

# Causativity Expression and Cross-linguistic Variation of Resultative Constructions<sup>1</sup>

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## Abstract

*This paper aims to propose a new account for the cross-linguistic variation of resultative constructions in natural languages. Specifically, I shall show why certain languages like English have the typical resultatives while others like Romance languages or Japanese systemically miss them. I shall first review Washio's (1996, 1997) typological pattern for resultative constructions as well as the major approaches accounting for this pattern. Then, based on Mateu's (2002) lexical-semantic approach, I shall argue that the formation of the typical resultatives is closely related to the morphological expression of causativity in a language. I shall classify the causative morphemes in a language into three types, namely P-causative, R-causative and D-causative ones and claim that the necessary condition for the presence of typical resultatives in a language is that its P-causative morpheme can be null. Then, I shall follow Tomioka's (2003) adjunction analysis of V-V compounds in Japanese and show that the adjunction nature of V-V compounds in Japanese can be accounted for by the lexical nature of causativity in this language. Finally, I shall discuss the status of Chinese in Talmy's (1991) and Washio's (1996, 1997) typological patterns and summarize the major lexicalization patterns in English, Chinese, Romance and Japanese.*

## Key words

*Causativity expression, resultatives, cross-linguistic variation, lexicalization pattern*

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## 1. Introduction

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<sup>1</sup> This article is funded by BISU Key Projects Grant 'A Study of Resultatives within the Framework of Event Syntax'. I wish to thank the anonymous referees of JCLC for their enlightening comments and suggestions. My thanks should also go to Professor Li Fang, Professor Jie Xu, Professor Jianhua Hu and Doctor Qi Wang for their generous aid and advice in this research project.

As an important type of constructions in natural languages, resultatives exhibit typological properties. That is, typical resultative constructions are not universally present in all languages. In the literature, Washio's (1996, 1997) typological pattern for resultative constructions is a well-accepted one. He summarizes the cross-linguistic variation of resultative constructions as the following typology pattern:

(1) Washio's (1996, 1997) typological pattern of resultative constructions

		English German	Japanese Korean	French Italian
Transitive Resultatives	(a) SPURIUOS	OK	OK	OK
	(b) WEAK	OK	OK	?
	(c) STRONG	OK	*	*
	(d) STRONG			
Intransitive Resultatives	OK	*	*	

This typological pattern is mainly based on the properties of verbs contained in the resultatives constructions. Resultatives are firstly classified into transitive resultatives and intransitive ones. These two types of resultatives are then further classified according to the aspectual properties of the verbs concerned. Accordingly, languages concerned might be classified into three types, namely Germanic languages like English and German, Asian languages like Japanese and Korean and Romance languages like French, Spanish or Italian. As we can see from (1), in English-type languages, both transitive and intransitive resultatives are possible. However, as far as intransitive resultative constructions are concerned, Japanese-type languages exhibit typological properties quite similar to those of Romance languages in that they are all systemically missing this type of constructions. Washio (1996, 1997) further classifies transitive resultatives into two subtypes, namely WEAK and STRONG resultatives. The WEAK-type resultative constructions in Washio's sense correspond to the BREAK-type resultatives in Sekiguchi's (2003) sense in that the verbs involved are verbs which have an inherent endpoint or delimitation within their lexical items. The resultative predicates merely indicate their degree or extent of affectedness. The STRONG-type resultatives in Washio's sense correspond to the HAMMER-type and RUN-type resultatives in Sekiguchi's (2003) sense in that the verbs involved are activity verbs which do not have an inherent endpoint or delimitation within their lexical items. Their delimitation is imposed by their resultative secondary predicates. The affected NP arguments are either within the subcategorization of the verbs concerned (the HAMMER-type) or out of it (the RUN-type). The so-called spurious resultatives in the literature (Mateu, 2002; Sekiguchi, 2003) refer to those whose secondary predicates are more like an adverbial modifier.

The above-mentioned four types of resultative constructions can be illustrated by the following English examples respectively:

- (2) a. John hammered the metal flat. (HAMMER-type)

- b. John ran the pavement thin. (RUN-type)
- c. John broke the vase into pieces. (BREAK-type)
- d. John tied his shoelaces tight. (SPURIOUS resultative)

The following examples illustrate the typological properties of Japanese resultatives:

- (3) a. \*Taroo-wa kinzoku-o taira-ni tataita.  
 Taroo-Top metal-Acc flat hammer  
 ‘Taroo hammered the metal flat.’ (HAMMER-type) (Sekiguchi, 2003: 183)
- b. \*Taroo-wa kutsu-no-soko-o boroboro-ni hashitta.  
 Taroo-Top shoe-of-sole-Acc threadbare ran  
 ‘Taroo ran the soles of his shoes threadbare.’ (RUN-type) (Sekiguchi, 2003: 184)
- c. Taroo-wa kabin-o konagona-ni watta.  
 Taroo-Top vase-Acc into pieces broke  
 ‘Taroo broke the vase into pieces.’ (BREAK-type) (Sekiguchi, 2003: 183)
- d. Kare-wa kutsu-no himo-o *kataku/yuruku* musunda.  
 He-Top shoe-Gen lace-Acc tight/loose tied  
 ‘He tied his shoelaces tight/loose.’ (SPURIOUS resultative) (Washio, 1997: 18)

Examples in (3) show that Japanese only allows the spurious resultatives and the BREAK-type resultatives. The other two types are systemically missing just as shown by Washio (1996, 1997). The typological properties of resultatives in Romance languages can be illustrated by the following examples:

- (4) a. \*Juan martilleó el metal plano.  
 John hammered the metal flat.  
 ‘John hammered the metal flat.’ (HAMMER-type) (Spanish, Washio, 1996: 30)
- b. \*Ells van riure l’espectacle fora de la ciutat.  
 they laughed the snow out of the town  
 ‘They laughed the snow out of the town.’ (RUN-type) (Catalan, Mateu 2000: 87)
- c. \*Maria ha spezzato la bastone corto.  
 Maria broke the stick short  
 ‘Maria broke the stick short.’ (BREAK-type) (Italian, Sekiguchi, 2003: 185)
- d. J’ai noué les lacets de mes chaussures bien serrés.  
 I tied the laces of my shoes very tight  
 ‘I tied my shoelaces very tight.’ (SPURIOUS resultative) (French, Washio, 1997: 29)

The typological differences in resultatives among the above mentioned language types draw much attention from the linguistic circle. Various approaches are proposed to account for the cross-linguistic variation of resultative constructions. Next, I shall review and comment on the existing approaches concerned and then propose my own account for the cross-linguistic variation of resultative constructions in natural languages.

## 2. Approaches for typological variation of resultatives revisited

### 2.1 Snyder’s (1995) Null Telic Morpheme Proposal

Washio's (1996, 1997) typological pattern of resultative constructions listed above bear great resemblance to Talmy's (1991) lexicalization pattern. In Talmy's (1991) system, languages can be classified into verb-framed languages and satellite-framed languages according to the specific component that is conflated into the motion verb in a motion event in these languages. In his view, Romance languages like Spanish belong to verb-framed languages in that it is the component of path that is typically conflated into a motion verb in these languages while Germanic languages like English belong to the satellite-framed languages in that what is conflated into the motion verb is not path but the manner of motion. The following examples from Talmy (1985) can illustrate the difference between those two types of languages:

- (5) a. La botella entró a la cueva flotando.  
       the bottle went+into to the cave floating  
       b. La botella salió de la cueva flotando.  
       the bottle went+out of the cave floating  
       c. El globo subió por la chimenea  
       flotando.  
       the balloon went+up through the chimney floating  
       d. El globo bajó por la chimenea  
       flonando.  
       the balloon went+down through the chimney floating  
       e. La botella se alejó de la orilla floando.  
       the bottle went+away from the bank floating
- (6) a. The bottle floated into the cave.  
       b. The bottle floated out of the cave.  
       c. The balloon floated up the chimney.  
       d. The balloon floated down the chimney.  
       e. The bottle floated away from the bank.

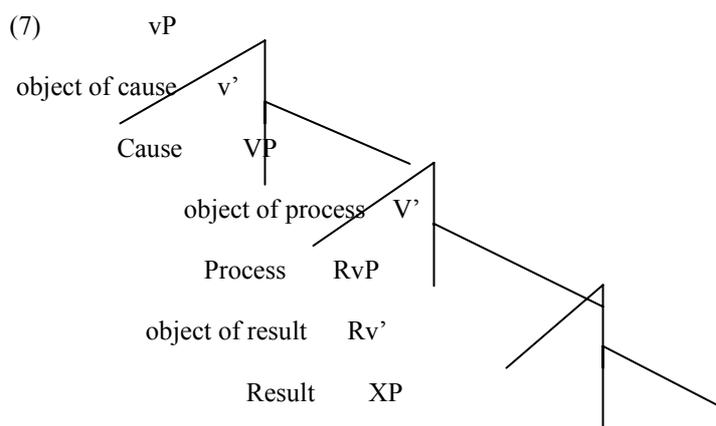
In Spanish, verbs of motion usually conflate the component of path in the motion event. The English verb-particle phrases *go into*, *go out*, *go up* and so on correspond to single verbs in Spanish. In Spanish motion sentences, manner (if there is one) is expressed as an adjunct, while in English motion sentences, manner and motion are conflated together, with path appearing in the sentence after the verb. As we can see, the Germanic languages and Romance languages listed in Washio's typological pattern of resultative constructions are just those two language types which are characterized as satellite-framed languages and verb-framed ones in Talmy's pattern. This shows that there is a kind of parallelism between motion constructions and resultative constructions. Actually, recent insights in the study of conflation processes in the spirit of Talmy's lexicalization patterns in the generative circle show that a strict parallelism does exist between a resultative AP construction and a goal PP construction (Larson, 1988; Hoekstra & Mulder, 1990; inter alia).

Snyder (1995) extends Talmy's (1985) generalization to whether a manner verb appears with a resultative AP or a particle. His study on Romance and Washio's (1996) study on Japanese show that a language that does not allow a goal PP with a manner of motion verb also disallow a resultative phrase with a manner verb. As for the parametric variation between Romance and English in sentences like *John danced into room* or *The dog barked the chickens awake*, he proposes that English differs from Romance in permitting a phonologically null aspectual morpheme. In his view, in Romance languages like French or

Spanish in which the  $\Phi_{\text{telic}}$  morpheme is unavailable, the addition of a secondary path predicate alone is insufficient to convert a process VP into an accomplishment one even if this secondary path predicate includes a natural endpoint in its meaning.

## 2.2 Sekiguchi's (2003) account

Snyder's (1995) proposal is the common track along which the study on parametric variation of resultative constructions goes. Sekiguchi's (2003) account of the parametric variation of resultative constructions is just along this track. Sekiguchi's (2003) study is based on her syntactic model repeated as follows:



Here, in this diagram, vP introduces the causative event and licenses external argument, VP specifies the change or process and licenses the object of the change or process, and RvP gives the 'telos' of the event and licenses the object of result. Spec vP, Spec VP and Spec RvP receive the event roles of Initiator, Undergoer and Resultee respectively.

Verbs in the lexicon are claimed to bear a bundle of features corresponding to the three projections, i.e.,  $[\pm v]$ ,  $[\pm V]$  and  $[\pm Rv]$ . Movement of the verb is triggered by the mechanism of feature checking. The three projections are matched by three sets of interpretable/uninterpretable features:  $[+v/uv]$ ,  $[+V/uV]$ , and  $[+Rv/uRv]$ . Features on null functional heads are always uninterpretable. The verb is first merged in Rv. And then, it moves successively by head-to-head movement to the V and v positions, checking the uninterpretable features in the V and v heads. If all the uninterpretable features are checked off, the derivation will converge and the sentence will be grammatical.

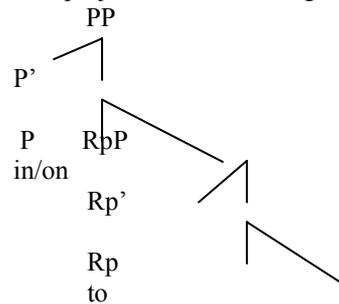
Based on this model, Sekiguchi (2003) proposes her account for the cross-linguistic variation of the resultative constructions. She first divides the APs into resultative APs which are featured as  $[+Ra]$  and depictive ones which are featured as  $[-Ra]$ . Then she summarizes the conditions of the resultative formation in terms of the two features the  $[+Rv]$  and  $[+Rp]$  (or  $+Ra$ ) as follows (Sekiguchi, 2003: 229):

- (8) (i) When a  $[+Rp]$  P (dynamic P) is used with any class of verb.  
 (ii) When a  $[\pm Rp]$  P (underspecified P) or a  $[\pm Ra]$  A (underspecified A) is used with a  $[+Rv]$  verb, and P or A is the complement of V.

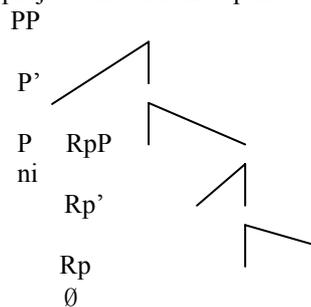
Sekiguchi (2003) attributes the presence of BREAK-type of resultatives in Romance and Japanese to the license of uninterpretable feature of Rp head by the  $[+Rv]$  feature of

change-of-state verbs like *break* in these languages. Folli (2002) Folli & Ramchand (2001) attribute the systemic lack of the HAMMER-type and RUN-type resultative construction in Japanese to the lack of the null verb *BECOME*<sup>2</sup> in this language. But Sekiguchi alternatively attributes this phenomenon to the lack of lexical material in the head Rp of the RpP projection. She claims that the preposition *ni* in Japanese is different from *to* in English. *To* in English merges at Rp and then raises to P while *ni* in Japanese merges at P and leaves Rp empty. Sentences like *John hammered the metal into pieces* can have a resultative reading as the head Rp is licensed by the lexical material *to*. This difference between English and Japanese can be illustrated as follows:

(9) a. The projection of PP in English



b. The projection of PP in Japanese



Although Sekiguchi's model can represent all the possible event components in complex eventualities such as manner of motion or resultatives, it is, however, not without problems. The problems about her model design and derivations of some constructions can be seen from the following aspects:

First, a verb with a [+Rv] feature can not check off the [uRp] feature of the Rp head concerned. In my view, the aspectual feature of the Rp head should be checked by the aspectual feature, specifically the telicity feature, of the *event* instead of that of the verb concerned. Change-of-state verbs, in my view, can not check off the uninterpretable features of prepositions in the way as claimed by Sekiguchi for they have already been telic. Take the verb *break* as an example. Definitely, *break* is a (telic) causative transitive achievement verb. If we say *John broke the vase*, we know that the vase is already broken. Therefore, the telic verb can not license another PP like *into pieces*. And also, since the verb *break* inherently implies a delimiter of the event concerned, therefore, the sentence containing it can no longer

<sup>2</sup> Hence the lack of conflation process in it.

allow another delimiter along the same dimension any more. In this way, PPs like *into pieces* as a delimiter can not occur in the same dimension, namely the 2<sup>nd</sup> dimension of state<sup>3</sup>, with the telic verb *break*. It can only act as a delimiter along another dimension, namely the 3<sup>rd</sup> dimension of degree with the telic verb *break* coerced into an atelic activity verb. This is the very reason why PPs like *into pieces* can only be analyzed as an adjunct instead of a complement in a sentence because, as a delimiter per se, it can not co-occur with a verb which has already implied a delimiter.

Second, even if a verb with a [+Rv] feature *could* check off the [uRp] feature of the Rp head concerned in its complement position as Sekiguchi claims, there is still another problem with her analyses. That is, she actually misuses the notion of complement. Definitely, the notion *complement* refers to the necessary argument of a verb. Without the complement, the sentence containing that verb will be ungrammatical. Sekiguchi analyses the counterpart of PP *into pieces* as the complement of the counterpart of the verb *break* in Romance and Japanese. However, examination of the verbs like *break* shows that her claim is not true as the PP following this verb can be omitted without affecting the completeness of the sentence concerned:

- (10) a. The vase broke.  
b. John broke the vase.

Therefore, it is not convincing to regard the PP following *break* as its complement.

Third, the relation between PP and RpP in her model is not well-motivated. The RpP projection in her model is a complement of static PP. In this way, the relation between the dynamic XP and the static PP got reversed. Take the complex PP *into* as an example. As we know, the operation of incorporation should go in a left-forward way. However, the design of Sekiguchi's model will derive the complex PP *toin*, which is obviously an undesired result. Empirical evidence from Chinese also opposes her design:

- (11) a. Qiu gun-dao zhuozi xiamian qu le.  
Ball roll-to table under go Asp  
'The ball rolled under the table.'  
b. \*Qiu gun-xia dao zhuozi qu le.  
Ball roll-under to table go Asp  
'The ball rolled under to the table.' (literary meaning)

Lastly but most importantly, Sekiguchi attributes the lack of the HAMMER-type and RUN-type resultative constructions in Romance and Japanese to the lack of the null verb *BECOME* or the lack of lexical material in the head Rp of the RpP projection in these two languages. However, I do not agree with her claim here. In my view, there should be a kind of

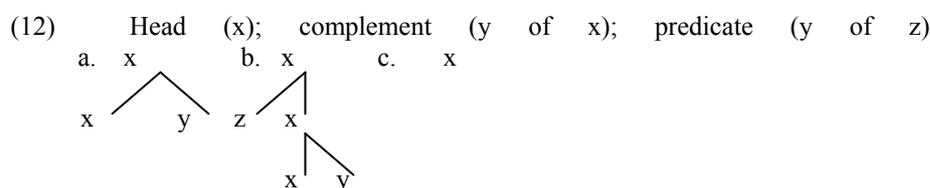
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<sup>3</sup> In my system, dimension is the form of existence of an entity in the world. There are five types of dimensions, namely time, space, property, state and degree. Spatial relations between two entities can be mapped onto other four dimensions. For example, motion in the space can be mapped onto the dimensions of state or property as changes. It is for this reason that manner-of-motion constructions exhibit parallelism with those of complex resultative constructions (Snyder, 1995). Dimension is a relative notion. Degree can be seen as a 2<sup>nd</sup> dimension to state and a 3<sup>rd</sup> one to motion. The property of an entity can be seen as the 0-dimensional existence to that entity.

parallelism between the concrete verbs and the light verbs in a language. That is, so long as a language has motion verbs like *go* and *come*, it should certainly have light verbs like *vGO* or *vBECOME*. Definitely, Japanese has motion verbs *kuru* ‘come’ and *yuku* ‘go’. Therefore, it should have the light verb *vGO* or *vBECOME*. The lack of light verb *MOVE* (or *BECOME*) or the lexical material in the Rp head of RpP is not the real reason for the systemic missing of HAMMER- and RUN- types in Japanese and Romance. The real reason is actually that the conflation of the manner verb into the light verbs is banned for some reason or it takes another form.

### 2.3 Mateu’s (2002) lexical-syntactic approach

In Mateu’s (2002) view, the abstract telic morpheme assumed to be present in English but not in Romance languages is poorly motivated. Mateu’s (2002) account of the parametric variation of resultative constructions is along the track of lexicalization pattern in Talmy’s (1991) sense. His basic argument structures are as follows:



In Mateu’s (2002) system, a structure of (12b) can be added to one of (12a) to form a complex structure. The examples are locative verbs like *shelve* and locatum verbs like *saddle*. According to Mateu, deadjectival verbs like *break* have much the same structure of locatives and locatums, with *y* conflated into *x* in (12b).

Mateu (2002) holds the idea that it is not necessary to make use of an abstract telic morpheme when accounting for the parametric variation of resultative constructions. In his view, the explanation of the lack in Romance complex argument structure constructions like those in (13 a, c) must be sought in Talmy’s (1985, 1991) lexicalization patterns:

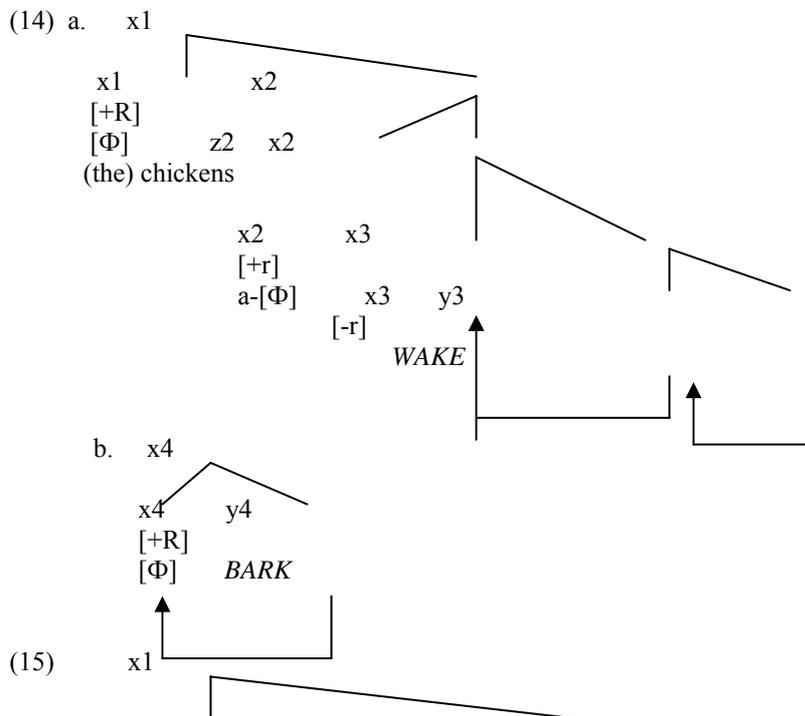
- (13) a. The boy danced into the room.  
 b. El noi entrà a l’habitació ballant (Catalan)  
 The boy went-into loc.prep the room dancing  
 c. The dog barked the chickens awake.  
 d. El gos despertà els pollastres bordant. (Catalan)  
 The dog awoke the chickens barking

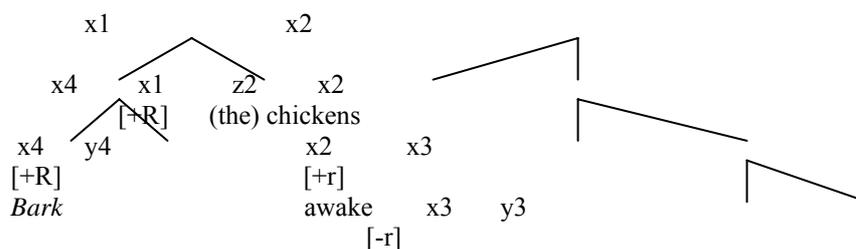
In Talmy’s (1985) terms, in satellite-framed languages like English, (13a) involves conflation of motion with manner while the counterpart of (13a) in a verb-framed language like Catalan as (13b) actually involves conflation of motion with path with the manner component being expressed as an adjunct. In Mateu’s (2002) view, it is exactly the *fossilization* of motion with path that leads to the lexical saturation in Catalan which eventually prevents this language from conflating motion with manner. The verbs in a verb-framed language like Catalan usually include *entrar* ‘to go into’, *sortir* ‘to go out’, *pujar* ‘to go up’, *baixar* ‘to go down’, *allunyar-se* ‘to go away’, *tornar* ‘to go back’ and so on. In other words, the verbs listed here are regarded as atoms as far as their morphophonological status is concerned. The morphophonological properties corresponding

to the motion verb and those corresponding to the directional preposition/particle cannot be distinguished any more. As a contrast, in satellite-framed languages like English, the directional preposition/particle is not typically conflated into the verb. If the eventive head of the unaccusative argument structure in (13a) is not filled by a phonological material like the concrete motion verb *go* or *get* as in the sentence *The boy went /got into the room*, then an unergative verb is required to be conflated into the non-saturated eventive head to provide a phonetic content for this head. In this way, a complex manner-of-motion sentence like (13a) is formed. Mateu (2002) argues that the relevant conflation process depicted for (13a) is not available in Romance since the lexical saturation of the phonological matrix of the transitional eventive head by the path element in France prevents this main unaccusative head from being conflated with a subordinate eventive head from a unergative verb.

Mateu (2002) argues that the above analysis can also be extended to complex resultative constructions like *The dog barked the chickens awake*. Following Goldberg (1995), he assumes that AP-based resultatives like the sentence listed here involve a ‘result-goal’ or an abstract terminal coincidence relation in his own term. Mateu argues that, similar to the case for manner-of-motion constructions, the directional/path element corresponding to an abstract terminal coincidence relation [+r] is lexically conflated into the verb in Romance. As a result, the conflation of this saturated eventive head with lexical material from another independent argument structure turns out to be banned.

Now turn to the English sentence (13c). As a satellite-framed language, English allows the entire abstract path element in resultatives, for example the AP *awake* in sentence (13c), to be left stranded. Consequently, the phonologically null matrix of the transitive eventive head in (14a) must be saturated by a phonologically full matrix from an independent eventive head corresponding to the unergative one in (14b). The conflation of the subordinate unergative head in (14b) into the main transitive one in (14a) is represented in (15):





Mateu's account of the parametrical variation of resultative constructions is quite insightful. But it is not without problem. In the next section, I shall examine Mateu's account and propose my own account of the cross-linguistic variation for resultatives.

### 3. A new account of cross-linguistic variation of resultatives

First of all, I agree with Mateu (2002) to the claim that the conflation of path in Talmy's sense prevents the formation of PP and AP resultatives in Romance languages. His account actually embodies the spirit of Tenny's (1987, 1994) Single Delimiting Constraint. That is, there can be at most one single delimiting in an event. As we can see, path in Talmy's sense just implies a delimiter in a motion event. And also according to Tenny's (1994) claim, secondary predicates such as APs or PPs in the resultative constructions are delimiters. Therefore, if an AP or PP is added to the verb which has already contained a delimiter, then the Single Delimiting Constraint will be violated, hence it is quite natural that Romance languages do not have the PP resultatives.

However, Mateu (2002) does not explain why languages like Romance or Japanese still have the BREAK-type of resultative constructions. And also his claim that resultatives like *He tied his shoelaces tight* or *He cut the meat thin* are adverbial spurious resultatives can not explain why these resultatives still take the same form as the true non-adverbial ones. In my view, the reason why the presence of BREAK-type and the spurious resultatives in Romance and Japanese are allowable is that these two types of resultatives actually contain two delimiters which belong to different dimensions. In the BREAK-type of resultatives like *The vase broke into pieces*, the delimiter contained in the PP is a delimiter in the 3<sup>rd</sup> dimension of degree while the delimiter contained in the telic verb *break* is in the 2<sup>nd</sup> dimension of state. They can co-occur in the same sentence. In the spurious resultatives like *He cut the meat thin*, the delimiter contained in the secondary predicate, namely the AP *thin*, is in the 0-dimension of property while that, if any, contained in the verb *cut* is in the 2<sup>nd</sup> dimension of state. Therefore, they can also co-exist in a sentence<sup>4</sup>. In my view, all the resultatives, no matter true or spurious, share the same property of resultativity. That is, they all indicate a kind of result. This is the reason why they all take the same syntactic structure. But the results they indicate might belong to different dimensions. Therefore, they show different syntactic properties.

In my view, whether the manner can be encoded in the motion verb is closely related to another element in a motion. That is the **cause** of the motion. They both belong to the second

<sup>4</sup> In my system, Tenny's (1994) Single Delimiting Constraint should be revised as "A single event can have at most one delimiter along a single dimension". It is my revised version of this constraint.

dimension as far as the concept of motion is concerned. In the self-initiated motion, the 2<sup>nd</sup> dimensional element is usually realized as the manner while in the caused motion, it is usually realized as the cause. Therefore, manner and cause can be seen as in a parallel relation. The property of cause in caused motion events will determine that of manner in self-initiated motion events. English shows different property from Romance languages and Japanese as far as their causativity is concerned (Pylkkänen, 2002; Song, 1996; inter alia). Causatives in English have two important properties. One is that they are voice-bundling (Pylkkänen, 2002). This property leads to the DOR property of resultatives in English. The other property is that they are zero-causatives. That is, the causative morpheme in English usually does not have any actual phonetic realization. Verbs like *open* or *break* will usually have two forms: one is inchoative while the other is causative. Zero-causatives can provide a vacant position, namely a null phonetic matrix, for the manner verbs to conflate into. In this way, manner verbs like *push* can be conflated into the light verb vCAUSE and resultatives like *John pushed the cart to the corner of the room* or *John hammered the metal flat* are formed. In a parallel fashion, manner verbs can also be conflated into the light verb vGO if this light verb is not realized as the actual motion verb like *go* or *come*. If, in my view, the zero-causative morpheme is replaced by another one with actual phonetic content, then, sentences like *John pushed the cart to the corner of the room* or *John hammered the metal flat* will not be formed. And we do have such cases in English. English has a few causative morphemes like *en*, *ize* or *fy* which can be attached to roots to form causative verbs. If these morphemes are used to express the notion of causativity, then, the manner verbs can only be expressed as adjuncts like those in Romance languages. This can be illustrated by the following example:

(16) John flattened the metal by hammering.

Notice here, besides whether the morpheme has an actual phonetic form or not, there is another difference between the causative morpheme *en* here and the null causative morpheme  $\Phi$  as in the causative verb like *break* or in the resultative constructions as *John hammered the metal flat* into which the manner verb is conflated. That is, the causative morpheme *en* is not only a marker of causativity but also a marker of resultativity. That is, verbs taking these morphemes are usually telic ones. It is for this reason that Ritter & Rosen (2000) take these morphemes as delimiting morphemes. In another word, these morphemes are actually delimiters. This is the very reason why verbs like *flatten* in English can not be used in the resultative constructions any more:

(17) \* John flattened the metal flat.

Quite interestingly, Embick's (2004) study shows that there is a close connection between the causative morpheme and the past participle marker *en* in English. In accordance, past participles in English can not be used in resultatives either as they have already contained a delimiter within themselves:

(18) \*Mary pounded the apple flatten.

In this way, we can classify the causative morphemes into at least three types: The first one is like the null causative morpheme used in the English sentence *John hammered the metal flat* or in the English verb *open*. They are used to indicate the cause as a process. Therefore, I shall name them as P(rocess)-causative morphemes. The second type is like the null

causative morpheme in the verb *break* in English. They are actually used as a result, but they are not delimiters as the delimiter is contained in the inchoative form of the verb which represents the core event. In this way, they can be called R(esult)-causative morphemes. The third type is like the causative morpheme *en* as in the verb *flatten* in English. They are used as a delimiter. Therefore, they can be called D(elimiting)-causative morphemes. As verbs containing R-causative and D-causative morphemes can never be used in the typical resultatives, therefore, we can summarize the necessary condition for the formation of typical resultatives as follows:

- (19) The necessary condition for typical resultatives in languages  
The necessary condition for the formation of typical resultatives in a language is that the P-causative morphemes in that language can be null<sup>5</sup>.

Quite interestingly, we find a connection between the phenomenon of causative-inchoative alternation in telic verbs and the presence of typical resultatives in a language:

- (20) If telic verbs in a language have the phenomenon of causative-inchoative alternation, then it can have the typical resultatives and vice versa.

As we know, both Chinese and English have the phenomenon of causative-inchoative alternation in telic verbs. In accordance, they both have typical resultatives like the HAMMER- and RUN-types with only a little difference between them. This actually reveals the typological resemblance of Chinese with English.

As a contrast with English, causatives in Romance and Japanese are all non-zero ones (Pylkkänen, 2002; Song, 1996; inter alia). Causatives in Japanese are realized as lexical causatives while those in Romance languages are usually realized as free morphemes. That is to say, the vCAUSE light verbs in both of these two language types are all filled by actual phonetic contents. As a result, their manner verbs will have to be expressed as adjuncts.

Besides the above-mentioned types of causativity, we actually have two other forms of causatives. One is the causativity expressed by transitive verbs like the verb *kill* in English, the verb *sha* 'kill' in Chinese, the verb *tuer* 'kill' in French and the verb *korosii* 'kill' in Japanese. The other form is the clausal form of causativity as illustrated by the following examples:

- (21) a. I made him do homework for me.  
b. Wo rang ta gei wo zuo zuo-ye.  
I make him for me do homework  
'I made him do the homework for me.'  
c. Je le lui ferai lire  
I it(ACC) her (DAT) make + FUT read  
'I'll make her read it.'  
d. Seinse -wa kiyiaotsisii-de e-o ka-kase-ta

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<sup>5</sup> The fact that a causative morpheme can be null does not mean that the causative verb can be null. In syntax, null light verbs are not allowed. They must have phonetic matrix. In the cases of caused motion sentences like *John pushed the cart into the room*, it is the manner verb *push* which provides the phonetic matrix for the null causative morpheme.

teacher-NOM classroom-LOC painting-ACC draw-CAUS-PAST  
 ‘The teacher made the students draw the picture in the classroom.’

What is significant is that APs can be used as the secondary predicates in the above clausal causatives as illustrated in the following:

- (22) a. The news made him very happy.  
 b. Zhe-ge xiaoxi rang ta hen gaoping.  
 This-CL news make him very happy  
 ‘This news made him very happy.’  
 c. Cette nouvelle lui fait grand plaisir  
 This news him make very happy  
 ‘The news made him feel very happy.’  
 d. cono niusii-wa kare-o tanosiiku-sase-ta.  
 This new-NOM him-ACC happy-CAUS-PAST  
 ‘This news made him happy.’

Next, I shall focus my attention on V-V compounds in Japanese to see whether my assumption really works for the account of V-V compounds in this language.

#### 4. V-V compounds in Japanese

I have argued in the last section that there is a kind of parallel relation between the manner component in a self-initiated motion event and the cause component in a caused motion event as they both belong to the 2<sup>nd</sup> dimensional elements in the motion. Snyder’s (1995) observation shows that languages that do not allow manner of motion verbs to take goal PPs also do not allow these verbs to have resultative constructions (Snyder, 1995; *inter alia*). This parallelism is also reflected in the syntactic behaviors in Japanese. Just like Romance, Japanese also systemically misses the typical resultative constructions, namely the HAMMER- and RUN- types, and the manner-of-motion constructions. Japanese also has a typical V-V compounds which are also called serial verb constructions which are similar, at least in appearance, to those in Chinese. It is noticed in the literature (Larson, 1991; Collins, 1997; Nishiyama, 1998; *inter alia*) that the resultative serial verb constructions and AP resultative constructions are much similar<sup>6</sup>. However, Tomioka (2003) argues that the verb serial constructions in Japanese are not resultative ones at all. There are two types of resultative serial verb constructions, namely transitive-unaccusative and transitive-transitive ones. Chinese V-V compounds are typically transitive-unaccusative resultative serial verb constructions as illustrated by the following sentence:

- (23) Zhangsan da-si le Lisi.  
 Zhangsan beat-die Asp Lisi  
 ‘Zhangsan beat Lisi dead.’

However, Japanese does not demonstrate this pattern of resultative serial verb construction at all. This can be illustrated by the following example (Tomioka, 2003: 5):

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<sup>6</sup> It is for this reason that I do not make any distinction between them and term both of them as resultatives or resultative constructions.

- (24) \*Taro-ga Jiro-o tataki-shin-da.  
 Taro-NOM Jiro-ACC pound-die-PAST  
 ‘Taro pounded Jiro dead.’ (intended meaning)

Japanese does have the common pattern of transitive-transitive (Vt-Vt) serial verb construction. For example, the intended meaning of the above sentence will usually be expressed as follows:

- (25) Taro-ga Jiro-o naguri-koroshi-ta  
 Taro-NOM Jiro-ACC strike-kill-PAST  
 ‘Taro killed Jiro by striking him/Taro struck Jiro dead.’

As we can see, the replacement of the intransitive verb *shin* ‘die’ in sentence (24) with the transitive one *koroshi* ‘kill’ in sentence (25) changed the grammaticality of the sentence. Vt-Vt compounding is the common pattern of verb serialization in Japanese. However, Tomioka (2003) argues that Vt-Vt serial verb constructions in Japanese like the above one listed here are not resultative constructions at all although they are verb serial constructions. In his view, the Vt-Vt serial verb constructions in Japanese should be treated as head-adjunction structure instead of a resultative one. That is, the first verb in this construction, which usually indicates the manner of the action, is actually adjoined to the main verb. Tomioka’s (2003) adjunction analysis about the V-V compounds in Japanese is mainly based on two observations: First, the first verb does not affect the argument structure of the V-V compound. This property of V-V compounds in Japanese can be seen from the sentence (25). As we can see, the argument structure of the V-V compound in that sentence is in agreement with that of the second verb. It is not affected by the argument structure of the first verb. The second evidence to support Tomioka’s (2003) adjunction analysis of the Japanese V-V compounds comes from the fact that Japanese V-V compounds can have a non-shared object. For a resultative serial verb construction, object-sharing is necessary (Collins, 1997; Baker, 1989; inter alia). However, this is not the case with a Japanese V-V compound. The following examples show that a V-V compound in Japanese can include a non-shared object (Tomioka, 2003: 9-10):

- (26) a. Jiro-ga Ichiro-no kubi-o shime-ta.  
 Jiro-NOM Ichiro-GEN neck-ACC strangle-PAST  
 ‘Jiro strangled Ichiro’s neck.’  
 a’. \*Jiro-ga Ichiro-o shime-ta.  
 Jiro-NOM Ichiro-ACC strangle-PAST  
 ‘Jiro strangled Ichiro.’ (intended meaning)  
 b. Jiro-ga Ichiro-o koroshi-ta.  
 Jiro-NOM Ichiro-ACC kill-PAST  
 ‘Jiro killed Ichiro.’ (intended meaning)  
 b’. \*Jiro-ga Ichiro-no kubi-o koroshi-ta.  
 Jiro-NOM Ichiro-GEN neck-ACC kill-PAST  
 ‘Jiro killed Ichiro’s neck.’ (intended meaning)  
 c. Jiro-ga Ichiro-o shime-koroshi-ta.  
 Jiro-NOM Ichiro-ACC strangle-kill-PAST  
 ‘Jiro killed Ichiro by strangling (him).’  
 c’. \*Jiro-ga Ichiro-no kubi-o shime-koroshi-ta.  
 Jiro-NOM Ichiro-GEN neck-ACC strangle-kill-PAST

‘Jiro killed Ichiro’s neck by strangling (it).’ ( literary meaning)

As we can see, the verb *korosii* ‘kill’ actually selects an animate object while *shime* ‘strangle’ selects an elongated one. However, the compound *shime-korosii* ‘strangle-kill’ selects an animate object regardless of the first verb. This fact shows that, in a Japanese V-V compound, the selectional property of the first verb might be ignored, but that of the second one should usually be respected. From the above observation, we can get the conclusion that the V-V compounds in Japanese are actually not resultative constructions at all.

The lack of typical resultative constructions in Japanese is closely related to the morphological expression of causativity in this language. Causativity in Japanese can be expressed in several ways. Except for transitive verbs like *korosii* ‘kill’ which can be used independently or as the V2 in a compound, all the other Japanese causatives are expressed by the addition of a causative morpheme to the root verb. An important property about causative morphemes in Japanese is that they can not be phonetically null. It is for this reason that causatives in Japanese are called lexical causatives. Lexical causatives in Japanese might take the forms of P-causative, R-causative or D-causative. The causative morpheme in (21d) is just an instance of P-causative in Japanese<sup>7</sup>. Some lexical causatives in Japanese are R-causatives. For example, if the active voice is to be maintained, then, a caused-motion-event sentence like *Taroo pushed the cart into the room* will be expressed in the following way in Japanese:

- (27) Taroo -wa sono caato -o haiya -no naka -ni oshi  
 Tarro NOM that cart ACC room POSS inside LOC push  
 -te hayi -lase -ta.  
 CONN enter CAUSE PAST  
 ‘Taroo caused the cart to go into the room by pushing it.’

As we can see, the causative morpheme *lase* here is added to a telic intransitive verb *hayiru* ‘enter’ to causativize it into a transitive verb. The manner verb *osii* ‘push’ is adjoined onto the main verb in a similar way as in the self-initiated motion sentences. Besides the strategy of sound-addition, Japanese also has another strategy of R-causativization. That is to change the sound of an intransitive verb<sup>8</sup>. For example, the intransitive verb *deru* ‘go/come out’ can be change into *dasii* ‘to make something go/come out’. Therefore, the sentence *Taroo pushed the cart out of the room* will be like this:

- (28) Taroo -wa sono caato -o haiya kala oshi-  
 Tarro NOM that cart ACC room from push-come-out  
 da -ta.  
 CAUS PAST  
 ‘Taroo caused the cart to come out of the room by pushing it.’

<sup>7</sup> Lexical causatives in (21d) and (22d) also take the form of clausal ones.

<sup>8</sup> This strategy is also frequently used in Chinese. However, Chinese usually change the tone of the verb to cuasativize it. For example, the verb *yin* ‘drink’ in the 3<sup>rd</sup> tone can be causativized into *yin* in the 4<sup>th</sup> tone meaning ‘to cause the animal to drink water’. A noun in Chinese can also be changed into a verb in this way. For example, the noun *qi* ‘wife’ in the 1<sup>st</sup> tone can be changed into a verb *qi* ‘to marry a girl to’ in the 4<sup>th</sup> tone.

Lexical causatives in Japanese also have many instances of D-causatives. Mostly in these cases, a lexical causative morpheme like *ase* will be added to an atelic unergative verb like *warawu* ‘laugh’ or an adjective like *kanashiyi* ‘sad’ and so on. For example:

- (29) a. Kare-wa giiaodan-o yi-te miinna-o waraw-ase-ta  
 He joke-ACC tell-CONN all-ACC laugh-CAU-PAST  
 ‘He told a joke and made all of us laugh.’  
 b. Sake-wa kare-o kanashiku-sase-ru  
 liquor-NOM him-ACC sad -CAUS  
 ‘Drinking liquor made him sad.’

From all the analyses above, we can see that Japanese does not satisfy the necessary condition for the formation of typical resultatives due to the lexical nature of causativity in this language. P-causative morphemes in Japanese can not be null. And also verbs containing R- or D-causative morphemes in Japanese are all telic ones. This actually prevents another delimiter in the same dimension from being added to them. In this way, the systemic missing of resultatives in Japanese gets explained within (the revised) Single Delimiting Constraint of Tenny (1994).

As a result of the banning of manner verbs from being conflated into the light verb vCAUSE, the intended meanings of the HAMMER-type of resultatives will have to be expressed in the bi-clausal way or in the following way where the causative verb *siiru* ‘do’ without any concrete semantic content is used with the manner, in the meantime, acting as the adjunct<sup>9</sup>:

- (30) a. Taroo-wa kinzoku-o tatai-te taira-ni shi-ta.  
 Taroo-Top metal-Acc hammer-CONN flat make-PAST  
 ‘Taroo made the metal flat by hammering (it).’  
 b. Taroo-wa zaimoku-o kikizut-te subesube-ni shi-ta.  
 Taroo-Top log-Acc drag-CONN smooth make-PAST  
 ‘Taroo made the log smooth by dragging (it).’

##### 5. The status of Chinese in Talmy’s and Wahshio’s typological patterns

The status of Chinese in Talmy’s (1991) typological pattern is all along a disputable problem in the literature. Talmy (1985, 2000) classifies Chinese as the satellite-framed language. In his view, the path in Chinese, as in English, follows the manner. As a concrete example, let us look at the following Chinese sentences:

- (31) a. Zhangsan zou-jin le fangjian  
 Zhangsan walk-enter Asp room  
 ‘Zhangsan entered the room walking/walked into the room.’  
 b. Zhangsan pao-chu le damen  
 Zhangsan run-exit Asp gate

<sup>9</sup> My personal communication with Japanese speakers shows that, unlike the HAMMER-type, the RUN-type of resultatives in Japanese usually can not be expressed in this way. They are usually expressed in the way of *hodo* ‘degree’ clauses. I shall leave the reason for future research.

‘Zhangsan walked out of the gate.’

According to Talmy’s theory, it is the verb *zou* ‘walk’ that conflates manner and motion, with *jin* and *chu* expressing path. Talmy use “in” and “out” to express the Chinese words *jin* and *chu*. But many other scholars (Tai, 2003; inter alia) claim that Chinese should belong to the verb-framed languages like Romance. Wang (2006), for example, argues that *jin* and *chu* are also verbs. It seems more appropriate to gloss them as “enter” and “exit”, as in (31), or as “go in” and “go out”. He bases his argument on two facts. The first fact is that, in Chinese, the perfective particle *le* is only used in the position immediately following a verb no matter that verb is transitive, unergative or unaccusative. The second fact he lists to support his claim is that verbs like *jin* and *chu* can be used alone, without the previous manner verb, as the main verb of a sentence:

- (32) a. Zhangsan jin le fangjian  
 Zhangsan enter Asp room  
 ‘Zhangsan entered the room.’  
 b. Zhangsan chu le damen  
 Zhangsan exit Asp gate  
 ‘Zhangsan went out of the gate.’

Based on these two facts, Wang (2006) argues that Talmy’s claim that Chinese is an English type language is not tenable. Chinese behaves like Spanish: The verb conflates path and motion together. In his view, although in (31), path immediately follows manner words *zou* ‘walk’ and *pao* ‘run’, it is evident that motion is together with path, instead of manner, which suggests that Chinese is similar to Spanish and Romance in this respect.

However, I do not agree with Wang’s claim. On the first look, it seems that the aspectual marker *le* in a Chinese compound is added to the second verb, but actually this marker is added to the compound as a whole. And what is more, if Chinese is treated as a verb-framed language as French or Japanese, then the first verb in the compound can only be treated as adjuncts like those in Japanese. The aspectual marker *le* will never be attached to the first verb. In fact, this is not the case. Look at the following example:

- (33) (Fangjian li you ren shuijiao), ta qiaoqiao-de zou le jin-qu.  
 House inside have man sleep he quietly-DE walk Asp enter-go  
 ‘As a man is sleeping in the house, he quietly walked into it.’

As we can see, here, *zou jin-qu* is a verb-particle phrase. The aspectual marker *le* is added to the verb *zou* ‘walk’. And what is more significant about this instance is the fact that, if the aspectual marker *le* is added to the verb *zou* ‘walk’, it can not be added to the particle *jin-qu* ‘enter-go’ any more:

- (34) \* (Fangjian li you ren shuijiao), ta qiaoqiao-de zou le jin-qu le  
 House inside have man sleep he quietly-DE walk Asp enter-go Asp  
 ‘As a man is sleeping in the house, he quietly walked into it.’ (intended meaning)

This shows that, in (33), what the light verb vGO conflates is the manner not the path of the motion. *Jin*, in this instance, can only be taken as a particle indicating direction. From this we can see that Chinese exhibits characteristics of satellite-framed languages like English. This property of Chinese can also be reflected from the parallel relation between the caused

motion events and the self-initiated motion events in Chinese. Caused motion events in Chinese also exhibit the same property as the self-initiated ones in (33). For example:

- (35) Ta manman-de ba xiaochē tui le jìn-lái  
 I slowly BA cart push Asp enter-come  
 'I slowly pushed the cart in.'

However, just as is pointed out by Wang (2006), Chinese has verbs like *jìn* 'enter' and *chū* 'exit' which conflate path instead of manner into motion and these verbs can be used independently. This shows that Chinese also has the property of verb-framed languages like Romance. In view of these facts, Slobin (2004) holds the view that Chinese should be classified as a third type of equipollently-framed language in that it exhibits characteristics of both verb-framed and satellite-framed languages. In Slobin's (2004) view, Chinese is a serial-verb language which is different from both English and Romance in that it allows the serialization of two verb roots which is possible in neither English nor Romance languages. Recent studies on motion events in Chinese (Chu, 2004; Chen, 2005) strongly support this view of Slobin (2004). As can be seen from (31), in Chinese manner-of-motion events, verbs marking path of movement like *jìn* 'enter' can follow a verb marking manner of movement like *zou* 'walk' to form a serial verb construction.

In this respect, Chinese exhibits a similar property with Japanese as they both allow the serialization or compounding of two verbal roots<sup>10</sup>. However, as is shown in the last section, there are also differences between the verb serialization in Chinese and that in Japanese. V-V compounds in Japanese can only be analyzed as formed by the adjunction of the first verb. For this reason, languages like Japanese are also called head-final languages. As a result, V-V compounds in Japanese can never be analyzed as typical resultatives. As I have assumed, this property of Japanese V-V compounds can be attributed to the lack of null P-causative morphemes in Japanese due to the lexical nature of causatives in Japanese. As a contrast, it is generally assumed that V-V compounds in Chinese are head-initial. Causes can be seen as a process or a manner in Chinese because P-causatives in Chinese can be null as is shown by the causative-inchoative alternation of telic verbs in Chinese:

- (36) a. Ta kāi le mén.  
 Ta open Asp door  
 'He opened the door.'  
 b. Mén kāi le.  
 Door open Asp  
 'The door opened.'

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<sup>10</sup> The property of a language in root-serialization can reveal the typological property of that language as a whole. For example, root-serialization in Chinese and Japanese shows the analyticity nature of these two languages. English does not have V-V compounds, but it has N-N compounds. Also, the satellite-framedness of English shows that English is between analytic languages like Chinese and synthetic ones like Romance.

In accordance, Chinese exhibits typical resultative constructions in both caused-motion events as shown in (35) and caused change-of-state events like the following one:

- (37) Ta ba nage tianguai chui-bian le.  
 Ta BA that iron hammer-flat Asp  
 'He hammered the iron flat.'

Due to the equipollently-framed nature of Chinese, Chinese is even more productive in resultative constructions than English. Actually, this language exhibits all the resultative types in Washio's (1996, 1997) typological pattern. (37) exhibits the HAMMER-type resultatives in Chinese. The rest three types can be shown by the following examples:

- (38) a. Ta ku-hong le yanjing.  
 He cry-red Asp eyes  
 'He cried his eyes red.' (RUN-type)  
 b. Ta da-sui le huaping  
 He break-(into) pieces Asp vase  
 'He broke the vase into pieces.'  
 c. Wo ji-jin le xiedai.  
 I tie-tight Asp shoe-lace  
 'I tied my shoelaces tight.'

## 6. Conclusion

As a summary of this chapter, I want to say a few words about the definition of typical resultatives. Typical resultatives refer to those resultatives in which the manner verb is conflated into the light verb vCAUSE like the HAMMER- and RUN-types of resultatives in English. The fact that a language misses typical resultatives does not imply that there are no resultative constructions in that languages. Resultatives, in my understanding, might have different forms. The causative sentences like *I made him do the homework*, the pure resultatives like *John made the metal flat by hammering*, the clausal resultatives like the *hodo* ones in Japanese as discussed by Sekiguchi (2003), the BREAK-type and the spurious resultatives can all be regarded as resultatives. As we can see, what Romance and Japanese lack are only typical resultatives. Except for the typical HAMMER- and RUN-types of resultatives, all the other types of resultatives are present in these two languages.

My investigations above show that there are close relations between causativity expression, lexicalization pattern, and typological properties of resultatives in a language. In this way, the lexicalization properties in the four types of languages we have discussed, namely English, Chinese, Japanese and Romance, can be summarized as follows:

(39) Lexicalization properties of English, Chinese, Japanese and Romance

	V-V compounds	Typical resultative	Manner as cause	Path into motion	0-causative
English	NO	YES	YES	NO	YES
Chinese	YES	YES	YES	YES	YES
Japanese	YES	NO	NO	YES	NO
Romance	NO	NO	NO	YES	NO

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