy the 'what happened to x is ϕ' test, and predicates that satisfy the 'in'/'for' frame adverbial test are a subset of the predicates that satisfy both the result entailment test and the 'in'/'for' frame adverbial test. Beavers (2013: 689) provides the following table to illustrate this:

(16) Table illustrating Beavers' (2013) affectedness diagnostics; Table adapted from Beavers (2013: 689):

Diagnostics	peel x	cut x	hit x	see x
Definite endpoint?	Yes	No	No	No
Change entailed?	Yes	Yes	No	No
Satisfies 'what happened to x is ϕ' test?	Yes	Yes	Yes	No

It has been discussed above that, according to Beavers' model of change (see Beavers 2002, 2009, 2011, 2013), any form of change can be characterised as a movement of an

affected theme participant (or one of its properties) along a scale that reflects the nature of that change (Beavers 2011: 350). According to Beavers (2013: 689), who follows Hay et al. (1999: 132), the difference between the changes in (9a) and (9b) is that in (9a) the transformation of the affected theme participant (or one of its properties) x along a scale s during an event e is bounded by a particular endpoint (i.e. a target state) g_ϕ on the scale s; in example (9b) such a target state g also exists (since the transformation along the scale must end somewhere), but it is not explicitly specified on the scale. Beavers (2011: 357) refers to the change that specifies its target state as a 'quantised change' and the change that is unspecified for its target state as a 'non-quantised change'.

If a construction satisfies the 'what happened to x is ϕ' test, its affected theme participant is a 'force recipient' (see Rappaport Hovav & Levin 2001: 786–787): as such, it has the 'potential for change' (caused by the transmitted force), but does not necessarily need to change (Beavers 2011: 357). Consider, for example, an event of John hammering the metal: The transmission of force onto the metal can have three kinds of effects (or any combination of them): the metal can break into $n > 1$ pieces, it can change its shape (or more generally, it can change its physical state(s), such as plasticity, heat, colour, etc.), and it can change its location. Crucially, the transmission of force onto the metal can also have no result (or, rather, a result that is below the measured threshold and thus dismissed as a non-change), as shown by the admissibility of 'John hammered the metal but nothing happened to it' (see the 'result entailment' test above). As this example shows, any transmission of force in the physical world has a predictable outcome, so the possible scales on which this potential for change might be realised are not arbitrary, but intimately linked to the event-denoting predicate within the structure that expresses the change. Thus, Beavers (2011: 358) suggests that this potential for change is best modelled by assuming the existence of a scale argument in the event-denoting predicate.

Although Beavers (2011: 358) argues that structures that pass the 'what happened to x is ϕ' test while failing the other two tests (i.e. structures that express the potential for change) do not entail a transition along a scale, I argue that they behave similarly to structures expressing non-quantised change, since surface contact verbs such as 'wipe', 'hit', 'scrub', etc. inevitably lead to some (even minute) change in (at least one of the properties of) the affected theme participant (though this change is below the measured threshold and thus dismissed as non-change). For example, consider an event of John wiping the table: No matter how minimally John wipes the table, the table must change in (at least one of) its properties, i.e. it becomes wetter, drier, cleaner, etc. (this obser-

vation also lies at the heart of the controversy about whether manner and result roots are in an exclusive complementarity; see Levin & Rappaport Hovav 1991, 1999, 2006, 2013, and Rappaport Hovav & Levin 1998, 2010; and see especially Beavers & Koontz-Garboden 2012, 2017). I suggest that the essential difference between an affected theme participant (or one of its properties) undergoing a non-quantised change and it (only) having the potential for change depends on the specificity of the scale denoted by the primary event-denoting predicate (this somewhat parallels the observations about the variability of result XPs made in Beavers 2011). In the case where the affected theme participant (or one of its properties) undergoes a quantised change or a non-quantised change, the scale on which the affected theme participant (or one of its properties) is transformed must be a specific scale, whereas in the case of a structure that merely has the potential for change, the scale argument is underspecified. A good way to imagine an underspecified scale argument is to imagine an HPSG-like (see Pollard & Sag 1987, 1994, see also Müller et al. 2021) (multiple) inheritance hierarchy of scale types (note that this is essentially what Wechsler & Noh 2001: 398-399 propose for modelling the value of the BECOME attribute). Thus, if the denoted scale type is maximally specific (i.e., an 'atomic' sort in HPSG terms, see Richter 2004, 2006, 2007, 2021), the expressed change is at least non-quantised, and if this scale is additionally bounded, the expressed change is quantised. Crucially, a structure that has the potential for change can only express a quantised change if a maximally specific scale is selected and a bound is expressed on that scale.

In constructions that do not pass any of the three tests above (i.e., that do not have affected theme participants that are force recipients), the event-denoting predicate is assumed to have no scale argument (Beavers 2013: 689). To summarise so far, structures expressing the potential for change contain an event-denoting predicate that takes a scale argument with a non-maximally specific scale type, structures expressing a non-quantised change contain a unique maximally specific scale type along which the affected theme participant (or one of its properties) undergoes a change, and structures expressing a quantised change contain an event-denoting predicate with a unique maximally specific scale argument on which a specific scalar bound is expressed that marks the target state of the quantised change.

English Control Resultative Constructions (modulo the specific exceptions mentioned at the beginning of the third chapter) generally express a quantised change, i.e. they contain an event-denoting predicate with a scale argument expressing a unique maxi-

mally specific scale type on which a specific target state is expressed. Rappaport Hovav & Levin (2001: 786) show that the subject of a resultative secondary predicate in an English Control Resultative Construction (this is, for example, different in Japanese, see Washio 1997) must be a 'force recipient' and that non-force recipients cannot act as a 'shared' argument in English Control Resultative Constructions (e.g. *'James saw the barn red.'; see Beavers 2011: 343–344). As discussed above, structures containing a force-recipient as an (affected theme) participant also pass at least the 'what happened to x is ϕ' test and thus express a potential for change. The requirement that the affected theme participant has the potential for change is a minimal requirement for the degree of affectedness expressed by the primary predicate in English Control Resultative Constructions. It is certainly possible for this primary predicate to express a non-quantised or a quantised change, if the appropriate conditions for these degrees of affectedness are met.

In English Control Resultative Constructions, the addition of the resultative secondary predicate must ensure that the construction expresses a quantised change. The specifics of the role that the resultative secondary predicate plays in expressing this quantised change vary with the degree of affectedness that the primary predicate itself already imposes on the affected theme participant (i.e. on the 'shared' argument). Consider the following examples of English Control Resultative Constructions with primary predicates that already express a quantised change:

(17) Examples of English Control Resultative Constructions with primary predicates that already expressing a quantised change; The example in (17c) is taken from https://www.cbsnews.com/baltimore/news/police-identify-man-killed-after-being-pushed-onto-baltimore-metro-tracks/; see also the examples in Beavers & Koontz-Garboden (2012: 341):

a. The water froze *solid*. (scale: $\neg$ solid $\rightarrow$ solid)

b. John shattered the vase *into pieces*. (scale: one piece $\rightarrow >$ 1 piece)

c. [...] a move that electrocuted him *to death*. (scale: $\neg$ dead $\rightarrow$ dead)

Crucially, if the primary predicate already expresses a quantised change, then the secondary predicate must correspond to the target state already expressed on the scale by the primary predicate. In examples (17), 'froze' already implies that the water has changed its physical state, 'shattered' already implies some kind of breaking (i.e. an object is fragmented into at least two pieces), and 'electroluted' already implies death (see especially Beavers & Koontz-Garboden 2012 for a discussion of these 'manner of

killing' verbs, e.g. 'electroluted', 'guillotined', etc.).

Consider the following examples of English Control Resultative Constructions with primary predicates, which by themselves express a non-quantised change:

(18) Examples of English Control Resultative Constructions with primary predicates, which by themselves express a non-quantised change:

a. The soup cooled *to 5 degrees*.

b. John walked *to the cafe*. (Beavers 2011: 352, ex. 41a)

In the above examples, the primary predicate provides a scale along which the transformation of the affected theme participant (or one of its properties) is measured. Crucially, the secondary predicate must specify a point on that given scale as the scalar bound it imposes. In the case of (18a), for example, the soup moves along a temperature scale of decreasing degrees. The secondary predicate 'to 5 degrees' specifies '5 degrees' as the definite endpoint of the scalar transformation. The starting point of this transformation is contextually determined, but is assumed to lie above this 5 degree mark (see also Beavers 2011: 351). In example (18b), the non-quantised change of location expressed by 'walked' is bounded by a specific location on the path scale (i.e. 'the store').

Now consider the following examples of English Control Resultative Constructions with primary predicates, which by themselves only express the potential for change:

(19) Examples of English Control Resultative Constructions with primary predicates which by themselves only express the potential for change:

a. John wiped the table *clean*.

b. John hammered the metal *into the ground*.

As discussed above, these predicates allow for scales that correspond to certain conceivable real-world changes. By providing an appropriate bound to (one of) the scale(s) provided by the primary predicate, the secondary predicate effectively selects the (kinds of) scale along which a quantised change is expressed, i.e. it selects the facet or property of the affected theme participant that changes. In example (19a), the resultative secondary predicate specifies that the change is measured on a cleanliness scale rather than possible other scales, such as a dryness or smoothness scale. In example (19b), the resultative secondary predicate specifies that the change is measured on a location scale instead of possible other scales, such as a flatness scale. In both cases, the resultative

secondary predicate has effectively selected the property of the affected theme participant whose change is being described.

What all secondary predicates in English Control Resultative Constructions have in common, regardless of the degree of affectedness expressed by the primary predicate, is that the resultative secondary predicate must express a bound on a scale. This fact is consistent with Wechsler's (2005a) observation that AP resultative secondary predicates must contain either a non-gradable adjective (i.e., express the endpoint of a minimally complex scale) or a non-gradable, closed-scale, maximum-endpoint adjective (i.e., express the endpoint of a complex scale).

In summary, this chapter has explored the 'origin' of the results that can be expressed in English Control Resultative Constructions: Crucially, only predicates that express the potential for change (identifiable by the 'what happened to x is ϕ' test) can occur as primary predicates in English Control Resultative Constructions (Beavers 2011: 360): As such, they already denote at least an event, its affected theme participant (expressed by the argument 'shared' between primary and secondary predicate, which must be a 'force recipient'; see Rappaport Hovav & Levin 2001: 786), and the (kinds of) scale(s) on which this affected theme participant (or one of its properties) can 'change', i.e. progress along a (bounded or unbounded) scale that measures the change undergone by the affected theme participant or one of its properties (see Beavers 2011: 356–362; see also Beavers 2013: esp. 688-690). Only XPs that appropriately express a bound on (one of) the scale(s) provided by the primary predicate (or that correspond to a pre-existing bound in the case of primary predicates expressing a quantised change) can serve as resultative secondary predicates in English Control Resultative Constructions (Beavers 2013: 689). If the primary predicate expresses a quantised or non-quantised change, the scale of change along which the affected theme participant (or one of its properties) measures its change is rather fixed (e.g. the degrees of temperature in a cooling event). If the primary predicate expresses only the potential for change, it provides a set of possible scales that measure the properties of the affected theme participant that could change (in a significant way) due to the force applied to it (e.g. the location, surface condition, etc. of the affected theme in a hammering event). Thus, by providing an appropriate bound to (one of) the scale(s) provided by the primary predicate (if it expresses only the potential for change), the secondary predicate effectively selects the (kind of) scale along which a quantised change is expressed, i.e. it selects the facet or property of the affected theme participant that changes.

4 The correlation between event and scale complexity types in English Control Resultative Constructions

In the introduction, the 'directness' of causation expressed in a resultative construction was traced back to the subcategorisation behaviour of the matrix verb. In Control Resultative Constructions (i.e. resultative constructions in which the subject of the resultative secondary predicate is also a subcategorised argument of the matrix verb), as in example (1), the causation expressed is 'direct'. The concept of 'directness' will be explored in more detail later in this chapter, but for the time being we will have to rely on a more intuitive understanding of it:

(1) Examples of Control Resultative Constructions (direct causation) with their paraphrases:

a. John hammered the metal *flat*. (Wechsler & Noh 2001: 394, ex. 5a)
('John hammered the metal; as a result, the metal became flat.')

b. John wiped the table *dry*. (see Wechsler 2005a: 265)
('John wiped the table; as a result, the table became dry.')

c. The water froze *solid*. (Wechsler 2005a: 267, ex. 6)
('The water became solid by cooling down so much that it changed its physical state.')

Compare the Control Resultative Constructions in example (1), which show direct causation, with the Resultative ECM Constructions in example (2), which express either pragmatically inferred causation or what might appropriately be called pseudo-causation:

(2) Examples of Resultative ECM Constructions (pragmatically inferred causation/pseudo-causation):

a. John hammered the neighbours *awake*.

(pragmatic inference: 'John was hammering and the sleeping neighbours were close enough to John's hammering to be awakened by the noise/vibrations.')

b. She drunk him *under the table*. (Simpson 1983: 146, ex. 23b)
(pseudo-causation: (two events) she is drinking and he slides under the table)

c. We laughed the speaker *off the stage*. (Wechsler & Noh 2001: 394, ex. 6e)
(pseudo-causation: (two events) laughter in the audience and speaker leaving the stage)

d. I cried / sobbed myself *to sleep*. (Simpson 1983: 145, ex. 18)
(pseudo-causation: (two events) speaker is crying / sobbing and speaker is falling asleep.)

Although in example (2a) the result of the neighbours waking up can still be traced back to John's hammering as its cause, in the other examples (especially in 2c and 2d) this relationship seems less straightforward, because the result expressed by the result XP cannot really be traced back to the action denoted by the primary predicate: In example (2c) the audience's laughter does not necessarily cause the speaker to leave the stage, and in example (2d) the speaker's crying or sobbing does not cause him to fall asleep. Note, however, that the line between pragmatically inferred causation and pseudo-causation is not clear-cut, as is evident in example (2b). But nothing in this paper really depends on this distinction between inferred and pseudo-causation in Resultative ECM Constructions, because Resultative ECM Constructions are not at issue.

Crucially, and this is the point of these introductory examples in (1) and (2), the argument 'shared' between primary and secondary predicate (as in Control Resultative Constructions) seems to allow only the expression of 'direct' causation. The reverse conclusion, that Resultative ECM Constructions do not allow direct causation, does not necessarily follow, but this is not important for the purposes of this thesis (consider, for example, the fringe cases of some Resultative ECM Constructions with fake reflexives, such as 'The dog barked itself hoarse.', see Wechsler 2005a: 257, ex. 5d).

Kratzer (2005: 194–199), following Ginet (1990), offers an explanation of the concept of 'direct' causation, which has so far only been understood intuitively in the discussion of the introductory examples above: Kratzer (2005: esp. 197) distinguishes direct causation ('events of causing other events') from indirect causation ('events that cause other

events') in the following way (following Ginet 1990 and Lewis 1973; see also Beavers 2012: 915): (Note that Kratzer's notion of indirect causation includes only what has been described as 'pragmatically inferred causation' in the discussion of example (2) above, but does not extend to any non-causal relation between events, as is the case in Resultative ECM Constructions that exhibit 'pseudo-causation'.)

(3) Kratzer's (2005) distinction of direct and indirect causation, following Ginet (1990) and Lewis (1973); Definitions cited from Kratzer (2005: 197, ex. 61):

   a. Events of causing other events (i.e., direct causation):
   An event c is an event of causing an event e iff c is the sum of all the members of some causal chain with maximal element e.

   b. Events that cause other events (i.e., indirect causation):
   An event c is an event that causes an event e iff c is the minimal element of some causal chain with maximal element e.

Kratzer (2005: 196–197), following Ginet (1990), emphasises that the central difference between direct and indirect causation is that in direct causation the result event e is part of the causing event c (see 3a), whereas in indirect causation the result event e is not part of the causing event c (see 3b). Kratzer (2005: 196) illustrates this with the example of an empty teapot, which is a state that can be caused either directly or indirectly:

(4) Possible causes (indirect vs. direct) of a teapot being empty according to Kratzer (2005: 196):

   a. Direct causation:
   Person X drinks tea from the teapot until the teapot is empty (i.e. dry).

   b. Indirect causation:
   Person X drinks all the water in the well, which leads to there being no water to make tea with, which in turn leads to there being an empty teapot.

The directness of causation in (4a) thus arises because the event of drinking tea is correlated with a decrease in the volume of tea in the teapot (see Beavers 2008: 245–246; see also Tenny 1987, Tenny 1992, 1994), i.e. with each further sip of tea taken by person X, the volume of tea in the teapot decreases until the teapot is empty. Crucially, only the culmination of all sipping events is the cause of the teapot being empty. Note that in the indirect causation scenario you cannot say 'Person X drank the teapot dry.', whereas in direct causation the use of this resultative construction would be appropriate. (Note

also that this resultative construction is, or at least behaves like, a Control Resultative Construction, since the primary predicate 'drank' selects a liquid as the entity to which its optional direct object refers, and the teapot in this example either metonymically refers to the liquid it contains, or is a contextually appropriate object that transfers this reference; see Nunberg 1977: esp. 108 on the notion of reference transfer.)

Crucially, then, the directness of causation that is the hallmark of English Control Resultative Constructions arises because the progress of the event described by the primary predicate correlates with the movement of the affected theme participant (or one of its properties) along the scale of change: The event progresses as progress is made along the scale, and the event ends when the scalar bound is reached (see Wechsler 2005a, and Beavers 2002, 2008; see also Krifka 1998, and Kratzer 2005). In the case of Kratzer's 'John drank the teapot dry (i.e. empty)', the progression of the drinking event correlates with the inverse progression of the volume property of the affected theme argument ('the teapot') along a volume scale bounded by 0 (i.e. emptiness): With each sip of tea that John drinks from the teapot, there is an equivalent transformation of the volume property of the teapot (i.e. the volume of the tea) along the scale of change, and the event of drinking tea from the teapot ends when the scalar bound is reached (i.e. when there is no tea in the teapot).

In chapter three it was discussed that scales of change can be either 'minimally complex' or 'complex'. A minimally complex scale has exactly two degrees ($\neg x \rightarrow x$, i.e. an initial state and a final state), and a complex scale has more than two degrees, i.e. an initial state/position, a middle part and a final state/position (see Beavers 2002, 2008, 2013). For example, the adjective 'dead' is an example of an adjective that describes a point on a minimally complex scale ($\neg$dead $\rightarrow$ dead), whereas the adjective 'flat' describes a point on a complex scale, as there are many degrees of flatness, with flat being an end point of this scale (Beavers 2008: 250). Beavers (2008: 251), following Kennedy & McNally (2005), diagnoses whether result APs describe a point on a minimally complex or a complex scale by judging their acceptability with comparative morphology, as illustrated by the examples in (5a), taken from Beavers (2008: 251). Adjectives that are gradable describe points on complex scales, whereas adjectives that are non-gradable describe points on minimally complex scales:

(5) Acceptability of comparative morphology; Examples adapted from Beavers 2008: 251, ex. 14):

a. dirtier, wetter, straighter, flatter, more bent, more senseless, more black and blue

b. # deader, # more dead

Note, however, that although gradable adjectives can describe a complex scale, it seems that most (bounded) complex scales have a minimally complex equivalent that just describes a binary change of state (from ¬end-of-scale → end-of-scale), i.e. although a flatness scale can be complex and allow multiple degrees of flatness, flatness can also be described on a minimally complex scale that just distinguishes between ¬flat and flat (Beavers 2008: 249–252). Consider the following example, adapted from Beavers (2008: 252), which illustrates this intuition:

(6) Ambiguous scale complexity; Example taken from Beavers (2008: 252, ex. 17):

a. With one quick motion, John will stamp the tulips *flat* in two minutes. (after reading)

b. John will stamp the tulips *flat* in two minutes. (duration/after reading)

Although flat can describe a complex scale, the only relevant distinction in (6a) is between ¬flat and flat, and so flat acts as a bound on a minimally complex scale, whereas in (6b) flat, on a durative reading, describes a bound on a complex scale.

Result PPs behave similarly, although diagnosing the complexity type of the scale on which they impose a bound is less straightforward than determining the complexity type of the scales on which result APs express their bound (Beavers 2008: 251). What seems to be generally the case, however, is that there are certain result XPs that strictly express bounds on minimally complex scales (e.g. result APs like 'dead' or 'pregnant'; see Beavers 2008: 252), and that most result XPs that can express a bound on a complex scale (e.g. result APs like 'flat' or result PPs headed by 'into'; see Beavers 2008: 252) can also express a bound on an equivalent minimally complex scale that only distinguishes between the endpoint and non-endpoint of the 'underlying' complex scale (Beavers 2008: 252). There are also result XPs that exclusively express bounds on complex scales and do not express bounds on minimally complex scales, such as result PPs headed by 'to' (Beavers 2002, 2008).

Events denoted by (verbal) predicates can be durative or punctual (or unspecified for durativity; see Beavers 2002, 2008): For example, Beavers (2008: 247–248) characterises an event of noticing something as punctual because it describes a simplex transition

between two states: an initial state of 'not having noticed x', which, as the event of noticing something unfolds, immediately transitions to an end state of 'having noticed x'. Conversely, Beavers (2008: 247–248) characterises an event of building a house as durative because it does not describe a simplex transition between the states of nothing being built and the house being fully built, but arguably unfolds with intermediate stages corresponding to different degrees of being built (i.e. foundation laid, outer walls built, roof put on, etc.).

Beavers (2011: 691), following Kearns (2000: 206), diagnoses event durativity using 'in' temporal modification in combination with the future tense: punctual events are only acceptable on an 'after' reading, whereas durative events are acceptable on both an 'after' and a 'durative' reading, as is illustrated by the following examples (note that a durative reading is only possible if the time expressed by the added frame adverbial corresponds somewhat to the expected duration of the event):

(7) Application of durativity diagnostics; The example in (7a) is adopted from Wechsler (2005a: 265, ex. 24):

a. He and a confederate will shoot the miller *dead* in a minute. (after reading)

b. John will wipe the table *clean* in a minute. (duration/after reading)

As can be seen in example (6), a stamping event can be either punctual, as in (6a), or durative, as in (6b). As it seems, the durativity of events also depends somewhat on the utterance context.

Crucially, since English Control Resultative Constructions express what Kratzer (2005) would call direct causation, and since this direct causation arises because of a correlation between the progress of the event and the progress of the affected theme participant (or one of its properties) along a scale of change, it seems reasonable that the complexity type of the event denoted by the primary predicate (i.e. durative vs. punctual) must match the complexity type of the scale on which the change is expressed (i.e. complex vs. minimally complex; Beavers 2002, 2008: 250–254, and Wechsler 2005a). That is, if an event is durative, the scale should be complex, and if an event is punctual, the scale should reflect this by being minimally complex. How, then, does this requirement for correlation of complexity types between event and scale figure into the relationship between primary and secondary predicates in English Control Resultative Constructions?

If the primary predicate denotes a durative event, the secondary predicate must impose a bound on a complex scale. Consider for example the verb 'battered', as in 'The rabbits had apparently been battered to death.' (example taken from Wechsler 2005a: 267, ex. 26). Applying the durativity test from above shows that the verb 'battered' can have a durative reading:

(8) Application of the durativity diagnosis for the verb 'battered':
John will batter the rabbits *to death* in a minute. (duration/after reading)

Since the verb 'battered' in this context expresses a durative event, this would predict that only XPs that express a bound on a complex scale are acceptable as resultative secondary predicates (Wechsler 2005a: 267–268). This seems to be the case, as the result AP dead can only describe a bound on a minimally complex scale (i.e. ¬dead → dead), whereas the result PP headed by 'to' can only describe a bound on a complex scale (see above):

(9) Example contrasting the admissibility of 'dead' vs 'to death' result XPs with the primary predicate 'battered':
   a. # The rabbits had apparently been battered *dead*.
   b. The rabbits had apparently been battered *to death*.

Conversely, if the primary predicate denotes a punctual event, the secondary predicate must express a bound on a minimally complex scale. Consider, for example, the verb 'slap', as in 'John slaps the poster on the wall.' (example taken from Beavers 2008: 250, ex. 1a).

There are also cases of primary predicates whose events are not specified for durativity. Consider, for example, the verb 'shot', as in 'John shot the outlaw dead.': Although the verb 'shot' seems to occur preferentially with resultative secondary predicates that express a bound on a minimally complex scale (as in 10a; see Wechsler 2005a: 266–267), it can also occur with resultative secondary predicates that express a bound on a complex scale (as in 10b):

(10) Admissibility of 'dead' vs 'to death' result XPs with the primary predicate 'shot':
   a. The sheriff shot the outlaw *dead*.
   b. The sheriff shot the outlaw *to death*.
   (Context: The sheriff hit the outlaw with several bullets.)

Crucially, if the primary predicate's event durativity is unspecified, the durativity of the event is determined by the resultative secondary predicate. However, this is only the case if the resultative secondary predicate is unambiguous in whether it expresses its limitation on a minimally complex scale (i.e. unambiguous cases like 'dead' or 'pregnant') or on a complex scale (i.e. unambiguous cases like result PPs headed by 'to'). If, on the other hand, the bound is expressed on a complex scale which can be contextually reinterpreted as a minimally complex scale (as is the case with the result AP 'flat' in example 6b, see above), then the resultative secondary predicate has no influence on whether the event denoted by the primary predicate is interpreted as durative or punctual. In these cases, the durativity of the event is determined by the real-world context, or more specifically the scale complexity of the scale on which the resultative secondary predicate expresses its bound is determined by the real-world context and the complexity type of the event is determined based on the inferred scale complexity (Beavers 2012: 925). Consider the following examples, taken from Beavers (2008: 253), which illustrates such a case:

(11) Examples of event durativity being determined from the real-world context; Examples taken from Beavers (2008: 253, ex. 22):

a. (In the context of a knob that dims the lights)
The stagehand will lower the house lights *by 3/4* in five minutes.
(duration/after reading)

b. (In the context of flicking a switch that cuts the lights by 3/4)
The stagehand will lower the house lights *by 3/4* in five minutes.
(after reading)

In case of example (11a), the context calls for a complex scale (i.e. the light is dimmed from 100%, 99%, 98%, ... down to 75%) and thus the inferred event complexity is durative, whereas in example 11b, the context (admittedly somewhat forced) calls for a minimally complex scale (i.e. full light → 3/4 light) and thus the inferred event complexity is punctual (see Beavers 2012: 925).

In summary, this chapter has shown that the 'directness' of causation ensured by the homomorphism between event and scale (i.e. the event progresses as progress is made along the scale, and the event ends when the scalar bound is reached) also requires that the complexity type of the event (i.e. durative vs. punctual) matches the complexity type of the scale of change (i.e. complex vs. minimally complex). Crucially, the resultative secondary predicate expresses a bound on a scale of a particular complexity type (e.g. the

endpoint of death can be expressed on the minimally complex result AP 'dead' and on the complex result PP 'to death'). The complexity type of the scale on which the resultative secondary predicate expresses its bound must match the complexity type of the event denoted by the primary predicate: If the event is durative, the scale on which the bound is expressed must be complex; if the event is punctual, the scale must be minimally complex (note that most complex scales have a minimally complex equivalent, which only distinguishes between ¬endpoint of the complex scale vs. endpoint of the complex scale; e.g. a scale of flatness is complex because it distinguishes different degrees of flatness, but has an equivalent minimally complex scale that distinguishes only between ¬flat and flat); and if the event is unspecified for durativity, the durativity is inferred from the scalar complexity of the scale on which the resultative secondary predicate expresses its bound. If this scale does not unambiguously express a particular complexity type, then the real-world context of the Control Resultative Construction itself determines the complexity type of the scale, and thus of the event that is unspecified for durativity. However the durativity of the event is determined (i.e. inherently or contextually), it is important that the complexity types of the event and the scale match, otherwise the acceptability of the construction suffers, or the construction appears marked (see especially Beavers 2008: 250–254).

5 Conclusion

In the introduction it was argued that the determination of the relationship between primary and secondary predicate should not be reduced to the determination of the argumental status of the secondary predicate, since this would lead to an answer that is heavily influenced by the way the 'cut-off' between arguments and adjuncts is treated in the adopted framework of grammatical analysis. Thus, it has been argued that the question of the relationship between primary and secondary predicates in English Control Resultative Constructions should not be reduced to the question 'Is the resultative secondary predicate an argument of the primary predicate?', but should rather be answered by asking questions such as 'Why does the resultative secondary predicate exhibit such argument-like behaviour?', or more precisely, 'How is the primary predicate able to impose selectional (or subcategorisation) restrictions on the resultative secondary predicate in the first place?'. The previous chapters have each contributed their part to answering this complex of questions, and their insights can now be integrated into an answer to the research question (viz. 'What is the relationship between primary and secondary predicates in English Control Resultative Constructions'):

Crucially, the resultative secondary predicate is (selectionally) restricted by the primary predicate via the argument 'shared' by both predicates. Only predicates that express the potential for change (i.e. whose affected theme argument is a 'force recipient'; see Rappaport Hovav & Levin 2001: 786) can occur as primary predicates in English Control Resultative Constructions (Beavers 2011: 360): As such, they already denote at least an event, its affected theme participant (expressed by the 'shared' argument), and the (kinds of) scale(s) on which this affected theme participant (or one of its properties) can 'change', i.e. progress along a (bounded or unbounded) scale that measures the change undergone by the affected theme participant or one of its properties (Beavers 2011: 356–362). Since the resultative secondary predicate describes a state (or location) that its subject (or one of its properties) obtains as a result of the event expressed by the primary predicate, and this subject is necessarily the affected theme participant of the primary predicate, the kind of change that can possibly be expressed by the resultative

secondary predicate is necessarily restricted by the (kinds of) scale(s) already provided by the primary predicate.

Only XPs that appropriately express a bound on (one of) the scale(s) provided by the primary predicate (or that correspond to a pre-existing bound in the case of primary predicates expressing a quantised change) can serve as resultative secondary predicates in English Control Resultative Constructions (Beavers 2013: 689). This ensures that the change expressed by the Control Resultative Construction as a whole is a quantised change. The specifics of the role that the resultative secondary predicate plays in expressing this quantised change vary with the degree of affectedness that the primary predicate itself already imposes on the affected theme participant: If the primary predicate expresses a quantised or non-quantised change, the scale of change along which the affected theme participant (or one of its properties) measures its change is rather fixed (e.g. the degrees of temperature in a cooling event). If the primary predicate expresses only the potential for change, it provides a set of possible scales that measure the properties of the affected theme participant that could change (in a significant way) due to the force applied to it (e.g. the location, surface condition, etc. of the affected theme in a hammering event). Thus, by providing an appropriate bound to (one of) the scale(s) provided by the primary predicate (if it expresses only the potential for change), the secondary predicate effectively selects the (kind of) scale along which a quantised change is expressed, i.e. it selects the facet or property of the affected theme participant that changes.

Furthermore, English Control Resultative Constructions typically express a quantised change that is 'directly' caused. This 'directness' of causation arises because the progress of the event is correlated with the progress of the affected theme participant (or a property of it) along the scale of change: The event progresses as progress is made along the scale, and the event ends when the scalar bound is reached (see Wechsler 2005a, and Beavers 2002, 2008; see also Krifka 1998, and Kratzer 2005). This homomorphism of event and scale not only ensures the 'directness' of causation (see Kratzer 2005: 194–199), but also requires that the resultative secondary predicate expresses a bound on a scale whose complexity type (i.e. complex vs. minimally complex) matches the complexity type of the event denoted by the primary predicate (i.e. durative vs. punctual). If the event denoted by the primary predicate is durative, the scale on which the bound is expressed must be complex; if the event is punctual, the scale must be minimally complex; and if the event is unspecified for durativity, the durativity is inferred from

the scalar complexity of the scale on which the resultative secondary predicate expresses its bound. If this scale does not unambiguously express a particular complexity type, then the real-world context of the Control Resultative Construction itself determines the complexity type of the scale, and thus of the event that is unspecified for durativity. However the durativity of the event is determined (i.e. inherently or contextually), it is important that the complexity types of the event and the scale match, otherwise the acceptability of the construction suffers, or the construction appears marked (see especially Beavers 2008: 250–254).

In short, the relationship between primary and secondary predicates in English Control Resultative constructions can be described as follows: The primary predicate restricts the results that could possibly be expressed by a secondary predicate by the scale(s) it provides, and it further restricts the complexity type of the scale on which a resultative secondary predicate must express its bound by the complexity type of the event it denotes. The secondary predicate must express a bound on the scale provided by the primary predicate that matches the complexity type of the event denoted by the primary predicate. If the primary predicate expresses only the potential for change, the secondary predicate essentially selects the facet of the affected theme participant that undergoes the change from the possible scales provided by the primary predicate, and if the event denoted by the primary predicate is unspecified for its durativity, the complexity type of the scale (even if itself contextually inferred) on which the secondary predicate expresses its bound determines the durativity of the event denoted by the primary predicate.

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