

# Measuring Events

Guido Vanden Wyngaerd

## Abstract

The telic-atelic distinction has been argued to hinge on the presence of a (bounded) internal argument measuring out the event, or, alternatively, a resultative small clause providing an end point for the event. Both perspectives are partially correct and partially incorrect. On the one hand, the resultative is more adequately seen as a measure than an end point; on the other, it is the resultative predicate rather than the internal argument that performs this measuring function. Empirical evidence is adduced in support of this point of view: resultative predicates are subject to the requirement that they denote a bounded scale. Only bounded predicates can delimit an event by providing it with minimal parts. As a matter of conceptual necessity, unbounded predicates, though potentially denoting end points, cannot function as event measures.

## Introduction

The distinction between telic and atelic (bounded and unbounded, or delimited and non-delimited) events has a long and venerable tradition, both in the philosophical and the linguistic literature (e.g. Kenny 1963, Ryle 1949, Garey 1957, Potts 1965, Vendler 1967, Bauer 1970, Verkuyl 1972, Comrie 1976, Nordenfelt 1977, Declerck 1979, Dowty 1979, Bach 1981, Dahl 1981, Bennett 1981, Mourelatos 1981, Brinton 1988, Hoekstra 1988, Talmy 1988, Binnick 1991, Smith 1991, Tenny 1994, Depraetere 1995, Jackendoff 1996, to name just a few).<sup>1</sup> For example, in the aspectual classification developed by Vendler (1967) and Dowty (1979) given in (1), the

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<sup>1</sup>Parts of the material contained in this paper were presented at the 1998 TIN-dag in Utrecht, and the workshop 'Aspect on the HIL' in Leiden (June 1998). I wish to thank the audiences at these meetings for their remarks. For insightful discussion and comments, I

states and activities may be taken as unbounded, the accomplishments and achievements as bounded.

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|-----|-----------------|--|
| (1) | states          | e.g. know, believe, have, desire, love   |
|     | activities      | e.g. run, walk, swim, push a cart, drive a car, tease Mary                                 |
|     | accomplishments | e.g. paint a picture, make a chair, deliver a sermon, draw a circle, run across the street |
|     | achievements    | e.g. recognize, spot, find, lose, reach, die   |

As the examples make clear, and as has been pointed out by Verkuyl (1972), the aspectual classification requires that one look not just at verbs, but at least at VPs.

- (2) a. Mark knitted a sweater.  
b. Mark knitted sweaters.

Thus (2a) is telic or bounded, i.e. has an inherent end point, whereas (2b), with a bare plural object, is unbounded. In other words, depending on what the VP contains, the interpretation of any particular verb may shift from unbounded to bounded, or vice versa. Another case illustrating this phenomenon is that of resultatives. Thus Hoekstra (1988; 1992) has argued that any activity verb may be turned into an accomplishment by adding a resultative small clause to it. This is illustrated in (3).

- (3) a. Freddy cried.  
b. Freddy cried the handkerchief wet.

Used intransitively, the activity of crying has no inherent end point. In (b), on the other hand, the interpretation is different in that the activity is inherently bounded. According to Hoekstra, the combination of the postverbal NP and secondary predicate expresses a state, which constitutes the end point of the crying activity. Syntactically, the combination the handkerchief wet is argued to form a constituent, viz. a (resultative) small clause.

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am grateful to Sjef Barbiers, Ilse Depraetere, Jenny Doetjes, and two anonymous reviewers. A special word of thanks goes to Johan Rooryck for extremely valuable discussion and advice. The research reported on in this paper was made possible by a grant to the author from the *Fonds voor Wetenschappelijk Onderzoek (Vlaanderen)*, which support is gratefully acknowledged.

A different perspective on accomplishments is presented by Tenny (1994). Consider the following:

(4) Sam mowed the lawn.

The direct object is said to ‘measure out’ the activity of the verb: as the activity progresses, more parts of the lawn are mowed, until there is no lawn left to be mowed, at which point the activity must terminate. The lawn may consequently be seen as a scale or measurer of the amount of activity that has taken place. Thus, whereas Hoekstra considers the postverbal constituent in accomplishments to represent an end point, Tenny’s view holds that it is an event measurer. While there is not necessarily an inherent incompatibility between both points of view, I shall present some evidence suggesting that it is possible to construe an empirical difference between both perspectives. The evidence will show that Tenny’s view in terms of measuring out is empirically more accurate with respect to the role played by the postverbal constituent in accomplishments. This implies that Hoekstra’s view on telic sentences as involving a small clause that denotes an end point is incorrect. On the other hand, I shall argue that Hoekstra is correct with respect to the essential role played by the secondary predicate itself in the aspectual interpretation of the event. Tenny’s analysis is therefore wrong in assigning the measuring out function solely to the internal argument rather than to the secondary predicate. The empirical evidence that I will discuss concerns the types of predicates that can appear in the resultative construction: these must be bounded, as will be shown in sections 1 and 2 below. Section 3 shows that the boundedness requirement follows directly if the resultative is taken to be an event measurer. Section 4 addresses the question which element in accomplishments is responsible for the measuring out function. Finally, section 5 investigates the issue of the loss of literal meaning in intensifying resultatives.

## 1 Bounded vs unbounded adjectives

Barbiers (1995) discusses a restriction that applies to nonverbal complements to modal verbs in Dutch.<sup>2</sup> He observes that adjectival complements

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<sup>2</sup>It is necessary to consider Dutch evidence here, since modal complements in English are necessarily verbal (apart from a few isolated cases like *the truth will out*). Modal

to modal verbs must obey the restriction that they denote a bounded scale; examples are adjectives like *vol* 'full', *los* 'loose' and *open* 'open'. By contrast, adjectives denoting unbounded scales include *groot* 'big', *snel* 'fast' *traag* 'slow', *arm* 'poor'.<sup>3</sup>

- (5) a. De trossen mogen los  
The hawsers may loose  
'The hawsers may be loosened.'
- b. De fles moet leeg.  
the bottle must empty  
'The bottle must be emptied.'
- c. Het raam kan open.  
The window can open  
'The window can be opened.'

By contrast, adjectives denoting unbounded scales include *groot* 'big', *snel* 'fast' *traag* 'slow', *arm* 'poor', and these cannot appear in the complement of a modal verb.<sup>4</sup>

- (6) a. \*Het kantoor moet groot.  
the office must big  
'The office must be made big.'
- b. \*Die wagen kan snel/traag.  
that car can fast/slow  
'That car can drive fast/slow.'
- c. \*De storm mag hevig.  
the storm may intense  
'The storm may be made intense.'
- d. \*De adel moet arm.  
the nobility must poor

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complements in English consequently show no evidence of a boundedness restriction, the latter applying only to nonverbal modal complements. But with respect to the other properties of bounded and unbounded adjectives to be discussed below, and notably their behavior in the resultative construction, English and Dutch behave essentially alike.

<sup>3</sup>The sentences in (6) are possible if the adjective is put in the comparative. This property of the comparative of providing bounds has in fact been observed by Barbiers (1995). See example (47) and discussion below.

<sup>4</sup>Bounded and unbounded scale adjectives are called *absolute* and *gradable predicates*, respectively, in Klein (1997). Hay et al. (1999) use the terms *closed-range adjectives* and *open-range adjectives*.

‘The nobility must be made poor.’

The adjectives in (6), while denoting a scale, do not refer to a scale that has identifiable lower and/or upper bounds: however big an office is, it can always be bigger still. By contrast, a bottle that is empty cannot be more empty than it is.<sup>5</sup>

The property of adverbial modification clearly distinguishes between the two types of adjectives. Modifiers that typically go with bounded scales include *helemaal* ‘completely’, *bijna* ‘almost’ and *half* ‘half’ (see Barbiers 1995, Klein 1997, Talmy 1988: 186). These modifiers contrast with the modifier *erg* ‘very’, which turns out to be incompatible with bounded scale adjectives. Unbounded scale adjectives display an exact mirror image behavior: *helemaal* ‘completely’ and the like are not possible, whereas *erg* ‘very’ is.<sup>6</sup>

- (7) a. De trossen zijn \*erg/helemaal los.  
the hawsers are very/completely loose  
‘The hawsers are completely loose.’  
b. De fles is \*erg/helemaal leeg.  
the bottle is very/completely empty  
‘The bottle is completely empty.’  
c. Het raam is \*erg/helemaal open.  
the window is very/completely open  
‘The window is completely open.’
- (8) a. Het kantoor is erg/\*helemaal groot.  
the office is very/completely big  
‘The office is very big.’  
b. Die wagen is erg/\*helemaal snel/traag.  
that car is very/completely fast/slow  
‘That car is very fast/slow.’  
c. De storm is erg/\*helemaal hevig.  
the storm is very/completely intense

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<sup>5</sup>Barbiers further notes the existence of adjectives that do not introduce any scale or linear ordering at all, for example *beschikbaar* ‘available’; these are not modifiable by any kind of adverbial modifier and cannot be put in the comparative or superlative either.

<sup>6</sup>Some of the examples in (7) are marginally acceptable as cases of intended jocularly; (7b) may be used jocularly to express the desire for another bottle to be opened, or (7c) to indicate that one would like the window to be closed.

- ‘The storm is very intense.’
- d. De adel is erg/\*helemaal arm.  
 the nobility is very/completely poor  
 ‘The nobility is very poor.’

As the translations of the Dutch examples reveal, the facts are identical in English most of the time. Tenny (1994: 34), quoting Abusch (1986), likewise notes the English modifiers *completely* and *absolutely* in both adjectival and verbal contexts.

- (9) a. NP is completely/absolutely cool.  
 b. NP has cooled completely.

The adjective *cool* is actually ambiguous between a bounded and an unbounded use: a cool attitude can always be cooler still, but a liquid like soup cannot get any cooler beyond a certain point. In (9a), this ambiguity is resolved in the presence of a modifier like *completely*. Likewise, the verb *cool* in (9b) can be paraphrased with a comparative (*become cooler*) or a positive degree (*become cool*), but only the latter in the presence of *completely*. That is, the verb, like the adjective, reveals an ambiguity, which is resolved through the addition of the modifier *completely* (see Hay et al. 1999 for a somewhat different perspective).

Turning to resultative predications, we find that modification by the bounded scale modifiers is usually possible, whereas modification by erg ‘very’ is uniformly ruled out both in Dutch and in English.<sup>7</sup>

<sup>7</sup>Hans Bennis (p.c.) points out the following example, where *erg* ‘very’ appears to be compatible with a resultative.

- (i) Frits heeft de tafel erg donker geverfd.  
 Frits has the table very dark painted  
 ‘Frits has painted the table very dark.’

Observe, however, that the bounded scale modifiers (such as *helemaal* ‘completely’) are ruled out with *donker* ‘dark’ in (i); this suggests that *erg donker* ‘very dark’ in (i) is not a resultative. Instead, it seems to me that *erg donker* ‘very dark’ is interpreted as an adjunct instead of a small clause predicate. This is confirmed by (ii), where the internal argument is absent, so that the resultative analysis is unavailable.

- (ii) Deze artiest schildert (erg) donker/\*groen.  
 this artist paints very dark/green  
 ‘This artist paints very dark/green.’

- (10) a. Theo liep zijn schoenen helemaal/bijna/half/\*erg  
 Theo walked his shoes completely/almost/half/very  
 scheef.  
 crooked  
 ‘Theo walked his shoes completely/almost/half/very to pieces.’
- b. Emilie verfde het hekje helemaal/bijna/half/\*erg groen.  
 Emilie painted the fence completely/almost/half green  
 ‘Emilie painted the fence completely/almost/half green.’
- c. Otto lachte zich helemaal/bijna/half/\*erg ziek.  
 Otto laughed REFL completely/almost/half/very sick.  
 ‘Otto completely/almost/half laughed his head off.’
- d. Jeroen praatte zich helemaal/bijna/half/\*erg suf.  
 Jeroen talked REFL completely/almost/half/very drowsy  
 ‘Jeroen talked himself completely/almost/half drowsy.’
- e. Marijke at zich helemaal/bijna/?half/\*erg dik.  
 Marijke ate herself completely/almost/half/very fat.  
 ‘Marijke ate herself completely/almost/half round.’
- (11) a. Tim danced himself \*very/completely/almost/half tired.  
 b. Max shouted himself \*very/completely/almost/half hoarse.  
 c. The joggers ran the pavement \*very/completely/almost/half thin.  
 d. Charley laughed himself \*very/completely/almost/half silly.

These facts suggest the following generalisation:<sup>8</sup>

- (12) Restriction on Resultatives  
 Resultative predicates denote a bounded scale.

The impossibility of *erg/very* in (10) and (11) can now be attributed to (12) and to the independently motivated observation that *erg/very* is an

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The example also shows that for *groen* ‘green’ an interpretation as an adjunct is marginal, which explains why *erg* ‘very’ cannot modify (resultative) *groen* ‘green’ in (10b), although it can modify (adjunct) *donker* ‘dark’ in (i).

<sup>8</sup>There is a resultative-like construction that does permit modification of the adjective by *erg* ‘very’, and which in general tolerates unbounded scale adjectives: this is the *maken* ‘make’ + adjective construction (e.g. *Het goede nieuws heeft me (erg) blij gemaakt* ‘The good news has made me very happy’). This construction will be discussed extensively in §3.

intensifier that qualifies unbounded scales (cf. (7)).<sup>9</sup>

The restriction in (12) is particularly remarkable in view of the fact that many, if not all, adjectives can denote an unbounded scale. This is notably the case for the adjectives of (10) and (11) when they do not occur as resultative predicates. This is illustrated in (13) and (14), where modification by *erg/very* is possible, and sometimes even better than modification with *helemaal/completely* type modifiers:

- (13) a. Theo's schoenen zijn ?erg/helemaal/bijna/half scheef.  
Theo's shoes are very/completely/almost/half crooked  
'Theo's shoes are very/completely/almost/half crooked.'
- b. Emilie's hekje is ?erg/helemaal/bijna/half groen.  
Emilie's fence is very/completely/almost/half green  
'Emilie's fence is very/completely/almost/half green.'
- c. Otto is erg/helemaal/bijna/half ziek.  
Otto is very/completely/almost/half sick  
'Otto is very/completely/almost/half sick.'
- d. Jeroen is erg/helemaal/bijna/half suf.  
Jeroen is very/completely/almost/half drowsy  
'Jeroen is very/completely/almost/half drowsy.'
- e. Marijke is erg/??helemaal/?bijna/??half dik.  
'Marijke is very/completely/almost/half fat  
'Marijke is very/completely/almost/half fat.'
- (14) a. Tim is very/completely/almost/half tired.

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<sup>9</sup>As is to be expected, an adjective that is modified by *erg* 'very' cannot appear as a modal complement:

- (i) a. \*Het kantoor moet erg groot.  
the office must very big  
Int.: 'The office must be made very big.'
- b. \*Die wagen kan erg snel.  
that car can very fast  
Int.: 'That car can go very fast.'
- c. \*De storm mag erg hevig.  
The storm may very intense  
Int.: 'The storm may be made very intense.'
- d. \*De adel moet erg arm.  
the gentry must very poor  
Int.: 'The gentry must be made very poor.'



- b. Max is very/completely/almost/half hoarse.
- c. The pavement is very/?completely/?almost/?half thin.
- d. Charley is very/completely/almost/half silly.

Unboundedness therefore appears to be the unmarked case for adjectival scales. There are two instances where adjectives may shift to a bounded interpretation: one is the resultative construction, the other involves bounded subjects. Let us consider the latter case first by looking at Barbiers' examples in (5) above again. The boundedness of the scale denoted by the adjective is not so much a property of the adjective itself, as it is a property of the subject (see Klein 1997: 65 for a similar observation).<sup>10</sup> Consider (5b): the bounds of the scale of fullness or emptiness are not inherent in the adjective *leeg* 'empty', but rather in the physical properties of the subject, the bottle: it is the physical dimensions of the bottle that provide the lower and upper bounds of the scale. With a different choice of subject, the adjectives of (5) can be used as referring to unbounded scales. For example, a style of presentation or sexual morals can be said to be *los* 'loose', and in this sense the looseness scale has no upper bounds: however loose a style of presentation may be, it can still be looser (as opposed to the looseness of the hawsers in (5a)). The same is true for *open* 'open', which is unbounded when applied to an attitude or some other abstract entity. Syntactically, this is reflected in modification possibilities and the occurrence in modal contexts.

- (15) a. Zijn presentatiestijl is erg/\*helemaal/\*half/\*bijna  
his presentation.style is very/completely/half/almost  
los.  
loose  
'His style of presentation is very loose.'
- b. Haar houding is erg/\*helemaal/\*half/\*bijna open.  
her attitude is very/completely/half/almost open  
'Her attitude is very open.'
- (16) a. \*De presentatie moet los.  
the presentation must loose  
Int.: 'The presentation needs to be loose.'

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<sup>10</sup>In English, the adjectives *awake* and *asleep* would appear to permit a bounded use only. Still, adjectives like these disallowing an unbounded use definitely constitute a small minority.

- b. \*Zijn houding kon open.  
his attitude could open  
Int.: 'His attitude could be open.'

A similar example is constituted by the adjective *hard* 'hard': when said of cement or concrete, we are dealing with a bounded scale with a clear upper bound (i.e. full rigidity); when said of an attitude, however, the scale is unbounded, i.e. a tough attitude can always be tougher. As before, modification and modal contexts distinguish the two:

- (17) a. De cement is ?\*erg/half/bijna/helemaal hard.  
the cement is very/half/almost/completely hard  
'The cement is half/almost/completely hard.'
- b. De houding van de politie ten aanzien van  
The attitude of the police to regard of  
vermogensdelicten is \*half/\*bijna/\*helemaal/erg hard.  
capital.crimes is half/almost/completely/very hard  
'The attitude of the police toward financial crime is very hard.'
- (18) a. Voor we verder kunnen werken, moet de cement eerst  
before we further can work must the cement first  
hard.  
hard  
'Before we can do any further work, the cement must be hard first.'
- b. \*De houding van de politie ten aanzien van  
The attitude of the police to regard of  
vermogensdelicten moet hard.  
capital.crimes must hard  
Int.: 'The attitude of the police toward financial crime must be hard.'

The two types of subjects that we are dealing with, can be described as concrete vs abstract: concrete entities have observable physical properties, such as size, that provide the bounds for the scale. Abstract subjects, such as attitudes, can likewise have scalar properties, but these are not physically observable, or in any case not objectively verifiable.<sup>11</sup>

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<sup>11</sup>A referee points out the following example, where the subject is concrete and yet the interpretation unbounded:

The restriction in (12) with respect to resultatives has now become all the more intriguing, particularly in view of the fact that the subject of a resultative adjective need not be one of the type that triggers a bounded interpretation (as shown by (13) and (14)). Therefore, if the subject does not provide the bounds, it must be something of the resultative syntax that requires it. This is confirmed by looking at a category of adjectives that does not allow a shift to a bounded interpretation. Such adjectives include the ones refer to physical parameters which have no upper bounds, such as size and speed (e.g. *groot* ‘big’, *snel* ‘fast’, *diep* ‘deep’, etc.), as well as adjectives referring to emotional states (e.g. *blij* ‘glad’, *verdrietig* ‘sad’, etc.). Empirically, this results in their being incompatible with any of the bounded scale modifiers (e.g. *\*bijna/\*helemaal/\*half {snel/groot/diep/blij}* ‘almost/completely/half fast/big/deep/glad’).<sup>12</sup> Secondly, they cannot appear in resultative environments; in the following examples, such bounded

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- (i) His clothes are loose.

But this seems to confirm our point, insofar as the subject would appear to refer to a style of clothing, not some objectively verifiable property of the clothes such as their size or shape. It is therefore not surprising that the scale is an unbounded one. But even if that were the case, it does not contradict our claim, which is that with bounded adjectives the boundaries of the scale often derive from some physical boundary inherent in the subject. But evidently, a concrete entity with physical boundaries itself can be the subject of an unbounded scale adjective (e.g. *that bottle is very/\*completely ugly*). Another referee points out the example in (ii), where the loudness of a voice is physically observable and objectively verifiable, and yet the bounded scale modifiers are ruled out.

- (ii) Zijn stem is *\*half/\*helemaal/\*bijna/erg* hard.  
 his voice is half/completely/almost/very hard  
 ‘His voice is very loud.’

This case closely resembles the examples in (17), which involve the same adjective, *hard*. Still, it would seem to differ from the cement example (17a) in that the loudness is a physical parameter without an upper bound—however loud a noise is, it can always be louder still. In this respect, the loudness scale contrasts with the hardness scale, which clearly does have an upper bound.

<sup>12</sup>A referee suggests that the modifier *helemaal* ‘completely’ may be more versatile than the others. Thus (s)he accepts *Hij was helemaal blij* ‘He was completely happy’. A different interpretation of this judgment would be that the referee can treat *blij* ‘happy’ as a bounded scale adjective, which would imply that it could occur in resultatives as well. A limited survey indicates that this interpretation is correct; while there is speaker-bound variation in this area, those speakers who accept *helemaal blij* ‘completely happy’ also tend to accept *blij* ‘happy’ in resultative contexts.

scale predicates as *kapot* ‘broken’, *aan stukken* ‘to pieces’, *plat* ‘flat’, *suf* ‘drowsy’, *bewusteloos* ‘unconscious’ and *in trance* ‘into a trance’ are contrasted with unbounded adjectives (see Napoli 1992: 79 for similar contrasts):

- (19)
- a. Martin heeft zijn brommer \*snel/kapot gesleuteld.  
Martin has his moped fast/broken wrenched  
‘Martin wrenched his moped to pieces.’
  - b. Frank heeft de ballon \*groot/ aan stukken geblazen.  
Frank has the balloon big/ to pieces blown  
‘Frank blew the balloon to pieces.’
  - c. Het drukke verkeer heeft de sporen \*diep/plat gereden.  
the busy traffic has the tracks deep/flat driven  
‘Heavy traffic drove the tracks flat.’
  - d. Max heeft me \*blij/suf gekieteld.  
Max has me happy/drowsy tickled  
‘Max tickled me silly.’
  - e. Van zong zich \*slaperig/ bewusteloos/ in trance.  
Van sang REFL sleepy/ unconscious/ in trance  
‘Van sang himself unconscious/into a trance.’

The minimal contrasts in these sentences clearly reveal that resultative environments require bounded scale predicates. In section 3, we shall address the question why unbounded adjectives cannot appear in resultatives. First, however, we want to provide further support for the correctness of the boundedness requirement on resultative predicates in (12). This will be done by comparing it with an alternative restriction that has been proposed in the literature, which states that resultative predicates must be stage-level. It will be shown that the latter requirement is incorrect, and that (12) instead provides a better characterisation of the empirical situation in resultatives.

## 2 (Un)boundedness and the individual level-stage level distinction

It has been claimed that individual-level predicates cannot occur as resultative predicates (e.g. Hoekstra 1992, Doetjes 1997):

- (20) a. Mickey laughed himself \*intelligent/silly.  
 b. The New Age sounds emanating from the clock ticked the baby awake/asleep/\*fat/\*thin/\*gifted.

Hoekstra accounts for this restriction in terms of the idea due to Kratzer (1988) to the effect that stage-level predicates project an e-role, whereas individual-level predicates do not (see also Diesing 1992). He further assumes that the semantics of resultative constructions involves the binding of an embedded e-role by the final point in the event structure of the matrix verb (Kratzer 1988, Higginbotham 1985). Since individual-level predicates lack such an e-role, they cannot occur in resultative environments. However, given our generalisation in (12), an alternative explanation suggests itself: the bad variants of (20) all involve unbounded scale adjectives. This is shown by their behaviour under adverbial modification, as in (21).

- (21) Matty is very/\*half/?\*almost/\*completely intelligent/fat/thin/gifted.

Hence these resultatives are ruled out independently of the fact that they involve individual-level predicates. To test whether individual-level predicates are really ruled out in resultative environments, we need an individual-level predicate of the bounded scale variety. Hoekstra's proposal predicts these to be bad in resultative environments, whereas they are expected to be grammatical if it is really (12) that is involved here. In fact, some relevant examples (those in (22)) are given by Hoekstra himself (Hoekstra 1992: 150):

- (22) a. De boorhamer dreunde mij doof.  
 the drill.hammer boomed me deaf  
 'The drill thundered me deaf.'  
 b. Hij at zich moddervet.  
 He ate REFL mud.fat  
 'He ate himself silly.'  
 c. Hij zeurde mijn kop gek.  
 he nagged my head mad  
 'He nagged my head off.'  
 d. Ze schaatste het ijs kapot.  
 she skated the ice broken  
 'She skated the ice to pieces.'

The adjectives in these examples are all bounded, by assumption. Still, contrary to Hoekstra's claims, they would appear to be individual-level predicates in that they say something about an individual, not about a slice of an individual. One might object that this is incorrect, and that the adjectives at issue are being used as stage-level predicates in the resultative construction. This idea has some initial plausibility, in so far as resultatives always involve a transition: the subject gets into a state  $s$  as a result of the activity of the main verb. This presupposes that the subject was not in state  $s$  to begin with, and hence that a transition takes place from  $\neg s$  to  $s$ . Given that individual-level predicates are assumed to denote permanent properties of individuals, such transitions could be considered incompatible with the very nature of being an individual-level predicate. In other words, it must be the case that the adjectives in resultative constructions are stage-level. However, it seems to me that the idea of a transition or change is not incompatible with the property of being an individual-level predicate. Consider an uncontroversial individual-level predicate like *to know French*: surely, this does not imply that the subject of which it is predicated has known French all of her life. In the normal order of things, there has at some point in time been a transition from not knowing French to knowing French. In this case, the transition is gradual, but more sudden transitions are imaginable as well, such as with *to know the answer*, or *kapot* 'to pieces' and *dood* 'dead'. The point is that individual-level predicates are not incompatible with changes or transitions per se, but rather that such changes, when they occur, imply 'a significant change in the character of the entity' (Milsark 1977: 13). That is, in a case like (22d) there is a sudden transition that affects the ice, and this change concerns some essential property of the ice, such that the ice is significantly different after the change. In other words, it applies to the ice as a whole, not to some slice of the ice; it is therefore an individual-level predicate. This is even more radically the case with an adjective like *dood* 'dead', which likewise occurs in resultative constructions (e.g. *Ik sloeg het insect dood* lit. 'I beat the insect dead,' i.e. 'I killed the insect'), and effects some permanent and significant change to the entity involved.

Observe that if indeed *dood* 'dead' and *kapot* 'broken' are individual-level predicates, as I argue, then Barbiers's claim that individual-level predicates cannot occur in the complement of modal verbs must be incorrect as well.

- (23) a. Die vlieg moet dood.  
 that fly must dead  
 ‘That fly must die.’  
 b. Zijn reputatie kan niet meer kapot.  
 his reputation can not anymore broken  
 ‘His fame has been made.’

Still, for unclear reasons, the other individual-level predicates that occur in resultatives do not occur as modal complements.

- (24) a. \*Jan moet moddervet.  
 Jan must mud.fat  
 Int.: ‘Jan must become stuffed.’  
 b. \*Marie mag blind.  
 Marie may blind  
 Int.: ‘Marie may become blind.’  
 c. \*Klaas kan gek.  
 Klaas can mad  
 Int.: ‘Klaas is able to behave madly.’

In general, it appears that the set of adjectives that may occur as a modal complement is a proper subset of the adjectives occurring in resultatives. Thus even a stage-level predicate like *ziek* ‘ill’ is fine in a resultative (cf. below) but not as a modal complement.

- (25) \*Max moet ziek.  
 Max must ill  
 Int.: ‘Max must become ill.’

See Hoeksema (1998) for discussion of some of the factors that may be responsible for the absence of certain bounded scale adjectives from modal complements.

Let us return to the issue at hand, the status of the secondary predicates in (22) with respect to the stage-individual level distinction. Is there independent evidence suggesting that these predicates are indeed individual-level? A traditional test distinguishing stage- and individual-level predicates involves bare plurals and *there*-sentences.

- (26) a. Firemen are available/intelligent.  
 b. There are firemen available/\*intelligent.

In (26a), the individual-level predicate *intelligent* triggers a universal reading for the bare plural subject (i.e. ‘all firemen’), whereas a stage-level predicate like *available* also allows an existential reading (i.e. ‘some firemen’). In the *there* sentences of (26b), individual-level predicates are ruled out (Milsark 1977). Consider now the predicate *silly* as it occurs in the resultative environment (a). Surely, *silly* can refer to a type of behaviour, i.e. some temporally bounded slice of an individual, if it is used with the progressive or in the imperative (cf. *You’re being silly again* or *Don’t be silly!*), but such usage is not limited to this one case; in fact, it appears to be possible with a wide range of individual-level predicates (e.g. *Now you’re being intelligent!*). Furthermore, this type of interpretation seems restricted to precisely the progressive and imperative contexts. Subjects of *silly* in environments as the one in (26a) get a universal reading, and are incompatible with *there*-sentences, suggesting that *silly* is indeed an individual-level predicate.

- (27) a. Students are silly.  
 b. \*There are students silly.

The fact that *silly* can appear in resultative environments, then, indicates that these are not a priori incompatible with individual-level predicates, but rather that they require bounded adjectives. Other adjectives which are individual-level by the test in (27), and which are compatible with resultative environments include *blind* and *thin* (e.g. *I’m gonna cry myself blind*; *The joggers ran the pavement thin*). As far as Dutch is concerned, similar facts hold. Consider (28).

- (28) a. Brandweermannen zijn beschikbaar/intelligent.  
 b. Er zijn brandweermannen beschikbaar/\*intelligent.

As in English, (28a) has the universal reading for the bare plural with the individual-level predicate *intelligent*; unlike in English, the existential reading is harder to get with stage-level predicates when there is no *er* ‘there’. The context (28b) reveals the same distinction between stage-level and individual level predicates that was found in English. Applying the *there*-sentence test to the resultative predicates in (22), then, shows them to be individual-level.<sup>13</sup>

<sup>13</sup>Barbiers pointed out to me that other types of indefinite subjects (those not involving bare plurals or mass nouns) are possible in the examples in (29):



- (29) a. \*Er zijn taalkundigen doof.  
           there are linguists deaf  
           Int.: ‘Linguists are deaf.’ (existential)
- b. \*Er zijn worstelaars moddervet.  
           there are wrestlers mud.fat.  
           Int.: ‘Wrestlers are gross.’ (existential)
- c. \*Er zijn brandweermannen gek.  
           there are firemen crazy.’  
           Int.: ‘Firemen are crazy.’ (existential)

- 
- (i) a. Er zijn veel soldaten dood.  
           there are many soldiers dead  
           ‘There are many soldiers dead.’
- b. Er is een lamp kapot.  
           there is a lamp broken  
           ‘There is a lamp broken.’

A reviewer also accepts the following (with a bare plural):

- (ii) Er zijn glazen kapot.  
           there are glasses broken  
           ‘There are glasses broken.’

A first point to establish is that there is indeed a contrast between bare plurals and other types of indefinite subjects. This can be seen when comparing (ii) with (iii):

- (iii) Er is een glas kapot.  
           there is a glass broken  
           ‘There is a glass broken.’

While I would agree that (ii) is not bad in all contexts, there does seem to be contrast with (iii), the latter being better, particularly in an out-of-the-blue context: if I were to walk into a room that had been burgled, (iii) would be fine but (ii) awkward. As far as cases like (i) and (ii) are concerned, in Dutch certain contexts and intonation patterns will vastly improve *there*-sentences with individual-level predicates. This can be seen in (iv).

- (iv) (Van de 15 mensen die hier zitten), moet er toch iemand intelligent zijn.  
           of the 15 people who here sit must there PRT someone intelligent be  
           ‘(Of the 15 people sitting here), there must be someone intelligent.’

We need not go into the intricacies of the Dutch facts here (see Barbiers & Rooryck 1998; suffice it to say that with a neutral intonation, bare plurals in Dutch *there*-sentences behave essentially like English in the relevant respects.

- d. \*Er is ijs kapot.  
 there is ice broken  
 Int.: ‘Ice is broken.’ (existential)

We conclude that individual-level predicates may occur in resultative environments, as long as they satisfy the requirement that they be bounded.<sup>14</sup>

Another context distinguishing stage and individual level adjectives is discussed by Hoekstra (1992: 159), who notes that stage-level predicates, but not individual-level ones, may be modified by spatial adjuncts.<sup>15</sup>

- (30) a. John listened to music in the garden.  
 b. \*John knew French in the garden.

This test further confirms my claim that some of the predicates appearing in resultatives are indeed individual-level.

- (31) a. Max was misselijk/beschikbaar/dronken/naakt op het  
 Max was sick/available/drunk/naked at the  
 feestje.  
 party  
 ‘Max was sick/available/drunk/naked at the party.’

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<sup>14</sup>A referee pointed out that the contrast between adjectives like *intelligent* and *dead* also surfaces in *with*-absolutes.

- (i) With John \*intelligent/dead, we couldn’t play the game.

But again it is not obvious that this contrast reduces to the stage/individual level distinction. Rather, the semantics of *with*-absolutes seems to be such that they describe a recent change of state. Thus (ii)

- (ii) With John blind, we cannot win the game.

paraphrases as ‘Now that John is blind ...’. The sentence furthermore suggests that John has gone blind recently, and would be inappropriate if John had been blind all of his life. Observe that an adjective like *intelligent* is equally unacceptable (*\*Now that John is intelligent ...*), since it is incompatible with a recent change of state. In contrast, adjectives like *dead* and *blind* are compatible with a recent change of state, but, as argued in the text, this does not necessarily imply that they are stage level.

<sup>15</sup>Hoekstra, following Kratzer, attributes the ungrammaticality of (30b) to the theta-criterion: the e-role of *in the garden* cannot be theta-identified with the e-role of *knew French*, since the latter predicate does not possess an e-role; hence this e-role remains unsaturated.

- b. \*Max was blind/doof/dood/gek/moddervet op het feestje.  
Max was blind/deaf/dead/mad/mud.fat at the party  
Int.: 'Max was blind/deaf/dead/mad/fat at the party.'

The English translations show the same judgments as in Dutch. To summarize the results of this section, then, the relevant property required of resultative predicates is boundedness.<sup>16</sup>

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<sup>16</sup>Another alternative for restricting the range of available predicates in resultatives was proposed by Levin & Hovav (1995) and Tortora (1998). Quoting Levin & Hovav (1995), Tortora suggests that a verb that is inherently delimited (such as *arrive* or *melt*) may be accompanied by a resultative 'so long as the resultative acts as a further specification of the result already inherent in the verb's meaning (and thus does not doubly delimit the event)' (Tortora 1998: 341). This constraint, which she labels the *further specification constraint* (FSC), purportedly accounts for the following contrast:

- (i) a. The wedding cake melted into a slimy mess.  
b. \*The wedding cake melted ugly.

But this explanation has a certain circularity to it, because it does not give an independent criterion for establishing if a given secondary predicate does or does not specify the result inherent in the verb's meaning. In a case like (i), the distinction is decidedly not intuitively obvious; I fail to see how exactly it is that the resultative into a slimy mess in (ia) specifies the result inherent in *melt*, whereas *ugly* in (ib) does not. From the perspective taken here, (ib) is ruled out because the adjective is unbounded. Cases discussed by Tortora that are possible invariably involve bounded adjectives:

- (ii) a. The vase broke open.  
b. The lake froze solid.

The acceptability of (ia), as opposed to (ib), seems to relate to the fact (noted in Hoekstra 1992) that PPs have a wider distribution in resultatives than do adjectives. The test of adverbial modification suggests that PPs are bounded.

- (iii) a. He washed the soap \*very/almost/completely out of his eyes.  
b. The soap is \*very/almost/completely out of his eyes.
- (iv) a. He shaved his beard \*very/almost/completely off.  
b. His beard is \*very/almost/completely off.

As the examples show, PPs are bounded even in nonresultative contexts. Why exactly PPs should differ in this way from APs (which are unbounded in the unmarked case) remains an open question.

### 3 Resultatives and measuring out

I turn now to the question of why resultatives require bounded predicates, i.e. the boundedness restriction in (12) above. If indeed the predicate of a small clause denotes an end point, there is no obvious reason why an unbounded adjective could not appear there. To appreciate this point, we need to consider a related construction, one very much like the resultative construction in that it also involves a transition, but minimally different from the resultative in tolerating unbounded adjectives. This is the *maken* ‘make’ + adjective or causative construction. I will show that this construction resembles the resultative construction in that it also involves a transition from not-p to p. It differs from the resultative, however, in that it can embed unbounded adjectives. This will be the topic of §3.1 below, which provides the proper background for the account in §3.2 where the central claim of the article is developed; that resultative predicates function as measuring cups.

#### 3.1 Transitions and negation

Consider (32).

- (32) Theo maakt de pizza warm.  
Theo makes the pizza warm  
‘Theo makes the pizza warm.’

Both in English and in Dutch, this construction has a synthetic counterpart:

- (33) Theo ver-warmt de pizza.  
Theo PRF-warms the pizza  
‘Theo heats the pizza.’

At first blush, both the periphrastic and the morphologically complex variant of this construction could be seen as instances of the resultative construction: the state of the pizza being hot is the result of a making activity. Another property that this construction shares with the resultative construction is that it involves a change of state, i.e. the inchoative meaning aspect. It could in fact be considered as a causativized inchoative, i.e. a causative variant of an inchoative construction with *worden* ‘become’, as in (34a). This construction also exists synthetically in the form of a *ver*-verb.

- (34) a. De pizza wordt warm.  
 the pizza becomes warm  
 ‘The pizza gets/becomes warm.’  
 b. Hun vriendschap ver-koelde.  
 their friendship PRF-cooled  
 ‘Their friendship cooled.’

Plausibly, the causative variant embeds a verbal complement with *become/get* as its abstract head.<sup>17</sup> The fact that resultatives and causatives share this meaning aspect of involving a transition or change-of-state has led some researchers to assign a common analysis to both. Thus Doetjes (1997) has argued that the complement of resultatives dominates an abstract inchoative head (see also Dowty 1979). But the evidence examined here suggests that there is an essential difference between the transitions found in causatives and resultatives. I shall therefore assign different analyses to them.

Subjecting the concept of a transition to a closer scrutiny will help the reader understand precisely how the causative and resultative constructions differ. As a matter of conceptual necessity, the idea of a transition or change of state presupposes the existence of both an initial state and a final state. Only one state finds a linguistic expression, however; both in the causative and the resultative constructions, this is the final state.<sup>18</sup> What about the initial state? Since it is not expressed linguistically, we must conclude that it is derived by some interpretive process. Barbiers (1995) suggests negation. Consider an example like (5b), repeated here.

- (5) b. De fles moet leeg.  
 the bottle must empty  
 ‘The bottle must be emptied.’

The final state of the transition is linguistically expressed by the adjective

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<sup>17</sup>The relevance of the inchoative construction with *worden* ‘become/get’ to the present discussion was pointed out to me by a referee.

<sup>18</sup>This does not mean that this final state is always realized or attained. Dahl (1981) calls the having of a built-in end point the ‘T property’; the ‘P property’ refers to the actual reaching of the terminal point. Obviously, in resultatives there is no necessary implication that the final state or result is always realized, such as in progressive or nonfinite contexts (cf. Sybesma & Wyngaerd 1997). I shall come back to this issue below.

*leeg* ‘empty’. The modal expresses the fact that there exists an obligation to realise this final state. Somehow (5b) implies that this final state is not realized, that is, the bottle is currently not empty. There is, in other words, in the interpretation of modal sentences an operation of negation, which yields the initial state of the transition. Different types of adjectives behave differently under negation. Consider first the case of a bounded scale adjective like *leeg* ‘empty’.

- (35) De fles is niet leeg.  
 the bottle is not empty  
 ‘The bottle is not empty.’

Schematically, a bounded scale can be represented as in (36):

- (36) 0—————1

The lower and upper bounds of the scale are represented by 0 and 1, respectively. In the case of the *vol-leeg* ‘full-empty’ scale, *leeg* ‘empty’ denotes 0 and *vol* ‘full’ denotes 1. Now (36) is compatible with a situation where the bottle is a third, a quarter, or halfway empty; (36) states that the degree of emptiness of the bottle could have every value between 0 and 1, except for one, which is 0 (i.e. fully empty). That is, the adjective *leeg* ‘empty’ denotes the lower boundary of the scale (0), and negation yields the complement set of values, i.e. all values except 0. <sup>19</sup>

Negation works differently with adjectives involving unbounded scales;

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<sup>19</sup>Not all bounded scale adjectives function in this way, however: in the case of the *open-shut* scale, *shut* denotes one boundary (say 1), and *open* denotes the complement set, all the values on the scale except 1. Put differently, *open* can denote an extent: a window that is open may find itself in any position between minimally open and fully open. And in the case of *open*, negation gives the complement set of values: in this case one (boundary) point, as shown by the following inferences:

- (i) a. the window is not open → the window is shut  
 b. the window is not shut → the window is open
- (ii) a. the bottle is not full ↯ the bottle is empty  
 b. the bottle is not empty ↯ the bottle is full

As (ii) shows, the *full-empty* scale is different in this respect. The analysis is confirmed by the case of modification by *half*, which denotes an intermediate (halfway) point on a bounded scale of the type represented in (36). Depending on the meaning of the lexical items at issue, different implications will arise. This is shown in (iii) and (iv).

consider (37).

- (37) Theo is niet blij.  
Theo is not happy  
'Theo is not happy.'

In contrast to (35), (37) cannot be taken to mean that Theo is a bit or moderately happy. Negation in this case does not yield a complement set of values on the same scale, but negates all the values on the scale, i.e. it yields an infinite set of properties that share the characteristic of being distinct from the property being negated. Since negation works differently with different types of adjectives, the transitions that one finds in resultative contexts are also different. The different types of transitions can be represented schematically as below:

- (38) a.  $0 \text{---} \frac{1}{2} \text{---} \alpha \text{---} 1$   
b.  $\neg A \rightarrow A$

Transitions such as those found with bounded scale adjectives involve a change of the value on a scale, e.g. a transition from a value  $\alpha$  to the value 1, as in (38a). Apart from what may be called 'value transitions', there are also 'property transitions', i.e. transitions from a situation in which a property does not hold to one where it does hold, as in (38b). Only the former type of transition is found with resultatives, as resultatives always involve a bounded scale.

As noted above, causative constructions differ from resultative constructions in that the former tolerate unbounded adjectives, i.e. they do not fall under the restriction in (12). They consequently also permit a property transition from not-A to A. Let us first consider the periphrastic or analytical construction, and in particular, whether it accepts modifica-

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- (iii) a. the bottle is half empty  $\nrightarrow$  the bottle is empty  
b. the bottle is half full  $\nrightarrow$  the bottle is full
- (iv) a. the window is half open  $\rightarrow$  the window is open  
b. the window is half shut  $\nrightarrow$  the window is shut

Opposites like *empty* and *full* denote the lower and the upper bound, respectively, of a scale that is both cognitively and linguistically one and the same scale, i.e. that conforms to the pattern of (36). *Shut* is like *empty* and *full*, as (ivb) testifies. With *open*, though, the implications with *half* work differently: if the scale is at some halfway point, this point falls within the range denoted by *open*, which is nearly the whole scale.

tion by *erg* ‘very’. Since we know this modifier to be compatible with unbounded adjectives only, it cannot appear in resultatives because of (12). But it does appear in the causative construction with *maken* ‘make’, as the examples in (39) show.

- (39) a. Die opmerking heeft me erg verdrietig/blij gemaakt.  
 that remark has me very sad/happy made  
 ‘That remark has made me very sad/happy.’  
 b. Dat medicijn heeft me erg ziek gemaakt.  
 that drug has me very ill made  
 ‘That drug has made me very ill.’

Hence the causative construction cannot be assimilated directly to a resultative construction. Observe that, even with *erg* ‘very’, the transition is not one that goes from nonhigh degree to high degree: (39a) does not imply that I was moderately sad before I heard the remark, and that I became very sad as a result of it. Rather, the transition is from not-sad to very sad. Quite generally, the operation performed by negation on adjectives modified by *erg* is similar to the operation that negation performs on unmodified unbounded adjectives. As demonstrated by (37), negation does not yield a finite set of values in those cases, and the same is true for unbounded scale adjectives modified by *erg* ‘very’.

Turning to the synthetic construction illustrated by (33), we find that it displays largely similar properties. Thus many of the deadjectival *ver*-verbs allow modification by *erg* ‘very’, suggesting that they can involve unbounded scale adjectives.<sup>20</sup> Some examples are given in (40).

- (40) a. Marina heeft de procedure erg ver-eenvoudig-d.  
 Marina has the procedure very PRF-simple-PRT  
 ‘Marina has considerably simplified the procedure.’  
 b. De nieuwe organisatie zal onze werksituatie erg  
 the new organization will our work.situation very  
 ver-beter-en/ver-aangenam-en.  
 PRF-better-INF/PRF-pleasant-INF  
 ‘The new organization will improve our work situation con-

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<sup>20</sup>Not all the deadjectival *ver*-verbs are alike. Thus verbs like *verblinden* ‘to blind’ and *vernietigen* ‘to destroy, to nullify’ cannot be modified by *erg* ‘very’ so easily, although they do support modification by *helemaal* ‘completely’. The corresponding adjectives (*blind* ‘blind’ and *nietig* ‘trivial’) behave alike.



- siderably.’
- c. Die aanslepende ziekte heeft me erg ver-moei-d.  
that ongoing illness has me very PRF-tired-PRT  
‘That persistent illness has tired me very much.’
  - d. Een briefje van Marie zou hem erg ver-blijd-en.  
a letter.DIM of Marie would him very PRF-happy-INF  
‘A little note by Mary would make him very happy.’

In the relevant respects, then, the synthetic causative construction behaves like its analytical counterpart.<sup>21</sup>

Summarizing, the causative *maken* + adjective ‘make + A’ construc-

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<sup>21</sup>The inchoative construction, both in the synthetic and in the analytical version, also allows modification by *erg* ‘very’.

- (i) a. Theo is erg ver-mager-d.  
Theo is very PRF-slim-PRT  
‘Theo has slimmed a lot.’
- b. Theo is erg mager geworden.  
Theo is very thin become  
‘Theo has become very thin.’

The transition in (ib) is from a situation where Theo was fat to one where he is very thin. It is less clear whether this is necessarily the case in (ia) as well: in particular, the question arises whether (ia) is consistent with a situation in which Theo, though less fat than before, is still very fat, as in the following context: *Theo is erg vermagerd, maar hij kan nog steeds niet door de deur* ‘Theo has slimmed a lot, but he still cannot pass through the door’. I personally feel a strong preference for *veel* ‘much’ as a modifier under such an interpretation. The modification of verbs by *erg* ‘very’ still presents many puzzles, such as the following:

- (ii) a. \*Ze hebben erg gewerkt/gewandeld.  
they have very worked/walked  
Int.: ‘They have worked/walked a lot.’
- b. Ze hebben erg gehoest/gelachen.  
they have very coughed/laughed  
‘They have coughed/laughed a lot.’
- c. \*Marie is erg naar de bioscoop gegaan.  
Marie is very to the movie.theatre gone  
Int.: ‘Marie went to the movies a lot.’

Note that (iib) is also a case where Dutch *erg* and English *very* diverge, in that the Dutch example is fine, but the English one requires *a lot* (or *very much* in negative and interrogative contexts). See Doetjes (1997) for discussion.

tion and its verbal counterpart with *ver* are more permissive than other transition contexts with respect to the kinds of transitions allowed. Whereas resultatives and modal complements are restricted to transitions involving different values on the same scale (as is the case with bounded predicates), the causative *maken* + adjective ‘make + A’ construction and the deadjectival *ver*-verbs in addition permit transitions of the not-A-to-A variety (as with unbounded predicates). Assuming causatives to embed an abstract inchoative head, as suggested by Doetjes and Dowty, this property of causatives is explained, as inchoatives independently permit transitions of all sorts. Furthermore, the case of causatives shows that transitions leading to a state described by an unbounded-scale adjective are not impossible as a matter of principle. By the same reasoning, however, we are also led to assume that resultatives do not embed such an abstract inchoative head. Why, then, are unbounded adjectives excluded from resultative predications? I will address this issue in the next section.

### 3.2 Resultative predicates as measure cups

I now come to my central claim, which is that the resultative predicate, rather than denoting an end point, provides a measure for the event.<sup>22</sup> Consider example (3) again.

- (3) a. Freddy cried.  
b. Freddy cried the handkerchief wet.

It is useful at this point to make a comparison with the nominal domain. It has been pointed out in the literature that the distinction between telic and atelic in the verbal domain corresponds to the mass-count distinction in the nominal domain (cf. Mourelatos 1981, Bach 1981, Bunt 1985, Talmy 1988, Landman 1989, 1991, Doetjes 1997). For instance, mass nouns do not have minimal parts: any subpart of sand is still sand. By contrast, count nouns do have minimal parts: any arbitrary subpart of a table or set of tables is not a table. Similarly, mass events (i.e. activities) do not have minimal parts: any subpart of a crying event is still a crying event. Count events such as accomplishments do have minimal parts, i.e. any subpart of an event of crying the handkerchief wet is not an event of crying the handkerchief wet. A mass-to-count shift may occur with mass nouns by

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<sup>22</sup>This section owes a great deal to an insightful discussion with Johan Rooryck.

adding a classifier, which introduces a minimal part (*a piece of information, an item of furniture*). In the verbal domain, I would like to suggest that resultatives be considered the verbal analogues of classifiers: they provide a measure or minimal part for the event, thus allowing the event to shift from atelic to telic.<sup>23</sup> Thus the small clause *the handkerchief wet* in (3b) introduces a measuring criterion for the crying event, much as in Tenny's approach to telicity (recall the *mow the lawn* example in (4)). In other words, the resultative is to the activity of the verb what a measuring cup is to some mass quantity (e.g. *a cup of sand*). The most important argument in favor of this approach to resultatives is that it directly explains the boundedness requirement on resultatives in (12). Indeed, it is a matter of conceptual necessity that a measure is bounded, an unbounded measure being a contradiction in terms. By contrast, if a resultative predicate indeed merely denotes an end point, no account of (12) is forthcoming. As the case of the causative *make* + adjective 'make + A' construction and the corresponding deadjectival *ver*-verbs has demonstrated, nothing in principle prevents unbounded adjectives from denoting the terminal point of a change of state (see (39)). There is therefore no a priori reason why unbounded predicates could not appear in resultative constructions.

Another advantage of my approach in terms of measures is that it allows a distinction between (a)telicity and (un)boundedness. Such a distinction is independently needed, as argued by Depraetere (1995): telic events are those that possess an inherent end point, but these are not necessarily temporally bounded, such as when the end point is not reached at all, or when the end point is reached many times over. In such cases, the events are telic but unbounded. From my perspective, the terminology is not entirely fortunate, since I argue that the telicity of an event derives from the fact that the resultative predicate is bounded, where the latter term is used in the sense of having upper and lower boundaries (e.g. as a result of containing a bounded scale adjective). But telic events, though necessarily containing a bounded secondary predicate, may in turn be unbounded, albeit in a different sense of the term, which one could describe as 'ongoing' or 'unfinished'. The two uses of the term *(un)bounded* are

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<sup>23</sup>A referee suggested that classifiers and the like might be considered to be the nominal analogues of (verbal) small clause complements. The role of the preposition *of* in three cups of sugar could then be likened to that of a complementizer. Recent work by Hoekstra (1999b) and Kayne (1999) explores these analogies. A full discussion of the issue is beyond the scope of this article.

to be distinguished in terms of the entities that they apply to: resultative predicates are bounded in the sense of having upper and lower boundaries, whereas events may be bounded or unbounded in the sense of being either terminated or ongoing. The concept of telicity (or delimitedness) sits somewhere in between the resultative predicate and the event, referring to a property of the interpretation of the verb in combination with the resultative predicate, which is that the activity is not internally homogeneous but has minimal parts. A referee suggests replacing telic by *decomposable* or *structured*. Since the distinction between the terms *telic* and *bounded* has been made before in the literature along the same lines, I shall stick to those terms, however. Concretely, any activity verb that is accompanied by a measure is telic (or delimited), though it does not therefore need to be bounded. In keeping with the terminology of measuring cups, one might say that a measuring cup may be empty, less than completely filled, or filled many times over. Likewise, resultatives may not be realized, be partly realized, or be realized many times over. Examples of unfilled measures are given in (41); these carry no implication that the state denoted by the resultative is ever reached at all, even in part.

- (41) a. Ron will cry his handkerchief wet when he hears this.  
b. Max realized he would never be able to put the fire out on his own.  
c. Keith tried to wring the towel dry.
- (42) a. Mick is painting the fence blue.  
b. Mathilda was wringing a confession out of her son when I walked into the room.

Sentences in the progressive, such as (42), may be considered as involving partly filled measures: they present an activity as ongoing, but not terminated, i.e. the end point has not been reached, nor is there any implication that it will ever be reached. Sometimes, resultatives feature an iterative reading, and this would be analogous to the case of a measuring cup being filled many times over. Consider the pair in (43).

- (43) a. Fred ran all afternoon.  
b. Fred ran across the street all afternoon.

A durational adverb like *all afternoon* may be added both to activities, as in (43a), and accomplishments, as in (43b), but with different effects. In

the former case, the adverb suggests that the running went on for some length of time, perhaps even extending beyond the specified length. By all accounts, the sentence describes an unbounded or mass event, i.e. sub-parts of the event still qualify as instances of the event. In (43b), however, an iterative reading will normally arise. The time stretch is identical, and the interpretation of the sentence may also be said to be unbounded. The difference, however, is that the event is divided into discrete, countable subevents by means of the measure *across the street*. In the iterative reading, there are many of these subevents, which makes for an overall interpretation that can be characterized as unbounded. The fact that the state denoted by the resultative may never be reached or may be reached many times over, is left unexplained under an approach that treats the resultative as an end point, whereas it is the expected situation if the resultative denotes a measure.<sup>24</sup>

As for (43b), an event of running across the street typically fits many times into the time span denoted by *all afternoon*, given certain knowledge about the typical width of streets and the typical speed of humans in crossing them. This is not the only possibility, however, as in a context where the street is unusually wide, or Fred is unable to move at normal speed. Here too, *across the street* does not denote the end point or result of the running, but provides a measure for the event. The difference with the iterative reading is that this time the minimal measure of the event is too large to fit into the time span of *all afternoon*. Varying the contextual variables somewhat, we can favor either one of these readings:

- (44) a. Fred has been swimming across the Channel for the past 15 minutes.  
 b. Fred has been swimming across the Channel for the past 15

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<sup>24</sup>Like Hoekstra's analysis, the present analysis accounts for the property of resultatives that they are incompatible with stative verbs, as states lack dynamism, i.e. internal temporal progression, which is required for an end point to be added (cf. Vendler 1967: 99, Comrie 1976: 49, Hoekstra 1988).

- (i) a. \*This encyclopedist knows all books superfluous.  
 b. \*The rejected lover hated his girlfriend dead.  
 c. \*Medusa saw the hero into stone.

Under the present analysis, a similar explanation holds: the existence of a measure implies the existence of some quantity of which a measure can be taken. I take this quantity to be verbal activity, which states obviously lack.

years.

Since the minimal measure of an event of swimming across the Channel normally does not fit into a time span of 15 minutes, the reading of (44a) is durative; conversely, the measure fits many times into a time span of 15 years, so that (44b) is iterative.

While the absence of a measure implies unboundedness, the presence of a measure does not imply boundedness. Notably in the iterative interpretation, the unboundedness results from an indefinite number of iterations of a telic or delimited event. A case that is closely similar to the one just discussed involves bare plurals, such as the pair in (2), repeated here for convenience.

- (2) a. Mark knitted a sweater.  
b. Mark knitted sweaters.

In both sentences, the sweater is the measure or the minimal part of the event. The pluralization of the object in (2b) amounts to an explicit statement that multiple measures were involved in the event, although it is not specified exactly how many. That is, both (2a) and (2b) are telic because there are minimal parts to the event, but (2a) is bounded whereas (2b) is unbounded as a result of the iteration of telic events. The distribution of *in* and *for* adverbials essentially tracks the bounded/unbounded distinction, not the telic/atelic one. This means that, in terms of the distribution of *in/for* adverbials, there is no apparent difference between (2b) and an example like (45), where the object is genuinely unbounded.

- (45) Nicky drank beer (for hours/\*in an hour).

In analytical terms, however, there is a difference: in (2b) the unboundedness involves an indefinite number of telic events, whereas (45) is not telic to begin with, that is, it cannot provide a measure for the event, so the sentence is necessarily unbounded.

An interesting case is that of conjoined comparatives, which can occur in resultatives, as in the following examples, from Doetjes (1997: 68) and Jackendoff (1996), respectively:

- (46) a. Marnix eet zich dikker en dikker.  
Marnix eats REFL fatter and fatter  
'Marnix eats himself fatter and fatter'.

- b. Bill stoked the fire hotter and hotter.

Both Doetjes and Jackendoff argue that these sentences describe unbounded events; while this is true at some level, I shall argue, following Barbiers (1995), that the comparative is basically bounded (but see Dowty 1979: 88 and Tenny 1994: 34), and that therefore the sentences in (46) are telic. Consequently, the unboundedness of (46) results from an iteration of telic events. Barbiers bases his argument on the observation that comparatives can occur as nonverbal modal complements.<sup>25</sup>

- (47) a. Het kantoor moet \*groot/groter.  
the office must big/bigger  
'The office must be made big/bigger.'
- b. Die wagen kan \*snel/\*traag/sneller/trager.  
that car can fast/slow/faster/slower  
'That car can go faster/slower.'
- c. De storm mag \*hevig/heviger.  
the storm may intense/intense.CMPR  
'The storm may be made more intense.'
- d. De adel moet \*arm/armer.  
the gentry must poor/poorer  
'The gentry must be made poorer.'

Since unbounded scale adjectives independently cannot occur in this context (cf. (6) above), Barbiers concludes that the comparative turns an unbounded scale into a bounded one.<sup>26</sup> Intuitively, this makes sense, in

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<sup>25</sup>The English translations do not reveal any difference between the positive and the comparative degree because, as observed above, the relevant construction is lacking in English.

<sup>26</sup>Superlatives cannot appear in modal contexts, although they might at first glance be taken to provide an upper bound for a scale. Upon closer scrutiny, however, this is not the way the superlative works semantically. The superlative provides an ordering on a scale relative to any other element out of a contextually given set. Thus if I say that, out of the ten I tested, car number three is the fastest one, this does not imply that this car is fast in any absolute sense of the word (e.g. when compared with the speed of cars other than the ten tested, a pedestrian, high speed trains, etc.). That is, the superlative does not establish an absolute position on a scale, but only a position relative to the members of a contextually given set. And it is impossible to specify how far exactly the superlative element is removed from its nearest neighbor on the scale.

- (i) a. My car is (20km/h) faster (than yours).

that a comparative always carries with it a norm of comparison, be it implicitly or explicitly. In the latter case, the norm of comparison appears in a *than*-constituent. This norm of comparison constitutes the lower bound of the scale. A degree element, which again can be implicit or explicit (e.g. *much/considerably/2 meters/a bit/slightly larger than X*), specifies the extent of the scale. Given that there is both a lower bound and a specification of the extent, the upper bound is straightforwardly deducible, so that all comparatives can be said to denote bounded scales.<sup>27</sup>

Returning to (46), I suggest that the effect of unboundedness derives from the repetition of telic events, much as in (2b) and (43b) above. For (46a) the idea is that Marnix ate himself X amount fatter, where an implicit X specifies the extent and hence provides a boundary. After that, Marnix again increases his fatness by X amount through eating, and so on.<sup>28</sup> Similarly, (46b) gets a reading where Bill stoked the fire X hotter, where X denotes a bounded extent, and then goes on repeating this. In either case, unboundedness simply arises through the potentially endless repetition of a telic or delimited event. This account predicts that comparatives should be able to occur as event measures, i.e. in resultatives.

- (48) a. \*Voor die rol moest De Niro zich zwaar eten.  
           for that role must De Niro REFL heavy eat  
           Int.: ‘For that part, de Niro had to eat himself fat.’

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b. My car is the fastest one (\*20km/h) (\*than yours).

<sup>27</sup>It is therefore expected that *erg* ‘very’ cannot modify comparatives, a prediction confirmed by

- (i) \*Barriers is veel/\*erg leuker dan the minimalist program.  
       Barriers is much/very nicer than the minimalist program  
       ‘Barriers is much nicer than the minimalist program.’

Comparatives, though, are also incompatible with modifiers of the *helemaal* ‘completely’ type, which suggests that other factors may be at work here as well. Comparatives do tolerate extent modifiers, such as *much*, *considerably*, *2 meters*, *a bit*, *slightly*, and so on. In the presence of such extent modifiers, bounded scale modifiers tend to improve slightly.

- (ii) Sam is bijna/\*helemaal/\*half 10 kg zwaarder dan Marie.  
       Sam is almost/completely/half 10 kg heavier than Marie  
       ‘Sam is almost 10 kg heavier than Marie.’

<sup>28</sup>This intuition about the meaning of (46a) is shared by Doetjes (1997: 85)).



- b. Voor die rol moest De Niro zich 10 kilo zwaarder eten.  
 for that role must De Niro REFL 10 kilo heavier eat  
 ‘For that part, De Niro had to eat himself 10 kilos fatter.’

This prediction appears to be borne out.

A case which is at first sight problematic for the claims defended here involves the following examples, pointed out to me by Ilse Depraetere, where the activity verb is punctual, so that it apparently makes little sense to say that the resultative provides a measure.

- (49) a. Hij schoot de man dood.  
 he shot the man dead  
 ‘He shot the man dead.’  
 b. Ze klapte de deur dicht.  
 she banged the door shut  
 ‘She slammed the door shut.’

I shall suggest that, linguistically speaking, verbs like to shoot and to slam denote an internally homogeneous activity, even though, from a nonlinguistic perspective, they clearly involve minimal parts. Although this solution might at first sight appear to be counterintuitive, examples such as the ones in (49) do point to a more general issue about the proper meaning of the notion ‘minimal parts’, which we have assumed distinguishes mass and count nouns as well as telic and atelic events: as one’s focus on a quantity or event becomes sharper, there is always a level at which minimal parts can be distinguished. Even with an uncontroversial mass noun like water, minimal parts can be distinguished at the molecular level; below that level, we are no longer dealing with water, but with (oxygen or hydrogen) atoms. But one does not always have to go to the molecular level for minimal parts to be distinguishable, as shown by such mass nouns as *timber*, *furniture* or *foliage* (examples from Talmy 1988: 181). The same atomic perspective can be taken in the verbal domain. Consider again (43a), *Fred ran all afternoon*. This sentence describes a prototypical mass or atelic event, one that does not have minimal parts. But if one looks at a running event through a microscope as it were, this is not obviously the case. It is possible to view the running event as consisting of its atoms, that is, subsequent bodily movements—the lifting of the left foot, its movement through the air while the right foot also leaves the ground, the touchdown of the left foot followed by its taking off again, followed by the same thing

for the right foot, and so on. Each of these subevents taken by itself does not constitute a running event. This view can be taken on any mass event (drinking beer, working, laughing, crying, singing, reading, etc.). The conclusion that transpires from this discussion is that there may not always be solid nonlinguistic criteria for telling apart what is mass or atelic and what is count or telic (Comrie 1976: 42ff discusses a similar problem in trying to determine when an event is punctual, that is, an achievement in Vendlerian terms). The idea that the linguistic categorization of a noun as mass or count is to a certain extent random is further confirmed by the case of the noun *information*, which is mass in English and Dutch, but count in French. Therefore, something can appear to be count or telic (i.e. appear to have minimal parts) without this being the case from a strictly linguistic point of view. This, I argue, is the case with the verbs in (49). Consider (49a): the question to ask is whether the verb *schieten* ‘to shoot’ is indeed punctual, as suggested by Depraetere, in which case there would appear to be little point in adding a measuring cup. But notice that the interpretation of the verb as punctual is by no means necessary in (49a): the sentence is consistent with a situation in which several shots were fired to achieve the result dead. It is really the resultative predicate that provides the event with telicity, not the verb, which may involve an indefinite number of individual shots. Further confirmation for the essentially atelic or nondelimited nature of *schieten* ‘to shoot’ comes from the fact that without a resultative predicate, it can appear with a *for* adverbial, as in (50).

- (50) De depressieve man schoot urenlang naar een portret van  
 the depressed man shot hours.long at a portrait of  
 zijn ex-vrouw.  
 his ex-wife  
 ‘The depressed man shot at a picture of his ex-wife for hours.’

While it is clear that the event in (50) involves minimal parts in the sense of there being individual shots, I contend that these minimal parts are to be likened to the individual leaves in a mass of foliage or the molecules in a quantity of water: these minimal parts are irrelevant to our linguistic conceptualisation of the event (see Langacker 1987: 205, Doetjes 1997: 18, Bunt 1985, Landman 1989; Chierchia 1995 takes a different view). Viewed in this way, the resultative predicate in (49a) ‘measures out’ the shooting event, which is itself atelic, just as the predicate *across the street*

measures out the atelic activity of running in (43b).

The example (49b) reveals a related problem: verb meanings are often extremely volatile, so it is not always easy to assess what a verb's meaning really is in the absence of the resultative. Thus the verb *klappen* 'to bang' without a resultative can refer to the clapping of the hands when applauding, an event that can go on indefinitely despite consisting of minimal parts in some sense (see (51a)). In an ergative use, *klappen* can refer to a sudden change of state or movement involving sound emission ((51b) and (51c), respectively).

- (51) a. Het publiek klapte (minutenlang) enthousiast.  
the audience banged minutes.long enthusiastically  
'The audience applauded enthusiastically (for minutes).'
- b. Plotseling klapte de band.  
suddenly banged the tyre  
'Suddenly, the tyre burst.'
- c. De deur klapte dicht.  
the door banged shut  
'The door slammed shut'

Let us grant that these two meanings are somehow related (although this is not an essential assumption). The question to ask is whether there is any hard evidence that *klappen* 'to bang' in the resultative (49b)/(51c) has a punctual meaning independent of the resultative. This does not seem to be the case; nothing prevents us from taking the meaning of *klappen* to be merely one of sudden movement involving sound emission, the movement being delimited by the resultative predicate. This property is in fact a more general property of resultative constructions, that is, they involve movement or change-of-state verbs that lose some or most of their literal meaning (e.g. *The barn burst into flames*, *The milk turned sour*, *A panic broke out*, *The boy tore across the street*, *Max flew into a rage*, *The door flew open*, and so on).<sup>29</sup>

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<sup>29</sup>This is true for *schieten* 'to shoot' as well.

- (i) a. De oplossing schoot me opeens te binnen.  
the solution shot me suddenly to inside  
'The solution suddenly occurred to me.'
- b. De schuur schoot in brand.  
the barn shot in fire

## 4 Measuring out arguments

I return now to the question raised at the beginning of this article: how exactly is the aspectual function of the internal argument to be conceived? In Tenny's view the internal argument is seen as an event measurer, whereas Hoekstra considers the postverbal constituent in accomplishments to represent an end point.

### 4.1 End points or measures?

In analyzing the resultative predicate as a measure, I advocate an analysis that is in certain respects closer to Tenny's than Hoekstra's but differs from the former in important respects. While Tenny distinguishes an aspectual role that she labels *measure*, she argues that this role can be assigned only to an internal direct argument, i.e. a direct object (Tenny 1994: 115). A case in point is example (4) above (repeated here).

(4) Sam mowed the lawn.

The lawn may be seen as a scale or measurer of the amount of mowing activity that has taken place. The discussion above focused on cases with a secondary predicate (i.e. a resultative), and adopted the view that the measuring function is in effect performed by the secondary predicate. This case was illustrated by (3b), *Freddy cried the handkerchief wet*.

Tenny's analysis implies that it is the postverbal NP which is assigned the measure aspectual role in an example like (3b). She further states (Tenny 1994: 109) that resultatives introduce a new measure role which merges with the one already present in the verb's grid, but this does not detract from the fact that it is invariably the direct internal argument that

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'The barn burst into flames.'

c. De uien schieten.  
the onions shoot

'The onions are sprouting.'

But the meaning of *schieten* 'to shoot' in the resultative sentence 49a seems more closely related to the 'firing shots' meaning than to those evident in (i). Still, it would not be correct to say that there are two different, homonymous verbs, as the meanings are clearly related. As Hoekstra (1999a: 80) describes (ia), 'the solution ends up in my mind in a way that is characterized as 'shooting', meaning quickly, not under my control: the solution hits me like a bullet'.

is *assigned* the measure role. On my analysis, it is not the direct internal argument but the secondary predicate that provides a scale of measurement. The latter, by (12), must denote a bounded scale, and it is this scale that measures out the activity of the matrix verb: as one progresses through the scale of the resultative predicate, one progresses through the activity. In this analysis, it is only indirectly that the subject of the resultative predicate is a measurer, namely by being the subject of the resultative predicate. In support of the present approach consider the fact that mass nouns may occur as the postverbal NP in resultatives and still yield telic or delimited events.

- (52) a. Jeff washed soap out of his eyes for ten minutes.  
b. Ken loaded hay onto the wagon for an hour.  
c. Milly sprayed paint on the wall all afternoon.

These examples have an iterative interpretation in spite of the presence of a mass noun in the small clause. Thus it is really the resultative PP that provides the measure for the event, not the NP, as the latter, being a mass noun, cannot be the source of it (this point is also made by Doetjes 1997:88). Another reason for favoring the present analysis over Tenny's is that Tenny's analysis, like Hoekstra's, fails to explain the boundedness requirement on resultative predicates in (12) above. Since in Tenny's approach it is the internal argument that is the measurer, not the resultative predicate, one does not expect the resultative predicate to be in any way restricted. That is, there is really no reason why unbounded adjectives could not appear in resultatives, as in the starred variants in (19).<sup>30</sup>

One should also ask whether the two cases represented by (4) and (3b) can be unified. In particular, can the present analysis be applied to cases like (4), which, like (3b), are telic and display the measuring out effect, but, unlike (3b), lack a resultative predicate? If resultative predicates denote end points, there is no obvious way in which the telicity of examples

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<sup>30</sup>A referee suggests that there might be a common explanation for resultatives and nonverbal modal complements, both of which contexts reveal a boundedness requirement: both require a predicate that denotes a scale having upper and lower boundaries (see exx. (5–6)). However, there does not seem to me to be an obvious way in which the account of the boundedness requirement in resultatives carries over to the case of nonverbal modal complements (see also (23–25) and surrounding discussion for empirical differences between both contexts). For want of a unified explanation, I refer to the proposal made in Barbiers (1995) for the case of modal contexts.

like (4) without a resultative predicate can be derived. The lawn is not the end point of the mowing event in (4), nor can a book be considered to be the end point of a reading event, and so on. Still, examples of this type are clearly telic, so where does the telicity come from? In order to give a unified account of (4) and (3b), then, something additional must be said. Some scholars have argued that a telic event without a resultative predicate involves a covert or empty resultative predicate (Hoekstra 2004, Sybesma & Wyngaerd 1997). Indirect evidence in support of this claim is provided by the fact that in Dutch most, if not all, activity verbs permit the addition of a resultative particle to telic activities involving an internal argument.

- (53) a. Sam maaide het gras (af).  
 Sam mowed the grass off.  
 ‘Sam mowed the grass.’  
 b. Fons las het boek (uit).  
 Fons read the book out.  
 ‘Fons read the book.’ ‘Fons finished the book.’

Hoekstra (1992) presents the following paradigm in support of this claim:

- (54) a. Max sloeg zijn zusje.  
 Max hit his sister.DIM  
 ‘Max hit his little sister.’  
 b. Max sloeg het kopje \*(weg).  
 Max hit the cup away  
 Int.: ‘Max hit the cup.’  
 c. Max sloeg de bal (weg).  
 Max hit the ball away  
 ‘Max hit the ball.’

He argues that these facts support an empty-particle approach, the idea being that only in the presence of a particle like *weg* ‘away’ can the verb *slaan* ‘to hit’ combine with inanimate objects like balls and cups. The particle can be left empty only in a context where it is contextually inferable, such as baseball contexts (54c). In (54a) there is no particle, and the semantics of this example is considered to be nonresultative. No particle could be added to (54a) without significantly changing the meaning of the sentence (e.g. *Max sloeg zijn zusje verrot* ‘Max beat the hell out of his sister’). Hoek-

stra suggests therefore that the transitive verbs be divided into telic and atelic classes.<sup>31</sup> The latter includes such cases as (54a), as well as such familiar examples as *zijn zusje pesten* ‘tease one’s sister’. For Hoekstra, the class of transitive verbs that have the additional property of being telic coincides with the class of verbs having a resultative small clause, either overt or covert.

There are two objections to this analysis. First, it is not really clear that the construction in (54a) is atelic, and second, the construction may be analyzable in an altogether different way from the resultative construction, which might also account for its different aspectual properties. To begin with the latter point, I shall assume that examples like (54a) are to be analyzed as light verb constructions involving a possessive small clause, i.e. on a par with the construction shown in (55).

- (55) a. Max gaf zijn zusje een slag (in het aangezicht).  
 Max gave his sister.DIM a punch in the face  
 ‘Max gave his sister a punch (in the face).’  
 b. Fred gaf Marie/ ?\*het kopje een duw.  
 Fred gave Marie/ the cup.DIM a push  
 ‘Fred gave Mary a push.’

As (55b) shows, the selection restrictions of the light verb *duwen* ‘push’ construction match those of the one in (54) when it is not accompanied by a resultative. As far as (54c) is concerned, let me first point out that it is an atypical case, not representative of the norm in Dutch transitive and resultative constructions. Hoekstra’s judgment on (54c) would appear to represent a minority view, because most people in fact do not accept the sentence without the resultative particle.<sup>32</sup> Insofar as (54c) is acceptable for some speakers, however, there are still two possible analyses: one involves an empty resultative, the other a light verb construction. It is not so easy to distinguish the two semantically, however: under the empty resultative analysis, the reading is one where the ball ends up in a different place as a result of Max’s beating activity (see Hoekstra 1992: 164); the

<sup>31</sup>Hoekstra’s terms are actually ‘bounded’ and ‘unbounded’, but the content of this opposition matches what I have called the telic-atelic contrast in this article.

<sup>32</sup>I suspect that the construction *Hij sloeg de bal* ‘He hit the ball’ might very well be a borrowing from English, where this type of transitive construction is much more widespread than in Dutch (see the discussion surrounding (58) and (59) below).

light-verb analysis merely implies that the ball received a hit. But under this interpretation as well, a purely pragmatic inference might be drawn to the effect that the ball is at a different location as a result of receiving a hit. Given that baseballs are relatively light and inanimate objects, they are likely, upon receiving a hit from a baseball bat, to end up in a different location. It is therefore far from obvious that (54c) has resultative semantics.

Another point to consider is the lack of hard evidence that the construction in (54a) is atelic, as claimed by Hoekstra. As observed above, the distribution of *for X time* and *in X time* adverbials does not really constitute a reliable test for distinguishing telic from atelic VPs, as these adverbials are sensitive to the bounded-unbounded distinction. This is particularly clear in the case of intensifying resultatives, which are formally resultative but can be accompanied by a durative adverbial of the *for X time* variety without any difficulty (see §4.2 for more discussion of intensifying resultatives). What is more, as Jackendoff (1997: 551) observes, a bounded adverbial of the *in X time* type is even impossible in many cases.

- (56) a. Sue worked her butt off for/\*in an hour.  
 b. The frog sang his heart out for the whole night/\*in a night.
- (57) a. Urenlang/ \*In twee uur hebben ze mijn deur plat  
 hours.long/ in two hours have they my door flat  
 gelopen.  
 run  
 ‘They have been at my door for hours.’  
 b. Ik heb me minutenlang/ \*in drie minuten rot  
 I have REFL minutes.long/ in three minutes rotten  
 gelachen.  
 laughed  
 ‘I laughed my head off for three minutes.’

Therefore, no hard and fast conclusions about their aspectual nature can be drawn from the fact that some transitive verbs readily combine with *for X time* adverbials. This undermines Hoekstra’s argument that all telic VPs involve a resultative small clause, as light verb VPs could be analyzed as telic, despite initial appearances to the contrary.<sup>33</sup> A different perspective

<sup>33</sup>Admittedly, in the particular case of *zijn zusje pesten/plagen* ‘tease his sister’, this



is therefore possible: some transitive verbs are analyzable as instances of the light verb construction, and with others the direct object functions as an event delimiter (e.g. *mow the lawn*, *read a book*). In addition, there are verbs with overt resultative small clauses, where the small clause predicate functions as an event delimiter.

Does this mean that empty resultative small clauses are to be disposed of entirely? It seems not, in light of a contrast between Dutch and English, which suggests that resultative particles are not easily omissible in Dutch. The examples in (58) all involve Dutch verbs that require a resultative particle or adjective, whereas their English analogues in (59) do not.

- (58)
- a. Cedric was de handdoek aan het \*(uit)-wringen.  
Cedric was the towel at the out-wring.INF  
'Cedric was wringing the towel out.'
  - b. Max \*(ver)-spreidde het woord.  
Max PRF-spread the word  
'Max spread the word.'
  - c. Celia hamerde het metaal \*(plat).  
Celia hammered the metal flat  
'Celia hammered the metal flat.'
  - d. Mindy schoot haar zus \*(dood).  
Mindy shot her sister dead  
'Mindy shot her sister.'
  - e. Sam trapte de bal \*(weg).  
Sam kicked the ball away  
'Sam kicked the ball away.'
  - f. Martha kneep mijn hand \*(plat).  
Martha pinched my hand flat  
'Martha pinched my hand.'
  - g. Willy rekte de sokken \*(uit).  
Willy stretched the socks out  
'Willy stretched the socks.'

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might appear to be a less likely analysis, as there is no effect of iteration here. But in the case of *duwen* 'push' and *trappen* 'kick', this effect is very prominent (*Hij heeft de gijzelaar een uur lang geduwd/getrapt* 'He pushed/kicked the hostage for an hour'). Also, with *pesten/plagen* 'to tease' the light verb construction cannot appear overtly (*\*Hij gaf zijn zusje een pest/plaag* 'He gave his sister a tease'). This might be taken to imply that the verbs *pesten/plagen* 'to tease' are not to be analyzed as instances of the light verb construction, or are to be so analyzed at a more abstract level.

- (59) a. Cedric was wringing the towel.  
 b. Max spread the word.  
 c. Celia hammered the metal.  
 d. Mindy shot her sister.  
 e. Sam kicked the ball.  
 f. Martha pinched my hand.  
 g. Willy stretched the socks.

The distribution of *for X time* and *in X time* adverbials, both in Dutch and English, is governed by factors the nature of which is not entirely clear. Although the Dutch sentences in (58) are all telic by virtue of the presence of a resultative predicate, some of them are better with a durative *for X time* adverbial than an *in X time* one (58b, f g)). The same applies to the English examples (59a, c, e f, g); all are better with a *for X time* than an *in X time* adverbial). What these examples further suggest is that empty resultative predicates are certainly not the standard option in Dutch, but they might be an option available in English.

The view that internal arguments may serve as event delimiters is supported by the observation that, semantically speaking, alleged empty resultative particles cannot be considered to be the phonologically null allomorphs of their overt counterparts. In many cases there exist subtle meaning differences between the variant with and the variant without the particle. The two translations of (53b) are instructive in this respect: with the particle, the reading event is seen as extending over the final part of the book (e.g. the final ten pages), whereas such an implication is lacking in the particleless variant. A similar effect may be observed in (53a) in the presence of a durational PP.

- (60) a. Sam heeft de hele middag het gras gemaaid.  
 Sam has the whole afternoon the grass mowed  
 ‘Sam mowed the lawn all afternoon.’  
 b. \*?Sam heeft de hele middag het gras af-gemaaid.  
 Sam has the whole afternoon the grass off-mowed  
 Int.: ‘Sam mowed off the lawn all afternoon.’

Sentence (60a) is acceptable in a context where the lawn is so large that the mowing event can easily extend beyond the time span of an afternoon. In other words, the minimal event measure has not been filled by the event. Such an interpretation is much harder to get in (60b), because the particle

af ‘off’ concerns the final part of the mowing event, and it is much harder to imagine a situation where the final part of a mowing event would extend over a whole afternoon. Such semantic contrasts as arise in (53) and (60) between the variant with and the one without the particle would seem hard to account for under the analysis that assumes an empty resultative predicate. A further problem is that we do not appear to find examples with empty resultatives of the type in (52), where the postverbal NP is a mass noun and as such nondelimited. If these could be accompanied by an empty resultative, we would expect to find examples with mass nouns as direct objects and a telic or delimited interpretation in the manner of (52). But such cases do not appear to exist.

Under the analysis proposed here, the unification of (4) and (3b) is straightforward: singular count NPs like *the book* or *the lawn*, in virtue of being bounded, provide a measure for the event, just like bounded resultative predicates can. In cases such as (53), where a particle is optional, it is not surprising that the particle introduces an additional meaning component over and above that of delimiting the event: this is in fact what we expect. Observe that in the context of a mass noun, which does not delimit the event, the particle does not carry the same semantic specialization.

- (61) Sam heeft de hele middag gras af-gemaaid.  
 Sam has the whole afternoon grass off-mowed  
 ‘Sam has been mowing grass all afternoon.’

The particle’s only function here is to delimit the event. One might argue that particles like *uit* ‘out’ and *af* ‘off’ retain some of their original meaning in the resultative construction, a meaning that can be observed in nonresultative environments, too.

- (62) a. Het boek is uit.  
 the book is out  
 ‘The book is finished.’  
 ‘The book has appeared.’  
 b. Het gras is af.  
 the grass is off  
 ‘The grass is off.’

But the particles just mentioned are atypical in having this fairly specific literal meaning. Thus J. Doetjes suggested to me that in the cases in (63)

the particle *uit* does not carry the implication that the event is in its final part.

- (63) a. Max spreidde de krant uit.  
Max spread the paper out  
'Max spread the newspaper out.'
- b. Tina rolde haar slaapzak uit.  
Tina rolled her sleeping.bag out  
'Tina unrolled her sleeping bag.'
- c. Cedric kneep de dweil uit.  
Cedric pinched the cloth out  
'Cedric wrung the cloth out.'

There appears to be a correlation between the latter fact and the availability of the construction in (64).

- (64) \*De krant/ de slaapzak/ de dweil is uit.  
the paper/ the sleeping.bag/ the cloth is out  
Int.: 'The newspaper has been spread out.'  
Int.: 'The sleeping bag has been rolled out.'  
Int.: 'The cloth has been wrung out.'

*De krant is uit* 'The newspaper is out' cannot mean that the newspaper is spread out or rolled out, only that it has been finished (i.e. it has the reading of (62a)). The conclusion seems to be that particles that are semantically contentful in a copular construction in combination with a subject of some sort, such as those in (62), retain this meaning in the resultative construction when combined with the required type of subject and verb (as discussed for (53)).<sup>34</sup> By contrast, the vast majority of particles in resultat-

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<sup>34</sup>A referee pointed out that copular environments should be distinguished from non-copular ones, as in the following examples:

- (i) a. Jan hing de vlag uit.  
Jan hung the flag out  
'Jan hung out the flag.'
- b. \*De vlag is uit.  
the flag is out  
Int.: 'The flag is up.'
- c. De vlag hangt uit  
the flag hangs out

ives (or, equivalently, particle verbs) are semantically impoverished, and may therefore be said to merely serve a function as an event delimiter.

The particle *uit* ‘out’ nicely illustrates this process of loss of resultative semantics. In the majority of cases, *uit* yields telic predicates: *uitleggen* ‘explain’, *uitkleden* ‘undress’, *uitrollen* ‘roll off’, *uitgraven* ‘dig up’, and so on. Yet when combined with verbs of a certain semantic class, the result is invariably an unbounded predicate. An example is the verb *lachen* ‘laugh’, which combines with *uit* to yield the particle verb *uitlachen* ‘laugh at, deride, ridicule’. The addition of the particle *uit* to *lachen* has in common with other resultative predicates that it has a transitivity effect (cf. *\*iemand lachen* ‘laugh somebody’ vs. *iemand uitlachen* ‘laugh at somebody’). In contrast, the resulting particle verb is invariably unbounded, as it does not combine with an *in X time* adverbial. This is illustrated in (65), which also contains other verbs of similar semantic import.

- (65) De menigte heeft de speler minutenlang/ \*in 5 minuten  
 the crowd has the player minutes.long/ in 5 minutes  
 uit-gelachen/ uit-gejouwd/ uit-gejoeld/ uit-gefloten/  
 out-laughed/ out-bood/ out-jeered/ out-hissed/  
 uit-gefoeterd.  
 out-grumbled  
 ‘The crowd laughed at/bood/jeered at/hissed at/told off the player  
 for 5 minutes.’

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‘The flag is up.’

- (ii) a. Jan legde de loper uit.  
 Jan lay the carpet out  
 ‘Jan rolled out the carpet.’  
 b. \*De loper is uit.  
 the carpet is out  
 Int.: ‘The carpet has been rolled out’  
 c. De loper ligt uit.  
 the carpet lies out  
 ‘The carpet has been rolled out.’

What is striking about these examples, however, is that the verbs involved (*hangen* ‘to hang’ and *leggen/liggen* ‘to lay/to lie’) constitute causative/ergative pairs. It seems reasonable to assume that the causative variants in (a) embed the ergative construction in (c) in their structure (see Hoekstra & Mulder 1990 and Mulder & Wehrmann 1989 for the issue of auxiliary selection in stative unergatives of the type in (ic) and (iic)).

The semantic contribution of the particle does not appear to be resultative (nor is it an intensifying one; see §4.2 below). Rather, it serves the purpose of transitivity an intransitive activity verb. These unbounded interpretations seem hard to reconcile with the claim that resultatives denote an end point.

## 4.2 Intensifying resultatives

Consider (66) and (67):

- (66)
- a. Mick talked/laughed/worked his head off.
  - b. Lisa laughed herself silly/sick/to death/to oblivion.
  - c. Sonny cried his eyes out/himself blind.
  - d. Max walked the soles off his shoes to find the rare John Lee Hooker album.
  - e. The joggers ran the pavement thin.
  - f. You scared the daylights out of me.
- (67)
- a. Max lachte zich ziek/dood/rot.  
Max laughed REFL sick/dead/rotten  
'Max laughed himself sick.'
  - b. Ben heeft zich krom gewerkt/gelachen.  
Ben has REFL crooked worked/laughed  
'Ben worked his head off.'  
'Ben laughed himself silly.'
  - c. Frieda heeft haar schoenen scheef gelopen om die  
Frieda has her shoes crooked run CMP that  
plaat te vinden.  
record to find  
'Frieda walked the soles off her shoes to find that album.'
  - d. De hele dag hebben ze mijn deur plat gelopen.  
the whole day have they my door flat run  
'All day they have been at my door.'
  - e. Ik keek m'n ogen uit.  
I watched my eyes out  
'I couldn't believe my eyes.'

Even though the action in (66a) might be presented as terminated, Mick's head is not really off his body as a result of the laughing, nor are Sonny's

eyes really out of their sockets as a result of the crying (in (66c)). The literal meanings are the only ones we find in a nonresultative environment (insofar as the relevant predicates can occur in a nonresultative environment at all, e.g. *Lisa is sick/silly*). Rather, the resultative complements in (66) and (67) indicate a high degree or intensity of the relevant activities, whether they involve laughing, crying, working, drinking, etc. Many intensifier resultatives involve a so-called fake reflexive or an expletive body part, but this is not a necessary condition, as the above examples show. In some cases, the subject of the small clause is occupied by a DP (*the daylights, the hell*) that has little or no referential meaning (a phenomenon dubbed *zero semantics* by Postma 1995). In sum, all the cases of intensifying resultatives in some way or other involve a loss of lexical semantics.

The intensifying use of these secondary predicates seems hard to reconcile with the claim that they denote end points, or even results. The approach that treats them as event measures is more promising in this respect, however. Observe that resultatives with intensifier semantics all denote unbounded events: they can be accompanied by a durative adverbial of the *for X time* variety without any difficulty (as shown by 56 and 57, a bounded adverbial of the *in X time* type is even impossible). This property, it seems to me, provides the key to an understanding of how the intensifying semantics comes about. When an activity that is telic by virtue of being accompanied by an event measure is supplemented with a durative adverbial, one of the interpretive possibilities I have noted is that of (unbounded) iteration: the activity goes on, but takes a fresh measure. The effect is one of unboundedness, through an indeterminate iteration of an event that is essentially telic. The effect of intensification now, I would argue, is intimately linked to that of iteration. Since on a literal resultative interpretation, many of the secondary predicates under discussion cannot be true—one cannot cry one’s heart out, nor talk one’s head off—the predicate is taken to denote an arbitrary measure, thereby losing most of its literal meaning (see Postma 1995). It subsequently takes on an intensifying semantics through the same interpretative mechanism that yields the effect of iteration in other cases.<sup>35</sup>

<sup>35</sup>While due attention has been drawn to the systematic nature of the intensifying meaning of certain constructions involving secondary predication, and in particular its roots in the resultative construction, we must also grant that an important portion of it is subject to lexical idiosyncrasy, and thus cross-linguistically variable. Consider the case of *ziek* ‘ill’: *ziek* can be modified by *erg* ‘very’ (13c), (39b), i.e. it behaves as an unbounded

## 5 Conclusion

I have argued that resultative predicates are subject to a boundedness requirement, which is most directly observable with adjectival predicates. The existence of such a requirement is shown most clearly by the fact that even those adjectives that denote unbounded scales in nonresultative environments, permit only bounded scale modifiers when occurring in a resultative construction. The boundedness requirement on resultatives, I argued, is an empirically more adequate restriction on resultative predicates than an alternative restriction that resultative predicates must be stage level. This was shown by a consideration of individual-level adjectives that are also bounded. Since such adjectives can appear in resultative environments, the prohibition against individual-level predicates in resultatives cannot be correct. Rather, they must be bounded.

Next, we considered transitions in resultative and causative environments, and how negation had a different effect on bounded and unbounded adjectives. The occurrence of unbounded adjectives in causative constructions reveals that these are to be analyzed differently from resultatives. I proposed that the causative construction involves an embedded inchoative head. The boundedness requirement itself was then argued to derive from the fact that the resultative predicate is an event measure, providing the event with minimal parts. A parallel exists with the nominal domain,

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adjective with any sort of subject in the relevant contexts. Its presence in intensifying resultatives suggests that adjectives can shift to a bounded, and in particular intensifying resultative, use pretty randomly. Consider also *dead*: in English, this adjective can be used only in a literal sense (e.g. *shoot/strike NP dead*). The intensifying use of the same predicate requires the PP *to death* (e.g. 66b). In contrast, Dutch allows *dood* ‘dead’ as an intensifier without any difficulty with a variety of verbs (see (67)). Other Dutch adjectives behaving like *dood* ‘dead’ include *kapot* ‘broken’, *suf* ‘drowsy’, *ziek* ‘ill’, *krom* ‘crooked’, *rot* ‘rotten’, and *gek* ‘crazy’.

- (i) a. Max heeft zich dood/kapot/krom/suf gewerkt.  
Max has REFL dead/broken/drowsy worked  
‘Max worked himself to death.’
- b. Ik heb me ziek/rot gelachen.  
I have REFL sick/rotten laughed  
‘I laughed myself silly.’

None of these can be so used in English, which appears to have a strong preference for PP’s as intensifiers (notwithstanding a few isolated exceptions like *silly*, *blind* and *sick*).



where classifiers serve a similar function of introducing minimal parts. Resultative predicates can therefore be seen as the verbal analogues of the classifiers found in the nominal domain, functioning as a sort of measuring cup allowing one to take a specified quantity of an unstructured mass of verbal activity. Since measuring cups must be bounded as a matter of conceptual necessity, the boundedness restriction on resultatives is accounted for. This approach also allows us to make a distinction between telicity and boundedness, such that sentences with a telic predicate could have an unbounded interpretation through effects of iteration. Such a distinction is harder to maintain if the resultative is considered to denote an end point. The distribution of *for X time* and *in X time* adjuncts tracks the boundedness-unboundedness distinction, rather than the telic-atelic one. I further argued that the postverbal NP in resultatives is a measurer only indirectly, that is, by virtue of being the subject of the real event measure, the resultative. In telic sentences lacking a resultative the internal argument can take on the function of delimiting the event. Finally, I argued that the loss of literal meaning in intensifying resultative constructions derives from the effect of iteration observed independently in resultatives.

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