1 Introduction

A resultative construction like (1) entails that something changes, entering the condition named by its secondary predicate. The thing that changes must be identified by the direct object of the clause, certainly here: (1) entails (1a), and has no interpretation which entails (1b).

(1) Rocky’s fists pounded the frozen meat bloody.
   a. ⇒ The frozen meat got bloody from the pounding.
   b. ⇔ Rocky’s fists got bloody from the pounding.

(1) is therefore an instance of the generalization known as the direct object restriction or DOR: the phrase that identifies the ‘logical subject’ of the result predicate is the direct object of the clause (Simpson 1983, Levin and Rappaport 1995).

The domain of the DOR is narrow: it governs only resultatives. Much work has therefore sought to derive the DOR from broader principles. Most of it has presumed a standard semantic analysis, according to which what (1) says is at least this: Rocky’s fists pounded the frozen meat, the frozen meat was bloody, and the one thing caused the other to come about (Dowty 1972, among many others).

This paper advances what I think is the correct explanation of the DOR, and the correct logical form for resultatives, with decisive new support from Igbo and Mandarin. The DOR is simply the principle that patients are direct objects, expressed relative to a verb phrase with a certain meaning. The complex predicate in a resultative describes an event of change, distinct from the events of its two constituents. The direct object identifies the patient of that event. That it is also understood as the patient secondary predicate follows as an entailment, given any natural semantics for change. This is a plain claim, with many precedents. But importantly, it depends on rejecting the standard semantics, in which the object’s only thematic relations are to the lexical predicates in the construction.

I develop this view in opposition to a family of others, from which I draw Rappaport Hovav and Levin 2001, Rothstein 2004, and Goldberg and Jackendoff 2004 as recent examples. I agree with many of the insights in these works, especially the last. But they share one idea that I think is wrong. They explain the DOR, at least in part, with reference to a
distinguished relation between the direct object and the main verb: (1) means (1a) but not (1b), they say, because the frozen meat is the patient argument of pound. This hypothesis seems to be supported by a pattern in the English data. But Igbo and Mandarin show this support to be spurious, and the hypothesis to be false.

I begin in section 2 by saying how I will talk about resultatives. Section 3 introduces the DOR, defines the standard semantics for resultatives, and indicates its explanatory shortcomings. Section 4 articulates the idea in the recent literature, that the DOR depends on the object’s relation to the main verb. In section 6 I will show why this fails, given the facts of Mandarin and Igbo detailed in section 5. I develop my preferred analysis of resultative meaning and the DOR in section 7, presenting additional evidence from the syntax of resultatives in section 8. Before concluding in section 11, I review two additional issues: understood thematic relations to the main verb in section 9, and in section 10, resultatives where, on the surface, the result predicate applies to the subject.

2 Talking about resultatives

Resultatives are single clause constructions comprising two overt predicates, a means predicate, M, and a result predicate, R. Neither M nor R is introduced by a conjunction, adposition, or complementizer. In (2), M is pound and R is flat.

(2) Al pounded the cutlet flat.

Semantically, resultatives express something like a relation of causation between the eventuality described by M and R, though no overt morpheme signals this relation: (2) implies that pounding caused flatness (Dowty 1972, among many others). A resultative also entails that some object changes state, entering the result condition defined by R. The phrase that names this object, I will say, controls R. In (2) the cutlet controls flat, since (2) entails that the cutlet wound up flat.

A resultative may also entail thematic relations to the means event. In (2) Al evidently names the agent of pounding and the cutlet names its patient. I presume a very broad understanding of these notions: an agent initiates an event and a patient undergoes it. More specific information (whether the agent is volitional, for example, or whether the patient undergoes a change of state) derives from other sources, such as what sort of thing the agent or patient is, and what sort of event it is related to. For similar views see Van Valin and Wilkins 1996 and Baker 1998. Here I will not distinguish between patients and themes. I will also assume that the holder of a state is its patient, at least in general.

There is a distinction between what I will call transitive and intransitive resultatives. This paper will be concerned mainly with transitives. In English the distinction is readily made in terms of surface syntax. Transitive resultatives have a subject and an object, (3), while intransitive have only a (surface) subject, (10).

(3) a. Al pounded the cutlet flat.
   b. Al yelled his throat hoarse.

(4) a. The lake froze solid.
   b. The door swung shut.
But the criterion of the terminological distinction, as I intend it, is in control of R. Control is by the surface object in transitives and the surface subject in intransitives. For purposes of semantic comparison across languages, this provides a more useful classification than does the number of arguments.

I will refer to the smallest constituent containing both M and R as the minimal complex predicate, and abbreviatorily as ‘MR.’ ‘M’ itself designates not just the lexical head of the predicate describing the means event, but the largest constituent containing that head which does not also contain R, or any structure that introduces any part of the causative meaning associated with the construction. Likewise for R, mutatis mutandis.

Simpson (1983), and many after her, have proposed that the verb describing the means event occurs with a special lexical entry in resultatives, one that itself introduces the causative relation to R. The verb pound, for example, occurs in (2) with the meaning ‘cause to become R by pounding.’ This can’t be right, I think, for at least two reasons. First, the resultative lexical entry of a verb should allow nominalization, absent arbitrary stipulations to the contrary. But in fact the nominalization of an activity verb cannot have implicit resultative meaning. If the pounding could mean ‘the event of causing to become R by pounding,’ for instance, then (5) should have a coherent interpretation; but it doesn’t, unlike any of the sentences schematized in (6). Resultative meaning evidently comes from the structural context of the means verb, with the addition of R.

(5) # The slow pounding of the cutlet was achieved by very rapidly striking the cutlet with a mallet.

(6) The slow { transformation / flattening / pounding flat } was achieved by very rapidly striking the cutlet with a mallet.

Second, I know of no language where verbs in M (or more broadly, verbs serving the role of the means verb in a construction meeting the semantic criteria of the resultative) show any morphological sign of the proposed derivation. Yet Simpson’s lexicalist derivation predicts that even utter suppletion would not be unexpected. 1

(7) and (8) are resultatives from Mandarin and Igbo. 2, 3 In (7) M is ti ‘kick,’ R is duàn ‘snap,’ and R is controlled by nàtiáò múbàn ‘that plank.’ The sentence says that pounding

1 In some Oceanic languages, including Paamese (Crowley 1987: 64), some verbs do not have the same morphology when in M as they do in simple clauses. And what these cases show is not that the verb is causativized; almost the opposite. Verbs which take an object-marking suffix when they head a simple clause appear without that suffix when in M. The suffix instead attaches to the entire complex predicate, MR.

2 Mandarin is a Sinitic language and the national language in both mainland China and Taiwan. In glosses of Mandarin, PFV stands for ‘perfective,’ and PRT for ‘sentence final particle.’ One common PRT morpheme has the same pronunciation as PFV: [la], written le. Sometimes it can be disputed whether le realizes PFV or this PRT. Since nothing relevant to this work depends on which choice is correct, I simply gloss le as LE in these cases. NMOD glosses -de, a toneless phrasal enclitic which attaches to adnominal modifiers.

In my transcriptions, I use hyphens only to indicate that a morpheme is intrinsically an affix or a clitic. Thus I will not add a hyphen to a free morpheme that happens to be pronounced within a single phonological word, as in the case of the two verbs that make a resultative construction.

3 Igbo ([i60]) is a Benue-Congo (or Eastern Kwa) language, and is among the national languages of Nigeria. Glosses use the following abbreviations. FACT means ‘factative’; roughly, a predicate in the factative has past time reference when eventive and nonpast time reference when stative. SBRD means ‘subordinate verb prefix,’ and P means ‘all-purpose preposition.’ BVC means ‘bound verb cognate’ (see Nwachukwu 1987 and Emenanjo 1978). The BVC is a nominalization of the verb group, derived by prefixation of a low unrounded
caused snapping, and what wound up snapped was the plank. (8) says that striking caused splitting, and what wound up split was the gourd. M here is kụ ‘strike’ and R is wa ‘split.’ See the start of section 5 for more detail.

(7) tā tī duàn-le nàtiáó múbān.
3s kick snap -PFV that plank
‘S/he made that plank snap from kicking.’

(8) O kụ wa -ra ọba ahụ.
3sS strike split -FACT gourd that
‘S/he made that gourd split from striking.’

My glosses—which always give one relevant intended interpretation—will follow a fixed format. Transitives are glossed as ‘subject made object R from M’ing,’ and intransitives as ‘subject got R from M’ing,’ or as ‘subject R’ed from M’ing’ when R translates to an unaccusative verb in English. The use of from in the transitive gloss, rather than by, will rarely be idiomatic. But it will avert two misunderstandings. First, it emphasizes that transitives do not differ from intransitives in the relation between the means and result events, which is something like causation either way; where they differ is the thematic interpretation of the subject. Second, it lets us avoid the suggestion of by, that the subject identifies the agent of the means event; in Mandarin at least, this need not be, as we will see.

3 The direct object restriction

3.1 What is the direct object restriction?

According to the direct object restriction, (9), the phrase that controls R is always the direct object of the resultative clause, underlyingly.

(9) Direct Object Restriction (DOR)
The phrase that controls R is the underlying direct object of the clause.

Thus if they are read as resultatives, (10) can only mean that the meat got bloody, and (11) cannot mean that Ozzy got hoarse.

(10) Rocky’s fists pounded the frozen meat bloody.
‘Rocky’s fists made the cutlet bloody from pounding it.’

(11) *Ozzy sang the old Sabbath tunes hoarse.
‘Ozzy got hoarse from singing the old Sabbath tunes.’

vowel; in all the data presented here, it is used solely to satisfy the requirement that a verb group in the factative not be clause-final (Nwachukwu 1987: 19–21).

My use of hyphens in transcriptions of Igbo follows the convention described in footnote 2. In this case I depart from what is typical in the Igbo orthography, which typically writes multimorphemic phonological words as single orthographic words, even when the component morphemes are not clitics or affixes. Because of the complexity of Igbo tonology, I omit reference to tones.

Unless attributed to other sources, the Igbo data I present come from primary research I conducted with native speakers from Nigeria, now living in the Philadelphia area.
As stated here, the DOR refers to underlying objects. Thus it relies on the unaccusative hypothesis: sometimes, a subject on the surface is an object in an underlying representation. I will presume this is right. But it is possible to state the essential content of the DOR without unaccusativity, as we will see.

Unaccusativity is useful in describing intransitive resultatives, like (12). Here the subject controls R. But there is no challenge to the DOR if the lake is direct object of the clause underlyingly, i.e. if the clause is unaccusative.

(12) The lake froze solid.

What evidence is there for this? Developing the idea of Simpson 1983, Levin and Rappaport Hovav 1995 present an argument that relies on two premises. First, freeze is an unaccusative verb. This means (at least) that when freeze is the verb in a simple clause like (13), the clause is unaccusative. So the phrase naming the patient of freezing is the object of the clause underlyingly.

(13) The lake froze.

Second, the verb freeze is prone to the same distributional requirements when it serves as the means verb in a resultative. Here too, it finds the patient of its event in the direct object of the clause. As Levin and Rappaport Hovav (1995: 53–4) put it, describing the general pattern of English in their lexicalist idiom: “the way [a verb] maps its arguments to the syntax does not change when the verb is in a resultative.” Since freeze “maps” the patient to the object position in (13), it does the same in (12) as well, and the lake is the direct object of the clause. Consequently, the sentence conforms to the DOR, contrary to first appearances.

Sentences like (14) and (15) show why the statement of the DOR in (9) restricts control to the direct object “of the clause,” not of the means verb.

(14) Rocky ran his sneakers thin.
(15) Ozzy sang his throat hoarse.

In our previous example, (10), the interpretation of the direct object is restricted in relation to the means verb, pound, in a particular way. It must be interpreted exactly as the direct object is interpreted in a simple clause with the same verb, (16). In both sentences the object identifies the patient of pounding.

(16) Rocky’s fists pounded the frozen meat.

I will say that the object in (10) therefore bears a selected relation to the means verb. And when I say that a noun phrase in a resultative is selected, I will mean only that it bears a selected relation to the means verb, (17). I intend no further claim about what introduces this relation, the lexical verb or its structural context.

(17) In a resultative with means verb V, the object (or subject) is selected if and only if the grammar assigns it a thematic relation to the event of V that it assigns an object (respectively, subject) in a simple clause with V.
In (14) and (15) the direct objects are not selected. They are not assigned a thematic relation that the object may have in a simple clause with the same verb, (18,19).

(18)  
  a. Rocky ran laps.  
  b. *Rocky ran his sneakers.

(19)  
  a. Ozzy sang the old Sabbath tunes.  
  b. *Ozzy sang his throat.

It would therefore be wrong to talk about his sneakers and his throat in (14) and (15) as the direct objects of the verbs run and sing. But each is clearly the direct object of its clause: a nonoblique noun phrase within VP, required by the VP predicate, and assigned a characteristic thematic relation, here one that implies control of R. Thus it is still the direct object of the clause that controls R, even when the object is unselected.

My purpose is to explain why the DOR is true. That it is true is something that, for the most part, I will just presume. Properly understood, the DOR correctly describes the structure of any resultative construction, in any language. Claims to the contrary, I believe, either misunderstand its content, or mistake a distinct construction for the resultative. According to Li 1995, for example, Mandarin invalidates the DOR, because the object in a resultative needn’t have a selected relation to the means verb; see section 5. But the DOR says nothing about this. It says only that control is by the direct object of the clause; and this is true in Mandarin, even for intransitives, as I argue briefly in section 10. Wechsler 1997 and Rappaport Hovav and Levin 2001 contend that English sentences like (20) and (21) falsify the DOR. Here the subject is not plausibly regarded as an object underlyingly; certainly it doesn’t identify the patient of the verb’s event. Yet it nevertheless controls the predicate in italics.

(20)  
  a. John swam across the pool. (Levin and Rapaport Hovav 1995)  
  b. She danced free of her captors. (ibid)

(21)  
  a. The wise men followed the star out of Bethlehem.  
     (Wechsler 1997: 313)  
  b. The sailors rode the breeze clear of the rocks. (ibid)

With Goldberg 1995 and Rothstein 2004, however, I believe that these are not resultatives at all. They instantiate a distinct construction, one related specifically to movement along a path, and are thus are a irrelevant to the DOR. (See Williams 2005, xxx–yyy, for some discussion.)

That said, I will concentrate on those cases which exemplify the DOR most clearly, like (10). These must be explained, no matter what is done with the rest.

3.2 The traditional semantics for control of R

By definition, the referent of the phrase that controls R has an understood relation to the result state. If Al pounded the cutlet flat is true, then we know both that a state of flatness came about, and that the cutlet in particular is its patient. In what I will call the traditional semantics for resultatives, the latter entailment is captured by stating the
understood thematic relation explicitly, as in (22). (22a) and (22b) are two formal renderings of the idea, where $c$ is the cutlet. The first treats verbs and adjectives as predicates of individuals, type $\langle e, t \rangle$; the second, as introducing predicates of events, type $\langle v, t \rangle$, perhaps along with relations of type $\langle e, \langle v, t \rangle \rangle$ (Davidson 1967, Castañeda 1967, Higginbotham 1983, Carlson 1984, Parsons 1990).

(22) \[ \text{[Al pounded the cutlet flat]} = \text{‘... the cutlet is flat ...’} \]
   a. $= \ldots \text{flat}_{(e,t)}(c) \ldots$
   b. $= \ldots \text{flat}_{(v,t)}(e) \land \text{Pat}(e, c) \ldots$

The traditional semantics is then completed by stating some relation, call it $\text{Res}$, between the result event and the means event, (23).

(23) \[ \text{[Al pounded the cutlet flat]} = \text{Res('Al pounded the cutlet', 'the cutlet is flat')} \]
   a. $= \text{Res}(\text{pound}(a, c), \text{flat}(c))$
   b. $= \exists e_m \exists e_r \ldots \text{Res}(e_m, e_r) \land [\text{pound}(e_m) \land \text{Ag}(e_m, a) \land \text{Pat}(e_m, c)] \land [\text{flat}(e_r) \land \text{Pat}(e_r, c)]$

Theories differ on the exact content of $\text{Res}$, but roughly $\text{Res}(A, B)$ means that $B$ came about because of $A$. (24) is the logical form discussed in Dowty 1972 and 1979, in response to similar proposals from Lakoff 1970, McCawley 1971, and Green 1972. $\text{Res}$ is analyzed as the functional composition of two predicates, $\text{Cause}$ and $\text{Become}$. Their composition holds of two propositions $\langle A, B \rangle$ when $A$ causes $C$, the proposition that $B$ turned true; (24b) is again a possible gloss of the idea in event-theoretic terms.

(24) \[ \text{[Al pounded the cutlet flat]} = \text{Cause('Al pounded the cutlet', Become('the cutlet is flat'))} \]
   a. $= \text{Cause}(\text{pound}(a, c), \text{Become}(\text{flat}(c)))$
   b. $= \exists e_m \exists e_b \exists e_r \cdot \text{Cause}(e_m, e_b) \land \text{Become}(e_b, e_r) \land [\text{pound}(e_m) \land \text{Ag}(e_m, a) \land \text{Pat}(e_m, c)] \land [\text{flat}(e_r) \land \text{Pat}(e_r, c)]$

The proposition that the cutlet is flat thus occurs within within the further statement that this came about because of the pounding. Given what it means to ‘come about because of,’ this entails that the cutlet was not flat before the pounding, and hence that it underwent a change. But notice, that the cutlet underwent a change is not stated explicitly. In the proposed logical form, the only relations that the translation of the direct object enters are relations to the overt predicates contributed by $M$ and $R$, $\text{pound}$ and $\text{flat}$. There are no relations to any predicates contributed by the construction itself (e.g. $\text{Cause}$ or $\text{Become}$), and these are the predicates that introduce the notion of a change.\footnote{For McCawley 1971 and Green 1972, the \textit{subject} does enter a relation to a relation contributed by the construction. It bears what they call a “\textit{cause}” relation to the statement that there is a “\textit{by}” relation between $M$ and $R$. Still, the object has relations only to the lexical predicates.}

The traditional semantics thus gives what I will call a \textit{result patient analysis} for control of $R$. Control of $R$ is captured solely by stating a thematic relation to the result state, a state
described exclusively by the overt predicate in R. Pretheoretically, one might have thought of the direct object as identifying a ‘causee,’ something that undergoes an event of caused change. But under a result patient analysis, this notion has no expression in the theoretical description, which states no patient relation to any event of change. The term ‘causee’ is then just one of convenience, used to designate the patient of a state which happens to be the second term in a Res relation.

I will soon argue that this analysis frustrates the effort to explain the DOR, as well as many other aspects of resultative syntax.

### 3.3 Locality to R is not enough

Given the traditional semantics, it seems easy to account for the DOR in terms of the object’s syntactic relation to R. We just need a syntax where the direct object is the only noun phrase local to R, on some metric of locality relevant to establishing the presumed thematic relation, or perhaps to the binding of a silent anaphor still closer to R. (This might be the relation of being the lowest overt c-commanding DP within VP, for example.) Surely this is possible, even simple. Observational adequacy thus comes easily. But discontent arises in the face of an important question. Why not have a construction with the meaning and other criterial properties of a resultative, but with a different syntax, one that allows for subject control? Absent an answer to this we have explained very little.

The question becomes urgent when we consider subject depictives, like (25). The semantics of (25) apparently states a thematic relation between the event of the secondary predicate and the referent of the subject, (26).

(25) Al pounded the cutlet drunk.
    ‘Al pounded the cutlet while drunk.’

(26) \[ \text{Al pounded the cutlet drunk} \] = ‘…Al is drunk …’

a. \[ = \ldots \text{drunk}(a) \ldots \]

b. \[ = \ldots \text{drunk}(e) \wedge \text{Pat}(e, a) \ldots \]

It is perfectly clear that resultatives do differ from subject depictives in their syntax, in independent ways. Depictive and resultative secondary predicates cannot be freely exchanged (27), for example, and resultatives allow extraposition of the object, while subject depictives do not (28). (Though note, resultatives contrast in the same ways with object depictives.)

(27) a. Al pounded the cutlet flat drunk.
    ‘Al pounded the cutlet flat while drunk.’

b. * Al pounded the cutlet drunk flat.
    ‘Al pounded the cutlet flat while drunk.’

(28) a. Al pounded flat every single one of the cutlets.

b. * Al pounded drunk every single one of the cutlets.

We may even grant, at least for the sake of argument, that these syntactic differences coincide with the contrast in control: the syntax of resultatives forces control by the object, while
the syntax of depictives does not. But the question nevertheless remains. Why not have a resultative with the syntax of a subject depictive?

This is not easily answered, given the result patient analysis. It takes control to consist just in a thematic relation to the event of the secondary predicate, (22). But control in depictives presumably has the same semantics, (26). The sole semantic difference between the two constructions, then, is in the relation between these statements and the meaning of the primary predicate, Res versus Dep, (29). Roughly, this is the difference between because and while.

(29)  a. \[ Al \overset{pounded}{} \overset{the\ cutlet\ flat}{} \]  
\[ = \text{Res(‘Al pounded the cutlet’, ‘the cutlet is flat’) } \]

b. \[ Al \overset{pounded}{} \overset{the\ cutlet\ drunk}{} \]
\[ = \text{Dep(‘Al pounded the cutlet’, ‘Al is drunk’) } \]

So no theory of how meaning relates to syntax can prevent resultative meanings from being realized with depictive syntax, unless it refers specifically to this difference. But in an ideally restrictive theory, the syntactic position of a phrase that translates to X in the logical form should depend, as a rule, only on statements in the logical form of which X is an immediate constituent. So the position of a noun phrase whose translation is c can depend on statements like (30a) or (30b), but not on statements like (31a) or (31b).

(30)  a. \( \text{flat}(c) \)  
b. \( \text{Pat}(e, c) \)

(31)  a. \( \text{Cause}(\text{pound}(a, c), \text{Become}(\text{flat}(c))) \)  
b. \( \text{Cause}(e_m, e_r) \)

Without further elaboration, therefore, the traditional semantics offers no ready way to differentiate resultative from depictive meanings in a way that might be relevant to their syntax. If subject depictives had a syntax something like (32), for example, there would be no semantic reason that resultatives couldn’t have the same, (33), with the subject controlling R.

(32) \[ [s_{DP} \overset{AI_j}{} ][v_{VP}[\overset{pounded}{} ][\overset{the\ cutlet}{} ][\overset{XP}{} ][\overset{DP\ PRO_j}{} ][\overset{AP\ drunk}{} ]]] \]

(33) \[ [s_{DP} \overset{R’s\ fists_j}{} ][v_{VP}[\overset{pounded}{} ][\overset{the\ cutlet}{} ][\overset{XP}{} ][\overset{DP\ PRO_j}{} ][\overset{AP\ bloody}{} ]]] \]

The observed syntax is therefore an accident; things could have been otherwise. And so while the syntax does instantiate the DOR, it cannot be said to explain it.

This motivates an account of the DOR that depends more intimately on meaning. We want an explication of resultative meaning which has the resultative form as a consequence, given only the broadest principles of how form and meaning relate in general. Minimally we must distinguish resultative from depictive meaning, in a way that clearly implies the observed difference in control.

In the next section I detail a common idea in the literature about how this can be done. The idea appears to have support in English. But we’ll see in sections 5 and 6, with the data from Igbo and Mandarin, that this appearance is illusory. Subsequently in section 7 I will introduce a different analysis of resultative meaning, one which both accommodates the cross-linguistic data and explains the DOR quite directly.
4 The means participant postulate

The interpretation of the direct object in (34) is restricted in two ways. First, it controls R, and so is understood to identify the patient of the result state: (34) entails (35). Second, it is constrained to identify the patient of pounding, so that (34) entails (36) as well.

(34) Rocky’s fists pounded the frozen meat bloody.
(35) The frozen meat got bloody.
(36) Rocky’s fists pounded the frozen meat.

Maybe this coincidence of thematic relations is not an accident. Maybe, when two events are the means and result events in a Res relation, the relation associated with a resultative construction, then something like (37) is a semantic consequence.

(37) Means participant postulate
The patient of the result event has a certain type of thematic relation to the means event.

In that case the frozen meat controls bloody in (34) not because it’s the object, but because it names the patient of pounding, a participant which, let’s assume, has the right type of thematic relation to the means event. As it happens, the patient-of-pounding relation is assigned to the direct object. But this is a consequence of some independent distributional requirement, applying to pound, which ensures that it finds a patient in the object of the clause, even in a resultative. That control of R goes to the object in particular, as per the dor, therefore results from the interaction of distributional requirements like these with the semantic postulate in (37).

I will discuss two articulations of this idea, namely (38) and (39). These differ in which “certain type” of thematic relation is relevant. As we’ll see, Rothstein 2004 and Rappaport Hovav and Levin 2001 pursue something like the former, while the discussion in Goldberg and Jackendoff 2004 implies something like the latter.

(38) Means patient postulate
The patient of the result event is the patient of the means event.

(39) Means agent postulate
The patient of the result event is not the agent of the means event.

Both hypotheses have some immediate appeal, stemming from an intuitive opposition between agents and patients. When we say an event e_1 has an agent and a patient, we typically think of the agent as exerting force on the patient. So it seems more natural—that if any participant in e_1 should wind up in a new state e_2 as a result of e_1, it should be e_1’s patient, and not its agent. What (38) and (39) both say is that, indeed, this intuitive conclusion is implied by the meaning of the resultative construction.

Moreover, both postulates promise an account of the contrast with depictives. A depictive says just that e_2 happens while e_1 does, and given only this, we have no intuition that the patient of e_2 is any more likely to be the patient of e_1 than its agent. So there is no reason that control of the depictive secondary predicate should go one way or the other, either to the object or to the subject.
And yet, putative intuitions of naturalness notwithstanding, we have no difficulty divorcing a relation to the result event from any relation to the means event conceptually. Maybe Rocky’s fists pounded the meat, but this caused no change in the meat, the patient of pounding. Instead, it caused Rocky’s fists to get sore. Conversely, maybe Al’s knife got dull because he cut bamboo with it. We do not then conclude that his knife was the patient of the cutting; that was the bamboo.

So if some version of the means participant postulate is correct, its truth depends on something extremely particular about the meaning of the resultative construction. It does not—this is important to see—follow just from elementary intuitions about causation. And for this reason one wants convincing justification for postulates like (38) and (39).

Section 4.1 develops the means patient postulate in more detail. Unselected objects pose a problem, prompting the prediction that these should be possible only when a certain semantic type of verb is in M, universally. The means agent postulate is not subject to the same problem. But as we’ll see in section 4.2, it holds less theoretical promise as an explanation of the DOR.

4.1 The means patient postulate

The means patient postulate faces an obvious challenge. How can it accommodate sentences like (40) and (41), where the object is unselected?

(40) Rocky ran his sneakers thin.
(41) Ozzy sang his throat hoarse.

Let us assume the null hypothesis: resultatives like these express the same relation, Res, between M and R as do those where the object is selected. Then (38), unamended, tells us that the direct object in each of these sentences, since it names the patient of the result event, also names the patient of the means event. Rocky’s sneakers are the patient of his running, and the patient of Ozzy’s singing is his throat.

This is an odd suggestion. And if (38) is to be sustained, it demands one of two responses, which make for two versions of the postulate. I describe these in the next two subsections, with some reference to their expression in the literature. I’ll then present the English data that are the main support for either version in section 4.1.3.

4.1.1 Version 1: ineffable patients

The first version begins by accepting the implication of (38), in spite of its oddity. Yes, the sneakers are the patient of the running, and the throat is the patient of the singing.

Both run and sing, then, describe an event that may involve a patient. But at the same time, they are verbs with a curious distribution. They cooccur with a noun phrase naming their patient only in the context of resultatives. Outside of resultatives, in simple clauses like those in (42) and (43), the patient is, so to speak, ineffable. It is never identified by the direct object, nor for that matter by the subject or any sort of selected oblique. The direct
object identifies some other participant, let’s call it a third participant. In (42b) this is the laps, and in (43b) it is the old Sabbath tunes.\footnote{In conversation I have heard it said that an unselected object always names an ‘instrument’ in the means event. So if Ozzy sang his throat hoarse, Ozzy’s throat is an ‘instrument’ in his singing. But this can only be loose talk, where an ‘instrument’ is any participant that is not an agent or patient. Maybe the throat does play a definitional role in any normal singing, a role one might call instrumental. But even then, if Ozzy sang himself hoarse, Ozzy is surely not the instrument of his own singing. Nor it natural to say, if Rocky runs his shoe soles thin, that the shoe soles are the instrument by means of which Rocky ran.}

(42)  a. *Rocky ran his sneakers.
     b. Rocky ran laps.
(43)  a. *Ozzy sang his throat.
     b. Ozzy sang the old Sabbath tunes.

Most verbs whose event has a patient are not like this. So there must be two distinct classes of such verbs, distinguished at least by the thematic relations they enter in simple clauses. Class 1 includes normal verbs like \textit{pound}, \textit{cut}, and \textit{carry}. These find their patient in the direct object at least sometimes, and maybe always. Class 2 verbs are those like \textit{run} or \textit{sing}. For these, the direct object in a simple clause never identifies the patient; it always identifies a third participant. We predict a corresponding limitation on the possibility of unselected objects in resultatives, (44). This has a corollary that will be important below, (45).

(44)  If an object in a resultative is unselected, then the means verb is a verb from Class 2.

(45)  If the object in a resultative is unselected, and the means verb is \textit{V}, then the direct object in a simple clause with \textit{V} is \textit{not} its patient.

This is essentially the theory advanced in Rothstein 2004. Rothstein studies resultatives in aspeuctual terms, as a species of accomplishment. Accomplishments are predicates that, besides describing an event as one which may have duration, also define an intrinsic endpoint for their event, one that marks its completion. For Rothstein, the event of an accomplishment involves an “incremental process.” The completion of an “incremental process” consists in the achievement of a certain state. What Rothstein calls “the argument” of an “incremental process” is, among other things, the thing of which that end state eventually holds. One type of “incremental process” is the change described by a resultative. Its “argument” undergoes the change, and consequently (due to further aspects of Rothstein’s theory that are not centrally important here) is the understood patient of the result state. Adapting a generalization about lexical accomplishment verbs that I will discuss in section 6, Rothstein then makes the claim in (149).

(46)  “The semantic constraint is that the argument of the incremental process must be the theme or affected argument of the lexical verb” (Rothstein 2004: 115).
In the case of resultatives, the intended “lexical verb” is the means verb. So (149) is in effect an instance of the means patient postulate. It constrains the patient of the result event to be “the theme or affected argument” of the means event—for me, its patient.\(^6\)

(149) is true, argues Rothstein, even for resultatives whose object is unselected, like (47). Her analysis of (47)’s meaning includes the proposition in (48), which posits the baby as the theme of the singing.

(47) John sang the baby asleep. (Rothstein 2004: 128, (12))

(48) “[T]he accomplishment \(e_1\) is the sum of a singing activity event \(e_3\), with John as agent and the baby as theme, and a \textsc{become} event \(e_4\).” (Rothstein 2004: 128, (13a), my emphasis)

Nevertheless, the relation that the baby allegedly has to the singing is ineffable in simple clauses, (49). And since this is the “theme or affected argument” relation, it must be that the lullaby is not the “theme or affected argument” of the singing in (50). The lullaby must be a third participant.

(49) * John sang the baby.
   ‘There was a singing activity event with John as agent and the baby as theme.’

(50) John sang a lullaby.

Rothstein herself denies this last conclusion, and it worth pausing to discuss her position. For her the lullaby has the same relation to the singing in (50) as the baby has to the sleeping in (47): each is a “theme or affected argument.” The difference, if I understand what Rothstein says, is in our readiness to accept this assertion. It’s quite clear how a lullaby gets affected by a singing: it gets sung. But presented with (49), we do not readily understand how the singing affects the baby, and so we do not accept the statement. Presented with the resultative (47), on the other hand, the effect of the singing on the baby is made obvious—it lulls the baby—and consequently, according to Rothstein, we accept the statement, allegedly made by (47), that the baby is its theme.

I cannot agree with this. For (49) does not improve to the slightest degree even in the context of (51).

(51) a. John sang a lullaby, and the baby fell asleep as a result. Hence . . .
    b. * John sang the baby.

And of course one cannot respond by stipulating that, whenever a predicate asserts that a change occurred, the effect of the change must be made explicit within the same clause. (52) doesn’t say what effect Al wrought in the cutlet, but this produces no infelicity.

(52) Al changed the cutlet.

\(^6\)To me it is not clear whether Rothstein wants to distinguish “affected arguments” from “themes” substantially, or whether “affected argument” is just a convenient descriptive term for a “theme” of a certain type of event.
To be affected by an event is not itself enough to be considered its patient or theme, even when the exact nature of the effect is made clear. The true patient or theme of an event is affected in a very particular way, defined by the meaning of the verb. If we describe an event using **carry**, for example, then its patient is the thing carried, even if the most severe and salient effect of the carrying was not on the thing carried, but on the shoulder of the carrier.

To think that something is the patient of *e* simply because it is affected by *e*’s occurrence reflects an untenable understanding of events and thematic relations. Qua elements of the semantic ontology, events are not stretches of real-world history. They stand for a particular description of what happened: a mode of presentation of a ‘real’ event, if you like. Correspondingly, things do not have thematic relations to stretches of history, but to a description of what happened. One could not, for example, show a film of Al walking through the airport with a bag hanging from his shoulder and ask what the patient was. The question makes sense only relative to a description of what happened, provided by a particular predicate, e.g. **What was Al carrying?** Conversely, one cannot infer that Al’s shoulder was a patient relative to any and all descriptions of what happened, even if it was greatly affected in his travels.

It is exactly because thematic relations depend on the description of the event that Dowty 1991 rejects their use in the compositional semantics. Many agree with Dowty’s judgment, at least in part; see chapter 3 of Kratzer 2003, for example. But for anyone committed to thematic relations, this dependence must be accepted, along with the ontology it requires, which we might call Fregean (see Landman 2000 and especially Schein 2002). Rothstein herself makes this observation (2004); but she seems to slip away from what it implies.

In any case, even if Rothstein were right about sentences like (47), one would still need to distinguish between “themes or affected arguments” that are accepted readily and those that aren’t: for singings, lullabies versus babies. And this is effectively the distinction between normal and ineffable patients.

Something like (149) is also suggested by Rappaport Hovav and Levin (2001). Referring to patients as “force recipients,” they defend a version of the means patient postulate that they call the “force recipient condition,” (53).

(53) “[T]he result XP must be predicated of the argument of the verb which is the force recipient” (Rappaport Hovav and Levin 2001: 33).

They then insist that a resultative with an unselected object may comply with this condition, but only indirectly. An unselected object does not in fact name the patient of the means event, but it may name something “inferentially related” to it. And for the purposes of the force recipient condition, they claim, that’s just as good; the “inferential relation” makes for a patient by proxy. Of course it is not just as good outside of resultatives, in simple clauses. Allegedly, (54) shows that the pub is “inferentially related” to the true patient of drinking (Rappaport Hovav and Levin 2001: 789), making it a patient by proxy. But this is not enough to make (55) acceptable.

(54) Ozzy drank the pub dry.
(55) * Ozzy drank the pub.
So where Rothstein assumes that some patients are expressible only in the resultative context, Rappaport Hovav and Levin assume that only this context allows patients by proxy.

### 4.1.2 Version 2: Events without patients

The second version of the means patient postulate begins by rejecting the suggestion that the first version accepts: Rocky’s sneakers are not the patient of his running, and Ozzy’s throat is not the patient of his singing.

In that case, the verbs *run* and *sing* must describe events that do not involve a patient at all. For suppose the opposite, that their events do involve a patient. Then the postulate would tell us that, when *run* or *sing* occurs in M, this patient is also the patient of the result event. Since the latter patient is identified by the phrase that controls R, the same phrase would also identify the patient of M—contrary to our initial premise. Conclusion: runnings and singings don’t have patients.

But then the postulate needs a slight amendment, (56). It must be made to allow for verbs like *run* and *sing*.

(56) Means patient postulate, version 2

a. If the means event has a patient,

b. then the patient of the result event is the patient of the means event.

Now we need the distinction between verbs whose event has a patient and verbs whose event does not have a patient. Put these in Class I and Class II respectively. Again, the incidence of unselected objects is cued to the division among verbs, (57), and again we have an important corollary prediction, (58).

(57) If an object in a resultative is unselected, then the means verb is a verb from Class II.

(58) If the object in a resultative is unselected, and the means verb is V, then the event of V is one for which the patient relation is undefined.

Rappaport Hovav and Levin in fact weaken their “force recipient condition” in just this way, (59).

(59) “[T]he result XP must be predicated of the argument of the verb which is the force recipient, if there is one” (Rappaport Hovav and Levin 2001: 33, my emphasis).

Usually this provision doesn’t matter, “[s]ince most transitive verbs describe events involving the transmission of force.” But if the means verb is drawn from the “noncanonical transitive verbs, which lack an NP denoting an entity which is the force recipient,” the mandate is lifted. R is then free to be “predicated” of any noun phrase, in principle, regardless of whether it has any particular thematic relation to M. (Indeed, Rappaport Hovav and Levin 2001 allows that some resultatives violate the DOR, contrary to what we are assuming.)

Notice then that for Rappaport Hovav and Levin, there are two kinds of unselected objects. When the means event is one that has a “force recipient,” then an unselected object must qualify as a patient by proxy, via an “inferential relation” to the force recipient. But
when the means event does not have a “force recipient,” an unselected object needn’t have any particular relation to the event at all. Their theory thus mixes versions 1 and 2 of the means participant postulate. Nevertheless, for simplicity’s sake, I will continue to talk about the two versions in isolation.

4.1.3 Unselected objects and transitivity in English

Each version of the means patient postulate has its relative attractions and flaws. But the choice between them is moot if their parallel predictions, (44) and (57), turn out to be false. Both versions rely on a certain classification of verbs. Only verbs from one of the two classes are allowed into resultatives with unselected objects. So in large part, justifying the means patient postulate amounts to providing independent evidence for the proposed classification of verbs.

We’ll now see that some such evidence is available in English. Here the proposed classification coincides neatly with the independent distinction between unergative verbs and all others, namely transitives and unaccusatives, a distinction which may itself reflect basic categories of verb meaning. Exactly this, I believe, is what accounts for the persistent appeal of the means patient postulate.

In English a verb is typically subject to the same requirements in a resultative as in a simple clause. It will require a patient (or theme) when in M, for example, to the same extent, and under the same conditions, that it requires one in a simple clause (Dowty 1979: 222, Carrier and Randall 1992: 187, Levin and Rappaport Hovav 1995: 39, but cf. Boas 2003: 113).

In simple clauses, for example, the verb sing does not require identification of what is sung, (60), and the same is true in resultatives, (61).

(60) Ozzy sang.
(61) Ozzy sang his throat hoarse.

The verb hammer generally does occur with an object naming the patient of hammering. But sometimes, particularly when the hammering is repetitive, the patient may go unexpressed, (62). Again, this is true in resultatives as in simple clauses. (63) does not tells us what was hammered, but some speakers find it acceptable, at least marginally, if the hammering is repetitive.\footnote{The acceptability of (63), such as it is, appears to depend on the fact that Al’s wrist, while the not the patient of hammering, is nevertheless involved in this action centrally. When the involvement of the object-referent is only incidental, the resultative is bad, even if the means verb is one that conditionally allows its patient to go unidentified in simple clauses. Nearly every native speaker of English I have asked, myself included, rejects (1) under the intended interpretation.}

(62) Al hammered ?(nails).

\footnote{The roofers hammered Al awake. ‘The roofers made Al awake from hammering stuff [not him].’}

Similar sentences are apparently possible in German; see Wunderlich 1997 and Rapp 1997. By itself, this not important. What matters is whether the conditions on ‘dropping an object’ are essentially the same in simple clauses and resultatives. I will not pursue this question for German.
Finally, verbs like *cut* and *carry* do not tolerate drop of their patients in simple clauses (64), and the same intolerance is shown in resultatives (65). Carrier and Randall (1992: 187) illustrate the same point for the verb *frighten*, (66).

(64)  
\begin{itemize}
  \item a. Al cut *(the frozen meat).
  \item b. Al carried *(the luggage).
\end{itemize}

(65)  
\begin{itemize}
  \item a. * Al cut the knife dull.
  \item b. * Al carried his neck sore.
\end{itemize}

(66)  
\begin{itemize}
  \item a. The bears frightened *(the campers).
  \item b. * The bears frightened the campground empty.
\end{itemize}

Thus in each case the behavior of the verb in resultatives corresponds to its behavior in simple clauses.

The same pattern governs grammatical relations. A verb in M will find its thematic relata bearing the same grammatical relations in the resultative clause that they would have in a simple clause. In the simple clauses (67a) and (68a), *sing* and *pound* find their agent in the subject and their (theme or) patient in the object; the opposite arrangement is impossible, (67b, 68b).

(67)  
\begin{itemize}
  \item a. Ozzy sang the old Sabbath tunes.
  \item b. * The old Sabbath tunes sang Ozzy.
      ‘Ozzy sang the old Sabbath tunes.’
\end{itemize}

(68)  
\begin{itemize}
  \item a. Rocky’s fists pounded the frozen meat.
  \item b. * The frozen meat pounded Rocky’s fists.
      ‘Rocky’s fists pounded the frozen meat.’
\end{itemize}

Just so, neither verb can occur in a resultative where the object names its agent and the subject names its (theme or) patient, (69, 70). Notice that the intended meanings here are entirely plausible.

(69)  
\begin{itemize}
  \item * The old Sabbath tunes sang Ozzy hoarse.
      ‘The old Sabbath tunes made Ozzy hoarse from his singing them.’
\end{itemize}

(70)  
\begin{itemize}
  \item * The frozen meat pounded Rocky’s fists bloody.
      ‘The meat made the fists bloody from their pounding it.’
\end{itemize}

Essentially the same pattern is found with respect to agent arguments. A verb will require or refuse an agent to the same degree in M as in simple clauses. But I will not take the time to illustrate this here; see Williams 2005.

When a verb is subject to the same argument requirements in both simple clauses and resultatives, I will say that it shows uniform projection. And when it is characteristic of a language that its verbs show uniform projection, I will say that the language has the uniform projection.
projection property, or UPP. Thus English has the UPP. This is demonstrated by our sharp reaction to a quote attributed to Mormon pioneer Brigham Young, (71).

(71) “‘God almighty will give the United States a pill that will puke them to death,’ Young said during tensions in the late 1850’s.”

(T. Egan, New York Times, 3 February 2002)

From this unusual sentence we deduce immediately that Young’s grammar must have allowed sentences like (72), which for us are unacceptable. Were the UPP not a characteristic of English, the strength of this inference would be surprising.

(72) * This bitter pill will surely puke you.

In any language with the UPP, the incidence of unselected objects is predicted by the distribution of the means verb in simple clause. An unselected object requires an unergative verb in M, a verb that can occupy a simple clause which lacks a direct object. If the verb is instead mandatorily transitive (or unaccusative), and thus occupies a simple clause only if it has an (underlying) object, then an unselected object is impossible.9

This suggests that the verb classification required by the means participant postulate has independent significance in the grammar, as it matches the distributional distinction between unergative and non-unergative verbs. But the suggestion would not be so compelling if we did not also trust that the latter distinction is itself significant semantically. For recall the predictions in (44) and (57), repeated here.

(73) If the object in a resultative is unselected, and the means verb is V, then the direct object in a simple clause with V is not its patient.

(74) If the object in a resultative is unselected, and the means verb is V, then the event of V is one for which the patient relation is undefined.

If unselected objects require an unergative verb in M, then these imply the further predictions in (75) and (76), respectively.

(75) If an unergative verb V occurs in a simple clause with a direct object, then the direct object does not identify the patient of V’s event.

(76) If V is an unergative verb, then the event of V is one for which the patient relation is undefined.

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8For discussion of some examples that seem to go against the UPP, see Williams 2005, pages 102–14.
9In English, the M verb in a transitive resultative cannot be unaccusative. But unaccusatives can occur in intransitive resultatives, like (1), where the subject is an underlying object, by hypothesis. That this underlying object cannot be unselected can be illustrated with examples like (2).

(1) The door swung shut.

(2) * The hinges swung smooth.

‘The hinges got smooth from [something else] swinging.’
So the means participant postulate is attractive only insofar as these semantic claims are plausible.

Surely they are at least reasonable. It is not crazy to think that, in English, the distinction between a transitive and an unergative verb reflects a difference in what sorts of participants its event-type involves. Perhaps the event of a transitive involves a patient, but that of an unergative does not; at most the event of an unergative involves an agent and a third participant, one not regarded as strongly affected in the event. Or maybe the event of an unergative involves a patient only optionally, but a third participant necessarily. Either way, some such idea would support the commitments of the means participant postulate.

But this all rests on the UPP. In a language without the UPP, the incidence of unselected objects would not correspond to the transitivity of the verb in simple clauses. Hence it might not correspond in the same way to the semantic class of the verb. We might find a verb whose event involves a strongly affected patient necessarily, for example, and which nevertheless occurs in a resultative with an unselected object, in direct violation of predictions (73) and (74). We’ll see in section 5 that Igbo and Mandarin are exactly such languages.

4.2 The means agent postulate

Under the means patient postulate, (77) is bad because Ozzy is not the patient of drinking.

(77) *Ozzy drank whiskey unconscious.

‘Ozzy got unconscious from drinking whiskey.’

The explanation is slightly different given the means agent postulate, (39), repeated below. Now (77) is bad because Ozzy is specifically the agent of drinking.

(39) Means agent postulate

The patient of the result event is not the agent of the means event.

Because of the UPP, any English verb that finds an agent in the subject of a simple clause will do the same in a resultative. With any such verb in M, therefore, (39) will prevent the subject from controlling R. The DOR is a consequence—at least in languages with the UPP.

This is part of the theory of resultatives developed in Goldberg and Jackendoff 2004, following previous work by Goldberg. There we find a principle of “semantic coherence.” Semantic coherence forbids the grammar from assigning certain combinations of thematic relations. In the context of the resultative, it says that the grammar cannot require the same phrase to identify both the agent of the M event, and the patient of the change to the R condition (hence the understood patient of the result state). Semantically, is the claim, these two roles are not “coherent.” Thus (77) violates semantic coherence. The grammar cannot constrain the subject to identify both the drinker and the undergoer of the transition to unconsciousness.

Unlike its alternative, the means agent postulate finds no special threat in resultatives with unselected objects. Of (78), it requires only that Ozzy’s throat is not the agent of the singing; and this claim is unproblematic.

(78) Ozzy sang his throat hoarse.
Moreover, at least in English, the sort of sentence that would threaten the hypothesis most forcefully, namely one like (79), is manifestly impossible, in keeping with the UPP. Here the object is supposed to control R, but also identify the agent of M.

(79) * The frozen meat pounded Rocky's fists bloody.
    'Rocky's fists got bloody from their pounding the frozen meat.'

Yet resultatives with reflexive objects, (80), indicate that the hypothesis needs to be modified, and in a way that weakens it profoundly.

(80) a. Tom pounded himself flat.
    b. Ozzy drank himself unconscious.

Such sentences assert that the same individual is both the agent of the M event and the patient of the R event. So there is in fact no problem with this situation, semantically. And therefore the means agent postulate, or the more general principle of semantic coherence, cannot be a purely semantic claim about the structure of events in an Res relation. Instead—as Goldberg and Jackendoff themselves observe—it must be a fundamentally syntactic claim about what thematic relations the grammar can associate with a single syntactic position, (81). The grammar cannot assign two thematic roles to the same position, unless they are "semantically coherent."

(81) Means agent postulate, corrected
    The phrase that controls R cannot also be grammatically restricted to identify the agent of the means event.

This amendment undercuts the theory's predictive power. Now it cannot by itself exclude a structure with the basic outlines of (82a), for example, with the given resultative interpretation.

(82) a. Ozzy drank unconscious.
    b. 'Ozzy got (or made himself) unconscious from drinking whiskey.'

As intended, (82) does not assign any one position two incoherent thematic relations. In particular, the silent pronoun is assigned only a relation to R, unconscious. So it cannot be semantic coherence or the means agent postulate that rules out (82). And this puts us back where we started: what will forbid anything like (82) while at the same time allowing for subject depictives like (83)?
Ozzy drank whiskey naked.

Besides this, it is not clear that either (81) or the broader principle of semantic coherence has a simple formalization. Unlike Chomsky’s Theta Criterion, neither one is a simple ban on assigning two thematic relations to a single position. Indeed, both presuppose that this is possible. They only exclude certain combinations of thematic relations. And whether two thematic relations can be combined depends at least on the semantic identity of the relations, agent or patient. If the relations are to different predicates, as in the case at hand, it may even depend on the semantic relation between those predicates (e.g., resultative versus depictive). But this means that all of these semantic properties must be redundantly encoded as purely formal features that can be referred to and manipulated in the grammar. Perhaps this will be independently necessary; I don’t know. But I would say it is something to be stubbornly avoided.

For these reasons, the means agent hypothesis holds less theoretical promise than the means patient hypothesis. The weakness of its intuitive motivations, moreover, will be underscored by the facts of Mandarin and Igbo, to which I now turn.

5 Resultatives in Igbo and Mandarin

In this section we will see that Igbo and Mandarin do not have what I called the uniform projection property. A verb is not subject to the same requirements in a resultative as in a simple clause. If a verb must find a patient in the object of a simple clause, for example, it nevertheless need not do so when it serves as M in a resultative. The interpretation of subject and object in a resultative is correspondingly free, with respect to the means event. With respect to the event of change described by the complex predicate MR, however, their interpretation remains fixed. The subject names the agent of change, and the object its undergoer. I spell out the implications of these facts for the means participant postulate in section 6, and introduce my own account thereafter.

5.1 The form of resultatives in Igbo and Mandarin

It will help to first give special attention to the form of resultatives in Igbo and Mandarin, since it differs from that of the resultative in English.

In English, M is a verb but (the head of) R is not. In Igbo and Mandarin, however, M and R are both verbs, roots that can serve as the sole predicate of a main clause without auxiliary support. Thus the R predicates in (84) and (86) can head clauses on their own, (85) and (87). Notice that the R verb is moreover not constrained to be stative; in both these examples, it is eventive.

(84) tā tī duàn-le nàtiáo mùbān. 3s kick snap -PFV that plank
    ‘S/he made that plank snap from kicking it.’

(85) nàtiáo mùbān duàn-le. that plank snap -PFV
    ‘That plank snapped.’
(86) Ọ kụ wa -ra ọba ahụ.
3sS strike split -FACT gourd that
‘S/he made that gourd split from striking it.’

(87) Ọba ahụ wa -ra awa.
gourd that split -FACT BVC
‘That gourd split.’

In English, R is phrasal, in that it may contain modifiers in addition to its head, (88). But the head of R cannot be modified in Igbo and Mandarin, as shown for Mandarin in (89). Thus R is a verbal head simply, and not a phrase.

(88) Al pounded the cutlet very flat.

(89) tá zá (*henuous) píng -le nàkuài ròu.
3s pound (*very) flat -PFV that meat
‘S/he pounded that meat (*very) flat.’

Tense and aspect suffixes follow both verbs in Igbo and Mandarin, and do not attach to M independently. The direct object likewise follows both M and R, and cannot occur between them, (90, 91).

(90) * tá tī (-le) nàtiáo mùbàn dùàn (-le).
3s kick (-PFV) that plank snap (-PFV)
‘S/he made that plank snap from kicking.’

(91) * O kụ (*ru) ọba ahụ wa (-ra).
3sS strike (-FACT) gourd that split (-FACT)
‘S/he made that gourd split from striking.’

Because M and R are in this way inseparable—with no adverbs, noun phrases, or aspect suffixes allowed between them—it is widely agreed that M never contains any noun phrase positions (for Mandarin see e.g. Thompson 1973, Y. Li 1990, and Huang 1992, contra Hashimoto 1966; for Igbo see Lord 1975 and Hale, Ihionu, and Manfredi 1995). The most common analysis for both languages is narrower still. Neither M nor R contain any noun phrase positions; both comprise just a verbal head. (See section 8.3 for more detail.) Thus Igbo and Mandarin resultatives are often designated as compounds of two verbs. Of course the minimal complex predicate might also contain one or more functional heads in addition to the two verbs, introducing the semantic relation between them (see section 7.5).

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10R cannot be adverbially modified in Igbo either, but it is harder to illustrate this quickly. In Igbo, a modifier of R—whether an adverbial noun, an adjunct PP, or a serialized VP—would not occur between the M and R verbs. But in any other position the modifier could modify the whole resultative predicate. Thus one has to distinguish this interpretation from modification of R alone. This can be done, but it requires analytical detail not warranted by current purposes.

11Conveniently, CCs in Igbo and Mandarin are distinct in form from serial verb constructions with sequential or coordinative meaning. Constructions of the latter sort put an object NP between the two verbs. In many other languages typologically similar to Mandarin or Igbo, such as Thai and Yoruba, this is not true; there, resultatives have the same word order as coordinative or sequential verb serializations, something which can complicate analysis.

12In Mandarin, there are exactly two morphemes that do occur between M and R. These are dé and bu,
5.2 Arguments in Igbo and Mandarin

5.2.1 Unrealized patients

In both Mandarin and Igbo, a verb that must cooccur with a patient in simple clauses need not do so when serving as M in a resultative.

For Mandarin this observation is commonplace (L. Li 1980, Lü 1986, Ma 1987, Tan 1991, among others). Take the verb qiē ‘cut,’ for example. In simple clauses, (92–94), it requires an object naming the patient of cutting. Thus sentences like (93) or (94) can only be analyzed as including a silent object pronoun, referring to some individual salient in the discourse. They cannot mean simply that there was an event of Lao Wei cutting something, or that there is such an event ongoing.

(92) Lǎo Wěi qiē -le zhúshān.
    L.W. cut -PFV bamboo shoot
    ‘Lao Wei cut bamboo shoots.’

(93) * Lǎo Wěi qiē -le.
    L.W. cut -PFV
    ‘There was an event of cutting with Lao Wei its agent.’
    Can mean: ‘Lao Wei cut it.’

(94) * Lǎo Wěi zài qiē.
    L.W. PROG cut
    ‘There is an ongoing event of cutting with Lao Wei its agent.’
    Can mean: ‘Lao Wei is cutting it.’

When qiē ‘cut’ is the means verb of a resultative, however, no such requirement holds. The resultative in (95), for example, can mean just that the subject made the knife dull from cutting something. No noun phrase names what is cut.

(95) tā hái qiē dūn -le nǐde cǎidāo.
    3s also cut dull -LE your food knife
    ‘S/he also made your cleaver dull from cutting.’
    (Adapted from Ma 1987: 428)

(95) does not contain a silent object pronoun, referring to the patient. Syntactically the sentence has no space for a second object, (96).

(96) * tā hái qiē dūn -le (zhúshān) nǐde cǎidāo (zhúshān).
    3s also cut dull -LE (bamboo) your food knife (bamboo)
    ‘S/he also made your cleaver dull from cutting bamboo.’

Pragmatically, moreover, (95) is not constrained to occur only in a context that would license silent pronominal reference to the patient of cutting. The context of (97a), for instance, does not license pronominal reference to anything but the cleaver, yet (97b) is felicitous nonetheless.

which here signal the so-called positive and negative potential form of the resultative, respectively. Roughly, the positive potential form means that an M event can cause an R event, and the negative potential form means that it cannot. See Williams 2005 (pgs. 255–65) for discussion.
(97) a. cāidāo zěnme huíshì a?
cleaver how happened PRT
‘What happened with the cleaver?’
b. Lǎo Wèi qiē dùn-le pro.
L.W. cut dull -PFV it
‘Lao Wei made it dull from cutting.’

Should the speaker of (95) want to identify what was cut, this can be done (among other ways) by adjoining an adverbial verb phrase, as in (98). Yet regardless of whether this addition is required by the conversation, it is not required by the syntax.13

(98) Lǎo Wèi qiē zhúshǔn, qiē dùn-le cāidāo.
L.W. cut bamboo shoots, cut dull -PFV food knife
‘Cutting bamboo shoots, Lao Wei made the cleaver dull from cutting.’

Finally we cannot say that the direct object in (95), cāidāo ‘cleaver,’ is itself an argument of the means verb. The cleaver is indeed the instrument of the means event; but in simple clauses qiē ‘cut’ cannot take an instrument as its direct object, (99).

(99) *tā qiē -le nǐde cāidāo.
3s cut -LE your food knife
‘S/he cut [stuff] with your cleaver.’

This pattern is systematic. With few exceptions, any verb in M can occur without the patient argument required in simple clauses. (100–103) give further examples. As usual, the glosses give an intended interpretation, which is not always the only interpretation possible.

(100) wǒ cā zāng -le liāngkuài móbù.
1s wipe dirty -PFV two towels
‘I made two towels dirty from wiping.’
(Wang 1995: 148, tr. AW)

(101) tā pāi téng -le shǒu.
3s smack hurt -PFV hand
‘S/he made her/his hand hurt from smacking [something else].’
(Adapted from L. Li 1980: 98, tr. AW)

(102) tī qiú, tī qiú, yīge yuè tī huái -le sān shuāng xié.
kick ball, kick ball, one month kick bad -PFV three pair shoe
‘S/he kicked balls, and kicked balls, [so] in one month s/he made three pairs of shoes go bad from kicking.’ (Lǚ 1986: 5, tr. AW)

(103) tā mǎi kōng -le qìnbāo.
3s buy empty -PFV wallet
‘He bought (so much that) his wallet (got) empty.’
(ex. & tr. Tan 1991: 100)

13Such VPs are considered adjuncts not only because they can be dropped, but also because they cannot include aspectual suffixes or modal verbs.
It can be shown, just as it was for (95), that none of these resultatives includes a noun phrase naming the patient (or theme) of the means event; yet in each case M is a verb that must cooccur a patient (or theme) argument in simple clauses, and cannot take an instrument as its direct object.

Igbo displays the same pattern as Mandarin, just as systematically. A verb required to cooccur with a patient in simple clauses is subject to no such requirement when in M. Take the Igbo verbs bi ‘cut’ and gwu ‘dig out,’ for example. In simple clauses like (104) and (105), these verbs must cooccur with an argument noun phrase that identifies what was cut or what was dug out.

\((104)\) O bi -ri osisi.
3sS cut -FACT wood
‘S/he cut wood.’

\((105)\) O gwu -ru ji.
3sS dig out -FACT yam
‘S/he dug up yams.’

Unlike Mandarin, Igbo has no silent object pronouns; so (106) and (107) have no grammatical analysis at all (see Nwachukwu 1987: 126 on the lack of “object drop” in Igbo simple clauses).

\((106)\) a. * O bi -ri (ebi).
3sS cut -FACT (BVC)
‘There was an event of cutting with him its agent.’

b. * Q na e- bi (ebi).
3sS PROG SBRD- cut (BVC)
‘There is an ongoing event of cutting with him its agent.’

\((107)\) a. * O gwu -ru (egwu).
3sS dig out -FACT (BVC)
‘There was an event of digging out with him its agent.’

b. * Q na e- gwu (egwu).
3sS PROG SBRD- dig out (BVC)
‘There is an ongoing event of digging out with him its agent.’

Yet when bi ‘cut’ and gwu ‘dig out’ appear in M, there is no need for a patient. (108) and (109) are perfectly natural, despite the absence of any noun phrase identifying what was cut or what was dug out.

\((108)\) O bi kpʉ -ru mma.
3sS cut -blunt -FACT knife
‘S/he made his knife blunt from cutting.’

\((109)\) O gwu ji -ri ọnụ.
3sS dig out snap -FACT hoe
‘S/he made the hoe snap from digging out.’
Again, these are not cases of silent anaphora, since Igbo has no silent object pronouns. Nor do they express alternative argument structures for bi ‘cut’ and gwu ‘dig out,’ alternatives which select an instrument rather than a patient as object. In simple clauses an instrumental object is impossible, (110, 111).

(110) * O 3sS bi -ri mma (n’ osisi).
     3sS cut -FACT knife (P wood)
     ‘S/he cut with a knife (at wood).’
(111) * O 3sS gwu -ru ogu (na ji).
     3sS dig out -rV hoe (P yam)
     ‘S/he dug with his hoe (at yams).’

We can only conclude that the requirement associated with these verbs in simple clauses is absent in resultatives. Should the speaker want to identify the patient of the means event, this can be done by means of an adjunct PP, as in (112) and (113).

(112) O 3sS so. ja -ra osisi.
     3sS poke splayed -FACT wood
     ‘S/he made the stick splay by poking [with it].’
     (Can also mean: ‘S/he splayed the stick by poking it.’)
(113) O de ji -ri pensul.
     3sS write snap -FACT pencil
     ‘She made the pencil (nib) snap from writing.’

But the addition of this information is not syntactically required. The behavior of bi ‘cut’ and gwu ‘dig out’ is in no way exceptional. Verbs that require a patient in simple clauses do not when in M, quite generally. Three more examples are given in (114–116).

(114) O sọ ja -ra osisi.
     3sS poke splayed -FACT wood
     ‘S/he made the stick splay by poking [with it].’
(115) O de ji -ri pensul.
     3sS write snap -FACT pencil
     ‘She made the pencil (nib) snap from writing.’
(116) O bu ị̀nọ -ro olu (n’ ibu).
     3sS carry sore -FACT neck (P load)
     ‘She made her neck sore by carrying (a load).’

In none of these resultatives is there a noun phrase identifying the patient of the means event. Yet sọ ‘poke,’ de ‘write,’ and bu ‘carry (on the head)’ are all verbs that require a patient in simple clauses, and cannot take an instrument as object.
5.2.2 Patients in unexpected places

The absence of simple-clause requirements is also evident in the correspondence between thematic and grammatical relations. A verb constrained to find its patient in the direct object of a simple clause may seem to find a patient in the subject of a resultative.

For Mandarin this has been observed in L. Li 1980, Lú 1986, Ma 1987, Tan 1991, and elsewhere; the most widely known discussions are in Y. Li 1990 and 1995. Consider (117–119) for example.

(117) jiějiě xī - le yífú.
elder sister wash -PFV clothes
‘Big sister washed (the) clothes.’

(118) * yífú xī - le jiějiě.
clothes wash -PFV elder sister
Intended: ‘Big sister washed the clothes.’

(119) yífú xī lèi - le jiějiě.
clothes wash tired -PFV elder sister
Can mean: ‘The clothes made big sister tired from [her] washing [them].’
(Ren 2001: 326, tr. AW)

In simple clauses, (117,118), the verb xī ‘wash’ is constrained to find its patient in the object and its agent in the subject. Yet in the resultative (119), the subject is understood as naming the patient of the means event, and the object, its agent: big sister washes the clothes. So constraints on the correspondence between grammatical and thematic relations in simple clauses are apparently absent when the verb is in M.\(^{14}\)

Tan 1991 suggests that sentences like these reflect the possibility of the verb in M occurring in an intransitive and nonagentive simple clause, as in (120).\(^{15}\)

(120) yífú xī -le.
clothes wash -PFV
‘The clothes are washed.’

She then proposes that, in resultatives like (119), the means verb occurs in its intransitive guise, and consequently assigns its patient role to the subject. But this cannot be correct. Construed as nonagentive intransitives, sentences like (120) have a result-state interpretation. (120) means that the clothes are in the state that results from washing, for example. Yet this meaning is no part of (119). (119) does not mean: ‘The clothes being in a washed state made big sister tired.’ It means rather that washing the clothes made her tired. The contribution of the means verb here is eventive, and not (result-) stative. Thus we should assume that the verb in (119) is eventive transitive of (117) and not the result-state intransitive of (120).

\(^{15}\)Tan demonstrates that sentences like (120) do indeed have an intransitive analysis, under which there is no silent subject pronoun referring to an agent, and the patient NP is the surface subject. This accords with the consensus in the Chinese-language literature (e.g. Gong 1980), and with the perspective in Li and Thompson 1994: but see LaPolla 1988 for disagreement. The issue is discussed at greater length in chapter 3 of Williams 2005.
makes the same point as (119), but with a twist. Here M is xià ‘fall,’ a nonagentive intransitive which appears to be unaccusative. In simple clauses, xià ‘fall’ commonly occurs with its patient (or theme) in the direct object, (122). But in (121) it is the subject that tells us what falls.16

(121) mì yú xià hēi -le tiāndì.  
dense rain fall black -PFV earth  
‘The dense rain made the earth dark from falling.’  
(L. Li 1980, quoting from Zhou Libo’s Baofeng Zhouyu)

(122) xià -le yú.  
fall -PFV rain  
‘Rain fell.’ (i.e., ‘It rained.’)

The fact that resultatives like (121) are not possible in English, (123), might be taken to follow from basic constraints on semantic structure (see the discussion of Van Valin’s views in Levin and Rappaport Hovav 1995: 71–72).

(123) * The tree fell the car flat.  
‘The tree made the car flat from falling.’

That they are possible in Mandarin (and in Igbo as well, as we will see) shows that this is wrong. (123) violates no universal principle of semantics. It is simply inconsistent with whatever aspect of English grammar explains the UPP. Now let us turn to Igbo. All Igbo speakers I consulted accept (124). M here is da ‘fall,’ and the subject of the resultative identifies what falls. It is at least reasonable to assume that da ‘fall’ is unaccusative; that is, that the surface subject in (125) is the direct object of the clause underlyingly. If that assumption is correct, then (124) shows that the requirements associated with the verb in simple clauses are absent in resultatives.17

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16Mandarin also allows stative verbs in M, with the subject being the holder of the state, (1). I have found no similar examples in Igbo.

(1) nà wān māpōduō fù -kū -le xiāo hāizi.  
that bowl Mapo Tofu hot -cry -PFV small child  
‘That bowl of Mapo Tofu made the child cry from being so hot.’

17Sentence (1) below can mean that the farmer made the tree split by falling into it. But only one of the Igbo speakers I consulted accepted (1) with the interpretation in the gloss. Here the direct object is meant to identify what falls.

(1) % Onye ọụ bụ da ji -ri osisi.  
farmer fall split -FACT tree  
‘The farmer made the tree split from [its] falling.’

That this should be marginal is not as I would expect. But even the speaker who did allow (1) strongly rejected (2), again indicating the contrast between simple and resultative environments.

(2) * Onye ọụ bụ da -ra osisi.  
farmer fall -FACT tree  
‘The farmer made the tree fall.’
(124)  Osisi da bi -ri eriri.
  tree fall in pieces -FACT rope
  ‘The tree made the rope go to pieces from falling.’

(125)  Osisi da -ra ada.
  wood fall -FACT BVC
  ‘The tree fell.’

My interviews with Igbo speakers have hinted that sentences like Mandarin (119) are possible as well: transitive resultatives where the subject identifies the patient of the means event, but M is a transitive verb. Of the four speakers I consulted with most regularly, two accepted (126) and two rejected it.

(126)  % Ji ahu gwu ji -ri ogu ya.
  yam that dig out snap -FACT hoe 3sPOSS
  ‘That yam made his hoe snap from digging out [i.e. from its being
dug out].’

For those who accept this sentence, the subject, ji ahu ‘that yam,’ is understood as the patient of the means event: the yam is what was dug out. In simple clauses, however, gwu ‘dig out’ must find the patient of digging in the object, (127). 18

(127)  a.  O gwu -ru ji.
  3sS dig out -FACT yam
  ‘S/he dug out yams.’

b. * Ji ahu gwu -ru ya.
  yam that dig out -FACT 3s
  ‘S/he dug out that yam.’

18 One of the speakers who accepted (126) also accepted (1). This sentence could not be tested with my other consultants, however, as their dialects do not include the verb ˙no ‘tired, sore’ (Green and Igwe 1963: 232, Igwe 1999: 559).

(1)  Ibu bu ˙no -ro ya olu.
  load carry sore -FACT 3s neck
  ‘The load made his neck sore from carrying.’

Here M is bu ‘to carry on the head’, and the subject names what is carried. But this is impossible when bu is on its own, (2).

(2)  * Ibu bu -ru ya.
  load carry -FACT 3s
  Intended: ‘S/he carried the load.’

The speaker who accepted (1) grew up in the Isu-ikwu-ato region of an area now known as Ambiya, formerly a part of Imo State. The dialect studied in Green and Igwe 1963 was spoken “near Umuahia by the people known as Oluhu” (1963: xiii).
So for some speakers of Igbo, constraints on the correspondence between thematic and grammatical relations are relaxed when a verb appears in a resultative. I do not know what to make of the disagreement among speakers. But it is interesting that (126) was sensible to any speakers at all. Contrast the English calque in (128), which provokes only bafflement.

(128) * That yam dug his hoe apart.

5.2.3 Agents, missing or displaced

In both Mandarin and Igbo, unlike in English, it is common for a verb which must cooccur with an agent in simple clauses to occur without one in an *intransitive* resultative, (129). But for the sake of space, I cannot discuss intransitives here.

(129) a. hēibān cā gānjīng -le.
blackboard wipe clean -LE
‘The blackboard got clean from wiping.’ (H. Huang 1982: 56; tr. AW)

b. ?* hēibān cā -le.
blackboard wipe -PFV
‘There was a wiping, with the blackboard its patient.’
Can mean: ‘The blackboard, *pro* wiped.’

(130) a. Ọba ahụ kụ -wa -ra akụwa.
gourd that strike -split -FACT BVC
‘That gourd got split from striking.’ (Hale et al. 1995: 84, tr. AW)

b. *Ọba ahụ kụ -rụ akụ.
gourd that strike -FACT BVC
‘There was a striking, with that gourd its patient.’

Within the domain of transitive resultatives, the data concerning the distribution of agents for M is more subtle.

In Mandarin it does seem possible to have a transitive resultative where no noun phrase identifies the agent of the means event, despite M being a verb that never occurs without an agent in simple clauses. Example (131) is often cited in the literature (see Gu 1992: 27). M here is kū ‘cry.’ In simple clauses this verb must occur with a subject that identifies the agent of crying, (132), certainly if it is to describe a dynamic event of crying, as it does in (131). But in (131) no argument noun phrase refers to the cryer. We know who cried only by inference, from the fact it was Lisi’s eyes which were reddened by the crying.

(131) zhējiàn shì kū hóng le Lìsī-de yānjing.
this matter cry red PFV L-’s eyes
‘This matter made Lisi’s eyes red from crying.’ (Huang 1988: 296, tr. AW)

(132) *yānlei kū -le.
tears cry -PFV
‘There was a crying of tears.’
Can mean: ‘*pro* cried tears,’ and perhaps, very marginally: ‘The tears are in the state of having been cried.’
Notice that the subject here appears to have no thematic relation to the means event, certainly not one that can be assigned to an argument in simple clauses with kū ‘cry.’ Its only clear relation is to the event of change described by MR, of which it is the agent. I return to this observation below, in section 5.2.4.

In Igbo, examples that make exactly the same point as (169) are hard to come by. One possible example is (133), which repeats (126). For speakers who accept this sentence, the verb gwu ‘dig out’ occurs without any noun phrase identifying the agent of digging. Yet this is impossible in simple clauses, (134).

(133) % Ji ahù gwu ji -ri ogụ ya.
    yam that dig out snap -FACT hoe 3sPOSS
    ‘That yam made his hoe snap from digging out.’
(134) * Ji ahù gwu -ru.
    yam that dig out -FACT
    ‘There was an event of digging out with that yam its patient.’

Turning to the relation between thematic and grammatical relations, Mandarin shows clear cases of agents being realized in unexpected positions. (119) is such an example; I repeat it as (135). Here the direct object is understood as naming the agent of the means event, even though this is impossible in simple clauses, (136).

(135) yìfú xì léi -le jìjìè.
    clothes wash tired -PFV elder.sister
    ‘The clothes made big sister tired from [her] washing [them].’
    (Ren 2001: 326, tr. AW)
(136) * yìfú xì -le jìjìè.
    clothes wash tired -PFV elder.sister
    ‘Big Sister washed the clothes.’

I have found no comparable examples in Igbo, examples where the object is understood as the agent of M. In (133) it refers to the instrument of the means event, not its agent. If it were understood as the agent, we would expect the sense of metonymy or personification that attends (137). But this is absent from (133); to those who accept it, this sentence does not depict the hoe as doing its own digging.

(137) ? Oγụ ya gwu -ru ji ndìa.
    hoe 3s dig out -FACT yam these
    ‘His hoe [magically] dug out these yams [on its own].’

I don’t know whether this gap in the Igbo data is accidental or principled. If it turns out to be principled, it will be important to account for it.

5.2.4 Summary and preview

Typically the thematic relations an Igbo or Mandarin verb must enter in simple clauses, it need not enter when in the means predicate of an resultative. Correspondingly, while the
interpretation of subject and object is fixed with respect to the verb in a simple clause, it is largely free with respect the means verb in a resultative.

This freedom of interpretation has decisive relevance for the means participant postulate, which I make explicit just below in section 6. Of course the facts also raise questions of their own: what is the best theory of the observed freedom, and how exactly do Igbo and Mandarin differ from English? These are the focus of Williams 2005, whose answers I review in section 9.

Just as important as the observed liberality is the observed stability. Two correlated aspects of interpretation remain fixed. When the surface object controls R—when it identifies the undergoer of the change described by the resultative complex predicate—the subject is always understood as the instigator of that change. One can say it identifies the ‘causer’ (Huang 1988, Y. Li 1990, Gu 1992). Compare the four Mandarin examples in (138–141).

The pattern of relations to M varies from case to case. But the subject is always understood as the motive force behind the event of change, as (140) and (141) make especially clear. (140) presents the clothes as responsible for big sister getting tired from washing, and (141) presents ‘this matter’ as responsible for Lisi’s eyes getting red from crying. That neither the dirty clothes nor the sad matter are the agent of the means event is a separate issue.

(138) tā tī duàn -le nàtiáo mùbān.
   3s kick snap -PFV that wooden plank
   ‘S/he made that plank snap from kicking.’

(139) Lǎo Wēi qiē zhúshūn, qiē dūn -le cài dāo.
   L.W. cut bamboo shoots, cut dull -PFV food knife
   ‘Cutting bamboo shoots, Wei made the cleaver dull from cutting.’

(140) yīfú xī léi -le jiéjié.
   clothes wash tired -PFV elder sister
   ‘The clothes made big sister tired from [her] washing [them].’
   (Ren 2001: 326, tr. AW)

(141) zhèjìàn shì kū hóng le Lǐsì-de yānjīng.
   this matter cry red PFV L-'s eyes
   ‘This matter made Lisi’s eyes red from crying.’
   (Huang 1988: 296, tr. AW)

In intransitives, moreover, no argument noun phrase is understood as the instigator of change; we will see direct evidence for this in section 10. As emphasized particularly by Yafei Li (1990, 1995), therefore, there is a complementary relation between control of R and identification of a ‘causer.’ This, I will argue in section 7, is exactly what explains the DOR.

6 The lessons of Igbo and Mandarin

We want to explain the DOR without relying on any details of resultative syntax that are not mandated by resultative meaning, given only basic principles of semantic composition. The means patient and means agent postulates are attempts to do this. These found support in English, but it is now clear that both postulates fail.
The means patient hypothesis demands either of two perspectives on resultatives with unselected objects, (142) or (143).

(142) If the object in a resultative is unselected, and the means verb is V, then the direct object in a simple clause with V is not its patient.

(143) If the object in a resultative is unselected, and the means verb is V, then the event of V is one for which the patient relation is undefined.

These ought to have universal force, inasmuch as they are about meanings. But both are plainly falsified by resultatives like (144) and (145) in Mandarin and Igbo.

(144) tā hái qiē dùn -le nǐ de càidāo.
3s also cut dull -LE your food knife
‘S/he also made your cleaver dull from cutting.’

(145) O sī bi kū -rū mma.
3sS cut -blunt -FACT knife
‘S/he made his knife blunt from cutting.’

Here the object is unselected, and M houses a verb meaning ‘cut.’ When the same verb occurs in a simple clause, the direct object identifies the thing cut. The thing cut is presumably the patient of cutting.\(^\text{19}\) So (142) is wrong. The direct object in a simple clause with Igbo bi ‘cut’ or Mandarin qiē ‘cut’ does name the patient of the event. And consequently these are not verbs whose event lacks a patient, contra (143). Nor are examples like these at all exceptional, relative to Mandarin and Igbo. They are perfectly normal, and similar examples are systematically available.

Thus there is no universal correlation between the possibility of an unselected object in a resultative, and the meaning of the verb in M. Correspondingly, there can be no universal basis for isolating a special class of resultatives, distinguished by the meaning of the verb in M, where the understood patient of R need not identify the patient of M, in exemption from the general force of the means patient hypothesis. And absent the possibility of a special class like this, one simply cannot say that, as a matter of semantic principle, control of R depends on being the patient of M.

As for the means agent postulate, I argued above that it is already too weak. This was brought to our attention by reflexive resultatives like (146). These describe an event of change where the individual who changes is also the agent of the means event.

(146) Ozzy drank himself unconscious.

\(^{19}\)Indeed the patient hypothesis itself would require this. For it says that control of R goes to the patient of M. And in English, when the verb cut is in M, the phrase that controls R necessarily identifies the thing cut.

(1) a. Al cut the box open.
   b. *Al cut his knife dull.
Thus there can be no purely semantic prohibition on this combination of understood thematic relations. Instead the postulate must be a formal prohibition on assigning select combinations of thematic predicates to a single syntactic position.

Mandarin makes the point even more brashly, without relying on reflexives. We find resultatives where a single nonreflexive noun phrase is understood as instantiating a putatively “incoherent” combination of thematic relations. In (147), for example, the object refers to the understood agent of M-ing. Nevertheless it controls R. The same is true for the intransitive in (148). The surface subject controls R, but also identifies the agent of walking.

(147) yìfù xì lèi le jiējiē.
clothes wash tired -PFV elder sister
‘The clothes made big sister tired from [her] washing [them].’
(Ren 2001: 326, tr. AW)

(148) wǒ zǒu fá le.
1s walk weary -LE
‘I got weary from walking.’

The possibility still remains of preserving the means agent postulate as a purely formal prohibition. For it might be that in (147) and (148), the understood agent relations to the means event are not assigned grammatically. Perhaps they are only inferred. Indeed I will argue exactly this in section 9. But why preserve the postulate, thus weakened? It can play no role in explaining the DOR in Mandarin or Igbo, and it forbids the assignment of interpretations that we admit are acceptable conceptually. To accept it in spite of these limitations seems perverse.

More generally, if we actually do have intuitions about which pairs of thematic relations are “coherent” in the context of a resultative, it is now clear that these do not reflect the semantic structure of natural language causatives. They express generalizations over a contingent grammatical pattern of English, one not found in Igbo or Mandarin. We have no difficulty thinking that an event of cutting bamboo made the kitchen knife dull, or that a bottle of liquor intoxicated its drinker. So it is good to rid ourselves of a theory which excludes the resultative expression of such thoughts on semantic grounds. As it happens, verbs in English are subject to certain distributional constraints, and these do prevent the resultative expression of certain simple thoughts. But it is a mistake, we have learned, to confound these distributional constraints with the semantics of natural language causatives.

In concluding my criticism, I would like to point out the trace of lexicalist assumptions in the means participant postulate. By lexicalism I understand a policy of stating a linguistic pattern (semantic, syntactic, or phonological) as a property of an open-class lexical item that participates in it. For example, if a verb always occurs with a DP identifying the patient of its event, it is a lexicalist response to say that the verb itself requires this. Of the works I have discussed, only Rappaport Hovav and Levin 2001 presupposes lexicalism; Goldberg and Jackendoff 2004 present arguments against it. But some lexicalist ideas are stubborn. And behind Rothstein’s claim in (149) is one idea that informs much of the conversation on resultatives.

(149) “The semantic constraint is that the argument of the incremental process must be the theme or affected argument of the lexical verb” (Rothstein 2004: 115).
Rothstein derives this constraint from the general study of accomplishments and achievements. These are predicates that both describe an event as dynamic, and define for it an intrinsic and nonarbitrary endpoint, one that marks its completion. The completion is indicated by the condition of a distinguished participant. Take transitive melt, an accomplishment. For an event to be described by A melted B, it must stop when a state of liquidity is achieved, not before and not after. More specifically, it must end when A in particular is liquid; the condition of B is irrelevant. Conventionally the participant which plays this role is designated as the theme of the event whose completion it determines; we might also call it the patient.

It has been observed that the syntactic realization of such themes is not arbitrary. They are always identified by a direct argument, either an object or a subject. Sometimes it is argued further that the theme is always a direct object, underlingly; subject themes are then derived by raising.

Often this observation takes a stronger form. It is claimed that the theme must be, not just a nonoblique or nonadjunct noun phrase, but an argument of the verb. This extrapolation may seem innocuous when the accomplishment predicate is simple, like melt, comprising nothing but a lexical verb. But it is substantive, and evidently mistaken, when the predicate is complex, like English shout hoarse or Igbo bi kpu ‘cut dull.’ For then it says that the theme must be an argument in relation to a lexical verb within that predicate—even when that verb is not itself the accomplishment predicate whose event is measured by the condition of the theme. With regard to shout hoarse, it says that the theme of the shouting hoarse must be a lexical argument of the verb shout. Rothstein takes a natural next step, and concludes that this means being a “theme or affected argument” of the shouting. We have seen that this idea can be defended with some success in English. But it is defeated utterly in Igbo and Mandarin, hence universally.

An unselected object in a resultative is clearly an argument, not an adjunct. But it is not an argument in relation to the verb in M. The lexicalist can respond that it must be an argument in relation to the lexical head of R; see Kratzer 2005, for example. But this obscures more than it explains, as we’ll learn in section 8. The better response, for which I argue hereinafter, leaves lexicalism behind. The direct object is an argument in relation, not to the lexical head of either M or R, but to the complex predicate MR as a whole.

7 The external patient theory

I now state what I think is the right semantics for resultatives, and show how this provides a real explanation of the DOR. The semantic analysis is not mine alone. A very similar analysis is espoused in Parsons 1990, for example, and also in Goldberg and Jackendoff 2004. What I add is the argument that this analysis succeeds where the traditional result patient analysis fails. It alone allows us to explain the DOR, as well as the further facts I discuss in section 8, without running afoul of what we have learned from Igbo and Mandarin. Indeed, Igbo and Mandarin provide the analysis with new support.

20 Wechsler (2005) makes this mistake, and hence concludes that resultatives with unselected objects are ipso facto not accomplishments. The further data he musters to support this conclusion are to me unconvincing.
7.1 The event of the complex predicate

The minimal resultative complex predicate, I suggest, has a meaning like (150). It describes an event $e_c$ which stands in a certain relation to two others, $e_m$ and $e_r$. I call this relation Cause and refer to $e_c$ as an event of causation. Events $e_m$ and $e_r$ are of types $\mathcal{M}$ and $\mathcal{R}$ respectively, where these are sortals provided by $\mathcal{M}$ and $\mathcal{R}$.

\[ [MR] = \ldots \lambda e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \mathcal{M}(e_m) \land \mathcal{R}(e_r) \ldots \]

I come to the presumed meaning of Cause, hence to the presumed structure of events of causation, in the next subsection. Here I insist only that the resultative complex predicate describes an event that is distinct from either the means or the result event. Thus I reject any logical form, like either of those in (151), which recognizes only the means event, the result event, and a relation Cause between them.

\[ * [MR] = \ldots \lambda e_m \exists e_r. \text{Cause}^*(e_m, e_r) \land \mathcal{M}(e_m) \land \mathcal{R}(e_r) \ldots \]

\[ * [MR] = \ldots \lambda e_r \exists e_m. \text{Cause}^*(e_m, e_r) \land \mathcal{M}(e_m) \land \mathcal{R}(e_r) \ldots \]

It is particularly important to reject (151a), since this logical form can be seen as the natural event-theoretic reflex of the traditional semantics for resultatives, and is quite often endorsed in contemporary work; see e.g. in Kratzer 2003.

The clearest evidence for this conclusion comes from adverbs. A resultative complex predicate can be modified by a manner adverb, (152).

\[ (152) \]

a. Al quickly pounded the cutlet flat.

b. Al pounded the cutlet flat quickly.

What both sentences in (152) say is that a certain change happened quickly. Roughly, the time from the inception of the relevant event of pounding to the achievement of flatness in the cutlet was relatively brief. So what was quick was not the event of pounding, and certainly not the event of being flat. It was the flattening of the cutlet by pounding, or what I am calling the event of causation.

Were there no event of causation, the resultative complex predicate would have to be either a predicate of the means event, as in (151a), or a predicate of the result event, as in (151b).

In the first case, quickly should be able to describe the event of pounding in (152). But this is impossible. Neither (a) nor (b) can mean that Al pounded the cutlet quickly. If either one could, then at least one of the continuations in (153) should have a reasonable interpretation, namely: it took Al an exceptionally long time to make the cutlet flat by pounding it quickly. But neither one does.

\[ (153) \]

a. # Al quickly pounded the cutlet flat, and it took him an exceptionally long time.

b. # Al pounded the cutlet flat quickly, and it took him an exceptionally long time.

In fact both sentences say something that approaches contradiction: the event of making the cutlet flat was both quick and took an exceptionally long time.

In the second case, (151b), quickly shouldn’t be possible in (152) at all, since an event of being flat cannot be quick (154).
(154)  # Al was fat quickly.
      ‘Al’s being fat was quick.’

Here one might hesitate. In many analyses, the means event is said to cause, not the R state, but an event of becoming R. So why not give an analysis like (155), for instance, where the resultative complex predicate is a predicate of events of becoming? Don’t we then avoid having an event of causation?

\[
\lambda e_b \exists e_m \exists e_r . \text{Means}(e_m, e_b) \land \text{Become}(e_b, e_r) \land M(e) \land R(e_r) \ldots
\]

No, we do not. (155) merely renames my ‘event of causation’ as an ‘event of becoming.’ Under either name, there is a distinct event of change, initiated by the means event and ending with the result event. All that (155) contributes is one particular analysis of my Cause predicate, which treats it as the composition of Means and Become.

Thus the interpretation of manner adverbs shows that the resultative complex predicate is a predicate neither of the means event nor of the result event. It is a predicate of an event of change that relates to those two others.

This should seem a familiar point, since one reaches similar conclusions in regard to simple causatives like kill or melt. Here, with a few disputed exceptions, adverbs can describe neither the implied the result state (being dead, being melted) nor a putative causing event (e.g. a stabbing, a heating); they readily describe only the event of change itself (Fodor 1970; see Pietroski 2004, chapter 3). The analogous conclusion is more striking in the case of resultatives, however. For in simple causatives, kill or melt, the verb itself applies neither to the implied result state nor to the putative causing event, strictly speaking. (If Nora melts chocolate, then the state of meltedness is not itself a melting. And if in fact she melts it by holding a lens near it, then the lens holding isn’t a melting either, at least arguably.) But in resultatives both the result state and the causing event are explicitly described by overt predicates, namely R and M. Still it is impossible for an adverb placed outside the complex predicate to describe either the result state or the means event individually. In addition, as we just learned above, the means event cannot be described adverbially at all, no matter where the adverb sits.

This last fact has an important syntactic consequence, which I rely on importantly in the remainder of the paper. I presume that any phrase containing both a verb and a thematically related noun phrase could also contain a manner adverb of some type, describing the event of the verb. This implies that M contains no noun phrase positions in English resultatives. For if it did, adverbial modification of the means verb should be possible. Thus the correct structure is something like (156) and nothing like (157).\(^{21}\) Recall that the same conclusion is standard for Igbo and Mandarin as well: M is just a verb.

(156)  \([\text{MR } V_M \ R]\)

(157)  \(*[\text{MR } [\ V_M \ DP \ ] \ R]\)

\(^{21}\)That the means event cannot be adverbially modified would also follow if resultative meaning were introduced by the means verb itself, lexically, as proposed in Simpson 1983 and elsewhere. But recall from section 2 that I take any such proposal to be implausible.
7.2 Events of causation and their patients

What I call an event of causation is at the very least an event of change, one that reaches its intrinsic conclusion—or to use a common term in the literature, its culmination (REFS)—when the result state defined by R comes into existence. The means event $e_m$ is the means by which this came about, which may amount to being a proximate physical cause of the result state $e_r$. Thus the Cause relation may have an analysis like (158) or (159). These are of course developments of the idea that the relation between M and R decomposes into “by” and “become” as in Green 1972, or into “cause” and “become” as in Dowty 1972.

(158) $\text{Cause}(e_c, e_m, e_r) \equiv \text{Culmination}(e_c, e_r) \land \text{Means}(e_c, e_m)$

(159) $\text{Cause}(e_c, e_m, e_r) \equiv \text{Culmination}(e_c, e_r) \land \text{Prox.Phys.Cause}(e_m, e_r)$

Perhaps the right analysis is still richer, or interestingly different (cf. Rothstein 2001, 2004). Certainly notions like “cause” and “culmination” deserve to be made clearer. But I care to make just one claim. An event of causation is one that itself has thematic participants; in particular it always has at least a patient. This is the core of what I will call the external patient theory of resultative meaning.

I assume that the patient of the event of causation is always identified by a non-adjunct noun phrase in the resultative clause; in section 7.4 I derive the further conclusion this must be the object of the clause underlyingly. Thus the patient of causation is the cutlet ($c$) in (160) and Ozzy’s throat ($ot$) (161). It is the lake ($l$) in the intransitive (162), where I assume that the surface subject is derived.

(160) \[
\begin{aligned}
[\text{Al pounded the cutlet flat}] &= \\
\exists e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, c) \land \text{pound}(e_m) \land \text{flat}(e_r) \ldots
\end{aligned}
\]

(161) \[
\begin{aligned}
[\text{Ozzy shouted his throat hoarse}] &= \\
\exists e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, ot) \land \text{shout}(e_m) \land \text{hoarse}(e_r) \ldots
\end{aligned}
\]

(162) \[
\begin{aligned}
[\text{The lake froze solid}] &= \\
\exists e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, l) \land \text{freeze}(e_m) \land \text{solid}(e_r) \ldots
\end{aligned}
\]

But what does it mean to be the patient of an event of causation? This is an event, I assume, in which some individual changes, entering the result state with which the event concludes. This individual, I take it, is its patient. Any definition of the basic predicates Pat and Cause should have (163) as a theorem.

(163) Patient of causation equivalence

If $\text{Cause}(e_c, e_m, e_r)$, then the patient of $e_c$ is the patient of $e_r$.\footnote{As I state the patient of causation equivalence in (163), it applies whether the result event, $e_r$, is a state or a dynamic event, since I assume that the holder of a state is its patient. If this assumption is unacceptable, we can restate (163) like so: if $\text{Cause}(e_c, e_m, e_r)$, then the patient of $e_c$ is the holder or patient of $e_r$.}

So if the cutlet is the patient of an event of causation, one which ends with flatness, then the cutlet is the patient of that flatness. It’s what winds up flat.

Parsons makes essentially the same claim for his “Themes” of “become” events, which, like my Cause events, are events in which something changes:
The Theme of \texttt{BECOME’s} event is the same as the Theme of its Target state: \[ \text{BECOME}(e, s) \rightarrow [\text{Theme}(e, x) \equiv \text{Theme}(s, x)]. \] (Parsons 1990: 119)

Indeed the two claims would be identical if Parson’s “BECOME” is just the same as “Culmination” in (158) or (159)—not an implausible equation.

Now given (163), the phrase that identifies the patient of causation also controls \( R \), as a matter of semantic definition, (165).

\[
\text{(165) Control corollary of patient of causation equivalence}
\]

The phrase that identifies the patient of causation controls \( R \).

And consequently this phrase will control \( R \) regardless of whether it is also assigned a thematic relation to \( R \) itself. An explicit relation to the \( R \) event could only be redundant. If we say that the cutlet undergoes an event of change that ends in flatness, it is unnecessary to also say that the flatness is that of the cutlet. Whether a given resultative construction even states a thematic relation to \( R \) is therefore something that must be decided on nonsemantic grounds—e.g. by whether or not we have distributional reasons to say that the head of \( R \) lexically has an argument of type \( \langle e \rangle \), or syntactic reasons to assume that \( R \) contains a silent anaphor interpreted as the patient of its event. In order to leave such questions open, I will not presumptively state any relations to the \( R \) event in my logical forms, from now on.\footnote{It is hardly obvious that English adjective phrases denote functions over the holders of their states; for if in fact they do combine with type \( \langle e \rangle \) expressions, it is only in very particular contexts, namely in Small Clause complements to certain verbs and complementizers. And notably, adjectives themselves, unlike verbs, \textit{never} combine directly with expressions of type \( \langle e \rangle \). See Fults 2006 for some reasons to think that adjectives denote just an event sortal, as is presumed e.g. in Parsons 1990.}

This might prompt skepticism. Granted, a resultative entails that something underwent a change. But to capture this we don’t need a patient of causation. It is enough to say, as one does in the traditional semantics, that the result state is caused to come about, and that this result state has a patient. So why bother introducing another patient for the event of causation?

This doubt shows that it’s hard to decide between the two semantic analyses solely by perceiving the meaning of the resultative. But that means only that the decision must be made on the basis of which semantics is more useful in explaining other facts, such as the \texttt{DOR}, or facts about resultative word order. And in this, I hope to show, the external patient semantics is superior.

In advance of this I want to stress an intuitive point. There can be no doubt, I believe, that the concept of an event in which something changes is a natural one. It is one that linguists invoke routinely in at least their pretheoretical descriptions of various causative constructions. So routinely is it invoked that its total absence from the traditional theoretical description—where we find only the concepts of an event coming into being, or of one event causing another, but not of an event with a participant that changes—seems almost perverse. Thus the conceptual motive for recognizing what I am calling a patient of causation is strong. And if the event of a resultative does involve a patient, then associating the construction with a patient ‘argument’ just means positing that a necessary participant in its event be identified explicitly. In other words, it just means saying that \texttt{pound flat} is a predicate like \texttt{carry}: both occur only in contexts where the patient of their event is identified.
7.3 Events of causation and their agents

I assume that events of causation may also have an agent participant, one who initiates the change. And in some resultatives, namely the transitives, where control is by the surface object, this agent is identified explicitly, yielding a meaning like (166).

(166) \[
\text{Transitive resultative clause} = \\
\exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, y) \land \text{Ag}(e_c, x) \\
\land \text{M}(e_m) \land \text{R}(e_r) \ldots
\]

In the next subsection I'll deduce that this agent relation is associated with the underlying subject of the resultative clause. So the agent of causation is Al (a) in (167) and Ozzy (o) in (161).

(167) \[
\text{Al pounded the cutlet flat} = \\
\exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, c) \land \text{Ag}(e_c, a) \\
\land \text{pound}(e_m) \land \text{flat}(e_r) \ldots
\]

(168) \[
\text{Ozzy shouted his throat hoarse} = \\
\exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, ot) \land \text{Ag}(e_c, o) \\
\land \text{shout}(e_m) \land \text{hoarse}(e_r) \ldots
\]

With intransitive resultatives, like (162), there is no underlying subject, and no phrase is assigned an agent relation to the event of causation.

The idea that causatives involve an agent, hence a causer, is common, even in the case of resultatives. The idea does not make its way into Dowty’s (1972, 1979) semantics; there the nominal arguments have relations only to the lexical predicates M and R. But it is present in the analyses of McCawley 1971 and Green 1972, where the subject-referent stands in a “cause” relation to the proposition that R came about by means of M. This “cause,” which is obviously not a relation between two events or two propositions, is in effect a species of agent relation, one particular to predicates of state change.

But precedent is not the only motive. Unlike in the case of the patient, it is possible in principle to justify the proposed agent of causation perceptually, just by understanding the meaning of the resultative. For an agent of causation is not intrinsically the same as any particular participant in either the means or the result events. It is easy to imagine that x initiates an event of change $e_c$, one whose result state $e_r$ has $e_m$ as a proximate physical cause, without x also being the agent of $e_m$. The agent of change x might be the patient of $e_m$, or have no thematic relation to $e_m$ at all. What matters is just that x somehow initiated the entire process, not that it initiated $e_m$ in particular (compare Pietroski 2004: 183–184).

As it happens, our imagination exceeds the grammatical constraints of English. Here we don’t find any resultatives whose subject is interpreted just as the agent of causation, without also being the agent of the means event. But as we saw earlier, examples like this are found in Mandarin.

(169) zhèjiàn shì kù hóng le Lìsī-de yǎnjīng.
this matter cry red PFV L-’s eyes
‘This matter made Lisi’s eyes red from crying.’ (Huang 1988: 296, tr. AW)
The “matter” does not participate in the weeping. It participates only in the event of causation, as its agent, the causer. So here we have direct evidence for the presence of this relation in the meaning of the resultative, separate from any further relation to M or R—at least in Mandarin. It is at least plausible, therefore, that the semantics of English resultatives involves an agent of causation as well. What makes it more than plausible is its utility in explaining the DOR, to be demonstrated in the next subsection.

Quickly, I should note that Goldberg and Jackendoff (2004), whose principle of semantic coherence I have criticized, nevertheless share my conception of resultative meaning, if I understand them correctly. They write that resultatives describe an event, they call it the “constructional subevent,” which “consists in [the referent of the phrase that controls R] coming to have the property expressed by [R].” Moreover, “[t]he constructional subevent has three arguments [sic]: a causer (or agent) mapped into the subject position, a patient mapped into object position, and a predicate” (pg), besides also having a “MEANS” relation to the means event. This would suggest a logical form something like (170), with “BECOME” as defined in Parsons 1990, a relation between an event of change and its end state; and this is equivalent to my (166), if Cause is the conjunction of MEANS and BECOME. But what Goldberg and Jackendoff actually give (2004: 538), “[u]sing an informal, more or less common-practice semantic notion,” is (171).

\[
\begin{align*}
(170) & \quad [ \text{Sbj M Obj R} ] = \\
& \quad \exists e_1 \exists e_2 \exists e_3. \text{BECOME}(e_1, e_3) \land \text{Pat}(e_1, [\text{Obj}]) \land \text{Ag}(e_1, [\text{Sbj}]) \land [\text{R}](e_3) \\
& \quad \land \text{MEANS}(e_2) \land [\text{M}](e_2)
\end{align*}
\]

\[
(171) \quad [\text{Sbj}] \text{ CAUSE } ([\text{Obj}] \text{ BECOME } [\text{R}]), \text{ MEANS: } [\text{M}]
\]

For (171) to mean what the prose description does, it must be that “X CAUSE Φ” means ‘X is the agent of Φ,’ and “Y BECOME Z” means ‘Y is the patient of an event of coming to have the property expressed by R.’ That (171) should be interpreted this way would not otherwise be obvious, however. Most commonly, “BECOME” names a propositional operator, with “Y BECOME Z” being a readable version of BECOME(Z(Y)); and interpreted this way, (171) would represent a result patient analysis, identical to what is proposed in McCawley 1971 and Green 1972.

7.4 Explaining the DOR: patients are objects

The resultative complex predicate describes an event of causation. This event always has a patient and sometimes has an agent. By definition, its patient is also the patient of its result event. So if we stipulate that the underlying direct object of the resultative clause is assigned a patient relation to the event of the maximal predicate in the verb phrase, we guarantee that the underlying direct object will control R.

So far this is just a descriptive implementation of the DOR. But if there is some basic principle that predicts the stipulated alliance between the patient and the object, then we can fairly claim to have explained the DOR. And in an important sense, we can claim to have explained it in terms of the meaning of the construction.

Of course there is such a principle, namely this: the opposition between agent and patient aligns with that of subject and object. In slogan form, greatly simplified:
Rule of agent and patient realization
Agents are subjects, and patients are objects, at least when an agent is around.

Few ideas are more basic. And if I am right, the Dor is nothing but this rule applied to verb phrases which happen to contain a resultative complex predicate.

Let me state the content of (172) more carefully. Take a clause \( S \) in the active voice (or whatever voice is basic) with \( P \) the maximal predicate in its VP. Assume that \( P \) describes an event \( e_p \). That is, \( P \) is either a predicate of events itself (173a), or a function from various thematic relata to a predicate of events (173b).

\[
\begin{align*}
(173) & \quad a. \quad [ \ P \ ] = \lambda e_p . P(e_p) \\
 & \quad b. \quad [ \ P \ ] = \lambda x \ldots \lambda e_p . P(e_p) \land \theta(e_p, x) \ldots
\end{align*}
\]

Then if the grammar constrains any nonadjunct noun phrase to identify the agent of \( e_p \), (174a), that phrase will be the subject of \( S \), (174b). And in that case, if the grammar constrains any nonadjunct phrase to identify the patient of \( e_p \), (175a), it will be the object of \( S \), (175b).

\[
\begin{align*}
(174) & \quad a. \quad [ \ S \ ] = \exists e_p \ldots . P(e_p) \land Ag(e_p, x) \ldots \\
 & \quad b. \quad \Rightarrow x \text{ is identified by the (surface and underlying) subject}
\end{align*}
\]

\[
\begin{align*}
(175) & \quad a. \quad [ \ S \ ] = \exists e_p \ldots . P(e_p) \land Ag(e_p, x) \land Pat(e_p, y) \ldots \\
 & \quad b. \quad \Rightarrow y \text{ is identified by the (surface and underlying) object}
\end{align*}
\]

The realization of the patient may be different, however, if no nonadjunct phrase is constrained to name the agent of \( e_p \), (176). Then the phrase constrained to identify the patient of \( e_p \) may be the subject of \( S \), at least on the surface. If we accept the unaccusative hypothesis, however, then this surface subject reaches its position by raising, and underlingly, the patient is always the object.²⁴

\[
\begin{align*}
(176) & \quad a. \quad [ \ S \ ] = \exists e_p . P(e_p) \land Pat(e_p, y) \\
 & \quad b. \quad \Rightarrow y \text{ is identified by the underlying object, which, in the absence of an agent, may become the subject on the surface}
\end{align*}
\]

This, then, is what I mean by (172). And given unaccusativity, (172) can be simplified further by dropping the proviso, as in (177).

\[
\begin{align*}
(177) & \quad \text{Rule of agent and patient realization, given unaccusativity} \\
 & \quad \text{Agents are subjects, and patients are objects.}
\end{align*}
\]

Now for the payoff. From the present perspective it is possible to describe simple clauses and resultative clauses in precisely the same terms. Take (178) and (179). The maximal predicate in (178) is simple, comprising just the verb pound. It describes an event of pounding. The sentence identifies to both an agent and a patient of this event. The subject names the agent and the object names the patient, just as our rule tells us.

\[
\begin{align*}
(178) & \quad \text{Al pounded the cutlet.}
\end{align*}
\]
The maximal predicate in (179) is complex: *pound flat*. But things are otherwise the same. The predicate describes an event of causation, a pounding flat. Both the agent and the patient of this event are identified, and again in the expected way. The subject names the agent, and the object, the patient.

(179)  
Al pounded the cutlet flat.

Importantly, things are in no way different when the object is unselected, (180). The maximal predicate in its verb phrase is *shout hoarse*, which describes an event of causation. The subject names the agent of this event, and the object names its patient.

(180)  
Al shouted his throat hoarse.

Patterns of ungrammaticality are likewise parallel. (181) is ungrammatical for exactly the same reasons as (182), under either interpretation, (a) or (b). Here ellipses range over possible contents contributed by M and R.

(181)  
* Rocky’s fists pounded the frozen meat bloody.  
  a. ‘The frozen meat made Rocky’s fists bloody from their pounding it.’  
  \[ \exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, rf) \land \text{Ag}(e_c, fm) \land \ldots \]  
  b. ‘Rocky’s fists got bloody from their pounding the frozen meat.’  
  \[ \exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, rf) \land \ldots \]  

(182)  
* The cutlet pounded Al.  
  ‘Al pounded the cutlet.’  
  \[ \exists e_c \exists e_m \exists e_r . \text{pound}(e) \land \text{Pat}(e, a) \land \text{Ag}(e, c) \]

Interpretation (a) presumes that the sentence identifies both an agent and a patient of the VP event, just like the given interpretation of (182). But then in both sentences the thematic relations are assigned in violation of the rule of realization, agent to object and patient to subject. Interpretation (b) presumes that the only thematic relation to the VP event is a patient relation. But this is assigned to the surface subject. Thus the rule of realization is violated here as well—presuming that this surface subject in (181) is *not* the object underlyingly. And this presumption is justified with appeal to a general property of English, what I have called the UPP. Since *pound* finds its patient in the underlying direct object of a simple clause, the phrase constrained to identify its patient in (181) must be the underlying object here. One final interpretation of the Rocky sentence is in (183).

(183)  
* Rocky’s fists pounded the frozen meat bloody.  
  ‘Rocky’s fists made themselves bloody from their pounding the frozen meat.’  
  \[ \exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, rf) \land \text{Ag}(e_c, rf) \land \ldots \]  

(184)  
* Al pounded.  
  ‘Al pounded himself.’  
  \[ \exists e_c \exists e_m \exists e_r . \text{pound}(e) \land \text{Pat}(e, a) \land \text{Ag}(e, a) \]
This is excluded in the same way as (184), by the one aspect of Chomsky’s (1981) Theta Criterion on which there is consensus. Abstracting from well-known nuances: when a predicate can occur in a context where two distinct thematic relations to its event are assigned to two different syntactic positions, it cannot also occur in a context where both are assigned to a single position, absent some mark of lexical reflexivization (if such a process exists). Thus the subject cannot be assigned both an agent and a patient relation to the VP event, either in (183) or in (184).

This symmetry is very attractive. It reflects the breadth of the principle here used to derive the dor. And if the external patient theory counts as explanatory, it is for this reason.

The same symmetry is otherwise unavailable. Unless one recognizes an agent and patient of causation, the subject and object in a resultative will not both have thematic relations to the event of the VP. In this way resultatives will differ profoundly from clauses with simple predicates, like (178). The difference will be still greater when the object in a resultative is unselected, as in (180). Then there will be no event at all to which both subject and object are assigned thematic relations; the subject will have only a relation to M, and the object, only a relation to R.

This point is often muddled. In English, an underlying subject always names the agent of the means event; and by assumption, an underlying object always names the patient of the result event. So between the subject and the object there is some sort of agent-patient contrast. But it is not the contrast of being the agent and patient of the same event.

Recognizing this, one can try to design a theory in which it amounts to the same thing, if only through the lens of the principles that predict grammatical relations. Van Valin (2004) presents a theory like this. But we know in advance that any such effort is pointless, given the facts from Mandarin. Here the subject need not name the agent of the means event, even when the means event is of a type that has an agent necessarily. So in fact there is no semantic opposition between the agent of means and the patient of result, aligning with the syntactic opposition between subject and object. And therefore it cannot be such an opposition that explains the dor—not if we want our theory to have universal scope.

So to repeat, the dor is explained by the alignment of two contrasts, agent/patient and subject/object. But this requires the external patient semantics. Given the traditional result

\[ \lambda e \ldots R(e) \ldots \]

\[ \lambda e \ldots R(e_1, e_2) \ldots \]

(2) If the VP in S states a relation \( R \) over a tuple of events \( \alpha, R\alpha \), then: the agent of \( \alpha \)'s leftmost member is identified by S’s subject, and the patient of \( \alpha \)'s rightmost member is identified by S’s object.

To get resultatives right, \( e_m \) must be leftmost and \( e_r \), rightmost. But order in a logical form is of course arbitrary, unless there is a theory of ordering. Abstractly, there should be some reflexive and antisymmetric relation \( O \), of recognizable conceptual significance, such that, for any event relation \( R \), \( R(e_j \ldots e_k) \) entails \( O(e_j, e_k) \). What \( O \) should be is of course not clear; temporal precedence is sometimes suggested as a candidate.
patient semantics, it is impossible.

Finally a note on the role of the unaccusative hypothesis. I have used unaccusativity in stating the proposed account of the dor. But it is not itself a part of the explanation. Without unaccusativity, one just needs to restate things slightly. Rather than say that patients are objects, one says that they are objects unless the predicate has no agent, and so forth.

7.5 Introducing the covert predicates

It is not my purpose in this paper to decide how the parts of the resultative’s meaning are divided among the parts of its syntax. Yet it is worth reviewing the options.

I have posited three covert predicates that are not associated with the lexical heads of either M or R: the two external thematic relations, Ag and Pat, plus Cause. In principle, covert predicates can be introduced in one of two ways: by a silent terminal node in the syntax, or by a semantic rule that interprets the combination of two constituents.

The three predicates might be apportioned to the syntax in various combinations. Each might be introduced separately—that is, by distinct terminals or by distinct rules—or certain combinations might be introduced together. In the latter case, there are two reasonable possibilities. Either Cause and Pat are introduced together, but Ag is always separate; or when Ag is introduced, it is introduced together with the others, all three predicates in a bundle. I assume that none of the covert predicates are introduced with the lexical entry of the means verb, for reasons indicated in section 2.

By introducing the thematic relations together with Cause one can encode distributional dependencies between them quite directly. If the same structure that introduces Cause also introduces Pat, for example, then the one will never be present without the other. Alternatively, if the thematic relations are introduced separately from Cause, the encoding of dependencies will have to be mediated by the syntax in a more significant way. We can assign the structure that introduces Cause a feature A, for example, then assign the structure that introduces Pat a feature B, and posit rules of syntax that forbid A from occurring except in the context of B.

I believe that these are all legitimate options; in particular, languages may differ in the syntactic apportionment of covert meanings (Pylkänn 2002, Williams 2005). But for concreteness I’ll illustrate two exemplary options. In Williams 2005 I assigned the first derivation to English and the second to Igbo and Mandarin, for reasons that will emerge in section 9.

The first makes these three suppositions: Ag is introduced separately, by a v head that takes VP as its complement (Kratzer 1996); Pat is introduced together with Cause; and this combination is introduced by a silent terminal cause, whose complement is R. What category cause should have, and how it should combine syntactically with M and R, are questions I cannot answer here. The structure in (185) abstracts from these details.
Supposing the lexical denotations in (186a) and (186c), function application then yields (186b) for VP, and Kratzer’s (1996) rule of “event identification,” (187), yields (186d) for vP. Whether function application is the right rule of course depends on the presumed denotations for M and R; I discuss this in section 9.

\[(186)\]

\begin{align*}
\text{a. } [\text{cause}] &= \lambda R\lambda M\lambda y\lambda e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, y) \\
&\quad \land M(e_m) \land R(e_r) \\
\text{b. } [\text{VP}] &= \lambda e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, [\text{DP}_o]) \\
&\quad \land [M](e_m) \land [R](e_r) \\
\text{c. } [\text{AG}] &= \lambda x\lambda e. \text{Ag}(e, x) \\
\text{d. } [\text{vP}] &= \lambda e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c) = [\text{DP}_o] \\
&\quad \land \text{Ag}(e_c, [\text{DP}_s]) \land [M](e_m) \land [R](e_r)
\end{align*}

\[(187)\]  
\text{Event.identification}(f, g) \equiv \lambda x\lambda e. f(x)(e) \land g(e)

The second option introduces Pat separately from Cause, via the semantic rule in (188). This leaves cause with the denotation in (189). But suppose everything else is kept the same. The semantic derivation then proceeds just as in (186b–d), except that VP is interpreted by rule (188) rather than by function application.

\begin{align*}
\text{(188) } [\text{VP DP } \alpha ] &= \lambda e. [\alpha](e) \land \text{Pat}(e, [\text{DP}]) \\
\text{(189) } [\text{cause}] &= \lambda R\lambda M\lambda e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land M(e_m) \land R(e_r)
\end{align*}

8 More evidence for an external patient

The external patient analysis of resultative meaning allows for an explanatory account of the dor, as we have seen. In this section I find further evidence in its favor. The analysis also provides a simpler explanation of the syntactic contrasts between resultatives and depictives; of the possibility of unselected objects; and of patterns in basic word order.

8.1 Resultatives and depictives

The concept of an event in which something changes is a natural one. So for resultatives, the motive for a patient in the event of the complex predicate is strong.
Depictives are different. A depictive describes an event in which the events of its primary and secondary predicates run concurrently. If Al slices the meat frozen, he slices the meat while it’s frozen. But in the idea of temporal concurrence, is there anything that suggests the distinctive involvement of some thematic participant? Let \( e_{\text{dep}} \) be an event of \( e_1 \) and \( e_2 \) running concurrently, e.g. an event of singing while hoarse. Is there a natural concept of participating in \( e_{\text{dep}} \) per se? A ready idea of what it means to, say, initiate or undergo such an event? I don’t think so. And thus I see no intuitive foundation for a thematic relation associated with the depictive construction, separate from those associated with its lexical parts.

I will reinforce this conclusion in a moment, by noting the difficulties that attend its alternative. But first let us see how it answers the question we had at the outset. Why is control of the secondary predicate necessarily by the object in resultatives, but not in depictives?

The result patient analysis fails to distinguish the semantic structure of resultatives from that of depictives. Their meanings differ only in the content of the relation between the primary and secondary predicates, and this affords no clear basis for answering our question. The means participant postulate was intended as an answer, but it was proven false.

Now we do have answer, however, since the meanings of the two constructions have relevantly different structures. The resultative describes an event distinct from those of its component predicates, and this constructional event has its own participants. Moreover, being the patient of this event entails being the patient of its result event. Since this former patient relation is assigned to the object in particular, only the object can control \( R \). (190) gives an example interpretation.

\[
(190) \quad \text{[Al pounded the cutlet flat]} = \exists e_c \exists e_m \exists e_r . \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, c) \land \text{Ag}(e_c, a) \land \text{pound}(e_m) \land \text{Pat}(e_m, c) \land \text{Ag}(e_m, a) \land \text{flat}(e_r)
\]

For depictives, it is not so clear that the event of the complex verb phrase is even distinct from those of its component predicates. But if it is, this constructional event does not have its own participants. Contrast (191) with (190). (Curly braces enclose content to which I am not firmly committed.)

\[
(191) \quad \text{[Al pounded the cutlet raw]} = \exists e_c \exists e_m \exists e_r . \text{Dep}\{e_{\text{dep}}, e_1, e_2\} \land \text{pound}(e_1) \land \text{Pat}(e_1, c) \land \text{Ag}(e_1, a) \land \text{flat}(e_2) \land \text{Pat}(e_2, c)
\]

Thus there is no constructional thematic relation in depictives which entails control of the secondary predicate. Nor is control entailed by any particular thematic relation to the means event. If event \( e_1 \) and \( e_2 \) run concurrently, there is no reason that the patient of \( e_2 \) must be the patient of \( e_2 \), or that it must be its agent. Thus nothing in the semantics of depictives prevents control of the secondary predicate by the subject of the clause, or by the object. Control will be determined purely by the structural relation between the noun phrase and the secondary predicate.

Now back to the premise: depictives involve no constructional thematic relations, hence no constructional relations which would entail control. To bolster this presumption, so far
based on intuition alone, let me engage the opposite idea. Suppose that object depictives involve a constructional relation, \( \Theta \). What would it mean to bear \( \Theta \) to the event of the depictive VP? For instance, if \( x \) has \( \Theta \) to an event of singing while hoarse, what should this imply about \( x \)? Just one answer comes to mind. It should imply that \( x \) somehow participates both in the singing and in the hoarseness; compare Rothstein 2004.\(^{26}\) Suppose it means only this, nothing more than ‘participates in (all parts of) the event.’ By assumption, \( \Theta \) is assigned to the object in object depictives mandatorily. One hopes that this requirement follows from more general interface principles, those that predict where a predicate will occur, relative to possible arrays of thematically related noun phrases, based on what sort of event it describes. And if these principles are consistent, then \( \Theta \) should also be mandatorily assigned to the subject in subject depictives. But then the same relation is assigned to two different syntactic positions, despite there being no other difference in the meanings of the two constructions. This is unattractive. If indeed one thematic relation can be assigned to various syntactic positions, the choice should not be arbitrary. It should depend on other factors in the meaning of the clause. (For instance, one might say that the agent in relation to predicate \( P \) is identified by the subject, except when \( P \) is subordinate to a morpheme that introduces causative meaning.) On this there is consensus among linguistic theories.

To avoid this particular problem, one can suppose that \( \Theta \) is assigned only to the object, and only in an object depictive. The subject in a subject depictive gets a distinct relation, \( \Theta' \). Maybe \( \Theta \) is the patient relation and \( \Theta' \) is the agent relation. With this assumption we might even explain why all arguments in a depictive have a selected relation to the verb, by postulating that a \( \Theta \) relation to a ‘depictive event’ entails a patient relation to its primary subevent, and \( \Theta' \) relation entails an agent relation. But there is trouble. Participating in a ‘depictive event’ presumably still means participating in both its concurrent subevents. So in relation to such an event, \( \Theta \) and \( \Theta' \) should both entail control of the secondary predicate. In general, therefore, \( \Theta \) and \( \Theta' \) cannot both be assigned within a single clause; for predicating them of distinct individuals will produce contradiction. This is a strange result. Certainly it appears that depictive VPs describe the same basic type of event whether they are subject- or object-depictives: an event wherein two events happen at the same time. And if this type of event can have both a \( \Theta \) and a \( \Theta' \) participant, it is odd that it cannot have both at once, and cannot for semantic reasons. (By way of comparison, imagine that Al cooked the rice were necessarily a contradiction, even when Al cooked and The rice cooked are both possible.) Maybe this shows that appearances are misleading: maybe the two types of depictive do describe different types of events, so different that one has only a \( \Theta \) participant while the other has only a \( \Theta' \) participant. But then one demands a serious account of this difference, one which does more than just repeat the stipulated difference in their cast of participants. Until this account arrives, I will stick to my intuitions.

The same objection applies to a final maneuver one might make. Maybe subject-depictives assign no constructional relation at all; only object-depictives do. This averts some of the aforementioned problems. But it again requires treating the two sorts of depic-\(^{26}\)Rothstein (2004) does not suppose that depictives involve a constructional thematic relation. But she does postulate that formation of a depictive introduces more than a relation of temporal concurrence; it also introduces the statement that the two events share a participant. So for Rothstein our stock of primitive semantic relations includes one of ‘being concurrent and sharing a participant.’ To me this has little intuitive resonance.
tives as describing quite different sorts of events, conditioning different arrays of thematic
relations. And to repeat, this strikes me as groundless.

8.2 The syntax of unselected objects
The external patient analysis has a distinctive syntactic consequence. It implies that the
initial position of the object is always outside the complex predicate, in a position that
asymmetrically c-commands both M and R, (192). Call this the external object syntax.

\[(192)\]
\[
\begin{array}{c}
\text{VP} \\
\text{Obj} \quad \text{MR}
\end{array}
\]

The implication rests solely on ordinary ideas about compositionality, plus the assumption
of binary branching. And very importantly, it holds whether or not the object has a selected
relation to the means verb. There is an object generated outside whether the predicate is
pound flat or sing hoarse.

The result patient analysis does not make the same prediction. Conjoined with the same
suite of standard premises, it does not imply that the object always begins outside the
complex predicate. Additional premises might mandate this configuration just in case the
object is selected. For if the resultative clause states a thematic relation between the referent
of the object and the events of both M and R, then the object will (under the usual theories
of semantic composition) need to c-command both at some point in the derivation; given
further premises, this point is at the outset.\(^{27}\) But not so when the object is unselected.
Then its only thematic relation is to R. Hence its expected initial position is as the sister of
R, (193).

\[(193)\]
\[
\begin{array}{c}
\text{MR} \\
\text{M} \quad \text{XP} \\
\ldots \text{Obj} \quad \text{R} \ldots
\end{array}
\]

Or in any case, given the result patient analysis, no normal theory of semantic composition
excludes (193) as a structure for resultatives with unselected objects. Let’s say that (193)
stands for a result object syntax. Versions of this syntax have been defended in Kayne 1985,

The external object syntax makes it easier to explain why unselected objects are possible
at all. To see why, begin by imagining, contrary to what I will conclude, that the result
object syntax analysis is right, at least when the object is unselected. Then (194) would
have an syntax something like (195).

\(^{27}\)Without further premises, the c-command requirement might satisfied only after movement of the object
above its base position; see Lidz and Williams 2002. Also notice the c-command requirement will hold even
if the object controls R by means of binding a silent pronounal that is more local to the head of R, given
that binding itself requires c-command. Among the nonstandard theories that do not require c-command
for ‘predication’ is that of Déchaîne 1993. Déchaîne allows that X may be predicated of DP, even if DP only
precedes and m-commands X.
Ozzy sang his throat hoarse.

‘Ozzy made his throat hoarse by singing.’

This would have two nontrivial implications. First, that it is possible to combine a full noun phrase with an adjectival secondary predicate, with the resulting phrase meaning that the referent of the noun phrase has the property of the adjective phrase. Second, that an overt DP generated in this context is viable morphosyntactically: whether by staying put or by moving, it can satisfy any applicable morphosyntactic requirements, either its own or those of its context. To simplify, let’s say this: his throat in (195) can somehow get Case.

Now we have a puzzle. For the depictive construction, unlike the resultative, does not allow unselected objects (Rothstein 2004). Interpreted as a depictive, (196) is ungrammatical. But why, if a structure like (195) is possible?

(196) * Ozzy sang his throat hoarse.

‘Ozzy sang while his throat was hoarse.’

The two sentences share the same overt ingredients: a verb that can take a direct object in simple clauses; a secondary predicate phrase headed by an adjective; and the two noun phrases. According to the result patient semantics that accompanies (194), moreover, their meanings differ only in the relation between the events of the verb and the secondary predicate: a Res relation in one case and a Dep relation in the other. Maybe this implies that one sentence includes at least one covert terminal node that the other does not, a Res-denoting head or a Dep-denoting head. But why exactly should this mean that a noun phrase within VP is possible only in the resultative? Why couldn’t the intended meaning of (196) be expressed with a structure essentially like (195)?

I will not work through any hypothetical answers. Those I can imagine raise as many new questions as they purport to answer.

I want only to observe that the contrast is not a puzzle at all given the external patient semantics, hence the external object syntax. Then our resultative will have an initial structure something like (197).
But the depictive will not. In a depictive there is no constructional patient relation, hence no ‘theta position’ outside the complex predicate. If there were to be an unselected object, one whose only thematic relation is to the secondary predicate, the base structure would presumably be like (195). Since this structure is entirely different from (197), we are led to no wrong predictions. (197) shows that a resultative complex predicate can have a noun phrase sister, interpreted as the patient of its event; it also shows that an overt noun phrase generated in that position is morphosyntactically viable (given a more articulated structure, we might assume it gets Case in association with a v head in the sister of VP, one introducing an agent relation to the VP event). But it shows nothing at all about a structure like (195): nothing about whether a full noun phrase can combine with an adjectival secondary predicate, and nothing about whether an overt noun phrase in that context could get Case.

The external patient analysis is therefore to be preferred, inasmuch as it averts a puzzle that result patient analysis invites.

8.3 Word order

Patterns in the possibility of adverbial modification, the placement of tense or aspect suffixes, and basic word order further support the external object syntax, and consequently the external patient semantics.

For Igbo and Mandarin this is quite clear. Two facts are especially suggestive. First, R in these languages cannot be modified by adverbial phrases. Given the external object syntax this is readily accommodated. Adverbial phrases modify phrases; so we need only assume that, as a matter of syntax, R in these constructions is constrained to be zero-level category, just a simple verb and not a verb phrase. But the adverb facts make grave problems for the result object syntax. It says that R always sits within its own phrase, labeled XP in (193), a phrase which includes both the predicate and a thematically related noun phrase. I assume that any phrase of this size and composition could also contain a modifier, and here the modifier would describe the result event. That R cannot be modified is consequently inexplicable.

Second, M and R cannot be separated by any material generated outside the VP, such as aspectual suffixes or adverbs describing the event of causation. Again this is expected given (192). For in Igbo and Mandarin both M and R evidently comprise no more than a verb, a zero-level category. So given the external object syntax, the lowest node containing both dominates no phrasal material at all. Consequently this node is itself a zero-level category, a complex head, (198).

(198)

Now, syntactic relations are local. In particular it is standard to assume that a relation between two heads X_o and Y_o is licit only if these be the two closest heads of the relevant categories. Simplifying for current purposes: X_o must c-command Y_o, but c-command no
other head $Z_o$ which itself either c-commands or dominates $X_o$. Thus there can be no syntactic operation that relates a head outside the resultative complex head in (198) to a head inside of it. In particular, it would be impossible to associate an aspectual affix with the means verb individually. It would also be impossible to extract the means verb and adjoin it to a higher head—this would be excorporation—thereby allowing some phrase to surface between M and R. Thus the structure in (192) correctly predicts, given only general principles of locality, that MR behaves as a morphosyntactic unit.

The result object syntax fairs poorly in comparison. It says that means and result verbs do not begin as a unit. So to explain the fact that they behave like one, one would have to assume mandatory adjunction of one head to the other, i.e. incorporation. But the only sort of evidence showing that such movement has applied is systematically absent: there is never any material stranded within the phrase where the R verb is supposed to begin.

Now consider English. Here it’s less obvious that (192) is right, since the object surface between R and the means verb, in the basic word order.\footnote{Sometimes the object appears to the right of R. But this is possible only when the object is prosodically heavy, and therefore does not express the basic word order.} So if the external object syntax is correct, it must be that some syntactic operation dissociates M from R, mandatorily. Let us suppose that this is achieved by head movement: mandatorily, the least embedded V in VP raises to a $v$ outside, (200).

(199)

This extraction does not violate locality, because in English R is phrasal. The product of combining M with R is not a complex head, therefore, but a phrase. Concomitantly the least embedded V head within $v$’s sister VP is the means verb, and thus it is the means verb alone that moves to $v$.

I can’t explain why this V-to-$v$ operation should apply. But importantly, we are free to assume it also applies in Mandarin and Igbo, again mandatorily. For in these languages, as observed just above, the least embedded head in the resultative VP is the complex head that contains both M and R. So what moves to $v$ will be this whole unit. Given the usual pattern of linearization in a head-initial language, the result is the observed M-R-Obj word order.

(200)
Still, one wants a demonstration that stipulating this raising operation is better than simply assuming the result object syntax for English. And one is provided, I believe, by consideration of the cross-linguistic facts.

According to the present account, every resultative construction has (192) as its initial structure, followed by mandatory raising to $v$. As we have seen, this predicts different surface patterns depending on the size of $R$, given principles of locality in head movement. Since these principles are universal, the predictions are universal as well. For any resultative construction where $R$ and $M$ are both constrained to be zero-level categories, they should form a single unit that moves to $v$. So if the construction occurs in a head-initial language, the resulting basic order should be M-R-Obj. On the other hand if $R$ is phrasal but $M$ is just a verb, the two should be dissociated, with the means verb moving to $v$ alone. And in a head-initial language, the resulting basic word order should be M-Obj-R.

It seems to me that this is exactly correct. Elsewhere I have reported a study of word order in resultatives from a number of languages (Williams 2005). Among the head-initial languages studied were Vietnamese, Ambae, and Edo. Differences in word order were precisely as the external object syntax predicts. Notably they were also as this syntax predicts in head-final languages, such German, Japanese, Malayalam, German, and Yi.

The same pattern is not predicted by the result object syntax. This would demand mandatory head-adjunction of $R$ to $M$ whenever both are nonphrasal, as in Igbo and Mandarin. Inversely, to account for languages like English, adjunction of the head of $R$ to the head of $M$ must be forbidden exactly and whenever $R$ is phrasal. But I see no good reason for either condition. The latter prohibition is especially outrageous, since the paradigmatic cases of incorporative head-adjunction exactly involve raising of a head out of a phrase.

In conclusion, assuming the external object syntax universally allows a simple account both of restrictions on modifier placement in Igbo and Mandarin, and of cross-linguistic patterns in word order. Assuming the result object syntax does not. And this supports the external patient semantics.

9 Relations to the means event

Control of $R$ does not depend on relations to $M$. But how should understood thematic relations to the means event themselves be represented? This section gives a summary exposition of the answers suggested in Williams 2005, where this is the main question.

My answers treat two facts as central. First, in all three languages, $M$ cannot be adverbially modified. I take this to show that it contains no noun phrase positions. Second, English differs from Mandarin and Igbo: in English but not in Mandarin or Igbo, interpretation with respect to the means event is fixed by the verb in $M$. I presume that this contrast should be captured in the semantic description itself, and in a way that indicates a plausible point of cross-linguistic variation.

9.1 Mandarin and Igbo

In Igbo and Mandarin, interpretation with respect to the means event is, as a rule, free. It need not match the pattern manifested in simple clauses with the same verb.
This is best explained if verbs in these languages characteristically have no lexical arguments. Verbs meaning ‘cut,’ for instance, do not have either an agent or a patient as an argument. They just denote a predicate of events, (201).

(201)  
   a. $[\text{qiè ‘cut’}] = \lambda e.\text{cut}(e)$
   b. $[\text{bi ‘cut’}] = \lambda e.\text{cut}(e)$

The event sortal \text{cut} may itself be true only of events that involve an agent and a patient (see Dowty 1989: 84–5). But the verbs themselves do not impose agent or patient relations on phrases of type $\langle e \rangle$ in their context.

Thematic relations are instead introduced structurally, outside the maximal predicate in the verb phrase (compare Carlson 1984, Dowty 1989, Schein 1992, Kratzer 1996, Borer 2004, Pietroski 2004). For concreteness, and to illustrate two sorts of options, suppose that the agent relation is introduced by a head AG of category $v$, (202), which takes a VP complement; while the patient relation is introduced by a semantic rule that interprets a VP with a DP daughter (203).

(202) $\left[ [v \text{ AG }] \right] = \lambda x \lambda e.\text{Ag}(e, x)$
(203) $\left[ [\text{VP DP } \alpha ] \right] = \lambda e.[\alpha](e) \land \text{Pat}(e) = [\text{DP}]$

In a simple clause, the maximal predicate is the verb itself. Consequently any thematic relations assigned to the subject or object will be interpreted relative to the event of the verb. (205) gives a derivation for the $vP$ underlying (204).

(204) Lào Wei qiè -le zhúsùn.
L.W. cut -PFV bamboo shoot
‘Lao Wei cut bamboo.’

(205)  

Rule (203) interprets the VP node; VP combines with \text{v} by Event Identification; and \overline{v} combines with its sister DP by function application.

When in M, a verb occupies a different context than it does in a simple clause, certainly in Igbo and Mandarin. The verb combines immediately with R, or perhaps with \text{CAUSE} and R, as in (206). It does not combine first with one or more noun phrases. This implies
that the verb does not first enter any of the structures that introduce thematic relations. And as a consequence the resultative complex predicate states no thematic relations to the means event. Mandarin qiē dùn ‘cut dull,’ for instance, denotes as in (208), given the minimal denotation for cause in (207).

\[ (206) \quad [v \left[ \text{qiē} \right] [v \text{ CAUSE }] [v \text{ dün }]] \]

\[ (207) \quad [\text{CAUSE}]=\lambda R\lambda M\lambda e_c\exists e_m\exists e_r.\text{Cause}(e_c, e_m, e_r) \land M(e_m) \land R(e_r) \]

\[ (208) \quad [\text{(206)}]=\lambda e\exists e_m\exists e_r.\text{Cause}(e_c, e_m, e_r) \land \text{cut}(e_m) \land \text{dull}(e_r) \]

The resultative complex predicate may itself serve as the maximal predicate in a VP, (209). And here it enters structures that introduce thematic relations. But these are interpreted relative to the event of the causation—since it is the event of the VP—and not the event of the embedded means verb.

\[ (209) \quad \text{vP} \]

\[ \lambda e.\text{Cause}(e_c, e_m, e_r) \land \text{dull}(e_r) \land \text{cut}(e_m) \land \text{Pat}(e_c, b) \land \text{Ag}(e_c, lw) \]

\[ \text{DP} \]

\[ \text{lw} \]

\[ \text{Lao Wei} \]

\[ \lambda x\lambda e.\text{Ag}(e, x) \]

\[ \text{AG} \]

\[ \text{VP} \]

\[ \lambda e.\text{Cause}(e_c, e_m, e_r) \land \text{dull}(e_r) \land \text{cut}(e_m) \land \text{Pat}(e_c, b) \]

\[ \text{DP} \]

\[ b \]

\[ \text{zhusun} \]

\[ \text{qiē CAUSE dün} \]

So the semantics of a resultative clause in Mandarin and Igbo typically states no thematic relations to the means event. Any understood relations therefore follow just from assumptions and inferences, conditioned by what we know about events of the given type. For example, if Lao Wei is the agent of an event wherein cutting causes dullness in a knife, it is most reasonable, though not logically necessary, to assume that Lao Wei is the cutter, and that he cut something with the knife. I propose that this is the right way to understand the Mandarin and Igbo data. The observed freedom of interpretation is a kind of semantic generality.

This analysis explains why it matters where the verb occurs. In a simple clause the verb is local to structures that introduce thematic relations. But in M it is not since M does not contain any noun phrase positions. No alternative theory is capable of explaining this dependence on structural context. If we assign qiē ‘cut’ a patient as a lexical argument, for example, we must explain why this argument ‘disappears’ exactly when the verb occurs in
could stipulate that occurrence in M suppresses lexical arguments. But there would be no reason, syntactic or semantic, why such an operation should apply in this context. In Igbo, moreover, there is direct empirical evidence against this: certain verbs do show uniform projection; hence there can be no general operation of argument suppression in resultatives. For these reasons, I argued in Williams 2005 that the only way to explain the lack of uniform projection in Igbo and Mandarin is to strip the verbs of their arguments.

This conclusion supports the anti-lexicalist thesis that thematic relations need not be contributed to the semantic derivation by the verb itself, defended in Schein 1992, Kratzer 1996, Marantz 1997, Borer 2004, Pietroski 2004, and elsewhere.

9.2 English

In English, verbs characteristically do show uniform projection. Thematic relations to the means verb match those assigned in simple clauses. Correspondingly, interpretation of the subject and object in a resultative is constrained by how its verb behaves in simple clauses.

This can be captured by giving the verb lexical arguments associated with these relations. Assume, for instance, that English cut has both an agent and a patient as lexical arguments, (210).

\[
\text{cut} = \lambda y \lambda x \lambda e. \text{cut}(e) \land \text{Pat}(e, y) \land \text{Ag}(e, x)
\]

Then, absent operations like passive or antipassive, the verb will impose certain constraints on any clause it occurs in, whether simple or resultative. It will constrain one nearby phrase to identify the patient of cutting, and another more distant one, the agent. Thus we account for uniform projection: lexical properties accompany the verb in every context, and surely the M context is not associated with (anti)passivization. By assigning thematic relations to the means event in the semantics proper, moreover, we account for the fixed interpretation of the subject and object. I assume that (211a), for example, will be assigned a denotation like (211b). The subject identifies the agent of cutting, and the object, its patient.

\[
\begin{align*}
\text{(211) a. } & \text{ Al cut the box open.} \\
\text{b. } & \exists e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{Pat}(e_c, b) \land \text{Ag}(e_c, a) \land \\
& \text{cut}(e_m) \land \text{Pat}(e_m, b) \land \text{Ag}(e_m, a) \land \text{open}(e_c)
\end{align*}
\]

This analysis locates the difference between English and Mandarin or Igbo on a plausible point of variation. The languages differ only in the valence of otherwise equivalent verbs. It may be that English cut and Mandarin qiē introduce the same sortal on events, cut; they just differ in whether the verb itself includes instructions to interpret a nearby noun phrase as the agent or patient of cutting. This sort of variation is familiar: discuss and argue describe very similar activities, but only discuss must occur with a noun phrase identifying the topic of conversation. My suggestion is that languages may exhibit characteristic differences in how many event participants are assigned to lexical arguments of the verb.

On the down side, assuming lexical arguments for the verb imposes some complexity on the semantic derivation. In English, recall, the means event cannot be adverbially modified, (212), implying that M contains only the means verb. Thus the means verb combines directly with R, or with cause and R. (213) is a possible syntax for pound flat.
* Al quickly pounded the cutlet flat.
  ‘Al made the cutlet flat by pounding it quickly.’

But then if **pound** has a patient as a lexical argument, this argument is not immediately saturated by its sister. The ‘poundee’ argument must be passed upwards to nodes dominating the verb, until a sister of type ⟨e⟩ appears; moreover, to capture the facts of English, we must ensure that this argument receives the same value as the patient argument associated with the event of causation. Likewise if **pound** also has an agent as a lexical argument, this too will need to be passed upwards, and then covalued with the argument instantiating the agent of causation.

One way to do this is by tinkering with the denotation of **cause**, or equivalently, with the semantics of the rule that combines M and R (see the rule of “Resultative Conjunction” in Rothstein 2001). For instance, we might assign **cause** the denotation in (214).

(214) \[[cause] = \lambda R \lambda M \lambda y \lambda x \lambda e_\exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land R(e_r) \land M(y)(e_m) \land \text{Pat}(e_c, y) \land \text{Ag}(e_c, x)\]

Yet this suggests something we have learned to be false, namely that the covaluation of the agent and patient of the means event with the agent and patient of causation follows from the meaning of the Cause relation.

The alternative is to enrich the repertoire of rules for semantic combination, along the lines suggested in Higginbotham 1985 or Steedman 1996. Assume the denotations in (215); here **cause** is a morpheme of English.

(215) a. \[[pound] = \lambda y \lambda x \lambda e. \text{pound}(e) \land \text{Pat}(e, y) \land \text{Ag}(e, x)\]
   b. \[[cause] = \lambda R \lambda M \lambda y \lambda x \lambda e_\exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land R(e_r) \land M(e_m) \land \text{Pat}(e_c, y) \land \text{Ag}(e_c, x)\]
   c. \[[cause flat] = \lambda M \lambda y \lambda x \lambda e_\exists e_m \exists e_r. \text{Cause}(e_c, e_m, e_r) \land \text{flat}(e_r) \land M(e_m) \land \text{Pat}(e_c, y) \land \text{Ag}(e_c, x)\]

Now the lexical denotations (215a) and (215b) express only relations intrinsic to events of pounding or events of causation, respectively, without incorporating any type-theoretic tailoring or English-specific meaning postulates. But as a consequence, **pound** and its sister, [**cause flat**], cannot combine by function application. Instead we need a new rule of combination, namely (216). Like predicate conjunction, (217), this rule combines two functions and covalues their arguments; but instead of conjoining the results, it applies one to the other.

(216) Substitution.\(2(f, g) \equiv \lambda x. fyx(gyx)\)
(217) Predicate.Conjunction(\(f, g) \equiv \lambda x. fx \land gx\)
(218) Substitution(\(f, g) \equiv \lambda x. fx(gx)\)
(216) is an extension of (218) to operands with two arguments. Since Steedman (1996) calls the latter rule “functional substitution,” I call the former “Substitution.2”. Functional substitution corresponds to the basic combinator S in Curry and Feys 1958.

Such complexity is not in itself desirable. But any attempt to avoid it—and basically there are two possibilities—will yield an analysis of the English resultative which fails to be adequate descriptively.

The first possibility is to give English the same analysis as Igbo and Mandarin. The verb in M has no lexical arguments, and no relations to its event are introduced by its structural context. Recently, Kratzer (2005) has made quite nearly this proposal.29 But then we have no account of the difference between English and Mandarin. Systematically, interpretation with respect to the means event is free in Mandarin, but fixed by the verb in English. To neglect this seems unacceptable.

The second possibility also shears the English verb of its arguments, but posits structures in the resultative that introduce thematic relations to the means event. Of course these structures, call them AG and PAT, must be local to the verb, within M. Otherwise, the thematic relations would be to the event of causation, not the means event.

(219)  
\[
\begin{array}{c}
\text{[M AG PAT Means-verb]} \\
\text{[cause R]}
\end{array}
\]

I presume that syntactic structures which introduce thematic relations necessarily bring a noun phrase with them. If the agent relation is introduced by a v head, then the base position of the agent noun phrase is in v’s specifier; and if the patient relation is introduced by a rule that interprets VP, then the patient noun phrase is one of VP’s daughters. Thus the M constituent in (219) must be fleshed out as in (220).

(220)  
\[
\begin{array}{c}
\text{[M Agent-NP AG [Patient-NP PAT [Means-verb]] [cause R]]}
\end{array}
\]

But this underlying syntax, while it has ancient predecessors (e.g. Dowty 1972), flies in the face of the adverb facts. Given (220) we expect that the means verb can be adverbially modified, and this is wrong.

I conclude that there is no plausible way to establish thematic relations to the means event compositionally—no way that respects both the adverb facts and the manifest differences between English and Mandarin—except by packaging them into the lexical denotation of the means verb. In this I disagree with Schein (1992), who takes English verbs to be without lexical arguments, and with Kratzer (1996), who removes at least the agent from the verb.

### 10 Intransitives and the DOR

If the DOR is correct, then in any true resultative where the subject controls R, like (221), the surface subject is an object underlingly.

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29Kratzer 2005 wants to keep combinatory rules like functional composition or substitution out of the grammar. She consequently proposes that the means verb enters a “Cause” relation to R instead of a patient relation to a noun phrase. So the object is never assigned a thematic relation to M. The subject is then assigned an agent relation to the complex predicate. This should mean, I have argued, that it identifies only the agent of causation, and consequently that interpretation should be as free in English or German as in Mandarin. But for Kratzer the subject instead identifies the agent of the means event, since she takes MR to be a predicate of the means event.
The lake froze solid.

For English there is a standard argument that this is right, deriving from Simpson 1983 and developed in Levin and Rappaport 1995. It appears that in English, whenever the subject controls R, it also names the patient of the means event. Furthermore the means verb is unaccusative: when it occurs in a simple clause, it finds its patient in the underlying object. English has the UPp, so “the way [a verb] maps its arguments to the syntax does not change when the verb is in a resultative” (Levin and Rappaport 1995: 53-4). An unaccusative verb in M, therefore, will find its patient in the underlying object of the resultative clause as well. Hence whenever the subject controls R on the surface, it is the object underlyingly.

Much needs to be said to defend this argument, but I believe it can be defended reasonably. See discussion of apparent counterexamples in Williams 2005.

The same argument will not apply to Igbo and Mandarin at all, however. For these languages lack the UPp. This is as clear in intransitives as in transitives. The interpretation of the surface subject is not determined by the thematic relations the means verb enters in simple clauses (with one wrinkle in Mandarin to be observed at the end of this section).

In Igbo (222), for example, the subject is most naturally understood as referring to the instrument of the cutting. But as we have seen, this thematic relation is imposed on no argument in a simple clause with bi ‘cut.’ (223) is readily understood in either of the two ways indicated, even though the instrumental interpretation of the surface subject is not available to any argument in a simple clause.

(222) Mma ahụ bi kpụ -rụ ebikụ.  
knife that cut dull -FACT BVC  
‘That knife got blunt from cutting.’

(223) Osisi m so ja -ra asọja.  
wood 1sPOSS poke splayed -FACT BVC  
‘My stick got splayed from poking [it].’  
‘My stick got splayed from poking [something with it].’

Mandarin (224) is analogous to Igbo (222). And Ma 1987 reports that (225) can be understood in at least the two given ways: the shoes are either the patient of washing, or are simply innocent bystanders to the washing.

(224) caidao qiē dùn -le.  
food knife cut dull -LE  
‘The cleaver got dull from cutting.’ (Ma 1987: )

(225) xíe xī shī -le.  
shoe wash wet -LE  
‘The shoes got wet from washing [them].’  
‘The shoes got wet from washing [other stuff].’ (Ma 1987: 424)

30In English there are no intransitive resultatives whose surface subject, hence underlying object, is uns-elected. This is an aspect of the UPp. In English an unslected object requires an unergative verb in M; in simple clauses, such verbs do not occur without an underlying subject identifying the agent of their event; as per the UPp, therefore, they do not occur in intransitive resultatives at all.

31The string in (225) also has a transitive parse, where the predicate has a silent pronominal subject. I am not concerned with this.
Absent the UPP, presumed thematic relations to the means event do not predict underlying grammatical relations in the resultative clause. That the surface subject identifies the patient of the illness in (226), for instance, does not show that it is the object underlingly, even if simple clauses with simple clauses with dòng ‘chill’ are indeed unaccusative.

(226)  wò dòng bìng -le.
Is chill ill -LE
‘I got ill from being cold.’

For the same reason, the DOR is not falsified by (227). The subject refers to the presumed agent of drinking. But this says nothing about its underlying syntactic position, even presuming that hē ‘walk’ finds its agent in the subject of simple clauses. After all, we know that the surface object can be understood as designating the agent of drinking in a transitive resultative with the same predicate, (233b).\[32\]

(227) tā hē zuǐ -le.
3s drink drunk -LE
‘S/he got drunk from drinking.’

Many arguments either for or against the DOR in the literature on Mandarin fail to appreciate this (e.g. Y. Li 1995) and are therefore unsound.

Demonstrating that intransitives comply with the DOR in Igbo and Mandarin requires a diagnostic that does not rely on the UPP, or in any way on the subject’s understood relation to M. This can be done by considering the semantic correlates of unaccusativity.

To say that a subject is an object underlingly is a syntactic claim. But it is normally understood in relation to a partly semantic generalization. Underlying subjects are supposed to have a certain type of thematic relation to the event of the verb phrase. The relation is supposed to be one that, in surface syntax, is always instantiated by a subject and never by an object. This is presumed to include agents of events, and maybe experiencers of states.

It follows that unaccusative clauses are nonagentive: no argument noun phrase identifies an agent for the event of the verb phrase. For if some argument in clause S were assigned an agent relation, it would be both the surface and underlying subject of S, and then S would not be unaccusative.

It also follows that a nonagentive clause is unaccusative, in the particular case that the verb phrase predicate describes an event of state change. Whatever one’s semantics for such predicates, the cast of possible participants in an event of change surely includes just one, namely an agent, of a type that is always realized by subjects and never by objects. So a clause whose verb phrase describes a state change has no candidates for underlying subjecthood, and is therefore unaccusative, unless some argument identifies an agent for the change—that is, a causer.

This makes possible a diagnostic of underlying grammatical relations in resultatives that does not rely on the UPP. If it can be shown that intransitives are nonagentive, with no

\[32\]It seems to me that in Igbo, unlike in Mandarin, the surface subject in an intransitive resultative is rarely understood as the agent of the means event, if ever. This parallels the observation in section 5 that the surface object is never understood as the agent of the means event in transitives. I can’t explain either fact. But the parallel supports the hypothesis that surface subjects in intransitives are derived from underlying objects.
argument assigned an agent relation to the event of change described by the verb phrase, one can infer that their subjects are objects underlingly, and hence that they obey the DOR.

In fact the claim that intransitive resultatives are nonagentive is standard, at least in the literature on Mandarin. When the subject controls R, it is never interpreted as the agent of the event described by the event of the verb phrase—that is, as the so-called causer in the event of causation. And this remains true even when the subject is understood as the agent of the means event, as in (227). Wang 1958, C.-T. J. Huang 1988, Y. Li 1990, Gu 1992, Chang 1998 and others have all made this observation.33

This can moreover be supported with empirical diagnostics. Here I will discuss only Mandarin, since it presents the more difficult case. I believe the conclusions are the same in Igbo.

Questions like (228) can be used to diagnose agentivity. An answer is felicitous only if it describes an event of which X is the agent (Teng 1975). Thus the answers to (228) in (229) are acceptable, but those in (230) are not.

(228) X zuò -le shénme?
    do -PFV what
    ‘What did X do?’

(229) a. (tā) zá -le nà kuài ròu.
    (3s) pound -PFV that chunk meat
    ‘S/he pounded that piece of meat.’
b. (tā) hē -le sān bēi jiǔ.
    (3s) drink -PFV three cup wine
    ‘S/he drank three glasses of wine.’

(230) a. # (tā) zuì -le.
    (3s) drunk -PFV
    ‘S/he is/got drunk.’
b. # (tā) sǐ -le.
    (3s) die -PFV
    ‘S/he died.’

This test shows that the subject of a resultative, when it controls R, is not an agent of the event the resultative describes. Question (228) cannot be answered by any of the resultatives in (231), where the subject controls R. Thus none of these present the referent of their subject as the agent of their event—that is, the event of causation—even when s/he is the agent of its constituent means event, as in (231a) and (231b).

(231) a. # (tā) hē zuì -le (jiǔ).
    (3s) drink drunk -PFV (wine)
    ‘S/he got drunk from drinking.’

33The observation is sometimes made by saying that intransitive resultatives are “not causative” (C.-T. J. Huang 1988, Y. Li 1990, Gu 1992, Chang 1998). This is not intended to mean that the relation between the events of M and R is not (something like) causation. Rather, it means that the subject does not identify an agent for the event of caused change.
b. # tā zōu fá -le.
L.W. walk -weary -LE
‘Lao Wei got weary from walking.’

c. # tā bīng sǐ -le.
L.W. be ill -PFV
‘Lao Wei died from being ill.’

Object-control resultatives, in contrast, generally make good answers to questions like (228). (232), for example, is a fine answer to (228). Here the object controls R and the subject is understood as the agent of causation.

(232) (tā) zá píng -le nà kuài ròu.
(3s) pound flat -PFV that chunk meat
‘S/he made that piece of meat flat by pounding.’

And again, what matters is not agentivity with respect to the means event. To the extent that it is possible to ask (233a), thereby personifying the bottle somewhat, the object-control resultative in (233b) is a good answer. Here the subject names the agent of causation, but not the agent of the means event.

(233) a. ? nà píng jǐu zuò -le shénme?
that bottle wine do -PFV what
‘What did that bottle of wine do?’

b. pro hē zuì -le wò.
it drink drunk -PFV (wine)
‘It made me drunk from drinking.’

Thus the subject of a resultative names the agent of its predicate’s event if and only if it does not control R. This is as we expect, given the external patient theory.

Additional support for this conclusion comes from the distribution of the progressive auxiliary (zhèng) zài. This progressive is compatible with a predicate only if the subject identifies the agent of its event, (234).

(234) a. tā (zhèng) zài hē jǐu.
3s PROG drink wine
‘S/he is drinking wine.’

b. # tā (zhèng) zài sǐ.
3s PROG die
‘S/he is dying.’

The progressive is never compatible with a resultative whose subject controls R, (235), even when the subject identifies the agent of the means event, as in (235a) and (235b). In subject-control resultatives, therefore, the subject is not the agent of its predicate’s event, the event of causation.
The progressive is often compatible with object-control resultatives, however, like (236), confirming that in these cases the subject is construed as the agent of causation.

Further conditions prevent the progressive from occurring with every object-control resultative. Predicates that accept 赵 (zheng) zai must denote events understood as extended over time, either by duration or by repetition. Thus (236) is more natural than (237), since a shattering blow is most likely instantaneous, and a vase can be shattered only once.

The subject must also be animate, which may explain why (238) is unacceptable.

But interestingly, it does not seem strictly necessary that the subject name the agent of the means event. Some speakers accept (239).

Here the subject is presumably not the agent of the means event, since ‘to be hungry’ is an intransitive verb that (in simple clauses) cannot occur with an agent argument. Yet the progressive is acceptable insofar as President Li is the agent of causation, and he is doing something that makes the students die from starvation.

In conclusion, it is clear that subject-control resultatives in Mandarin are always nonagentive. No argument noun phrases identifies the agent of the resultative event, the event of causation, even in cases where the subject is construed as naming the agent of its means event. I know of no language, moreover, where the facts seem any different.
Before moving on I should note that in Mandarin there are intransitive resultatives with a second noun phrase following the complex predicate, like in (240) and (241). Call these two-argument intransitives, and call the post-predicate noun phrase the secondary object.

(240) tā hē zuǐ -le jiǔ.
3s drink drunk -LE wine
‘S/he got drunk from drinking wine.’

(241) húli zhuī lèi -le tùzi.
fox chase tired -LE rabbit
‘The fox got tired from chasing rabbits.’

As a rule the secondary object can be dropped; compare (240) to (227) and (241) to (242). It is widely agreed, moreover, that the secondary object is also restricted referentially: it must refer to a type of thing, or to an indefinite set of things, but not to any particular individual(s) (see e.g. Chang 1998 contra Y. Li 1995).

(242) húli zhuī lèi -le.
fox chase tired -LE
‘The fox got tired from chasing.’

Two-argument intransitives pose no challenge to the dor. Like all others they are nonagentive. No argument is assigned an agent relation to the event of causation (see Li 1990, 1995). The tests that show (233b) to be nonagentive, for example, show the same for (240). So for the two-argument intransitives as for the simple cases, we ought to assume that the surface subject is the direct object underlying.

They do pose another challenge, however. Yafei Li (1990, 1995) has emphasized that, in two-argument intransitives, interpretation with respect to the means verb is fixed. We understand the surface subject as naming the agent of the means event, and the second argument as naming its patient. At the same time (and this Li does not emphasize) interpretation is not constrained in this way when there is no secondary object; as we saw with examples like (224) and (225), interpretation of the subject with respect to M is variable, just like the interpretation of the object in transitives. Why there should be this contrast between one- and two-argument intransitives is not obvious; I discuss this in Williams 2005 (pp. 189–96). But to repeat, the question is unrelated to the dor. Intransitive resultatives are nonagentive, hence they obey the dor, regardless of what role we take the subject referent to play in the event of M.

11 Concluding discussion

The traditional semantics for resultatives, what I call the result patient analysis, is an expected consequence of the traditional semantic metalanguage: the first order predicate calculus, with a non-Davidsonian domain of individuals. If R is a predicate of individuals, and there are no second order relations, then R cannot be part of a proposition unless it is predicated of something, and that must of course be the referent of the direct object. Since this is moreover sufficient to represent control of R, simplicity counsels against overkill: why
also say, for example, that the object referent \( x \) bears a further relation to the proposition that \( R(x) \) became true?

But with an enriched metalanguage, e.g. one with events and thematic relations, other analyses of resultative meaning are easily stated. So which is the best? In large part, this must be decided by which one relates to the syntactic facts in the most explanatory way.

I have argued on these grounds for what I call the external patient analysis of resultative meaning. The object is assigned a patient relation to the event of the resultative complex predicate, an event of change which is distinct from the events of either \( M \) or \( R \). It is not necessary that the object be assigned any further thematic relations, either to \( M \) or to \( R \); if any such relations are assigned, this is independent of the resultative construction as such. Only this semantics allows us to explain the \( \text{dor} \), the licensing of unselected objects, and patterns in resultative word order. The result patient analysis does not; and the auxiliary postulate that control of \( R \) must go to the patient of \( M \) is a failure. Any further questions about the structure of resultatives—and of course there are dauntingly many—should therefore be addressed with the external patient semantics as given.

If correct, this conclusion implies two points of more general relevance, with which I finish. First, it supports the use of thematic relations in the compositional semantics, contra Dowty 1991, and the use of a patient relation in particular, contra Kratzer 2003. Dowty and Kratzer have essentially the same objection. For at least some thematic relations, it is impossible to judge whether \( \theta(e, x) \) is true, except relative to a description of \( e \) provided by the verb. Such relations therefore require the so-called events in our semantic ontology to be, in effect, fine-grained descriptions of real events in the world. But this seems to compromise one motivating ambition of semantic theory: we want to relate language to a denotational domain that is significantly independent of language. However, if accepting the richer ontology affords us a better explanation of the language itself, this is perhaps an ambition that should be moderated. See Parsons 1990, Schein 1992, Landman 2000, and Pietroski 2004.

Second, our conclusion defeats the lexicalist model of argument structure, in which thematic relations are always introduced by an open class lexical item. The patient relation to the event of causation is introduced neither by the \( M \) verb, nor by the head of \( R \). It is contributed by something covert in the structural context, either a functional head for an interpretive rule. Moreover, a resultative complex predicate always occurs in a context that introduces a patient relation, even when its component lexical predicates do not. Thus the principles that govern the distribution of the patient-introducing structure, relative to verbal predicates, must be indifferent to whether the predicate is a lexical, or built in syntax. This too goes against lexicalist assumptions.

References


