

8 **Themes, Cumulativity, and Resultatives: Comments on**
9 **Kratzer 2003**

10
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13 According to Kratzer (2003), the thematic relation Theme, construed
14 very generally, is not a “natural relation.” She says that the “natural
15 relations” are “cumulative” and argues that Theme is not cumulative,
16 in contrast to Agent. It is therefore best, she concludes, to remove
17 Theme from the palette of semantic analysis. Here I oppose the prem-
18 ises of Kratzer’s argument and then introduce a new challenge to her
19 conclusion, based on the resultative construction in Mandarin. The
20 facts show that Theme and Agent are on equal footing, insofar as
21 neither has the property that Kratzer’s conjecture requires of a natural
22 relation.
23

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25 tive construction, Mandarin Chinese
26

27 **1 Introduction**

28 According to Kratzer (2003), the thematic relation Theme, construed very generally, is not a
29 “natural relation.” She says that the “natural relations” are “cumulative” and argues that, while
30 Agent is cumulative, Theme is not. It is therefore best, she concludes, to remove Theme from
31 the palette of semantic analysis: as a rule, no lexical item or syntactic relation should have Theme
32 in its interpretation.¹

33 I review the substance of this proposal in sections 2 through 4, indicating premises that strike
34 me as wrong, to do with the mereology of events. I then pursue a particular empirical challenge
35 in section 5, from the resultative construction in Mandarin. Resultatives offer what may be the
36 clearest case in which to test Kratzer’s hypothesis, and in English, they seem to provide it with
37 ideal support. But Mandarin shows this support to be illusory, and the hypothesis to be wrong,
38 by disentangling thematic relations that are confounded by the grammar of English. Relative to
39 the events in their domains, Agent and Theme relations do not contrast in cumulativity, so we
40 cannot dismiss Theme on these grounds. I conclude briefly in section 6.

41 **2 Cumulativity and Naturalness**

42 Kratzer (2003) proposes that “cumulativity” is a property of any “natural relation.” What does
43 this mean?

44 A relation is “cumulative” when it is closed under *summing* of its arguments, indicated
45 here by “+.” A one-place relation P is cumulative when (1) holds, and a two-place relation Θ ,
46 when (2) does (compare Krifka 1992).

47 (1) $P(e_1) \wedge P(e_2) \rightarrow P(e_1 + e_2)$

48 (2) $\Theta(e_1, x_1) \wedge \Theta(e_2, x_2) \rightarrow \Theta(e_1 + e_2, x_1 + x_2)$

50 Summing of x and y yields a single individual $x + y$ with x and y as its only improper *parts*.
 51 The improper part relation, \sqsubset , is reflexive, transitive, and antisymmetric. An individual with parts
 52 other than itself is *complex*. An individual that is not complex is *atomic*. Following David Lewis
 53 (1986:211), Kratzer takes summing to apply freely. Given any two individuals—say, Al Gore
 54 (a) and Marcus Junius Brutus (b)—there exists a unique complex individual that is their sum
 55 ($a + b$). Likewise for any two events. Al kissed his wife in 2000 AD (e_1), Brutus stabbed Caesar
 56 in 44 BC (e_2), and there is a complex event that is the sum of these two ($e_1 + e_2$). The parts of
 57 a sum needn't stand in any substantive relation.

58 Kratzer uses parts and sums in a semantic theory of sentences containing plurals, one deriving
 59 in large part from Link 1983. Complex individuals serve as the extensions of plural definites.
 60 And at least sometimes, summing interprets the conjunction of expressions in type $\langle e \rangle$, such that
 61 the extension of “Al and Brutus” is $a + b$. In addition, predicates of events have complex events
 62 in their domain. But unlike summing of entities, summing of events does not have very obvious
 63 morphological expression.²

64 Given this theory of plurals, cumulativity helps validate certain inferences.³ Suppose, for
 65 example, that the (a) sentences in (3)–(5) have the logical forms in (b), and e_1 and e_2 are events
 66 that verify the first two sentences. Then cumulativity for the relations *Agent* and *dance*
 67 ensures that (3) and (4) jointly entail (5), since $\langle e_1 + e_2, a + b \rangle$ then satisfies *Agent*, and $e_1 +$
 68 e_2 satisfies *dance*.

- 69 (3) a. Al danced.
 70 b. $\exists e. \text{Agent}(e, a) \wedge \text{dance}(e)$
- 71 (4) a. Brutus danced.
 72 b. $\exists e. \text{Agent}(e, b) \wedge \text{dance}(e)$
- 73 (5) a. Al and Brutus danced.
 74 b. $\exists e. \text{Agent}(e, a + b) \wedge \text{dance}(e)$

75 In sentences with more than one plural argument, a logical form that expresses thematic
 76 relations in separate conjuncts becomes crucial (Krifka 1992, Schein 1993, Kratzer 2000). Suppose
 77 two editors separately proof a manuscript riddled with errors. There is an interpretation of (8a)
 78 under which it is implied by (6a) and (7a). Separate expression of the *Agent* relation allows the
 79 subject and object quantifiers in (8) to be independent. And now the inference from (6b) and (7b)
 80 is readily captured by presuming cumulativity, once again.

- 81 (6) a. Editor 1 found errors 1 through 12.
 82 b. $\exists e. \text{Agent}(e, x_1) \wedge \text{find}(e, y_1)$
- 83 (7) a. Editor 2 found errors 7 through 20.
 84 b. $\exists e. \text{Agent}(e, x_2) \wedge \text{find}(e, y_2)$
- 85 (8) a. Exactly two editors found exactly twenty errors.
 86 b. $\exists e. [\exists x : 2!(x)] \text{Agent}(e, x) \wedge [\exists z : 20!(z)] \text{find}(e, z)$

87 If e_1 and e_2 are events that verify (6b) and (7b), cumulativity ensures that $\langle e_1 + e_2, x_1 + x_2 \rangle$
 88 satisfies *Agent* and $\langle e_1 + e_2, y_1 + y_2 \rangle$ satisfies *find*. (8b) must therefore be true, since by
 89 assumption $x_1 + x_2$ comprises two editors and $y_1 + y_2$, twenty mistakes.

90 To secure results like these, Kratzer pursues the conjecture that all event sortals and thematic
 91 relations are uniformly cumulative—at least if they are “natural.” The “natural categories,” she
 92 writes, are “those that humans take to be candidates for denotations of simple lexical items,
 93 spontaneously and without any explicit instruction or definition” (2003:7).⁴

94 Kratzer says little about *why* the cumulative predicate meanings should be most immediately
 95 acquired: does this express an arbitrary bias of the language faculty, or something more general
 96 about the structure of thought and perception in human children?⁵ Nor does Kratzer say whether
 97 the ontology of complex individuals that her discussion of cumulativity presumes is “natural”
 98 itself. Do toddlers come to presume, “spontaneously and without explicit instruction,” that any
 99 two objects are part of a complex individual, even when there is no substantive relation between

100 them? Depending on the answers to these questions, the conjecture that “natural relations” are
101 cumulative will be more or less plausible.

102 In any case, if the conclusions I reach below are correct, one strong version of Kratzer’s
103 hypothesis is falsified. We cannot maintain that thematic relations are cumulative, while also
104 presuming that events can be summed freely.

105 3 Agent versus Theme

106 Kratzer argues that Theme is not cumulative, while Agent is. This conclusion is presented in the
107 context of a broader intuition, (9).

108 (9) “Themes lack the conceptual independence of agents. Theme arguments seem to be
109 tightly linked to their verbs. Agents are different. Actions seem to have agents independ-
110 dently of how we describe them.” (Kratzer 2003:4)

111 So for Agent but not for Theme, one can tell whether x bears the relation to e , without knowing
112 what other predicates hold of e .

113 There are well-known objections to this optimism about agents (see, e.g., Parsons 1990,
114 Dowty 1991, Landman 2000, Schein 2002). Given an exchange of money for goods, for example,
115 one cannot say who its agent was except relative to a description of the event as a buying or as
116 a selling. So if there is a general Agent relation, and its domain is “events,” then these so-called
117 events wear a description on their sleeve. They have structure that is not given just by what
118 transpires in the world, fine enough to distinguish buyings from sellings. And (9) is therefore too
119 strong.

120 That said, it’s worth seeing how Kratzer develops the intuition.

121 Her perspective coincides with a further presumption. In testing for the cumulativity of
122 thematic relations, she feels free to describe the sum event in any way that seems appropri-
123 ate—since after all, the applicability of the tested predicate is not supposed to depend on how
124 we describe the event of which it is predicated. In particular, the sum event need not be described
125 using a verb that applies equally to its parts. Accordingly, Kratzer presupposes what I will call
126 *Variety*, (10).

127 (10) *Variety*

128 An event e that satisfies description V may have an event e' that does not satisfy V as
129 a proper part.⁶

130 Importantly, therefore, not all complex events are plain plurals in Kratzer’s view, sums of
131 several events that meet the same description. Some events are singular with respect to their
132 description as a V , and yet nevertheless complex, in comprising a sum of possibly unlike parts.

133 For instance, Kratzer narrates the planting of a rosebush as in (11). Take e_1 , e_2 , and e_3
134 to be the events that verify these three sentences. More specifically, take these to be the sorts of
135 finely structured events that support Agent relations. Then we can say that Agent relates Al to
136 e_1 , Bill to e_2 , and Carl to e_3 .

- 137 (11) a. Al dug a hole.
138 b. Bill inserted a rosebush.
139 c. Carl covered the hole with soil.

140 Now suppose that in virtue of what actually happened, we say (12), truly. Then there is also an
141 event of planting a rosebush, e_4 .

142 (12) Al, Bill, and Carl planted a rosebush.

143 But Kratzer says more. She proposes that the planting, e_4 , is *identical* to the sum of the three
144 other events, $e_1 + e_2 + e_3$. So the sum event is a single event of planting, according to Kratzer,
145 but it has proper parts that are not plantings at all, thus illustrating *Variety*.

146 Were we to grant this equation, the proposed contrast between Agent and Theme would
147 emerge. The agent of the planting, e_4 , is supposed to be the sum of Al, Bill, and Carl. Hence, if

148 e_4 is exactly $e_1 + e_2 + e_3$, the agents of the three parts sum to the agent of the whole. But
149 consider the themes. What got planted was not the hole, the rosebush, and the soil together—it
150 was just the bush itself. So the themes of the parts do not sum to the theme of the whole. We
151 can derive this result by assuming that Agent is cumulative but Theme is not. Then (11), plus
152 the assumption that $e_1 + e_2 + e_3$ is a planting, entails (13) but not (14).

153 (13) Al, Bill, and Carl planted something.

154 (14) Al, Bill, and Carl planted a hole, the rosebush, and soil.

155 Yet the equation is hard to accept. What goes on in the world according to (11) makes (12)
156 true, by assumption. But the Agent relation is not a relation directly to what goes on in the world.
157 It cannot be; not when it distinguishes buyings from sellings. The “events” entering into Agent
158 relations have structure not given solely by the stretches of history to which they correspond,
159 many-to-one. And it is not obvious that a mere sum of such events—each of which may satisfy
160 a different description and thus have its own characteristic structure—will itself have the structure
161 needed to support a thematic relation. The planting is somehow related to the three events of
162 digging, inserting, and covering. But are the properties in virtue of which we recognize its agent
163 and patient present just in their sum? I would say they are not, any more than the properties that
164 give the Eiffel Tower an apex are present in the mere set of its parts. But Kratzer’s discussion
165 implies that they are.

166 One might cede this objection, but blame the rosebush example. Perhaps there are clearer
167 cases of part-whole relations among events, and these will better support Kratzer’s position. Below
168 I will discuss what may be the best candidates, namely, the events of causatives and resultatives.
169 And we’ll see that, still, the cumulativity of Agent cannot be upheld.

170 Before then, it is important to notice that the asymmetry vanishes whenever the summed
171 events do not exhibit Variety, and thus when the sum event is just a plural. Themes then add up
172 just as well as agents do. Suppose for example that the events that verify (15a) and (15b) sum
173 to an event that verifies (16).

174 (15) a. Al wrote a poem.

175 b. Bill drew a picture.

176 (16) Al and Bill created a poem and a picture.

177 Here the same description, *create*, also applies to the writing and the drawing, the parts of the
178 putative sum event. This sum is just a complex event of creation, built from two smaller ones.
179 So we don’t see Variety. And correspondingly, both participants add up. The agent of the complex
180 event is the sum of Al and Bill, while its theme is the sum of the poem and the picture.

181 To be clear, let us therefore distinguish two “kinds” of cumulativity, one that does not
182 depend on the description provided by the verb, and one that does.

183 (17) *Independent Cumulativity*

184 Cumulative, under any description of the sum event.

185 (18) *Dependent Cumulativity*

186 Cumulative, at least under a description of the sum event that also applies to its parts.

187 Importantly, the second type of cumulativity is enough to license the inferences in (3)–(8). Argu-
188 ably, therefore, Kratzer’s theory of plurals needs no more than this. But the proposal to exclude
189 Theme from the family of natural relations relies on the first, and stronger, kind of cumulativity;
190 it assumes that Agent has this property but Theme does not. Yet we’ll see more reason to believe
191 that Agent doesn’t have it either.

192 **4 Thematic Uniqueness and Devolution**

193 Sentence (19) does not say merely that there was a lifting whose agent (or agents) included Al,
194 and whose theme (or themes) included the piano. If it did, (20) would be enough to make it true.
195 But in fact (20) does not entail (19), since (20) allows that Al did nothing at all to the piano.

196 (19) Al lifted the piano.

197 (20) Al and Bill lifted the piano and the harpsichord.

198 Rather, (19) makes the stronger statement that there was a lifting whose only agent was Al, and
199 whose only theme was the piano. For this reason, it entails that Al lifted the piano (Schein 1993).

200 Semantic theories need to ensure this result. Those that presume an ontology of complex
201 individuals, like Kratzer's, do this with a principle like (21); see Carlson 1984, Dowty 1989,
202 Parsons 1990, Landman 2000, Kratzer 2001.⁷

203 (21) *Thematic Uniqueness*

204 For any thematic relation Θ and event e (possibly complex), there is at most one
205 individual d (possibly complex) such that $\Theta(e, d)$.

206 So if (19) implies an Agent relation between Al and a lifting, there can be no other individual
207 so related.

208 Thematic Uniqueness requires even finer structure in the events to which sentences assign
209 thematic relations, more than the verb does alone (Laserson 1995, Schein 2002). Suppose that
210 Al was sickened by an egg, because he was sickened by its albumen. Then (21) demands two
211 distinct sickenings, since the egg is not its albumen. And insofar as this and similar consequences
212 are accepted, the equations that underlie Kratzer's contrast between Agents and Themes become
213 even less tenable. If getting sick from the albumen is not getting sick from the egg, how could
214 it be that the planting is merely the sum of the digging, inserting, and covering?

215 The final challenge to Kratzer's conjecture, to be developed in the remainder of this article,
216 depends on an interaction of Thematic Uniqueness with Cumulativity, (22). Thematic relations
217 to e devolve to e 's parts (Kratzer 2001:29).

218 (22) *Devolution*

219 If Θ is (independently) cumulative and $\Theta(e, d)$, then for any part e' of e , if there is a
220 d' such that $\Theta(e', d')$, then d' is either identical to, or part of, d itself.

221 For if e' is a part of e ($e' \sqsubseteq e$), their sum is just e again ($e' + e = e$). The sum of their agents is
222 $d' + d$. But by assumption, the complete agent of e is just d . So it must be that $d' + d = d$,
223 hence that $d' \sqsubseteq d$. In case the agent d of event e is an *atomic* individual, therefore, d must also
224 be the agent of any part e' that has an agent.

225 Kratzer (2003:4) immediately notices a problem in causatives like (23). This sentence seems
226 to describe an event of making Bill vote, one that has a voting as a part and whose agent is just
227 Al alone. But then the agent of voting too would have to be Al, and this is wrong.

228 (23) Al made Bill vote for George.

229 To defuse the challenge, Kratzer revises our interpretation for (23). Al is not the agent of a
230 making-vote. Rather, he is the agent of some event that itself is in a Cause (or *make'*) relation
231 to Bill's voting, but does not have the voting as a part.

232 This suggests, however, that event-oriented adverbs in the main clause should describe the
233 action that causes Bill's voting for George. Suppose this was in fact the action of (24). Then it
234 was passionate, on the rostrum, and ten seconds long. And yet we cannot assert these same facts
235 by saying (25), all of whose interpretations assert something quite different. Thus, the revised
236 semantics cannot be right, and the challenge to Kratzer's position remains sharp.⁸

237 (24) Al passionately kissed his wife for ten seconds on the rostrum.

238 (25) Al passionately made Bill vote for George for ten seconds on the rostrum.

239 I now introduce a related challenge, from resultatives like English (26) and Mandarin (27).
240 What is interesting here is that the facts of English finally seem to provide Kratzer's conjecture
241 with resounding support—and yet Mandarin contradicts it directly. The apparently supportive
242 data from English can therefore be a consequence neither of Cumulativity nor of any other semantic
243 principle presumed to be universal.

- 244 (26) Al pounded the cutlet flat.
 245 'Al made the cutlet flat from pounding.'
- 246 (27) Tā tī duàn -le nàtiáo mùbǎn.
 247 3SG kick snap -PFV that wood.plank
 248 'She/He made the plank snap from kicking.'⁹
 249 (More naturally: 'She/He kicked the plank in two.')

250 5 Resultatives and Thematic Relations

251 A resultative is a single clause comprising two overt predicates, the *means* predicate M and the
 252 *result* predicate R, neither one introduced by a conjunction or adposition. The clause describes
 253 a change, concluding in a state defined by R and achieved by means of an event described by
 254 M. In (26), M is the verb *pound* and R is the phrase *flat*. In Mandarin (27), both are verbs; *tī*
 255 'kick' and *duàn* 'snap', respectively.

256 Importantly, an adverb that modifies the verb phrase as a whole does not ipso facto modify
 257 M. (28) does not entail (29), for example, under either placement of the adverb; as a consequence,
 258 (30) is in no way odd or contradictory. Likewise, (31) does not entail the absurd proposition that
 259 *Ozzy sang* by not resting.

- 260 (28) Al (slowly) pounded the cutlet flat (slowly).
 261 (29) Al (slowly) pounded the cutlet (slowly).
 262 (30) Striking it rapidly for hours, Al slowly pounded the cutlet flat.
 263 (31) Ozzy sang his throat hoarse by not resting between songs.

264 It follows that the verb phrase is a predicate of an event e_1 , distinct from the event e_2 of M.
 265 Abstracting from many details, the verb phrase in (26) has a meaning something like (32), for
 266 some relation K . Presumably $K(e_1, e_2, e_3)$ requires at least that e_1 is a change that concludes with
 267 e_3 and is achieved by means of e_2 .

- 268 (32) $\llbracket \text{pound the cutlet flat} \rrbracket$
 269 $= \dots \lambda e_1 \exists e_2 \exists e_3. K(e_1, e_2, e_3) \wedge \text{pound}(e_2, \dots) \wedge \text{flat}(e_3, \dots) \dots$

270 Correspondingly, the semantics for resultatives in Kratzer 2005 cannot be right. It treats
 271 *pound the cutlet flat* as a predicate true of poundings with a certain relation Φ to a state of flat-
 272 ness, (33). And in that case, (28) should entail (29), wrongly.¹⁰

- 273 (33) $*\llbracket \text{pound the cutlet flat} \rrbracket$
 274 $= \dots \lambda e_2 \exists e_3. \Phi(e_2, e_3) \wedge \text{pound}(e_2, \dots) \wedge \text{flat}(e_3, \dots) \dots$

275 Now, Variety allows that a singular event can have unlike parts, parts that don't satisfy the
 276 same description as the whole. From that perspective, it would also seem right to say that a single
 277 pounding flat has a pounding as a part, and necessarily so. Certainly it is safer than saying that
 278 a planting has a digging as a part, since every pounding flat involves a pounding, but not every
 279 planting involves a digging. Thus, for those who join Kratzer in presuming Variety, resultatives
 280 are an ideal domain in which to test for cumulativity.

281 Suppose then (at the moment, just for the sake of argument) that (26) says Al is the agent
 282 of the pounding flat, event e_1 in (32) (compare McCawley 1971, Green 1972). Given that pound-
 283 ings too have agents, Al must then be the agent of the pounding as well, e_2 in (32), by Devolution.

284 And indeed he is: (26) entails that Al pounded the cutlet. Moreover, this reflects a categorical
 285 property of the English resultative. Without exception, the underlying subject names the agent
 286 of the means event.¹¹ And for just this reason, the English resultative can be seen as showcase
 287 evidence for Kratzer's suite of assumptions. If any construction describes a complex event with
 288 an unlike part, it is the resultative, whose event of change plausibly has the event of M as a
 289 proper part. And sure enough, as Independent Cumulativity and Thematic Uniqueness jointly
 290 require, the agent of one must be the agent of the other—in English.

291 But this cannot be an expression of semantic universals, since things are different in Man-

292 darin. Sometimes, as in (27), Mandarin looks like English: the underlying subject is naturally
 293 understood as referring to the agent of the means event, the one named by the first verb. But not
 294 always (Lü 1986, Ma 1987, Li 1990, Gu 1992, Huang 1992, Ren 2001, Williams 2005). In other
 295 cases, the subject is most naturally taken to refer to the theme of the means event, (34), or to an
 296 individual with no thematic relation to that event at all, (35).¹²

- 297 (34) a. Yīfú xǐ lèi -le jiějiě.
 298 clothes wash tired -PFV elder.sister
 299 ‘The clothes made Big Sister tired from [her] washing [them].’
 300 (Ren 2001:326; my translation)
- 301 b. Nà píng jiǔ hē zuì -le wǒ.
 302 that bottle wine drink drunk -PFV 1SG
 303 ‘That bottle of wine made me drunk from drinking.’
 304 (Gu 1992:80, my translation)
- 305 (35) a. Zhèjiàn shì kū hóng le Lǐsì-de yǎnjīng.
 306 this matter weep red PFV Lisi’s eyes
 307 ‘This matter made Lisi’s eyes red from weeping.’
 308 (Huang 1988:296; my translation)
- 309 b. Chī jǐ dùn miàntiáo yě chī bu qióng tā.
 310 eat several meal noodle also eat NEG.POT poor 3SG
 311 ‘Eating a few meals of noodles won’t make him poor from eating.’
 312 (Lü 1986:7, quoting Jiang Zilong, *Weichi Huizhang*; my translation)

313 The latter type of example is important. It shows what the defender of Independent Cumulati-
 314 vity would want to deny—and what we assumed provisionally for English (26). The subject is
 315 indeed assigned a thematic relation to the event of change associated with the whole verb phrase,
 316 independent of any additional relation to the events of M or R. In particular, it is necessarily
 317 construed as referring to the initiator of that event, its agent (see Li 1990, Gu 1992, Huang 1992,
 318 Williams 2007). And yet this thematic relation does not devolve to the means event, as Independent
 319 Cumulativity requires. (35b), for example, talks about an event of change, one that ends in poverty
 320 and is brought about by eating. The initiator or agent of this change is an eating of noodles. But
 321 this eating of noodles didn’t eat anything. It is not the agent of the event described by the verb
 322 in M. That event, an eating, has a different agent, presumed to be the person indicated by the
 323 pronoun in object position.¹³

324 Since the Agent relation need not devolve to the putative parts of its event, it is not indepen-
 325 dently cumulative. The English resultative obscures this, because it exhibits a requirement that
 326 is absent in Mandarin: the verb in M must find its agent in the underlying subject of the clause,
 327 just as it would in general. This difference between the two languages is remarkable; for an
 328 account of it, see Williams 2008 (and contrast Li 1990). All that matters here, however, is its
 329 consequences. It allows for Mandarin to demonstrate linguistically that there is no principle that
 330 requires the agent of a change to be the agent of its means event.

331 Of course, the challenge from Mandarin would dissolve if I were wrong, and the event
 332 structure of its resultative were different from what I have assumed, (36).

- 333 (36) $\exists e_1 \exists e_2 \exists e_3. K(e_1, e_2, e_3) \wedge \llbracket M \rrbracket(\dots)(e_2) \wedge \llbracket R \rrbracket(\dots)(e_3) \wedge \text{Agent}(e_1, \llbracket \text{Subject} \rrbracket) \dots$

334 In particular, suppose it instead had a *causing-event semantics*, (37), similar to what Kratzer
 335 assigns to English periphrastic causatives like (23). Then Mandarin resultative would say just
 336 that one event e_c causes another e_r , where the latter is the event of R (or maybe a change that
 337 ends with it); and the reason we regard the referent of the subject as a ‘‘causer’’ would not be
 338 that it has an Agent relation to a superordinate event of change, but only that it has *some* relation
 339 Θ to the causing event, e_c .¹⁴

- 340 (37) $\exists e_c \exists e_r. \text{Cause}(e_c, e_r) \wedge \llbracket R \rrbracket(e_r) \wedge \Theta(e_c, \llbracket \text{Subject} \rrbracket) \dots$

341 In sentences like those in (27) and (34), we would understand this e_c to be the very event described

342 by the verb in M, e_m ; for example, if (34a) says that some event e_c involving the clothes caused
 343 Big Sister's exhaustion, then surely e_c was an event of washing them. But cases like those in
 344 (35) are different. Here e_c and e_m would have to be distinct, since the subject doesn't refer to any
 345 participant in the latter. (35a) says that a certain matter made Lisi's eyes red, but not that it wept
 346 or got wept. These cases would demand a semantics like (38).

347 (38) $\exists e_c \exists e_m \exists e_r. \text{Cause}(e_c, e_r) \wedge \llbracket R \rrbracket(e_r) \wedge \Theta(e_c, \llbracket \text{Subject} \rrbracket)$
 348 $\wedge \Psi(e_m, e_r) \wedge \llbracket M \rrbracket(\dots)(e_m) \dots$

349 Then (35a) would say that a certain matter participated in an event e_c , that e_c caused redness in
 350 Lisi's eyes, and that the redness had some relation Ψ to a weeping. Informally, the matter made
 351 Lisi's eyes red from weeping.

352 The details may be different. But whatever they are, under this alternative semantics, the
 353 subject is not the agent of a change with the M event as a proper part. And consequently there
 354 is no question of whether the part has the same agent as the whole, as cumulativity requires.

355 However, there are at least two reasons to reject this revision. The first comes, again, from
 356 adverbs. If the subject identifies a participant in the causing event, then the maximal verb phrase
 357 is presumably a predicate of that event (either that or a function from an individual to such a
 358 predicate). Consequently, it should be this very causing event that is the target of a verb phrase
 359 modifier. But (39) shows otherwise. Here the causing event is understood to be one of the wind
 360 blowing.¹⁵ And yet an adverb that would describe such an event, (40), though not one of making
 361 somebody ill, is impossible.

362 (39) Lěng fēng (*hūhū-de) chuī bìng -le tā.
 363 cold wind howlingly blow ill -PFV 3SG
 364 'A cold wind made him/her ill from blowing howlingly.'
 365 (Li 1980:100; my translation)

366 (40) Lěng fēng hūhū-de chuī.
 367 cold wind howlingly blow
 368 'A cold wind blew howlingly.'
 369 (Li 1980:100; my translation)

370 The same point can be made even with resultatives like those in (34) or (35), where the
 371 subject does not name the agent of the M event. The adverb is impossible in (41), and in (42) it
 372 describes the change, not the washing. This argues against the causing-event semantics, and in
 373 favor of what I assume: the maximal verb phrase is predicated of a change, distinct from the
 374 event of M.

375 (41) Nà píng jiǔ (*gūlu-gūlu-de) hē zuì -le wǒ.
 376 that bottle wine 'glug-glug-ingly' drink drunk -PFV 1SG
 377 'That bottle of wine made me drunk from [my] drinking [it] gluggingly.'

378 (42) Yīfú jiànjiàn-de xǐ lèi -le jiějiě.
 379 clothes gradually wash tired -PFV elder.sister
 380 'The clothes gradually made Big Sister tired from [her] washing.'

381 Second, under the causing-event semantics, it can make no difference to the truth conditions
 382 *which* participant is identified by the subject. If my singing a song causes hoarseness in my throat,
 383 for instance, then it does so whether the subject of a sentence I use to say this refers to me or
 384 the song. Yet speakers share the intuition that (43) does not entail (44), even when what is sung
 385 is held constant.

386 (43) Wǒ chāng yǎ -le sāngzi.
 387 1SG sing hoarse -PFV throat
 388 'I made [my] throat hoarse from singing.'

390 (44) Nàshou gēqu chāng yǎ -le wǒ.
391 that song sing hoarse -PFV 1SG
392 'That song made me hoarse from singing.'

393 (44) says something that (43) does not, namely, that the song is itself responsible for the injury.
394 Imagine that the song is simple, and I hurt my throat just by singing its first lines too aggressively.
395 Then (43) is quickly judged true, but (44) is not. Instead, one can raise the objection in (45).

396 (45) Bu shì nǐ chāng -de gē chāng yǎ -le nǐ-de sāngzi! Shì nǐ zìjǐ!
397 NEG COP 2SG sing -NMOD song sing hoarse -PFV your throat COP 2SG SELF
398 'It's not the song you sang that sang your throat hoarse! It's you yourself!'

399 Here the causing-event semantics has nothing to say. But the facts are as expected if the subject
400 identifies the agent of an event of change, besides any understood relation it may have to the
401 means event. If I am the agent of my throat getting hoarse from singing, then the song I sang is
402 not. So the event structure of the Mandarin resultative must be as I have supposed.

403 Given this, only one reply remains available. To maintain Kratzer's objection, one must
404 assume that the thematic relation assigned to the subject in a resultative, relative to the event of
405 change, is not the general Agent relation. It is some other, more particular relation; let's call it
406 *Causer*. Then, even if this new relation is cumulative, it devolves to the subevents only if those
407 subevents themselves have causers. For example, the causer of an event of drinking someone
408 drunk—see (34b)—is the causer of its component drinking only if drinkings have causers. And
409 why not say that they don't? Often enough, the verbs that occupy resultatives are activity verbs,
410 not causatives, and presumably activities don't have causers.

411 There is no need to fuss over cases where the verb describing the means of change may
412 itself be causative, as when it means 'cut', for the suggested resolution of the challenge is weak
413 enough as it is. If Agent is to be a natural and basic predicate, I would expect that it applies at
414 least to both activities and events of caused change. More importantly, to say instead that the
415 actor in an activity and the initiator in a change do not share a thematic relation makes Kratzer's
416 theory much weaker.

417 In particular, it vitiates the project of summing subjects. Al and Bill can participate in the
418 cleaning up of a tabletop, Al by clearing it of plates and Bill by wiping it.

- 419 (46) a. Al clears the tabletop of plates.
420 b. Bill wipes the tabletop.
421 c. Al and Bill clean up the table.

422 The clearing and the cleaning are both changes, and changes are supposed to have causers. Given
423 that the clearing is part of the cleaning up, Independent Cumulativity therefore tells us that Al is
424 among the cleaners. But not so Bill, even when the wiping is part of the cleaning up too. Wiping
425 is an activity, and activities have agents, not causers, by hypothesis.

426 And yet, cumulativity *would* tell us that Bill is among the cleaners if he had not merely
427 wiped the tabletop, but dried it off. For then Bill, as the drier, would be a causer, since drying
428 off is a change.

- 429 (46) b.' Bill dries off the tabletop.

430 This asymmetry seems strange. If there are general semantic principles that force us to put
431 Bill among the cleaners given (46b'), they should do the same given (46b), it seems to me. So while
432 dividing subjects into causers and agents saves Independent Cumulativity from the resultative
433 data, it lessens the descriptive coverage of that doctrine. And the result is an unintuitive loss of
434 generality.

435 Thus, resultatives have the same event structure in Mandarin as in English.¹⁶ The difference
436 is just that Mandarin does not grammatically require the subject to refer to the agent of the means
437 event, even when it refers to the agent of change. As a result, Mandarin shows that Agent is not
438 independently cumulative.

439 **6 Conclusion**

440 Kratzer (2003) argues that Agent is independently cumulative—cumulative under any description
441 of the event—while Theme is not. This hypothesis finds its best test in resultatives. And here
442 Mandarin makes clear what the grammar of English obscures: Agent is not independently cumula-
443 tive either. So if there is to be a deep distinction between the two thematic relations, a distinction
444 that makes only one of them “natural,” it is not to be found in cumulativity. More fundamentally,
445 it is doubtful that Independent Cumulativity even could be true. It rests on Variety, the premise
446 that a single event may be identical to a sum of other events of unlike sorts. And individuals,
447 whether objects or events, are not in general identical to the mere sum of their putative parts.¹⁷

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9 Jeffrey Lidz, and most of all Paul Pietroski. I also thank the anonymous *LI* reviewers for bringing about critical improve-
10 ments.

11 ¹ Kratzer builds on this conclusion to make the further claim that, in general, an underlying direct object instantiates
12 a lexical argument of the verb, rather than an argument of a covert predicate in its immediate context (Kratzer 1996).
13 The latter alternative, she assumes, would be plausible only if the thematic relation imposed on the object were a very
14 general one, compatible with many different types of events, as Theme is meant to be (contrast Schein 1993).

15 ² Following Davidson 1967, sentences are existential quantifications over events, not directly referring descriptions
16 or names. So conjunction of sentences does not straightforwardly express summing of events. Perhaps conjunction of
17 event nominals expresses summing of events, but only if such nominals actually denote events (Parsons 1990), rather
18 than entities uniquely correlated with events (Chierchia 1984).

19 ³ Schein (1993) and Pietroski (2005) develop a theory of plurals as denoting, not complex individuals, but (second-
20 order descriptions of) predicates. Under this theory, certain entailments otherwise guaranteed by stipulating cumulativity,
21 such as those described in this section, instead follow as logical validities.

22 ⁴ The restriction to “simple lexical items” does not much weaken the definition, since Kratzer keeps the semantic
23 contributions of syntactic relations to a minimum. Syntax introduces only application, conjunction, and perhaps some-
24 thing like composition of functions. All content beyond these operations, the substantive content, must come from the
25 primitive items combined in syntax (i.e., the lexical items), and these may be silent. The natural predicates are therefore
26 the initial candidate denotations for *every* minimal pairing of substantive content and syntactic form in the analysis of
27 the sentence—with one exception. If a lexical item is not “simple,” it might not immediately find a denotation among
28 the natural predicates. This is a wild card in Kratzer’s hand, but here we can ignore it.

29 ⁵ The latter possibility would seem to be more reasonable in this case. At the very least, it should not be that predicate
30 meanings we acquire “spontaneously” lead immediately to thoughts and percepts that require “explicit instruction.”

31 ⁶ That is, $V(e)$, and for some e' distinct from e , $\exists x[e' + x = e]$, but $\neg V(e')$.

32 ⁷ See Schein 1993, 2002, and Pietroski 2005 for theories that deal with thematic relations but do not presume that plurals
33 denote complex individuals. Instead of (21), these theories presume that a plural argument in a position assigned a Θ relation
34 to a predicate P is constrained to identify all and only the Θ participants in the events e_1, \dots, e_n that satisfy P .

35 ⁸ Compare the similar discussion of lexical causatives in Pietroski 2005:185–189.

36 ⁹ To avert certain confusions, I impose a uniform scheme of translation: ‘Subject made Object Verb-2 from Verb-
37 1’ing’. The resulting formula is meant to convey only the general content of the sentence, not its grammatical structure.
38 The Mandarin construction involves no verb meaning ‘make’, the two verbs are not separately inflected, and the first
39 verb is not contained within an adjunct prepositional phrase. Interlinear glosses use these abbreviations: *1/2/3SG* ‘first/
40 second/third person singular pronoun’, *COP* ‘copula’, *NEG.POT* ‘negative potential infix’, *NMOD* ‘adnominal modifier’, *PFV*
41 ‘perfective’, *SELF* ‘reflexive pronoun’.

42 ¹⁰ Kratzer’s name for Φ is “CAUSE.” Simplifying, $\text{CAUSE}(e, e')$ says that e is a change that results in e' . Kratzer
43 refers to such an e as an “event of causing.” To one reviewer, this suggested that if e is both an event of causing and
44 (e.g.) a pounding, then the agent of pounding is also the “agent of an event of causing.” This does not follow; or it
45 ought not follow, unless we want to say that the agent of a pounding that precedes sunset is therefore the agent of an
46 event of preceding sunset. It would follow only if events of causing *as such* have agents. Were Kratzer to assume that
47 they do—and thus, given (32), that the agent of the means event is necessarily the agent of the event of causing—then
48 the discussion of Mandarin below would count as further evidence against the semantics in (32).

49 ¹¹ The surface subject is the underlying subject, I presume, only when it does *not* identify the theme of the result
50 state described by R (Simpson 1983, Levin and Rappaport Hovav 1995, Williams 2007). So in *The lake froze solid*, for
51 example, *the lake* is not a subject underlyingly.

52 ¹² Not all relations to an event that satisfies the description of a verb V are *thematic* relations. I count only those
53 that are imposed on the interpretation of some argument in a simple clause whose predicate is V . So if Al made Bob
54 cry, Al has some relation to the crying—he made it happen—but not a thematic relation, since this sort of relation to a
55 crying is imposed on neither argument in the sentence *He cried tears*.

56 ¹³ Elsewhere (Williams 2005, 2007), I have argued that the semantics of resultatives always involves, not only an
57 Agent for the event of change, but a Theme as well. This relation is assigned to the underlying object and implies
58 undergoing the change to the R condition. It is readily seen that this relation does not devolve from the event of change
59 to the means event either: witness *Ozzy shouted his throat hoarse*.

60 ¹⁴ In some theories of causatives (e.g., Parsons 1990), the subject may either name a participant in the causing event
61 or instead provide a description of that event. I find this ambiguity unattractive and unnecessary. But in principle it is
62 possible here as well; one could suppose, for instance, that the subject of (35b) describes e_c directly, as an event of eating
63 several meals of noodles.

64 ¹⁵ It might be that the semantics of (39) states explicitly that the causing event, e_1 , is a blowing. Or perhaps it does
65 not, and we instead infer this pragmatically, given a denotation which says that e_1 caused an event of be(com)ing sick
66 from a blowing. But either way, insofar as e_1 is understood to be a blowing, it should be possible to describe it as howling.

67 ¹⁶ Of course, the syntax of resultatives is not the same in the two languages. In Mandarin, the predicate comprising
68 both M and R is a complex verb, while in English, it is phrasal and discontinuous. But this should not matter to the
69 semantics of the Agent relation, which Kratzer claims is cumulative. Moreover, it would be a very different claim to say
70 that Agent is cumulative only for events that happen to be described by a verb in a certain syntactic context—in particular,
71 a verb that is not contained within a larger, complex verb.

72 ¹⁷ Oddly, while Kratzer clearly presupposes Variety in distinguishing Theme from Agent in Kratzer 2003, she appears
73 to reject it in Kratzer 2001:25: “[W]henver e is a reading, eating, building, pushing, or petting of something, and e' is
74 a subaction of e , then e' is a reading, eating, building, pushing, or petting of something as well.”

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