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Resultatives and Unaccusatives: a Parametric View

C.-T. James Huang
Harvard University

Abstract. This paper capitalizes on two peculiar properties of Mandarin Chinese resultative constructions that pose problems for a general theory of argument structure and parametric theory: (a) the widespread existence of unergative objectless resultatives, and (b) the possibility for both unaccusatives and unergatives to be causativized. It is proposed that these properties are reduced to the single possibility in Chinese (but not in English) for an unergative verb to merge as a manner modifier of an inchoative eventuality predicate BECOME in event structure. This parametric property is in turn reduced to a property of Chinese as a language of high analyticity. In opposition to certain recent models, the paper argues for the existence of a syntax-lexicon macro-parameter.

Key words: resultatives, unaccusatives, analyticity, event structure, Chinese

1. Introduction

Resultatives occupy a central place in current linguistic theory, because of the important role they play in illuminating the nature of lexical semantics and its relationship with syntax on the one hand and with conceptual semantics on the other. In Chinese, resultatives have enjoyed the continuous attention of researchers over the last several decades. These constructions come in two formal varieties: the V-V resultative compound and the V-*de* VP resultative phrase:[1]

(1)   Zhangsan ku-shi-le shoupa.
        Zhangsan cry-wet-Perf handkerchief
        'Zhangsan cried the handkerchief wet.'

(2)   Zhangsan ku-de shoupa dou shi le.
        Zhangsan cry-till handkerchief all wet Perf
        'Zhangsan cried (so much that) even the handkerchief got wet.'

Several topics of inquiry have figured prominently in the literature. One concerns the argument structure of a resultative construction: whether and how it may be derived from the argument structure of its component verbs. Another concerns its syntactic structure and how it relates to the argument structure. Still another prominent topic addresses the available interpretations of a resultative construction, especially with respect to what the Result predicate is predicated on.

Until quite recently, most works on resultatives, in Chinese as in other languages, have been concerned with questions of analysis within individual languages but have generally not dealt with cross-linguistic similarities and variations—Washio (1997) and Kim (2001) being among the few exceptions. As the authors show, languages differ considerably on the distribution of (various types of) resultatives and on the availability of certain interpretations. An optimal theory of resultatives should account for both the similarities and the differences in a way compatible with an optimal theory of UG and language variation.

In this paper I will juxtapose two properties of (Mandarin) Chinese resultatives that pose problems for two well known principles widely assumed in current syntactic theory, and propose (and defend) an account in parametric theory that explains the existence of these properties in Chinese but not, say, in English. One of these principles is the Direct Object Restriction (DOR), first proposed by Simpson (1983) and followed in much subsequent literature, which provides that in a resultative construction consisting of V1 (denoting a causing eventuality) and V2 (denoting a resultant state), the Result V2 must be predicated on the object of V1 (or of the entire complex predicate). The other well-known principle has to do with patterns of transitivity alternation: While an unergative may *transitivize* by adding an internal argument (*read* → *read the book*), an unaccusative (or inchoative) *causativizes* by adding an external argument (*The window broke* → *They broke the window.*). An unergative does not causativize (**The book read him* meaning the book caused him to read). Both of these principles have been widely assumed. The problem presented by Mandarin resultatives is that they seem to grossly violate them. The question is why the violations occur in Mandarin (but not in some other languages), and why they occur in the way they do.

In Sections 2 and 3 below, the problems concerning the DOR and causative alternations will be illustrated and discussed. Section 4 considers some alternative formulations of the DOR and sharpens the nature of the problems under consideration. In Section 5 I propose that the two problems may be reduced to one single parametric difference between Chinese and English, according to which the unergative-unaccusative distinction in not strictly maintained in Chinese as it is in English, in the context of resultative constructions where the V1 is a modifier of an eventuality predicate. In Section 6 I defend this hypothesis and suggest that this difference is but one of several that reflect the high degree of syntactic analyticity of Chinese as compared to English and other languages. Section 7 ends the paper with some concluding remarks.

2. The Direct Object Restriction

Simpson (1983) proposed that the contrast in (3) below follows from the DOR as stated in (4).

(3)   a.   John hammered the metal flat.
          b. *John hammered the metal tired. (under the resultative reading)

(4)   The DOR (Simpson 1983):
        In a resultative construction, the result is predicated on an object, not the subject.

As a corollary, the DOR predicts that all resultatives are transitive—an intransitive resultative is ungrammatical (as in (5)). It also explains why a 'fake reflexive object' is needed to save it—'fake' because each V1 is intransitive having no notional object (as in (6)):

(5)   a.   *John laughed silly.
        b.   *Mary ran tired.
        c.   *Bill cried sad.

(6)   a.   John laughed himself silly.
        b.   Mary ran herself tired.
        c.   Bill cried himself sad.

The following examples appear to contradict the DOR, with the Result V2 *flat*, *open*, *solid* each predicated on their subjects:

(7)   a.   The metal$_i$ was hammered flat$_i$.
        b.   The garage door$_i$ rumbles open$_i$.
        c.   The river$_i$ froze solid$_i$.

But such examples are limited to passives (7a) and unaccusatives or inchoatives (7b-c). Under standard analyses of passives and the Unaccusative Hypothesis (Perlmutter 1978, Burzio 1986), the Result V2 is locally predicated on the (deep) object DP, marked by *t*:

(8)   a.   The metal$_i$ was hammered t_i flat$_i$.
        b.   The garage door$_i$ rumbles t_i open$_i$.
        c.   The river$_i$ froze t_i solid$_i$.

These cases thus do not pose problems for the DOR but, given the Unaccusative Hypothesis, bear out its predictions.
        Simpson's discovery has been followed by many other researchers, including Sybesma (1992), Levin & Rappaport Hovav (1995, henceforth LRH 1995), among others.[2] For nearly two decades, the DOR has been seen as providing important evidence for the Unaccusative Hypothesis, especially for the analysis of English verbal syntax.
        In the mean time, however, the DOR has been called into question as a potential principle of UG, given some well-known facts of Chinese resultatives. Many resultatives do exhibit a pattern of object predication alongside of (3):

(9)   a.   Zhangsan ti-bian-le wo-de lanqiu.
              Zhangsan kick-flat-Perf my basketball
              'Zhangsan kicked my basketball flat.'

   b. *Zhangsan ti-lei-le wo-de lanqiu.
        Zhangsan kick-tired-Perf my basketball
        '*Zhangsan kicked my basketball tired.'

(10)   Mengjiangnü ku-dao-le wanli-changcheng.
        Mengjiangnü cry-fall-Perf Great-Wall
        'Mengjiangnü cried the Great Wall to ruins.'

(11)   Lisi peng-shang-le Zhangsan
        Lisi bump-injured-Perf Zhangsan
        'Lisi bumped into Zhangsan and Zhangsan got injured.'

However, examples also abound exhibiting subject predication. These include intransitive resultatives without 'fake reflexives', in contrast to what we saw in (5)-(6). The well-formed examples include both the compound resultatives (12-13) and the phrasal ones (14-15). Note that in each example the V1 is crucially unergative, but not unaccusative.[3]

(12)   Lisi tiao-lei le.
        Lisi dance-tired Perf
        'Lisi danced [himself] tired.'

(13)   Lisi xiao-feng le.
        Lisi laugh-crazy Perf
        'Lisi laughed [himself] crazy.'

(14)   Zhangsan tiao-de qichuan-runiu
        Zhangsan jump-till panting-as.a.cow
        'Zhangsan jumped (so much that) [he] panted like a cow.'

(15)   Zhangsan xiao-de zhan-bu-qilai.
        Zhangsan laugh-till cannot-stand-up
        'Zhangsan laughed (so much that) he couldn't stand up.'

Even transitive resultatives may allow the Result to be predicated on a subject, despite the presence of an object. Such cases are limited, however, in somewhat complicated ways. First, in general subject predication is observed only with V-V compounds, but not with the V-*de* phrasal resultatives. The following contrasts are typical:

(16)   a. Zhangsan chi-bao-le fan le.
            Zhangsan eat-full-Perf rice Inc
            'Zhangsan ate rice (and became) full.'

      b. *Zhangsan chi-de fan bao le.
         Zhangsan eat-till rice full Inc
         Intended for: 'Zhangsan ate rice (and became) full.'

Similarly, while the compound resultative in (17a) allows the Result to be subject- or object-oriented, the subject-oriented reading disappears in the phrasal resultative (17b):[4]

(17)   a. Lisi qi-lei-le ma le.
         Lisi ride-tired-Perf horse Inc
         (i) 'Lisi rode a horse and got tired from it.'
         (ii) 'Lisi rode a horse and got the horse tired.'

      b. Lisi qi-de ma hen lei.
         Lisi ride-till horse very tired
         'Lisi rode a horse and got the horse tired.'

The second important restriction on subject-predication is that, with certain V-V compounds, the object is normally not a fully referential argument. In (16) the object *fan* 'rice' is a bare NP that does not denote any entity, but is part of the expression *chi fan* which simply means 'eat, have a meal'. Similarly in (17), under the subject-oriented reading, the bare NP *ma* 'horse' does not denote any particular horse; here *qi ma* simply denotes a horseback-riding activity. With a full DP object such as *na-pi ma* 'which horse', *ji-wan fan* 'how many bowls of rice', *san-pi ma* '3 horses', etc., subject-predication is excluded. Hence (18) is unacceptable and (19) unambiguous:

(18)   *Zhangsan chi-bao-le na-wan fan/ liang-wan fan/ ji-wan fan
      Zhangsan eat-full-Perf that-bowl rice/ two-bowl rice/ how.many-bowl rice
      '*Zhangsan ate-full that bowl / two bowls / how many bowls of rice (?).'

(19)   Lisi qi-lei-le san-pi ma/ na-pi ma/ ji-pi ma
      Lisi ride-tired-Perf three-Cl horse/ which-Cl horse/ how.many-Cl horse
      'Lisi rode 3 horses/ which horses/ how many horses (and made them) tired?'

With certain other V-V compounds, however, the referentiality of the object does not fully prevent V2 from being predicated on the subject. The matter is clearly sensitive to pragmatic and lexical semantic factors. Consider the pair *zhui-lei* 'chase-tired' and *kan-lei* 'watch-tired'. The degree of agentivity on the part of V1 makes some difference. With *zhui-lei,* object predication is natural but subject orientation is somewhat restricted:

(20)   Object predication (free):
      Zhangsan zhui-lei le Lisi/ shei/ na-ge ren/ ta/ san-ge ren/ ji-ge ren
      Zhangsan chase-tired Lisi/ who/ that person/ him/ 3 persons/ how-many persons
      'Zhangsan chased Lisi/ who/ that person/ him/ 3 persons/ how-many persons and made him/them tired (?).'

(21)   Subject predication (some restrictions):
        Zhangsan zhui-lei le ^{OK}Lisi/ $^?$shei/ $^?$na-ge ren/ $^?$ta/ *san-ge ren/ *ji-ge ren
        Zhangsan chase-tired Perf Lisi/ who/ that person/ him/ 3 persons/ how-many persons
        'Zhangsan chased ^{OK}Lisi/ $^?$who/ $^?$that person/ $^?$him/ *3 persons/ *how many persons
        and got tired (?).'

But with *kan-lei* 'watch-tired', subject-predication comes more readily than object-predication:

(22)   Object predication (generally unavailable):
        *Zhangsan kan-lei-le Lisi/ shei/ na-ge ren/ ta/ san-ge ren/ ji-ge ren?

(23)   Subject predication (mostly available):
        Zhangsan kan-lei le ^{OK}Lisi/ ^{OK}shei/ ^{OK}na-ge ren/ ^{OK}ta/ ?*san-ge ren/ *ji-ge ren?

The nature of V2 matters, too. The stative verb *ni* 'bored' seems to be oriented toward an agent but not a patient or affectee. So both *zhui-ni* 'chase-bored' and *kan-ni* 'watch-bored' only have subject-predicated interpretations. (The reader can see for herself by substituting these into the above examples.) Other examples with such V2's include *kanjian* 'look-see', *kan-dong* 'look-understand', *ting-dong* 'listen-understand':

(24)   Lisi kan-dong-le na-ben shu/ san-ben shu/ ji-ben shu (?).
        'Lisi read that book/ 3 books/ how-many books and understood it/them (?).'

(25)   Ni ting-dong-le Lisi/ na-ge ren/ san-ge ren/ ji-ge ren (?).
        'You heard Lisi/ which person/ 3 persons/ how-many persons and understood
        him/them (?).'

As Lü (1987) points out, *sheng* 'win' is unergative and agent-oriented, but *bai* 'lose' is unaccusative and theme-oriented (unless causativized). This difference is preserved in their roles as V2 in resultative compounds:

(26)   Zhangsan zhan-sheng-le Lisi/ women/ san-ge ren/ naxie ren (?).
        Zhangsan fight-win-Perf Lisi/ us/ 3 persons/ which persons
        'Zhangsan fought and won over Lisi/ us/ 3 persons/ which persons (?).'

(27)   Zhangsan zhan-bai-le Lisi/ women/ san-ge ren/ naxie ren (?).
        Zhangsan fight-lose-Perf Lisi/ us/ 3 persons/ which persons
        'Zhangsan fought and Lisi/ us/ 3 persons/ which persons lost (?).'

The question regarding what V2 should be predicated on in a V-V compound with an object is clearly quite complicated and we shall return to this question in Section 4 below. For our present purposes, however, one thing is clear: a Result V2 may sometimes be

predicated of a subject even in the presence of an object. And in the absence of an object, a Result V2 can always be predicated of a subject even in the absence of a 'fake reflexive'. The question is, of course, why this is the case in Mandarin Chinese, but not in English.

3. The Inchoative-Causative Alternation

The alternation illustrated below may be seen as an unergative-transitive alternation:

(28)   a.   Hanguo dui da-sheng-le.
             Korea team play-win-Perf
             'The Korean team played and won.'

        b.   Hanguo dui da-sheng-le Riben dui.
             Korea team play-win-Perf Japan team
             'The Korean team played and won over the Japanese team.'

(29)   a.   xiao baobao ku-xing-le.
             little baby cry-awake-Perf
             'The little baby cried [herself] awake.'

        b.   xiao baobao ku-xing-le baomu.
             little baby cry-awake-Perf nanny
             'The little baby cried the nanny awake.'

This is the case because the subject of V1 remains the subject in both the intransitive and transitive versions.[5] The same alternation also can be observed with phrasal resultatives:

(30)   a.   tamen jiao-de kuai fafeng le.
             they shout-till almost get-crazy Perf/Inc.
             'They shouted to the point of almost becoming crazy.'

        b.   tamen jiao-de women kuai fafeng le.
             they shout-till we almost get-crazy Perf/Inc.
             'They shouted so much that we are about to get crazy.'

Chinese resultatives also exhibit unaccusative-causative alternations, as illustrated below:

(31)   a.   Zhangsan lei-si-le
             Zhangsan tired-dead-Perf/Inc
             'Zhangsan tired to death.'

        b.   zhe-jian shi lei-si-le Zhangsan
             this-Cl thing tired-dead-Perf Zhangsan

'This thing tired Zhangsan to death.'

(32) a. Lisi zui-dao-le
          Lisi drunk-fall-Perf
          'Lisi got drunk and fell.'

      b. zhe-bei futejia zui-dao-le Lisi
          this-glass vodka drunk-fall Lisi
          'This glass of vodka got Lisi to be drunk and fall.'

(33) a. ta jidong-de liu-chu-le yanlei.
          he moved-till flow-out-Perf tears
          'He got so emotionally moved as to come to tears.'

      b. pengyou-de zanmei jidong-de ta liu-chu-le yanlei.
          friends' praise moved-till he flow-out-Perf tears
          'Praises from friends got him emotionally moved to tears.'

Similar alternations can be found in English as well. We saw in (7) that unaccusatives may occur as V1 of a resultative. Such resultatives may be causativized with the addition of an external Causer argument.[6]

(34) a. The river froze solid.
      b. The change in weather the last few weeks froze the river solid.

(35) a. The garage door rumbles open.
      b. A few bulldozers passing by rumbled the garage door open.

These are inchoative-causative alternations not unlike the familiar ones below:

(36) a. The window broke.
      b. They broke the window.

(37) a. The boat sank.
      b. They sank the boat.

These alternations crucially involve main verbs that belong to the unaccusative series, in the resultative as in the simplex cases. Crucially, an unergative verb does not enter into a causative alternation, whether it is a simple verb or serves as V1 of a resultative construction.

(38) a. The baby cried sadly.
      b. *The little mermaid's disappearance cried the baby sadly.

(39) a. They talked themselves silly.
   b. *The event talked them silly.

(40) a. She quickly kicked free.
   b. *The threat of death quickly kicked her free.

The (b) sentences are totally unacceptable with a causative reading, meaning the little mermaid's disappearance caused the baby to cry sadly, or the event caused them to talk themselves silly, etc.

  These facts are fully expected. What is unexpected is that Chinese unergative resultatives can also be causativized, as the following examples illustrate:[7]

(41) a. xiao baobao ku-xing-le.
    little baby cry-awake-Perf/Inc
    'The little baby cried [himself] awake.'

   b. yi-chang emeng ku-xing-le xiao baobao.
    One-Cl nightmare cry-awake-Perf little baby
    'A nightmare caused the little baby to cry [himself] awake.'

(42) a. ta xiao-diao-le da ya.
    He laugh-fall-Perf big tooth
    'He laughed to the point of having his front teeth fall off.'

   b. zhe-jian shi xiao-diao-le ta da ya.
    this-Cl thing laugh-fall-Perf him big tooth
    'This thing caused him to laugh his front teeth off.'

(43) a. ta tiao-de man-shen-da-han.
    he dance-till whole-body-big-sweat
    'He danced [himself] all sweaty.'

   b. yi-zhi tangewu tiao-de ta man-shen-da-han.
    one-Cl tango dance-till he whole-body-big-sweat
    'A tango dance caused him to dance himself all sweaty.'

(44) a. ta kan-de tou-hun-yan-hua.
    he read-till head-spin-eye-blur
    'He read [himself] dizzy and blurred.'

   b. baozhi kan-de ta tou-hun-yan-hua.
    newspaper read-till him head-spin-eye-blue
    'The newspaper caused him to read [himself] dizzy and blurred.'

In other words, not only can an unergative resultative *transitivize* by adding an internal theme argument—as in (28-30), it can also *causativize* by adding an external Causer argument, as in (41-44). This is why, for each unambiguous intransitive (a) below, the corresponding (b) is ambiguous:

(45) a. Zhangsan zhui-lei le.
          Zhangsan chase-tired Perf/Inc
          'Zhangsan chased until he got tired.'

      b. Zhangsan zhui-lei-le Lisi.
          Zhangsan chase-tired-Perf Lisi
          (i)   'Zhangsan chased Lisi and Lisi got tired.'
          (ii) 'Zhangsan chased Lisi and Zhangsan got tired.'
          (iii) 'Zhangsan caused Lisi to chase until he [Lisi] tired.'

(46) a. zhe haizi zhui-de zhi chuanqi.
          this child chase-till straight pant
          'Thee child chased to the point of panting unceasingly.'

      b. zhe haizi zhui-de wo zhi chuanqi.
          this child chase-till I straight pant
          (i)   'The child chased me to the point that I panted unceasingly.'
          (ii) 'The child chased me to the point that he panted unceasingly.'
          (iii) 'The child caused me to chase to the point of panting unceasingly.'

In both (45b) and (46b), the (i) and (ii) readings are results of transitivizing the intransitive (a), and (iii) is the result of causativizing (a). Readings (i) and (ii) differ with respect to the direction of predication (object predication in (i) and subject predication in (ii)).[8]

   To repeat, Mandarin Chinese allows both an unaccusative resultative and an unergative resultative to be causativized, but English allows only unaccusatives to be causativized. The question is why this should be the case.

4. On the Status of the DOR

   Our first question was framed with the assumption that the DOR represents a true linguistically significant generalization which holds in English but, as observed, does not seem to hold in Chinese.   Assuming the DOR to be a valid principle of UG, then the facts of Chinese constitute problems that need to be explained away. On the other hand, if one does not assume the DOR as a valid principle, then the problems raised by Chinese do not arise. This is, in fact, the approach taken in Huang (1992), and Cheng and Huang (1994). According to Huang (1992), the principle determining what the Result V2 is predicated on is part of a generalized theory of control (or the theory of predication in the sense of

Williams 1980). The generalized theory of control, like the classical theory of control, incorporates a Minimal Distance Principle (MDP, adapted from Rosenbaum 1967), which provides that an empty pronoun (PRO or Pro) take the closest potential antecedent as its antecedent. In the case of a controlled PRO, this has the consequence that PRO is controlled by an object if a (c-commanding) object exists, and by a subject if an object does not exist. (For example, object control in *John persuaded Bill to go*, and subject control in *John tried to go*.) In the case of resultatives, assuming that the Result V2 has a Pro subject, the relevant control patterns are as follows:

(47) a. Zhangsan$_i$ ku-de [Pro$_i$ hen lei].   (unergative pattern)
          Zhangsan cry-till Pro very tired
          'Zhangsan cried and became very tired.'

      b. Zhangsan ku-de women$_i$ [Pro$_i$ hen lei]   (transitive pattern)
          Zhangsan cry-till us Pro very tired
          'Zhangsan cried and made us very tired.'

      c. Zhangsan$_i$ zui-de [Pro$_i$ zhan-bu-qilai]   (inchoative pattern)
          Zhangsan drunk-till Pro cannot-stand-up
          'Zhangsan got so drunk that he couldn't stand up.'

      d. zhe-ping jiu zui-de Zhangsan$_i$ [Pro$_i$ zhan-bu-qilai]   (causative pattern)
          this-bottle wine drunk-till Zhangsan Pro cannot-stand-up
          'This wine got Zhangsan so drunk that he couldn't stand up.'

Like the DOR, the MDP predicts object predication for the transitive and causative patterns, and (surface) subject predication for the inchoative/unaccusative pattern. The MDP, but not the DOR, further correctly predicts subject predication for the unergative, where an object does not exist. (The DOR simply does not allow a resultative construction without an object.) Furthermore, the DOR and MDP fare somewhat differently in the face of certain cases of subject predication in the transitive pattern (such as those exemplified by (16-27) in Section 2). As we saw above, some cases of subject predication occur when the object is non-referential (and hence not a potential antecedent). This is consistent with the MDP, according to which subject predication takes place by default. We also saw that subject predication is sometimes restricted by pragmatic and lexical considerations—a fact also observed frequently with control structures. In all these cases, the MDP fares a bit better than the DOR, which does not allow for the possibility of subject predication at all, and predicts all the unergative and other subject-predicated resultatives to be ungrammatical.

　　Although the MDP works better than the DOR in accounting for the Chinese resultative patterns, it does not address the differences between Chinese and English. The earlier question was why Chinese seems to disobey the DOR. Now the question arises as to why English does not bear out all the interpretive possibilities allowed by the MDP.

Even though the DOR has dictated much of the discussion on English resultatives, in more recent years it has also been called into question. Thus, differing from their previous positions, Rappaport Hovav and Levin (2001, henceforth RHL 2001) have argued that the DOR is in fact not valid in English, citing such cases of subject predication as (48) as counterexamples:[9]

(48) a. The wise men followed the star out of Bethlehem.
      b. The sailors managed to catch a breeze and ride it clear of the rocks.
      c. John danced mazurkas across the room.
      d. The children played leapfrog across the park.

In addition, they pointed out some acceptable examples of 'bare XP resultatives" (p. 774, i.e., what I have termed unergative resultatives here) which are incorrectly ruled out by the DOR (italics added):

(49) a. A man grabbed and groped her . . . , but she *kicked free* and fled.
      b. She *wriggles free*, but remains seated obediently beside him.
      c. One of the race cars *wiggled loose* inside the transporter. . . .

As for the many cases that are 'well behaved' with respect to the DOR, RHL (2001) claim that they follow from two separate principles.

First, the fact that a 'normal' resultative must have an object (which formerly was a corollary of the DOR) comes from the principle stated in (50), which regulates the mapping from event structure to syntactic structure:

(50) Argument-per-subevent condition (RHL 2001, 779):
      There must be at least one argument XP at the syntax per subevent in the event structure.

This, together with the fact that a 'normal' resultative has a complex event structure (consisting of two sub-events), explains why it must have an object in addition to a subject. The 'fake' reflexives in (6) are thus true arguments whose syntactic projection is called for by (50). As for unergative resultatives like those found in (49), it is claimed that these resultatives (unlike the 'normal' ones surveyed earlier) have a simplex underlying event structure because the sub-events are temporally and spatially coextensive and thus, by economy considerations, treated as constituting a simple event. In (49a), for example, kicking and becoming free are coextensive because the process of becoming free starts (gradually) as soon as the process of kicking starts. Under this interpretation, the grammaticality of unaccusative resultatives (e.g., *The river froze solid*, etc., as in (7)) is not because they have (deep) objects that satisfy the DOR but because, like the unergatives, they have simplex underlying event structures.

Second, in the cases of 'normal', object-containing resultatives (which realize complex event structures), RHL claim that the required target of predication is not the object per se,

but the 'force recipient' of the relevant action or event. Let me dub this the Force Recipient Principle (FRP) and paraphrase RHL's account as follows:

(51)   The Force Recipient Principle (paraphrasing RHL 2001):
      a.   In a resultative construction, the Result is predicated on the argument bearing the role of Force Recipient of the relevant action or event, if such a recipient exists.
      b.   If no Force Recipient exists, the Result is predicated on the subject.

The 'normal', object-predicated resultatives surveyed above are those where the objects are 'force recipients', but in (48), since the objects (e.g., the star, the breeze, mazurkas, leapfrog) are not 'force recipients', the Result is predicated on the subject. Likewise, the intransitive resultatives in (50), since they denote simplex events, have no 'force recipients', and subject-predication kicks in by default.

The notion of a 'force recipient' is by its name admittedly somewhat slippery.[10] RHL suggest that a force recipient of a sentence can be identified as the argument that can appear as Y in the frame *What X did to Y was . . . .*[11]   They further assume that whether or not an argument qualifies as a force recipient is not entirely determined by V1 or V2, but by the whole construction, the context and the speaker-hearer's world knowledge.

There is considerable virtue in the FRP approach over the DOR approach, at least as far as some of the Chinese transitive resultatives are concerned. We saw above that some transitive resultative compounds *require* subject predication when the objects are non-referential (e.g., examples (16)-(17)), and the more referential an object is, the more natural object predication becomes—see examples (18)-(21). Furthermore, whether or not an object is a 'force recipient' may be subject to lexical semantic, contextual, or pragmatic variations. Thus, as shown in (20)-(23), *zhui-lei* 'chase-tired' favors object-predication while *kan-lei* 'look-tired' favors subject-predication since, intuitively, a chasing event is more likely to exert 'force' or *qi* on the person being chased, than a looking event on the person being looked at. So at least for these cases, the notion of a force recipient fares better than the grammatical relation 'object'.

The suggestion that the force recipient is identified by the term Y in the frame "What X did to Y was . . ." reminds us of Thompson's (1973) diagnostic for the *ba* NP in the Mandarin *ba* construction, and it seems that a *ba* NP is indeed primarily a 'force recipient', not necessarily an affectee as often claimed in the literature.   It's been well known that one requirement of the *ba* NP is that it be fully referential. It appears to be correct that in all object-predicated resultatives, the object itself can appear preverbally with *ba*. And conversely, it is *mostly* the case that a subject-predicated resultative does not allow the object to appear with *ba*. An example for the latter point is the celebrated pair in (52):[12]

(52)   a.   ta chi-bao-le fan le.
         he eat-full-Perf rice Inc
         'He ate rice and became full.'

      b.   *ta ba fan chi-bao le.
          he BA rice eat-full Perf/Inc

And sentences that are ambiguous between subject- and object-predicated readings lose the subject-predicated reading under *ba*, as the reader can see by testing out the ambiguous examples above.[13]

Although the FRP approach fares descriptively better than the DOR, note that as stated in (51) the FRP is a disjunction of two parts: a result is predicated on a force recipient if there is one, otherwise it is predicated of the subject. This is somewhat unsatisfactory because it begs the question why a subject, which is *not* a force recipient by definition, qualifies to serve as the target of a resultative, and why the default goes to the subject but not some other arguments in the absence of a force recipient. I suggest that what ties together a force recipient and a subject is that both are 'prominent arguments' of a sentence (as compared to a topic or an adjunct, say, neither of which are arguments). That a *ba*-object is a 'prominent' object is a familiar notion already, just as subjects are. But what makes it prominent? I submit that there are three ingredients: (a) an appropriate role in an event, (b) a high degree of referentiality, and (c) a prominent syntactic position. Both the subject and the *ba* object (or whatever qualifies as a candidate for the *ba*-object) are major participants of events. In contrast to other objects, the force-recipient object is the Figure (rather than the Ground) in the terms of cognitive semantics (Talmy 2000).[14] A high degree of referentiality is required for prominence, as is the case with the subject and the *ba*-object in Chinese. It is also the case that the *ba*-object occupies a higher position than other objects and complements—the 'outer object' position in Spec of an appropriate VP, rather than as a sister to V. As for the postverbal non-*ba* object which licenses object predication of the Result, it has been argued by Huang (1992) that the object occurs exactly in the same outer position as the *ba* object, its surface postverbal position being the result of verb movement. Such objects are to be distinguished from the object in a verb-copying construction like the following:

(53)   ta zhui na-ge xiaohai zhui-de zhi chuanqi.
         he chase that-Cl child chase-till straight pant
         'He chased the child and got himself panting unceasingly.'

In this case, the object 'that child' is highly referential, and conceptually there is no reason why it cannot serve as the 'force recipient' of a chasing event. However, because it does not occur in a high enough syntactic position c-commanding the result, it is not prominent enough to serve as the target of predication by the result XP. Therefore (53) has only a subject-predicated reading.

This discussion leads us to the conclusion that the disjunctive FRP as stated in (51) can be profitably simplified and reduced to an updated version of the MDP as proposed in Huang (1992):

(54)   The MDP on resultative predication:
         In a resultative construction, the Result XP is predicated on the closest prominent
         argument.

When both the subject and a prominent object are present, the prominent object is closer to the Result XP, but in the absence of a prominent object, the subject is the closest.

Having commented on the FRP as above, let us turn now to RHL's other important proposal, the Argument-per-Subevent Condition (APSC), as in (50). The APSC was originally proposed to explain why a transitive like *eat* may drop its object (e.g., *John ate*) but a causative like *break* may not (**John broke*). Since a 'normal resultative' is a causative with a complex event structure, an object is normally required. In the case of unergative resultatives like *kick free, wriggle free,* and *wiggle loose* in (49), it is claimed that, because they describe temporally and spatially coextensive subevents and hence have simplex event structures, an object is not needed.

Considering the widespread availability of unergative resultatives in Chinese, however, the APSC clearly does not suffice as the explanation for their existence. Take for example the numerous resultatives in Chinese whose V2 is *lei* 'tired' or *hen lei* 'very tired'. Almost any intransitive (or intransitivized) action verb qualifies as the V1, with no real or fake object required: *ta ku-lei-le* 'he cried-tired-Perf', whose grammaticality remains under substitution of *ku* 'cry' by any of the following verbs: *pao* 'run', *xiao* 'laugh', *xiang* 'think', *tiao* 'jump, dance', *chang* 'sing', *shuo* 'say, speak', *da* 'hit', *ti* 'kick', *he* 'drink', *chi* 'eat', *ma* 'scold, yell', and more. None (or very few) of these have a grammatical counterpart in English unless a 'fake reflexive' is added: *He cried *(himself) tired, danced *(himself) tired, ate *(himself) tired, kick *(himself) tired*, etc. Numerous similar examples can be constructed with *sha* 'silly', *feng* 'crazy' as V2 as well. Equally numerous examples of phrasal resultatives can be constructed with *V-de hen lei* 'V-till very tired' or *V-de zhi chuanqi* 'V-till panting unceasingly'. The only limit seems to be the plausibility of a cause-effect relation between V1 and V2 as judged by speakers' and/or hearers' common sense. Most of these available examples clearly do not necessarily denote coextensive sub-events. Indeed, it is difficult to claim that as soon as one starts crying, a state of tiredness develops itself. Even if one could claim it to be the case, the question remains why, then, English does not permit similar resultatives with no objects.

In other words, in spite of its initial appeal, the APSC leaves unaddressed the following question: why does Chinese freely allow unergative resultatives, but English does not?[15] Recall another question posed in the preceding section: why does Chinese allow an unergative resultative to be causativized, but English does not. We now turn to these questions.

5. Resultatives and Unaccusatives: A Parametric Approach

The question why Chinese and English differ in (dis)allowing unergative resultatives was first seriously addressed, as far as I know, in Tang (1997). Assuming the Functional Parameterization Hypothesis (Borer 1983, Chomsky 1995, Fukui 1995), Tang proposes that the Chinese-English difference comes from the possibility of a Pro subject occurring in construction with the Result V2 in Chinese (i.e., [$_{Result}$ Pro V2]) and the unavailability of this option in English, and that this difference in turn comes from the existence of a functional category F immediately above the Result clause in Chinese and the non-

existence thereof in English. Thus the following representations are licit for Chinese, where FP dominates V2 but not V1. (For the phrasal resultative, F is overtly instantiated by *de*, and for the compound version F is phonetically null.)

(55)   a.   the transitive pattern
       [$_{vP}$ Subject [$_{v'}$ v [$_{VP}$ Object [$_V$ V1 [$_{FP}$ F [$_{Result}$ Pro V2]]]]]]

       b.   the unergative pattern
       [$_{vP}$ Subject [$_{v'}$ v [$_{VP}$ V1 [$_{FP}$ F [$_{Result}$ Pro V2]]]]]

Given the Generalized Control Theory (GCT) of Huang (1992), the Pro needs to be controlled by a closest potential antecedent in accordance with the MDP. In both (a) and (b), F exists as a governor for Pro, thus making FP its governing category (GC). The GC lacks a potential antecedent for Pro, so the control domain for Pro is the matrix vP. In line with the GCT and binding theory, Pro is free in its GC (the FP) and bound by the matrix object in (a) and by the subject in (b). Both the transitive and, crucially, the unergative pattern are licit. In English, on the other hand, the projection FP is lacking, so an unergative pattern would have the following form:

(56)   the unergative pattern:
       [$_{vP}$ Subject [$_{v'}$ v [$_{VP}$ V1 [$_{Result}$ Pro V2]]]]

In this structure, the matrix V1 directly governs Pro, so vP is the GC in which Pro must be free. At the same time, vP is also the control domain in which Pro must be bound. Since Pro cannot be both free and bound in vP, the above structure is ill-formed in English. Instead, a reflexive in place of Pro would be licit as it would be properly bound by the Subject in vP. Hence, corresponding to an unergative resultative in Chinese, we have a 'fake reflexive' resultative in English.

Tang's account of the Chinese-English difference is rather appealing. It reduces a descriptive generalization to an independent difference between the two languages, thereby explaining that generalization. The postulation of FP for Chinese but not for English is independently supported by the overt existence of *de* in Chinese. And this account falls within a highly restricted parametric theory.

There is one weakness in this account, though: it does not relate to the other question that has concerned us in this paper, namely the question why Chinese seems to be able to causativize an unergative resultative as well as an unaccusative, while English can only causativize the unaccusative. There is reason to suspect that the two questions are correlated, as they both pertain to some 'peculiar' properties of unergatives in Chinese. And it would be interesting to see if there is an account that brings out this correlation.[16]

I would like to suggest that there is indeed such an account. The basic idea is that, in Chinese, unergative resultatives may alternatively be analyzed as unaccusative resultatives. If this is correct, our first question largely disappears: all such objectless resultatives are unaccusatives, on a par with examples like *The river froze dry*. The second question also receives a ready answer: the apparent causativization of an unergative resultative actually

involves the unergative under its unaccusative or inchoative analysis. The 'correlation' of the two differences between Chinese and English now follows. Let us consider some conceptual and empirical motivations for this idea.

The basic idea being pursued here in fact comes close to the one that Sybesma (1992) had suggested and is quite similar to Mateu (2005).[17] It has often been observed that the unergative-unaccusative distinction is not always clear-cut, and in fact some verbs may have a dual status. Hoekstra (1999), Mateu (2005) and Washio (2005) have all indicated that in various languages (Dutch, German, and Old Japanese), certain transitive verbs (with meanings like *follow, pass, forget* and *approach*), in spite of being transitive, may behave as unaccusatives under auxiliary selection. Washio (2005) provides the following examples of transitive unaccusatives from Old Japanese, where the perfective auxiliary ending takes the unaccusative form *–nu/-ni*, rather than the unergative form *–tu*.

(57)   … kono matubara-wo kehu-ka *sugi-na*-mu.
          this pine.grove-ACC today-PCL **pass**-PERF.I-INFER
          '…would (he) pass this pine grove today?'

(58)   … Nosima-ga saki-ni   hune *tikaduki-nu*.
          PNAME-GEN headland-DAT ship **approach**-PERF.III
          '… the ship approached Nosima Point.'

Other verbs, especially when they denote motion and are used as parts of resultative constructions, often permit a transitive or an unaccusative treatment. The following examples are from Cheng (2005):

(59)   … dat het vliegtuuig (zich) te pletter vloog.
          That the airplane (itself) to pieces flew
          '… that the airplane flew (itself) to pieces.'

(60)   … dat het vliegtuig (*zich) te pletter is gevlogen.   (*be* as auxiliary)
          that the airplace (*itself) to pieces is flown
          ' … that the airplane has (lit. is) flown (*itself) to pieces.'

(61)   … dat het vliegtuig *(zich) te pletter heft gevlogen. (*have* as auxiliary)
          that the airplane *(itself) to pieces has flown
          ' … that the airplane has flown *(itself) to pieces.'

Example (59) shows that a resultative in the simple past tense may be grammatical with or without a reflexive object. While the latter possibility gives the appearance of an unergative resultative contradicting the DOR, the real picture is better revealed when a perfective auxiliary is involved. With the unaccusative auxiliary *is* as in (60), a reflexive is prohibited; but with the unergative/transitive auxiliary *heft* 'have' as in (61), a reflexive is obligatory. This shows that the resultative 'fly into' has an ambiguous status, fully obeying the DOR in either way it is used.

One cannot help but observe that the verb *fly* and the transitive unaccusative examples with meanings like *pass, approach,* and *follow* share the feature of denoting motion. Washio (2005) points out that in these cases, the 'change-of-state' (i.e., *moving* into a new state) feature plays a crucial role in the selection of the unaccusative auxiliary. The subject of such predicates, typically an Experiencer but not an Agent or Causer, is arguably not a true external argument.[18]
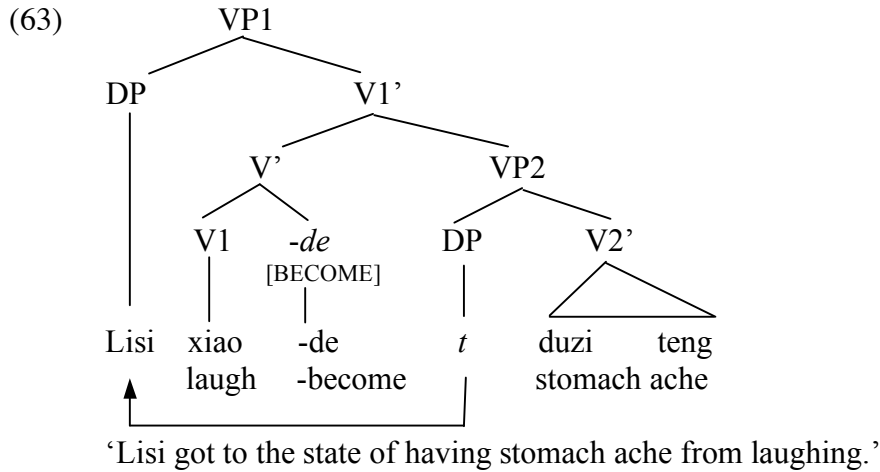
This feature of these verbs obviously does not exist in *all* action denoting unergative or transitive verbs, however, so it is not immediately clear how the idea that *chang-lei* 'sing-tired', *zhui-le* 'chase-tired', *ku-xing* 'cry-awake' may be unaccusative in Chinese (but not in English or many other languages) can be justified.

I suggest that the clue to this question exists in the form of the –*de* ending observed in the phrasal resultatives. As is well known, the –*de* ending has evolved from the verb *de* 'get'. Just as its English translation *get,* which has both an inchoative (unaccusative) and a causative sense (e.g., *got mad, got into trouble* vs. *got John mad, got John into trouble*), -*de* can be associated with these two senses as well: *de* can be paraphrased as *bian-de* 'become' or *shi-de* 'cause'. Since the meanings of change-of-state and causation are already expressed by –*de*, the verb in the V-*de* construction exists only to express the *manner* in which some change or causing-to-change occurs. In other words, in an unergative resultative, although the verb occurring with –*de* is not itself inchoative, the –*de* that it modifies is.

To carry out this idea, I shall adopt the general approach to argument structure in terms of event structures, as represented in Hale and Keyser (1993, 2002), RHL (2001), and other works, according to which resultatives have either a causative or an inchoative general template representing the main event, and a sub-event that specifies the manner in which the main event takes place. Adapting a bit the structures proposed by RHL, I take the inchoative template to have the following form:

(62)   The inchoative template:
        [BECOME$_{<MANNER>}$ [x $<STATE>$]]

For a phrasal resultative in Chinese, the inchoative template may be instantiated by a syntactic structure in which the main verb –*de* 'become' is modified by an unergative like 'laugh', as in (63):[19]

(63)
```
                    VP1
              _____|_____
            DP            V1'
            |         _____|_____
            |        V'          VP2
            |     ___|___      ___|___
            |    V1   -de     DP      V2'
            |         [BECOME]         /\
          Lisi  xiao  -de      t    duzi    teng
                laugh -become        stomach ache
```

'Lisi got to the state of having stomach ache from laughing.'

Or it may be modified by an unaccusative/inchoative verb like *lei* 'tired':

(64) Lisi lei   -de   t   zhan-bu-qilai
      Lisi tired become   cannot-stand-up
      'Lisi was so tired that he became unable to stand up.'

These two examples are what we have termed 'unergative resultative' and 'unaccusative resultative' respectively in the preceding sections. In both cases, the overt *–de* carries the meaning of change, so there is good reason to regard the V1 here as an adjunct.[20]

   The inchoative event structure given in (62) may correspond to either of two causative event structures, depending on whether CAUSE or BECOME is modified by V1 expressing *<MANNER>*:

(65) the 'pure' causative template:
      [x CAUSE [BECOME*<MANNER>* [y *<STATE>*]]]

(66) The 'causing-with-a-manner' causative template:
      [x CAUSE*<MANNER>* [BECOME [y *<STATE>*]]]

The 'pure' causative template is instantiated when an unmodified light verb CAUSE is added, together with a Causer who brings about the event depicted in (62). In the corresponding syntactic structure, the V1-*de* denoting BECOME*<MANNER>* moves to CAUSE. This gives rise to two 'pure' causative patterns, corresponding to examples like (63) and (64):[21]

(67) zhe xiaohua xiao-de$_i$ Lisi t_i duzi   teng
      this joke   laugh-*de* Lisi t stomach ache
      'This joke got Lisi to have stomach ache from laughing.'

(68)   zhe-jian gongzuo lei-de$_i$ Lisi *t* zhan-bu-qilai
        this-Cl   job   tired-*de* Lisi   cannot-stand-up
        'This job got Lisi tired to the point of not being able to stand up.'

The alternation between (64) and (68) is one of the ordinary inchoative-causative alternation, and the alternation between (63) and (67) is an example of the so-called unergative-causative alternation. Again, just as in (63), I represent V1 as expressing the manner of change denoted by BECOME. This is reasonable, because for a sentence like the following, the interpretation does not entail that the subject caused Lisi to drink. It simply brings about the change:

(69)   zuihou zhe-kou jiu zhongyu he-de Zhangsan zui-dao-le.
        last this-mouth wine finally drink-till Zhangsan drunk-fall-Perf.Inc
        'This last mouthful of wine finally got Zhangsan drunk from drinking it.'

As the context makes it clear, Zhangsan had already been drinking before this last mouthful got him drunk. In fact the wine was already in the mouth or may have been drunk before the effect of getting drunk took place.[22]

    The second causative template involves a causative light verb CAUSE that is itself modified by V1, embedding an unmodified BECOME.[23] This is instantiated by the 'canonical' transitive resultative:

(70)   VP1
             ┌────────────┴────────────┐
            DP   V1'
             │   ┌───────────┴───────────┐
             │   V'   VP2
             │   ┌─────┴─────┐   ┌──────────┴──────────┐
             │   V1   -*de*   DP   V2'
             │   │   [CAUSE]   │   ┌─────────┴─────────┐
             │   │   │   │   V2   VP3
             │   │   │   │   [BECOME]   ┌─────┴─────┐
             │   │   │   │   │   DP   V3'
             │   │   │   │   │   │   ╱▲╲
            Lisi   ku   -de   shoupa   e   t   dou shi-le
            Lisi   cry   -cause handkerchief   all wet-Perf/Inc[
        'Lisa cried the handkerchief wet.'

Although the <manner> of BECOME may be instantiated by either an unergative or an inchoative verb, generally the <manner> of CAUSE can only be instantiated by an unergative or active transitive verb. I assume that this follows from semantic and pragmatic considerations of compatibility between the modifier and modifiee.[24]

We have now gone through the various phrasal resultatives and shown their event structures in connection with their syntactic structures and derivations. The same hypothesis we have made applies to the compound resultatives as well, which I assume have similar event structures, though their syntactic structures are derived somewhat differently: as opposed to *–de*, the light verbs BECOME and CAUSE are phonetically null. The derivations also involve the formation of V1-V2 as a compound followed by verb movement over the object, if any. (Cf. Tang 1997.) We now list examples of V-V compounds corresponding to the phrasal patterns illustrated above:

(71) a. Inchoative (1): [BECOME*<UNERGATIVE>* [x *<STATE>*]]
          Zhangsan zhui-lei le.
          Zhangsan chase-tired Perf/Inc
          'Zhangsan got tired from chasing.'

      b. Inchoative (2): [BECOME*<UNACCUSATIVE>* [x *<STATE>*]]
          Zhangsan lei-bing-le.
          Zhangsan tired-sick-Perf/Inc
          'Zhangsan got sick from exhaustion.'

      c. Pure causative (1): [x CAUSE [BECOME*<UNERGATIVE>* [y *<STATE>*]]]
          baozhi kan-hua-le wo-de yanjing.
          Newspaper read-blur my eyes
          'The newspaper made my eyes blurred from reading it.'

      d. Pure causative (2): [x CAUSE [BECOME*<UNACCUSATIVE>* [y *<STATE>*]]]
          wu xiuzhi de jianku gongzuo lei-bing-le Zhangsan.
          no rest DE hard work tire-sick-Perf Zhangsan
          'Continuous hard work got Zhangsan sick from over-exhaustion.'

      e. Causing with a manner: [x CAUSE*<UNERGATIVE>* [BECOME [y *<STATE>*]]]
          Zhangsan ti-po-le qiuxie.
          Zhangsan kick-broken-Perf sneakers
          'Zhangsan kicked the sneakers thread-bare.'

Summarizing, I have shown that the Chinese-English differences in the distribution of certain types of resultative constructions may be captured by the generalization that, while an unergative may be merged (or conflated) as a manner adjunct with an inchoative or causative light predicate BECOME or CAUSE in Chinese, such a merger is generally possible only with CAUSE in English. It remains a question what is the source of this parametric difference.

6. Syntactic Analyticity and Argument Structure

In the rest of this paper I would like to show that this parametric difference can be explained by reducing it to a more general parametric difference in the degree of *syntactic analyticity* on the traditional typological distinction between analytic and synthetic languages. First, I suggest that what we have seen in this paper is a manifestation of a parameter, first proposed in explicit terms by Lin (2001), in how verbs are lexicalized in the organization of grammar.

    Adopting a framework of lexical decomposition and light verb syntax (as in Huang 1997), and of the mapping between syntax and the lexicon (as in Hale and Keyser 1993), Lin argues that languages may differ in whether lexical verbs undergo a lexical process of conflation (movement to light verb positions within a Lexical Relational Structure in L(exical)-Syntax in the sense of Hale and Keyser), and in the extent to which they do, before they are lexicalized as input to syntactic computation. English verbs undergo a full process of conflation, Chinese verbs do not, and Japanese verbs undergo partial conflation. This 'Lexicalization Parameter' is motivated by systematic differences that distinguish these languages with respect to argument realization in syntactic structure. Among other things, Chinese exhibits a striking degree of 'unselectiveness' of subjects and objects, while English places strict selective restrictions on noun phrases that may occur as their subjects and objects. For example, in English the object of *drive* is pretty much limited to a Theme, but the corresponding Mandarin Chinese *kai* may, in addition, take a Location, Time, Instrument, or even Reason as its grammatical object. (Note that there is no preposition between the verb and the object in each case. The prepositions are inserted in brackets only to make the English translations grammatical.)

(72)   a.   ta kai-le yi-liang tankeche.
            he drive-Perf one-Cl tank
            'He drove a tanker.'

        b.   ta kai zuobian, wo kai youbian.
            he drive left-side, I drive right-side
            'He drives [on] the left side, I drive [on] the right side.'

        c.   ta kai baitian, wo kai wanshang.
            he drive daylight, I drive night
            'He drives [in] daylight, I drive [at] night.'

        d.   ta kai jiazhao, wo kai shenfenzheng.
            he drive license, I drive ID-card
            'He drives [with] a driver's license, I drive [with] an ID card.'

        e.   wo kai hao wan.
            I drive good play
   'I drive [for] fun.'

Similarly, while English *eat* requires a Theme object, Mandarin *chi* 'eat' may take other

objects as well: *chi niurou mian* 'eat beef noodles', *chi da wan* 'eat [with] large bowl', *chi xiawu* 'eat [in] the afternoon', *chi guanzi* 'eat [at] a restaurant', *chi touteng* 'eat [to cure] headaches', etc.

Lin (2001) attributes the strict selection requirement of a Theme in English to the verb having gone through full conflation. Essentially following Hale and Keyser (1993), conflation is a process of lexical computation by which a verb root moves through light-verb positions of an event structure, picking up various marks of that structure (including its categorial feature, selectional features or theta-grid, etc.) along the way.   At the end of the lexical computation, the verb is lexicalized together with the features it has picked up along the way (including its theta grid). The English verb *put,* for example, then enters into syntactic computation, 'contaminated' with the theta grid {Agent, Theme, Location} as a bundle of *grammatical* features—or 'viruses', to use a term attributed to Juan Uriagereka (see Lasnik 2003: 86). Since such formal features need to be checked off in order for a syntactic derivation to convert, appropriate arguments qualified to check off these features must occur in appropriate checking positions (subject, object, complement) of *put* in syntactic structure.

On the other hand, it is proposed that a Chinese verb does not undergo conflation as a lexical operation, and enters into syntactic computation as a 'pure' verb with only a conceptual structure, but no argument structure. Since it does not possess any formal grammatical features to be checked off, it need not occur in the checking vicinity of a selected argument (though given its conceptual structure, it often ends up in such a position). Therefore it can occur with any argument of any light verb. The verb *qie* 'cut', for example, having entered into syntactic computation as a pure verb uncontaminated by any virus, may move to a covert instrumental light verb USE, to form the sentence (73), as depicted in (74):

(73)   ta qie zhe-ba dao
        he cut this-Cl knife
        'He cut [with] this knife.'

(74)
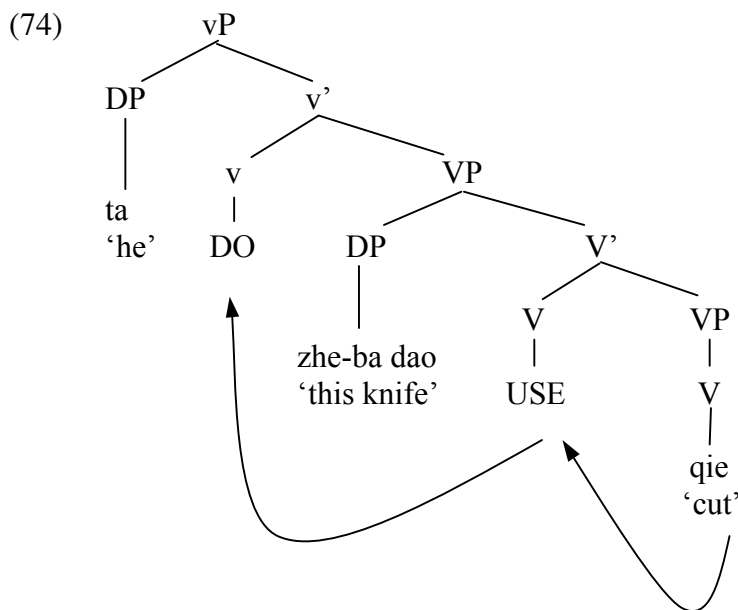
In other words, the rigidity or freedom of argument selection is attributed to whether aspects of the conceptual structure of a verb have been 'grammaticalized' or not, respectively.

Given this, we can now see that the Chinese-English difference with respect to the availability of certain resultative construction types may also follow as a consequence of the Lexicalization Parameter. In English, unergative or activity verbs like *cry, chase, read,* and *run* come from the lexicon with a full specification of its argument structure, like {Agent}, {Agent, Them}, etc. The need to check off each item in the argument structure requires the verb to enter into a Spec-Head relation with an argument suitable for the theta role Agent. In forming a resultative construction in syntax, an activity verb must merge with either CAUSE or BECOME. If it is merged with CAUSE, the [+Agent] feature can be checked off just in case the subject of CAUSE is an Agent (an agentive causer). This gives rise to transitive, canonical resultatives like *John ran the sneakers threadbare, Mary cried herself silly,* etc. If an activity verb is merged with BECOME, however, its [+Agent] feature cannot be checked off by the subject of BECOME, which is a Theme or Experiencer, but crucially not an Agent, hence the ungrammaticality of **John ran tired, *Mary cried silly*, etc. On the other hand, unaccusative/inchoative verbs like *freeze, break, fall,* etc., come from the lexicon with argument structures like {0, Theme} or {0, Experiencer}, so they may successfully merge with BECOME, giving rise to *The river froze solid, The window broke wide-open.* These inchoatives may be causativized, so we have 'pure causatives' like *A few days' cold weather froze the river solid, heat from the fire broke the window wide open*, etc.[25]

Turning now to Chinese, since verbs enter into syntactic computation with only their meanings (or conceptual structures) but without pre-specified argument structures (and no theta-roles to discharge), no checking requirement will force them to occur in checking positions, unlike the cases in English.[26] In such cases, the conceptual structure of each verb, plus our common sense, prevails. Conceptually, nothing seems to block the use of an activity verb to express a manner of causing or of becoming. One can cause someone else to be tired by crying loud near the victim, or one can get tired himself by crying loud. In the former case we get canonical transitives like *Zhangsan ku-lei-le Lisi* 'Zhangsan cried Lisi tired' and in latter case we get the so-called unergative resultative *Zhangsan ku-lei-le* 'Zhangsan cried tired' (i.e., unergatively-modified inchoative).[27] As an inchoative, the latter can be causativized, giving rise to a 'pure' causative like *zhe-jian shi ku-lei-le Zhangsan* 'This thing cried Zhangsan tired'. As for an unaccusative verb, conceptually it can, of course, merge with BECOME since its own denotation is already a becoming. Finally, though it is generally conceptually odd for an unaccusative verb to describe a manner of CAUSE, under some scenarios that circumvent conceptual oddity, a resultative is possible as well. As footnote 24, example (ii) indicates, a sentence meaning 'Zhangsan got so sick as to cause his family to become anxious' is such a resultative.

We have now reduced the Chinese-English differences in the distribution of resultative constructions to Lin's Lexicalization Parameter. It should be pointed out that the Lexicalization Parameter is, in turn, but one facet of a more general distinction between analytic languages and synthetic languages—in the terms of traditional linguistic typology. As is well known, Modern Chinese occurs near the extremity of syntactic analyticity. Languages like Mohawk and Inuktitut, on the other hand, have been characterized as polysynthetic (in Sapir's terms; see Baker 1996 and earlier references cited there). English and other Germanic languages are relatively synthetic by comparison with Modern Chinese, but distinctively less so than other European languages and other languages on the synthetic end. Archaic Chinese exhibits properties that make it fairly synthetic, perhaps on a par with English. The development of Pre-Modern and Modern Chinese from Archaic through Medieval Chinese may be seen as the development of a highly analytic language from a language of considerable synthesis.

In typological research—either in the generative parametric approach or the 'implicational universals' approach of Greenberg, it has often been observed that when languages differ, their differences typically *cluster* in a way that reflects larger generalizations—that is, there are macro-parameters that distinguish languages. In my on-going research (Huang 2005, of which this paper is a part), it has been shown that a majority of the observed properties that distinguish Chinese from English (and other languages), with respect to both lexical categories and functional categories, can all be seen as reflecting their differences in the degree of analyticity. These include, among many others: (a) the extensive use of light verbs to express accomplishments and complex predicate meanings, (b) the need for a classifier system for count nouns, (c) the unavailability of negative noun phrases corresponding to English *nobody*, (d) the use of in-situ strategy in forming *wh*-questions, and so on. All these differences can be seen as consequences of a general lexicon-syntax parameter. For example, whereas Chinese uses overt light verbs in the syntax, English employs derivational morphology to derive complex words for the expression of complex predicates. Whereas Chinese relies on a classifier system to individuate kind-denoting nouns, English has a lexical operation to convert kind-denoting nouns to individual-denoting nouns. And whereas negative NPs and interrogative *wh*-phrases are lexical items complete with the negative and interrogative ingredients in English, they are treated as discontinuous constituents spanning over phrasal domains in Chinese. To put it in simplified terms, English has a substantial lexical component of grammar that is lacking in Chinese. What goes on in the English lexicon is delayed until the syntactic component in Chinese. The Lexicalization Parameter, as we have seen, is another instance of this difference: English processes its verbs through conflation in the lexicon, whereas Chinese does it in syntax.

7. Concluding Remarks

This paper started with the observation of two peculiar differences between Chinese and English resultatives, one with respect to the DOR and the other concerning the apparent causativization of unergative predicates. I have tried to show that these differences can be

reduced to a single difference that, in turn, can be seen as a special case of the general difference in degree of syntactic analyticity between the two languages. Assuming a restrictive parametric theory, the specific difference lies in the functional features of lexical items: While English verbs enter into syntactic computation with 'viruses' of sorts, Chinese verbs come to syntax 'virus-free'. If this proposed analysis is correct, this lends important support to the macro-parametric approach taken here, and further confirms the hypothesis that parametric differences arise from the differences in the nature of lexical items.

This line of thinking defended here is at odds with certain recent works in generative grammar on the mapping between syntax and the lexicon, as represented in the works on distributed morphology (Marantz 1997, etc.) and Borer (2005). Borer argues, on the basis of observed extensive polysemy in English, against the traditional 'projectionist' view according to which lexical items are assumed to have acquired grammatical features through lexical operations, while syntax redundantly carries out the same duties matching the requirements of those features. She argues for an 'exoskeletal', or constructionist model (cf. Goldberg 1995), according to which lexical items enter into syntactic computation with only their substantive (or 'encyclopedic') meanings without any grammatical features, not even categorial features, and it is the syntactic frames into which the lexical items (the 'listemes') are positioned that give rise to the grammatically relevant properties they are thought to have.

This mode of syntax-lexicon mapping is, of course, what I have taken to occur in the grammar of Chinese, from which various manifestations of high analyticity are derived, including Lin's Lexicalization Parameter. However, this view about Chinese is motivated on considerations of its parametric differences from English and other languages closer to the other end of the analytic-synthetic continuum. The crucial assumption is that synthetic languages are those with a relatively rich 'lexical syntax' (Hale and Keyser's L-Syntax), whereas analytic languages have a small or no lexical syntax. If polysemy is taken to be a strong argument for letting constructions determine the grammatical categories and other properties of lexical items, it is also important to be reminded that languages differ in the degree of polysemy they exhibit. For example, Chinese with its (almost) complete lack of morphological marking for parts of speech certainly exhibits a higher degree of polysemy than English. (Polysemy may stop at the appearance of derivational or inflectional marking in English, but often continues through phrasal syntax in Chinese.) Lin's examples of argument unselectiveness, as well as our examples of unergative resultatives, etc., also illustrate a much higher degree of polysemy in Chinese than allowed in English. To account for these differences, it seems again that we need to maintain a syntax-lexicon parameter in the way the grammar machine works for various languages. Although an exoskeletal or constructionist model may be the right way to capture a language of high analyticity like Chinese, the question remains as to how such a model can insightfully capture macro-parametric differences among languages.

Notes

[1] The lexical (compound) variety and the phrasal variety are largely parallel in terms of their semantics, but differ somewhat in their syntax (e.g., word order) and the range of available interpretations. I shall assume that such differences may be derived as direct consequences of the lexical-phrasal difference, and effects of independent principles (we are concerned with only *resultative* V-*de* constructions, excluding descriptive and extent V-*de* constructions from further consideration). In what follows, I shall gloss the resultative particle *de* (historically derived from verb *de* 'get') as 'till'. Other abbreviations used in the glosses: 'Perf' = the perfective aspectual suffix *le*; 'Inc' = the sentence-final *le* marking inchoative aspect; 'Cl' = classifier; 'DE' = the nominalizer *de*; 'Exp' = the experiential marker *guo*.

[2] Sybesma (1992) refers to the DOR as 'Simpson's Law'.

[3] Consistent with the DOR, unaccusative or inchoative resultatives also exhibit (surface) subject-orientation:
     (i)   ta qi-feng le.
              he anger-crazy Perf/Inc
              'He got angry to the point of being crazy.'
     (ii)   ta xia-de hunshen fadou.
              he fear-till whole-body tremble
              'He got scared to the point of shaking up.'

[4] There are a few apparent counterexamples to the claim that the phrasal resultatives generally do not allow subject-predication in the presence of an object. The following examples appear in Sun (2005):
     (i)   wo deng-de nimen hao xinjiao.
              I wait-till you so anxious
              'I have waited for you to the point of being so anxious.'
     (ii)   haizi, ma xiang-de ni hao ku a.
              child, mother miss-till you so hard Exclaim.particle
              'My child, Mom has missed you so painfully.'
     (iii)   zhe yi tian, Xiaoxu pan-de ta yi-kou fan ye mei chi.
              this one day, Xiaoxu wait-till him one-mouth rice all not eat
              'On this day, Xiaoxu waited for him to the point of not even having any bite
              of a meal.'
Cf. also Zhu (1983), who suggests that (iv) has (among other readings) a subject-oriented

reading:

      (iv)   wo zhui-de xiaohai zhi chuanqi.
              I chase-till child straight pant
              'I ran after the child to the point of panting unceasingly.'

As Sun notes, these are very much limited to a small class of verbs. Many speakers prefer to rephrase these sentences with a verb-copying version, in which case the subject-oriented reading is perfectly natural, for all speakers: *wo **deng** nimen **deng**-de hao xinjiao*, etc. The limited availability of the subject predication in these cases remains a question to be fully accounted for. One possibility is that these examples are in fact not resultative, but *extent* constructions. That is, V2 expresses the extent to which the action denoted by V1 is carried out, rather than the result that the action brings about.

[5] From the standpoint of V2, one may say that (29)—though not (28)—*also* exhibits an unaccusative-causative alternation because *xing* 'awake' predicates on the subject in (a) but on the object in (b).

[6] English resultatives generally do not exhibit an unergative-transitive alternation, because an unergative resultative without an object would be in violation of the DOR. Some examples of an unergative type have been provided in Rappaport-Hovav and Levin (2001), as in *She kicked free*. In such cases, a transitivity alternation does occur: *She kicked herself free*, *she kicked her shoes free,* etc. We return to such examples below.

[7] Although unergative resultatives can causativize, simplex unergatives cannot: **ta ku-le wo* is ungrammatical for the meaning 'He caused me to cry'.

[8] Example (46b) is from Zhu (1983). As noted above, the subject-predicated reading (bii) is more restricted than the object-predicated reading, the difference being somewhat determined by pragmatic and lexical semantic factors. Note that for the causativized version, the V2 is always predicated on the object; there does not exist a 4th reading according to which Zhangsan caused Lisi to chase him tired, or the child caused me to chase him to a state of unceasing panting. While the choice between (i) and (ii) readings seems to be subject to pragmatic or lexical manipulations, the absence of a 4th reading seems to be absolute, despite fully favorable pragmatic and semantic reasons that might otherwise sanction it. For some recent discussions on this issue, see Y. Li (1995) and J. Shen (2004).

[9] These examples are cited from Wechsler (1997) and Vespoor (1997).

[10] What is 'force'? For the indulgent reader let me suggest what is known as *qi* in traditional Chinese thinking, i.e., 'life force' or 'spiritual energy'. So if *John drank the pub dry* is true, John must have exerted some *qi* onto the pub so that the result *dry* is predicated on *the pub*. I leave it for the reader to decide if this is just as slippery.

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[11] The diagnostic was used by Jackendoff to identify a patient or an 'affected entity'. But RHL argue that the diagnostic actually identifies a force recipient. Obviously, if the Result describes the state to which a change occurs, it would be somewhat circular to claim that it must be predicated on the affectee, defined as the entity that undergoes the change.

[12] A limited number of subject-oriented resultatives do allow *ba* objects. For example, in my own speech (i) is acceptable (compared to (52b)):

    (i)   nimen deng wo ba fan chi-bao zai lai.
             you wait-for I BA rice eat-full then come
             'Please wait till I have eaten full before you come.'

In addition, the subject-predicated examples in (24)-(27) also allow their inanimate objects to occur with *ba*, e.g.:

    (iii)   ta zhongyu ba shu kan-dong le.
             he finally BA book read-understand Perf/Inc
             'He finally read and understood the book.'

    (ii)   ni ba ta-de hua ting-dong-le meiyou?
             You BA his word hear-understand-Perf not
             'Have you understood what he said?

[13] Another interesting example that illustrates the point is the semi-idiomatic *fan-si* 'annoy to death'. *Zhangsan fan-si-le Lisi* means either Zhangsan annoyed Lisi (to death) or felt much annoyed (to death) with Lisi. With a first-person pronoun *wo*, however, the resultative *si* 'die' is more readily predicated on *wo*. Thus *wo fan-si ta le* and *ta fan-si wo le* can readily mean the same thing—evidently an indication of pragmatics at work. But pragmatics must give way to grammar when it comes to the *ba* construction: *wo ba ta fan-si le* can only mean that I annoyed him to death.

[14] For a cognitive-semantic account of the *zhui-lei* 'chase-tired' and related constructions, see J. Shen (2004).

[15] In fact, the FRP also leaves unaddressed some English-Chinese differences with respect to the possibility of subject-predication. Although subject-predication is quite limited in Chinese phrasal resultatives and in this respect the two languages may not differ significantly, subject-predication in compound reflexives is widespread in Chinese (as we saw above), though not seemingly so in English. This latter point is not quite clearly right because English makes little use of V-V compounds, most candidates of resultative compounds being of the type traditionally called verb-particle constructions (*He turned on the light, wiped off the dirt*, etc.), and so the difference in the distribution of subject-predication is harder to pinpoint. To the extent that verb-particle constructions followed by

objects are considered resultatives, it does seem that the particle with a result meaning is predicated on the object.

[16] Another attempt to answer this question was made recently by Cui (2005), who suggested that Chinese allows an empty reflexive object in the position where English requires a reflexive pronoun. Thus an apparent unergative resultative is in fact a transitive one with a null object. The hypothesis that Chinese has null reflexive objects (but English does not) has been suggested before, by Xu (1986), and so this difference could directly contribute to the apparent existence of unergative resultatives. However, the interpretation of an EC as a null reflexive is extremely limited in Chinese. A null object sentence like *Zhangsan kanjian-le [e]* can have a reflexive interpretation only as a reply to question like 'Did Zhangsan see himself?' or 'Who saw himself?', where a reflexive is expressly mentioned in the preceding discourse. See Huang (1987) for extensive arguments against Xu (1986). It should also be noted that, even if correct, the postulation of a null reflexive will not relate itself to the second question concerning the causativization of unergatives.

[17] Cheng and Huang (1996) argued against Sybesma (1992), in part because of its heavy reliance on the DOR and the extensive counterexamples to the DOR in Chinese, particularly those involving subject-predication in the presence of overt objects, and in part because Sybesma did not address the question of what makes Chinese different from English in this respect. As we shall see below, I do not claim that such verbs as 'cry, laugh, read' have an unaccusative sense at all, but that they are modifiers of a light verb head, either phonetically null or in the form of *–de*, which is unaccusative (inchoative). The resultative as a whole is unaccusative because its head is so. Now with the DOR replaced by a condition based on the notion 'closest prominent argument' (or 'force recipient'), certain cases of subject-predication in both Chinese and English are admitted as well-formed. Mateu (2005) argues against RHL (2001) in favor of restoring the DOR, suggesting that essentially all apparent cases of subject predication that RHL have reported on are unaccusatives. While lexical and contextual considerations provide much evidence for the unaccusative analysis of apparent cases of subject-predication, many such cases do not find causativized counterparts in English. The widespread correlation in Chinese between unergative resultatives and their causativized counterparts suggests the need for a more general treatment that goes beyond lexical idiosyncrasies.

[18] In Chinese, many existential verbs take Experiencer subjects in addition to Theme objects:
   (i)   Wang Mian qi sui si-le fuqin.
           Wang Mian 7 year die-Perf father
           'At 7 years of age, Wang Mian had the experience of his father dying.'
   (ii)   zuotian tamen fasheng-le yi-qi chehuo.
           yesterday they happen-Perf one-Cl accident
           'Yesterday an accident happened to them.'
Such experiential sentences are inchoative or unaccusative in kind, as there exists another

transitive involving a Causer. The following illustrate a three-way alternation.

    (iii)   lai-le yi-wan mian le.
               come-Perf one-Cl noodle Inc
               'A bowl of noodles has arrived.'

    (iv)   wo yijing lai-guo liang-wan mian le.
               I already come-Exp two-Cl noodle Inc
               'I have already had two bowls of noodles.'

    (v)   xiao-er! qing lai liang-wan niurou mian.
               waiter please come two-Cl beef noodle
               'Waiter, please bring me two bowls of noodles.'

[19] I have omitted the process by which the unergative V1 comes to be adjoined to *–de* expressing a manner of becoming. In a more articulate analysis this would be a process of conflation in the sense of Hale and Keyser (2002 and earlier works) and Talmy (2000) by which the verb root is raised from a separate (or embedded) sub-structure and adjoined to *–de*.

[20] In examples like *she kicked free* in English (a putative 'unergative resultative') cited by RHL 2001, it has been pointed out (Jim Barton, p.c.) that what is relevant seems not to be temporal coextensiveness of the two subevents, but that the sentence means more like 'she got free by kicking'. In other words, this is actually an inchoative construction with *kick* modifying BECOME.

[21] The inchoative template may of course be 'pure' without a manner modifier as well, in which case we don't have a resultative construction: *bright > brighten > brighten*, etc.

[22] In general, for the pattern (67) there is a tendency for the Causer subject to be understood as the object of V1 if V1 is a transitive verb, as shown below:

    (i)   zhe-shou ge chang-de ta hen fan.
               this-Cl song sing-till he very annoyed
               'This song got him annoyed from singing it.'

    (ii)   ?*na-jian zhiding de gongzuo chang-de ta hen fan.
                that-Cl assigned DE task sing-till he very announced
                'That assignment got him annoyed from singing (something).'

This is not an absolute requirement, however. The main requirement is that the *relevance* of the causer to the caused event must be easy to establish under normal conditions. See J. Shen for an illustration of this point.

[23] If CAUSE is modified by V1, BECOME cannot itself have another independent modifier. This is because these decomposed light verbs together make up one single verb, unlike periphrastic causative sentences with full verbs like *cause* and *become*. Recall the well known contrast between *kill* and *cause to die* in this respect, brought to our attention

first by Fodor (1970): *John caused Bill to die by swallowing his tongue* is ambiguous, but *John killed Bill by swallowing his tongue* is not.

[24] Under circumstances when the cause-effect connection makes sense, an inchoative modifying CAUSE may yield acceptable results as well. Compare the following:

(i) *Zhangsan le-feng-le ta-de jiaren.
    Zhangsan joyous-crazy-Perf his family
    'Zhangsan got so joyous that his family went crazy.'

(ii) Zhangsan bing-ji-le ta-de jiaren.
    Zhangsan sick-anxious his family
    'Zhangsan got so sick his family became anxious.'

(i) cannot have the transitive reading as indicated in the translation, although it can have the 'pure' causative whereby he made his family so joyous as to become crazy, but for (ii) the transitive sounds fine.

[25] When occurring with an animate subject, *break, freeze*, etc., may have an agentive use. In this case, *John broke the window wide open* is a transitive 'canonical' resultative, with *break* having been merged directly with CAUSE.

[26] This is not to say that the Theta Criterion does not apply in Chinese. As Lin (2001) suggests, it is the eventuality predicates, i.e. the light verbs (overt or covert), that assign theta-roles to arguments.

[27] Remember that the unergative verbs are adjoined to CAUSE or BECOME as manner/means adjuncts of the latter. The fact that, conceptually, these verbs have agentive subjects plays no formal grammatical role in this situation.

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Department of Linguistics
307 Boylston Hall
Harvard University
Cambridge, MA 02138