

Reassembly of Features in English Speakers' L2 Chinese Resultative Compound Constructions

Boping Yuan and Yang Zhao
University of Cambridge and Peking University

1. Introduction

Recently, a feature reassembly account was proposed by Lardiere (2005, 2008), which argues that L2 acquisition involves figuring out how features should be reconfigured into different formal configurations in the target language and that it is the reassembly of features that poses difficulties to L2 learners. Following this line of argument, we have conducted an empirical study investigating whether English-speaking learners of Chinese are able to reconfigure features in new clusters in their L2 acquisition of Chinese resultative compounds.¹

2. Resultatives in English and Chinese

Resultative constructions in both English and Chinese involve two events, an activity and a result. Semantically, the activity and the result have a cause-effect relationship. In an event structure, this relationship is taken as an event type of transition from one state to another (cf. Pustejovsky 1991). As we can see from the English sentence in (1a), the activity of *pounding the metal* causes the metal to become *flat*.

In English, this cause-become relationship can be conflated into one word as in *broke* in (1b). However, the conflation of these two semantic primitives is impossible in Chinese (cf. Li and Thompson 1981; Juffs 1996a, 1996b, 2000), and the Chinese verb *da* 'to hit' in (2a) only indicates an activity of 'hitting' without any resultative implication. To express the events of a cause and an effect, separate predicates like *da* 'hit' and *sui* 'break' in (2b) have to be used.

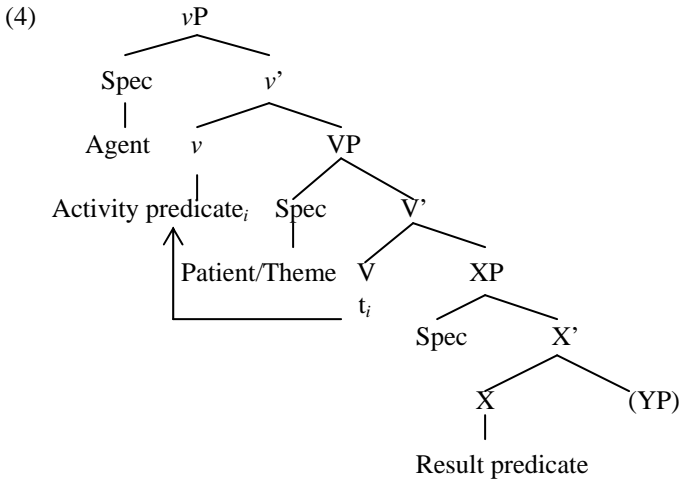
- (1) a. Tom pounded the metal flat.
b. Tom broke the vase.
- (2) a. Zhangsan da huaping.
Zhangsan hit vase
'Zhangsan hitted/was hitting the vase.' (The vase was not broken.)
- b. Zhangsan da-sui le huaping.
Zhangsan hit-break PFV vase
'Zhangsan broke the vase.'

English and Chinese have different syntactic structures. English resultative constructions generally take a linear structure as shown in (3), and in the English resultative construction, the activity verb and the result predicate are separated from each other by the object, as in (1a). We assume, by adapting Embick (2004), that English resultatives have a tree diagram as in (4). All activity verbs select a result XP as a complement, and the activity verb is base-generated at the head position of the lower VP and

¹ Lardiere (2005, 2008) is mainly concerned with feature of functional categories while features we focus in the study are thematic features and categorical selection features.

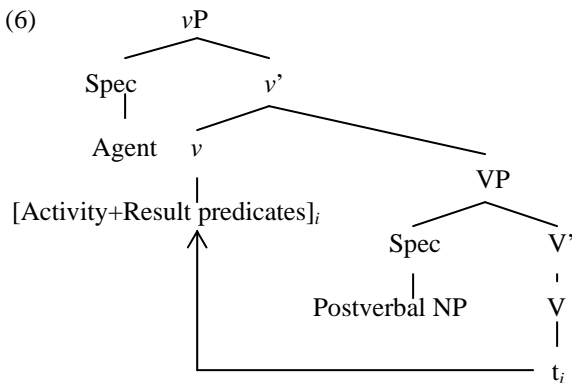
then raises to the head position of *v*P. Spec-*v*P is the position for the agent, and the Spec-VP is the position for the Patient/Theme of a transitive verb.

(3) English: Agent + Activity predicate + Patient/Theme + Result predicate



Levin and Rappaport Hovav (1995) argue that as the result predicate denotes a changed state achieved by the object NP as a result of the activity predicate, the object NP is necessarily the patient or theme of the result predicate. Let us call it a patient/theme-of-result constraint. Another constraint that they propose is that the object in the resultative construction must be a patient/theme NP subcategorized by the activity predicate. We can call it a patient/theme-of-activity constraint. This constraint specifies the necessary relationship between the activity predicate and the NP undergoing the change of state. At the same time, the patient/theme-of-result constraint obligatorily connects the patient/theme NP with the result predicate.

(5) Chinese: Agent + Activity predicate + Result predicate + Postverbal NP.



In Chinese resultative constructions, the activity predicate and the result predicate are fused together to form a verb compound like *da-sui* ‘hit-break’ in (2b),² and the word order is shown in (5).

² In Chinese, the activity predicate and the result predicate can also stand separately like *pao* ‘run’ and *lei* ‘tired’ with a complementizer DE in between, as in (i) below. However, this type of resultatives is not our concern in this paper.

- (i) Zhangsan pao de hen lei
Zhangsan run DE very tired
‘Zhangsan ran so much that he got tired.’

Here, we follow Huang (1992) by assuming the tree diagram in (6) for the Chinese resultative compound; the activity predicate selects the result predicate and they both merge into the head position of VP. From there, they raise to the head position of vP, the result of which is that the postverbal NP appears to the right of both the activity predicate and the result predicate.

Do Chinese resultative compounds obey the patient/theme-of-activity constraint and the patient/theme-of-result constraint? The answer is No. In Chinese, the postverbal NP may not necessarily be the patient or theme of the activity predicate, nor does it have to be linked to the result predicate. The resultative compound in (7a) is similar to the English resultative construction in that the object *Lisi de chizi* ‘Lisi’s ruler’ is the patient of the activity predicate *ya* ‘to press’ and that the patient object is semantically linked to the result predicate *duan* ‘broken’. This appears to suggest that the two constraints applied to Chinese as well as to English. However, as we can see in the other examples in (7), this is actually not the case. In (7b), although the object *Lisi* is the patient of the activity predicate *da* ‘beat’, thus meeting the patient/theme-of-activity constraint, it is the agent, but not the patient/theme, of the result predicate *ku* ‘cry’, thus violating the patient/theme-of-result constraint. However, the sentence is perfect in Chinese. Let’s look at the sentence in (7c), which has an unergative verb *ku* ‘cry’ as its activity predicate and *shi* ‘wet’ as its result predicate. While the NP *shoujuan* ‘handkerchief’ is the theme of the result predicate *shi* ‘wet’, thus meeting the patient/theme-of-result constraint, it is not the patient/theme of the activity predicate *ku* ‘cry’. In spite of the violation of the patient/theme-of-activity constraint, the sentence is fully grammatical in Chinese. In (7d), the postverbal NP *Lisi* has no thematic relationship with the activity predicate *ku* ‘cry’, nor is it the theme/patient of the result predicate *fan* ‘bored’, which is a psych verb and takes the postverbal NP *Lisi* as its experiencer. However, the sentence is perfect in Chinese. Another example is the sentence in (7e), where the result predicate *fan* ‘bored’ is a psych verb and takes the subject *Zhangsan* as its experiencer and has no thematic relationship with the object NP *na shou ge* ‘that song’. This violates the constraint that the object NP has to be the patient/theme of the result predicate. From the examples in (7), we can see that neither the patient/theme-of-activity constraint nor the patient/theme-of-result constraint applies to Chinese although they work well in English.³

- (7) a. Zhangsan ya-duan le Lisi de chizi.
Zhangsan press-broken PFV Lisi’s ruler
“Zhangsan pressed on Lisi’s ruler and the ruler got broken.”
- b. Zhangsan da-ku le Lisi.
Zhangsan beat-cry PFV Lisi
“Zhangsan beat Lisi and Lisi cried.”
- c. Zhangsan ku-shi le shoujuan.
Zhangsan cry-wet PFV handkerchief
“Zhangsan cried and the handkerchief got wet as a result.”
- d. Zhangsan ku-fan le Lisi.
Zhangsan cry-bore PFV Lisi
“Zhangsan cried and Lisi got bored as a result.”
- e. Zhangsan ting-fan le na shou ge.
Zhangsan listen-bore PFV that CL song
“Zhangsan listened to that song (times again) and got bored.”

³ Given the relatively free combination of the activity predicate and the result activity, Li (1990) puts forth a generalization that almost all logical combinations are allowed in Chinese resultative compounds.

3. The Empirical Study

3.1. Research questions

In the study, we ask the following research questions:

- a. In their L2 Chinese syntax, are English speakers able to allow the activity predicate to select a result predicate directly, and accommodate the postverbal NP to the right of both activity and result predicates?
- b. On the assumption of L1 transfer (cf. Schwartz and Sprouse 1994, 1996), is it possible for English speakers' L2 Chinese grammars to de-link the L1-based constraints from their L2 Chinese resultatives?
- c. Can L2 Chinese grammars reconfigure features in new clusters and allow the postverbal NP to have no thematic relation with the activity predicate as well as be the patient/theme of the activity predicate?
- d. Do L2 Chinese grammars allow the postverbal NP to bear the agent role, the experiencer role or no role, as well as the patient/theme role of the result predicate?
- e. Is it possible for the result predicate in L2 Chinese grammars to have a thematic relation with the subject NP?

3.2. Subjects

Fifty-five English-speaking learners of Chinese served as subjects in the empirical study, and we also included twenty-eight native speakers of Chinese as controls. At the time of the data collection, the English speakers were studying Chinese at universities in Beijing, China or at the University of Cambridge, UK. The native speakers of Chinese were students at a teacher training college in China. As we believe that Chinese resultative compound constructions are too sophisticated for L2 Chinese beginners to deal with, we set a criterion for recruiting English-speaking learners of Chinese for the empirical study; the subject had to have studied Chinese for at least 8 months or have lived in a Chinese speaking environment for at least 3 months.

In the experiment, each subject had first to do a cloze test, and on the basis of the scores they obtained in the cloze test, the English speakers were divided into three groups, i.e. the low-intermediate (LI) group, the high-intermediate (HI) group and the advanced (AD) group. The native Chinese speakers were in the NS group. Information of each group is given in Table 1.

Table 1: Information of subjects in each group

	Number	Average age	Cloze test (Total score =40)		Length of studying ^a	Length of living ^b
			Mean	SD		
LI Group	26	20.4	23.2	3.4	24.1	4.4
HI Group	13	21.4	31.6	1.0	42.2	6.9
AD Group	16	22.9	36.3	1.9	45.6	18.6
NS Group	28	20.8	38.6	1.3	N/A	N/A

a. The average number of months of studying Chinese

b. The average number of months of living in a Chinese-speaking environment

A one-way ANOVA test was conducted comparing the scores of each group in the cloze test, and the results reveal a significant difference between the four groups ($F(3,79)=235.101, p<0.001$). Post hoc Scheffé tests indicate that the three learner groups (i.e. the low-intermediate group, the high-intermediate group and the advanced group) differ significantly from each other ($p<0.001$) in their performance in the cloze test and each of them also differs significantly from the NS group ($p<0.001$).

3.3. Instruments and Procedures

Each subject also had to do an acceptability judgment test, which included 5 sentence types, as shown in (8). Each sentence type had three tokens. After each sentence, there was a continuum scale, as

shown in (9). The subject was asked to judge the acceptability of each sentence by circling a number on the scale. In our analysis, we take any score of “+1” or above as a sign of accepting that sentence, and any score of “-1” or below as a sign of rejecting that sentence. Mean scores around “0” are considered evidence of the indeterminacy.

(8) Sentence types:⁴

Type A: The postverbal NP is the patient/theme of both the activity predicate and the result predicate.

(The other compounds used: *da-sui* ‘hit-break’, *ti-po* ‘kick-break’.)

Zhangsan ya-duan le Lisi de chizi.

Zhangsan press-broken PFV Lisi’s ruler

“Zhangsan pressed on Lisi’s ruler and the ruler got broken.”

Type B: The postverbal NP is the patient/theme of the activity predicate and the agent of the result predicate. (The other compounds used: *ma-ku* ‘scold-cry’, *dou-xiao* ‘tease-laugh’.)

Zhangsan da-ku le Lisi.

Zhangsan beat-cry PFV Lisi

“Zhangsan beat Lisi and Lisi cried.”

Type C: The postverbal NP is the theme of the result predicate but bears no thematic relation with the activity predicate. (The other compounds used: *han-ya* ‘shout-hoarse’, *zou-lei* ‘walk-tired’.)

(At the funeral,) Zhangsan ku-shi le shoujuan.

Zhangsan cry-wet PFV handkerchief

“Zhangsan cried and the handkerchief got wet as a result.”

Type D: The postverbal NP has the experiencer role of the result predicate but bears no thematic relation with the activity predicate (The other compounds used: *chao-fan* ‘shout-bored’, *xiao-teng* ‘laugh-ache’.)

Zhangsan ku-fan le Lisi.

Zhangsan cry-bore PFV Lisi

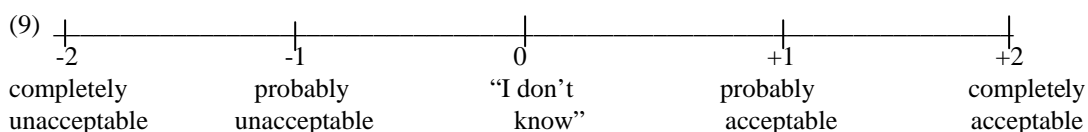
“Zhangsan cried and Lisi got bored as a result.”

Type E: The postverbal NP is the theme of the activity predicate but bears no thematic relation with the result predicate. Instead, the subject bears the experiencer role of the result predicate (The other compounds used: *chi-ni* ‘eat-bored’, *xue-fan* ‘study-bored’.)

Zhangsan ting-fan le na shou ge.

Zhangsan listen-bore PFV that CL song

“Zhangsan listened to that song (times again) and got bored.”



⁴ In this paper, we have excluded the type of resultative compound in (i) below. This is because this type of sentences are ambiguous in Chinese in a sense that either the subject or the postverbal NP can be the theme of the result predicate, *lei* ‘tired’ and it is difficult to tease apart the factors that may affect subjects’ judgment of the sentences.

(i) Zhangsan zhui-lei le Lisi.

Zhangsan chase-tired PFV Lisi

a) “Zhangsan chased Lisi and got tired as a result.”

Or b) “Zhangsan chased Lisi and Lisi got tired as a result.”

All instructions were given in the subjects' L1s, i.e. English for English-speaking learners and Chinese for native speakers of Chinese. Efforts were made to include only common and everyday vocabulary, and to minimize the effect of new words, English translations and *pinyin* (a Chinese phonetic system) were provided for some words which were considered potentially difficult for some learners.

3.4. Results and discussion

As we can see in the Type A column of Table 2, although the LI Group was somewhat indeterminate about the acceptability of the Type A sentences, the HI and AD Groups' mean scores are well above the acceptance threshold of "+1" (1.41 and 1.65), which suggests that subjects in HI and AD Groups accept Type A sentences. The LI and HI Groups are found significantly different from the NS Group in judging Type A sentences. However, the AD Group is not. This implicates that advanced learners syntactically allow the activity predicate to directly select a result predicate, so that the word order for their L2 Chinese resultative compounds is "Agent + Activity predicate + Result predicate + Postverbal NP". Their acceptance of Type A sentences also indicates that advanced learners accept the thematic structure in which the postverbal NP, *Lisi de chizi* 'Lisi's ruler', is the patient of both the activity predicate *ya* 'to press' and the result predicate *duan* 'broken'. On the assumption of L1 transfer, this should not come as a surprise because Type A sentences meet the patient/theme-of-activity constraint and the patient/theme-of-result constraint in their L1 English and they do not require re-clustering of thematic features. Then will English speakers accept sentences which violate the two thematic constraints?

Table 2: Mean scores of the groups' judgment of Chinese resultative compound constructions

	Type A (<i>ya-duan</i> "press-broken")	Type B (<i>da-ku</i> "beat-cry")	Type C (<i>ku-shi</i> "cry- wet")	Type D (<i>ku-fan</i> "cry-bored")	Type E (<i>ting-fan</i> "listen- bored")
LI Group	0.65**	0.18**	0.35*	-0.51**	0.40**
HI Group	1.41*	0.36**	0.67*	-0.69**	0.08**
AD Group	1.65	-0.61**	0.17**	-0.75**	0.92
NS Group	2.00	1.79	1.44	1.04	1.64

* The group's mean score is significantly different from that of the NS Group at $p < 0.05$.

** The group's mean score is significantly different from that of the NS Group at $p < 0.001$.

Unlike their behaviours in judging Type A sentences, none of the learner groups accepts Type B sentences, as shown in Table 2, as their mean scores are all around "0" (0.18, 0.36 and -0.61 respectively). In Type B sentences, although the postverbal NP, *Lisi*, is the patient of the activity predicate *da* 'beat', thematically it is the agent, rather than the patient/theme, of the result predicate *ku* 'cry', thus violating the patient/theme-of-result constraint. Our statistic analyses indicate that each of the learner groups, including the AD Group, is significantly different from the NS Group in their judgment of Type B sentences. The AD Group's behaviour here forms a contrast to its judgment of Type A sentences, and this is believed to be due to the violation of the patient/theme-of-result constraint involved in Type B but not in Type A because the two types share the same syntactic structure but not the same thematic structure. This suggests that English speakers, even at an advanced level, have difficulty re-assembling the thematic features.

Similarly, re-assembly of thematic features is also impossible in English speakers' L2 Chinese grammars of Type C sentences. As we can see in Type C column of Table 2, none of the learner groups has obtained a mean score above "+1", and their mean scores are all around "0", a sign of indeterminacy. Significant differences are found between each of the learner groups and the NS group, and the AD Group is not an exception. This again is in contrast with the learner groups' judgment of Type A sentences, where HI and AD Groups' mean scores are well above "+1". Given that Type A and Type C sentences share the same syntactic structure, the difference in HI and AD Groups' judgment between these two types is believed to be related to the violation of the thematic constraint in Type C;

the postverbal NP *shoujuan* ‘handkerchief’ is the theme of the result predicate *shi* ‘wet’, which meets the patient/theme-of-result constraint. However, it bears no thematic relation with the activity predicate *ku* ‘cry’, violating the patient/theme-of-activity constraint.

The findings in Types B and C are supported by the data of Type D sentences, where neither of the constraints is respected. The postverbal NP *Lisi* is neither the patient/theme of the activity predicate *ku* ‘cry’, nor the patient/theme of the result predicate *fan* ‘bored’. As we can see in Type D column in Table 2, none of the learner groups’ mean scores is above “+1”. Furthermore, each of the learner groups’ mean scores, including the AD Group’s, is significantly different from the NS Group’s. Again, this forms a contrast with the learner groups’ judgment of Type A sentences. It seems likely that the HI and AD Groups have problems de-linking the two L1-based thematic constraints from their L2 Chinese resultative compounds. The postverbal NP in Type D sentences bears an experiencer role of the result predicate *fan* ‘bored’ and has no thematic relation with the activity predicate *ku* ‘cry’, which is an unergative verb.

The learner groups’ judgment of Type E sentences seems to be different; although the LI and HI Groups’ mean scores are still at levels of indeterminacy, the AD Group’s mean score (=0.92) suggests that advanced learners tend to accept Type E sentences. Our statistic analyses indicate that significant differences are only found between the LI and HI Groups on the one hand, and the NS Group on the other, but there is no significant difference between the AD Group and the NS Group in judging this type of sentences. This is rather unexpected; although the postverbal NP, *na shou ge* ‘that song’, is the theme of the activity predicate *ting* ‘listen to’, respecting the patient/theme-of-activity constraint, it has no thematic relation with the result predicate *fan* ‘bored’. In fact, it is the subject NP, *Zhangsan*, which bears an experiencer role of the result predicate. This violates the patient/theme-of-result constraint. In spite of the violation, the advanced learners behave native-like in accepting Type E sentences. This appears to suggest that the re-assembly of thematic features is possible in English speakers’ L2 Chinese grammars, at least in sentences of Type E. However, a closer examination suggests that English speakers’ acceptance of Type E sentences is likely to be based on their L1 English grammar as English allows sentences like (10).

- (10) a. Peter received the news of his mother’s death, completely shocked.
 b. I listened to his endless boasting about himself, totally bored.

In (10), the result predicates are *completely shocked* and *totally bored*, respectively. However, they have no thematic relation with the objects, *the news of his mother’s death* and *his endless boasting*. Instead, it is the subjects *Peter* and *I* which form a thematic relation with the result predicates. Here, the subjects are the experiencers of the result predicates. Such a thematic structure transferred from English speakers’ L1 to their L2 Chinese is likely to enable their L2 Chinese grammars to accommodate sentences like Type E because Type E sentences share the same thematic structure as the English sentences in (10).⁵

4. Conclusion

The results of our study have demonstrated that there is an asymmetry between the re-configuration of syntactic features and that of thematic features in English speakers’ L2 acquisition of Chinese resultative compounds and that English speakers are unable to re-assemble thematic features for the target language. Syntactically, English speakers’ L2 Chinese grammars are able to re-assemble categorical features and allow the activity predicate to directly select the result predicate, thus obtaining the correct word order of “Agent + Activity predicate + Result predicate + Postverbal NP” in their L2 Chinese resultative compounds. However, re-clustering thematic features for Chinese resultative compounds poses difficulties to their L2 Chinese grammars, which seem only able to accommodate thematic structures permitted in learners’ L1 but are unable to implement the necessary re-clustering

⁵ Of course the syntactic structures and the use of punctuation involved in the two languages are rather different, and this is probably why Type E sentences are accepted only by advanced learners. L2 grammars may have to adapt themselves to the new syntactic environment before L1 transfer of the thematic structure can take place.

and de-linking of thematic features for the target language. The unsuccessful re-configuration of thematic structures is believed to be a source of non-native behaviours of English speakers' L2 Chinese grammars. It is not clear whether thematic features can eventually be successfully re-assembled in the final state of English speakers' L2 Chinese grammars because no representative of the final state is included in the study. However, the findings in our study do provide us with clear evidence for the argument that syntactic and thematic features should be distinguished in our L2 feature re-assembly analyses because their re-configurations do not develop in a uniform fashion in L2 acquisition.

References

- Embick, D. (2004). On the structure of resultative participles in English. *Linguistic Inquiry*, 35, 355-392.
- Huang, C.-T. J. (1992). Complex predicates in control. In R. K. Larson, S. Iatridou, U. Lahiri & J. Higginbotham (Eds.), *Control and Grammar* (pp.109-47). Dordrecht: Kluwer.
- Juffs, A. (1996a). *Learnability and the Lexicon: Theories and Second Language Acquisition Research*. Amsterdam: John Benjamins.
- Juffs, A. (1996b). Semantics-syntax correspondences in second language acquisition. *Second Language Research*, 12, 177-221.
- Juffs, A. (2000). An overview of the second language acquisition of links between verb semantics and morpho-syntax. In J. Archibald (Ed.), *Second Language Acquisition and Linguistic Theory* (pp. 187-227). Oxford: Blackwell.
- Lardiere, D. (2005). On morphological competence. In L. Dekydtspotter, R. Sprouse & A. Liljestr and (Eds.), *Proceedings of the 7th Generative Approach to Second Language Acquisition Conference (GASLA 2004)* (pp. 178-192). Somerville, MA: Cascadilla Press.
- Lardiere, D. (2008). Feature assembly in second language acquisition. In J. Liceras, H. Zobl & H. Goodluck (Eds.), *The Role of Formal Features in Second Language Acquisition* (pp. 106-140). Mahweh, N.J.: Lawrence Erlbaum.
- Levin, B. & Rappaport Hovav, M. (1995). *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.
- Li, Y.-F. (1990). On V-V compounds in Chinese. *Natural Language and Linguistic Theory*, 8, 177-207
- Li, C. & Thompson, S. (1981). *Mandarin Chinese: A functional reference grammar*. Berkley and Los Angeles: University of California Press.
- Pustejovsky, J. (1991). The syntax of event structure. *Cognition*, 41, 47-81.
- Schwartz, B. & Sprouse, R. (1994). Word order and nominative case in non-native language acquisition: A longitudinal study of (L1 Turkish) German Interlanguage. In T. Hoekstra & B. Schwartz (Eds.), *Language Acquisition Studies in Generative Grammar: Papers in honour of Kenneth Wexler from the 1991 GLOW workshop* (pp. 317-368). Amsterdam: John Benjamins.
- Schwartz, B. & Sprouse, R. (1996). L2 cognitive states and the full transfer/full access model. *Second Language Research*, 12, 40-72.

Proceedings of the 10th Generative Approaches to Second Language Acquisition Conference (GASLA 2009)

edited by Melissa Bowles, Tania Ionin, Silvina Montrul, and Annie Tremblay

Cascadilla Proceedings Project Somerville, MA 2009

Copyright information

Proceedings of the 10th Generative Approaches to Second Language Acquisition Conference (GASLA 2009)
© 2009 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 978-1-57473-434-8 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, e-mail: sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Yuan, Boping and Yang Zhao. 2009. Reassembly of Features in English Speakers' L2 Chinese Resultative Compound Constructions. In *Proceedings of the 10th Generative Approaches to Second Language Acquisition Conference (GASLA 2009)*, ed. Melissa Bowles et al., 69-76. Somerville, MA: Cascadilla Proceedings Project.

or:

Yuan, Boping and Yang Zhao. 2009. Reassembly of Features in English Speakers' L2 Chinese Resultative Compound Constructions. In *Proceedings of the 10th Generative Approaches to Second Language Acquisition Conference (GASLA 2009)*, ed. Melissa Bowles et al., 69-76. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #2258.