

Metaphor, Metaphorical Extension, and Grammaticalization: A Study of Mandarin Chinese *-qilai*¹

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This paper studies the interaction of metaphor and grammar. We first reiterate the position that grammaticalization can be motivated by metaphorical extension (e.g., the Localist Hypothesis, Lyons 1977) and propose a unified account of Mandarin *-qilai* constructions, based roughly on the account of Chang (1994). We then show that metaphorical constraints apply to aspectual *-qilai*. This result contradicts the objectivistic view that linguistic relations are necessarily arbitrary once grammaticalized. It also suggests that Conceptual Structure should not be treated as an autonomous (and thus isolated) module, such as in typical derivational theories. Rather it should be the semantic base that all grammatical components of a language have access to.

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1. V-*qilai* Constructions and Their Classification

The mono-clausal V-*qilai* construction is identified with at least three meanings in the literature (e.g., Lu et al 1984, and Yeh et al. 1993): directional as in (1), inchoative (cf. Chao 1968) as in (2), and completive as in (3).²

- (1)a. *ta tiao-le-qilai*
S/he jump-PERF-*qilai*
"S/he jumped upwards."

- b. *ta (cong di-shang) jian-qilai yi-ben shu*
S/he from ground pick-*qilai* one-CLASS book
"S/He picked up a book from the ground"

- (2)a. *lichu ku-le-qilai*
Lichu cry-PERF-*qilai*
"Lichu began crying"

- b. *xinkui renzhen-qilai-le*
Xinkui serious-*qilai*-PERF
"Xinkui become serious"

- (3)a. *laoba jishi duo-qilai*
Old-Pa in-time hide-*qilai*
"Old-Pa hid (successively) just in time"

- b. *jiang dulun matou baowei-qilai*
JIANG ferry dock surround-*qilai*
"... (completely) surrounded the ferry dock"

In this section, we will show that these three apparently dissimilar meanings can actually be derived from one identical basic meaning via interaction with the lexical semantics of different classes of verbs.

² Data cited in this article are extracted from a 20 million character corpus (Huang and Chen 1992, Huang 1994) whenever possible. When the argumentation calls for constructed examples, native speakers in addition to the authors are consulted.

1.1. Directional *-qilai*

First, since the lexical verb *qilai* 'rise-come, to (get) up' denotes upward movement, its directional use and its selection of movement and posture verbs implying upward movement is transparent as observed in Yeh et al. (1993). We also observe that the lexical meaning of *-qilai* denotes a stage, not a state. It is shown in (4) that the construction is compatible with the aspect marking of +Stage imperfective (*zheng4*)*zai4*, but not with the +State imperfective *-zhe*.³

(4)a. *zhangsan zhengzai zhanqilai de shihou ..*

Zhangsan PROG. stand-up DE time

"While Zhangsan was standing up, ..."

b. **zhangsan zhanqilai-zhe*

Zhangsan stand-up-DUR.

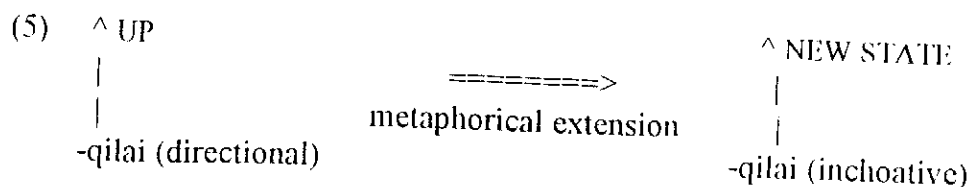
(Compare, "Zhangsan was standing (upright)" .)

This is because the affixation of *-qilai* focuses on the upward directionality of the movement. Thus it denotes the manner of a continuing activity, not a state.

1.2. Inchoative *-qilai*

Second, the inchoative construction is so-called because it denotes a situation where a new event begins and continues. This fact can be accounted for by invoking the metaphorical extension of the spatial movement to the temporal PATH (Lakoff 1987, Goldberg 1992, and Goldberg 1995).

³ Note that the general term of 'progressive' has been somewhat confusingly used in the literature to refer to the aspect marked by either *-zhe* (e.g., Chao 1968) or (*zheng4*)*zai4* (e.g., Chu 1983 and Smith 1991). I adopt Smith's (1991) feature of +Stage and +State to distinguish the two imperfective aspects. I will, however, not adopt her term of 'stative imperfective' to refer to *-zhe* since it is misleading. For instance, *-zhe* marks the most typical active construction of the imperative, as in *zuo4zhe* '(remain) seated'. Chu's (1983) term of 'concomitative' is intuitive but obscure and not defined.



(5) diagrams how the vertical spatial relation denoted by *-qilai* can be metaphorically extended to represent the temporal relation with UP as now standing for a NEW STATE, as in TO START (A NEW STATE) IS TO MOVE UP. We consider this metaphor an elaboration of the prototype metaphor ACTIVATION IS MOTION (Lakoff 1987). We observe that, even though there are instances such as 'What's up?' (as in 'What's new?'), the predicates most commonly used to instantiate this metaphor in English are 'to go' (as in 'He went crazy'). However, it can be shown that *shang4* 'up, to move up' is used in Mandarin Chinese for the TO START IS TO MOVE UP metaphor. For example:

- (6) *shang ba*
 UP PART
 "Let's go"

In addition, *shang4* also instantiates the metaphor 'TO START IS TO MOVE UP' when it occurs both as the first and second Verb (V) in a V-V compound, as in (7)-(8).⁴

⁴ It is interesting to note that *shang4*-V is ambiguous when the complex predicate is ambiguous with both a stage-level and an individual-level reading, such as 'going to school' and 'going to work'. However, even though the complex verbs containing *shang4* are ambiguous, its metaphorical extension remains identical when applied to either the stage-level or the individual-level reading, as in (i). This is further evidence for the linguistic existence of the metaphor of TO START IS TO MOVE UP in Mandarin.

- (i)a. *Xiao-Li meitian shangxue*
 Xiao-Li everyday UP-school
 "Xiao-Li goes to school everyday"
- b. *Xiao-Li shiliusui shangxue*
 Xiao-Li sixteen-year UP-school
 "Xiao-Li started school at sixteen"

(7) *shang-yin de qingshaonian bu shao*

UP-addiction DE youth-teenager NEG few

"(The number) of the youth and teenagers who became addicted is not small"

(8) *ta ai-shang-le tongban tongxue*

s/he love-UP-PERF same-class schoolmate

"S/He fell in love with her/his classmate"

The use of a distinct morpheme *shang*⁴, both as an independent word and as a dependent morpheme in a complex predicate, to represent the same metaphoric extension provides independent evidence for the existence of the metaphor TO START IS TO MOVE UP in Mandarin Chinese. Based on the attested existence of this metaphor, we will elaborate below on how a slightly different meaning is assigned when the extension is marked by *-qilai*.

First, since the lexical item *qilai* marks both the spatial and the metaphoric meaning, this metaphorical extension account correctly predicts the facts that (i) movement verbs, and other verbs compatible with the directional reading, are ambiguous with both readings and can be disambiguated by context, as in (9)-(10); and that (ii) non-movement verbs, such as the activity verb *ku* 'to cry' (2a) and the state verb *renzhen* 'to be serious', are unambiguous and can only have the inchoative reading.⁵

(9) *ta (cong di-shang) tiao-le-qilai*

S/he from ground-top jump-PERF-qilai

"S/he jumped upwards from the ground"

(10) *ta yi-ting yinyue jiu tiao-le-qilai*

S/he one-hear music JIU jump-PERF-qilai

"S/he starts jumping/dancing as soon as s/he hears the music"

⁵ Although the orientation of the inchoative aspect is compatible with the orientational metaphor FUTURE IS UP, we feel that the 'up' direction of the future is an inherent nature of our linguistic representation of time instead of the central metaphoric use in this construction. This position is supported by the fact that the inchoative *-qilai* does indeed occur in the past time.

(i) *Zhangsan sange zhongtou qian chang-le-qilai*,

Zhangsan 3-CLS hour before sing-LE-qilai

dao xianzai hai mei ting

till now yet NEG stop

"Zhangsan started to sing three hours ago and has not stopped yet"

Second, since the predicate *qilai* denotes upward motion, it is natural for a metaphor-based account to predict that both the directionality (i.e., UP) and the path of the motion (i.e., the upward route) could be mapped. This suggests that the viewpoint focus of *-qilai* could be on the continuation of the situation (i.e., the upward portion of the movement). We have shown that the lexical semantics of directional *-qilai* is not compatible with the +State imperfective aspect *-zhe* even though it can be marked by the +Stage imperfective (*zheng4*)*zai4*. However, the inchoative *-qilai* does not allow additional marking by the +Stage imperfective (*zheng4*)*zai4*, as in (11b).

(11) *zhangsan zhengzai tiao-qilai de shihou ..*

Zhangsan PROG. jump-up DE time

- a. "While Zhangsan was jumping up, ..."
- b. BUT * "While Zhangsan was beginning jumping ..."

The interpretation of (11) provides further evidence for the fact that the viewpoint focus of the inchoative aspect *-qilai* is on the continuation of the situation. We assume that the V-*qilai* construction does not allow the marking of (*zheng4*)*zai4* because the lexical semantics of (*zheng4*)*zai4* conflicts with the lexical semantics of *-qilai*. (*Zheng4*)*zai4* implies a progress event composed of stages while *-qilai* implies a progress event with a continuing state. In addition, we also predict the fact that inchoative V-*qilai*, as an imperfective predicates does not co-occur with durational adjuncts, but does co-occur with change-of-state adjuncts.⁶

The contrast in (12)-(14) below show that *-qilai* as a marked imperfective aspect has different distributions from either the stative imperfective *-zhe* or the perfective *-le*. The a) sentences contain a durational adjunct *santian*, which is not compatible with imperfective events. The b) sentences contain a durational adjunct *yizhi*, which is not compatible with bounded events. Lastly, the c) sentences contain a change-of-state adjunct *turan*, which is incompatible with un-bounded events. Take note that sentence final *-le* in (14c) is accounted for as marking a new state.

(12)a. **Ta congming-qilai-le santian*

S/He clever-*qilai*-PERF three-day

⁶ Thus *-qilai* marks an imperfective aspect, as argued in Chang (1994) but contrary to Smith's (1991) claim that it is telic by virtue of its start point

b. **Ta yizhi congming-qilai-le*
S/He always clever-*qilai*-PERF

c. *Ta turan congming-qilai-le*
S/He suddenly clever-*qilai*-PERF
"S/He suddenly became clever"

(13)a. **Ta ting-zhe santian*
S/He listen-DUR three-day

b. *Ta yizhi ting-zhe*
S/He always listen-DUR
"S/He has always been listening"

c. **Ta turan ting-zhe*
S/He suddenly listen-DUR
"S/He suddenly became clever"

(14)a. *Ta bing-le santian*
S/He sick-PERF three-day
"S/He has been sick for three days"

b. **Ta yizhi bing-le*
S/He always sick-PERF

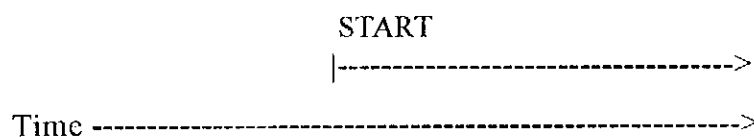
c. *Ta turan bing-le*
S/He suddenly sick-NEW_STATE
"S/He suddenly became sick"

Like other imperfective constructions (13a), V-*qilai* constructions do not take post-predicative durational adjuncts (12a). However unlike typical imperfective predicate (13b), but like a bounded event (14b), it does not co-occur with a durative adjunct (12b). In addition, they co-occur with the change-of-state manner adjunct *tu2ran2*, exemplified by (12c). This is because their event structure has the start point marked, allowing the change-of-state interpretation. This behavior is unlike typical imperfective constructions, and hence our classification of the inchoative -*qilai* as a marked imperfective aspect.

1.3. Completive *-qilai*

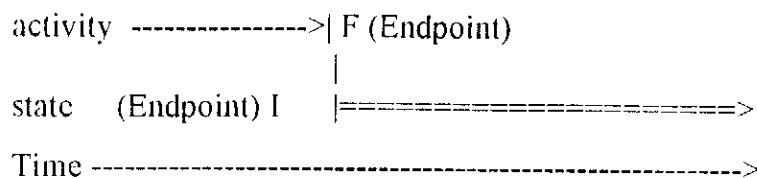
Lastly, this grammaticalization account is extended to the recalcitrant completive *-qilai*. Previous literature usually simply lists this use due to the opaqueness of its meaning, especially when the meaning of completive seems to be opposite of that of inchoative (i.e., to start). We first observe that this use is limited to a small class of verbs and that they are in complimentary distribution with verbs occurring with inchoative *-qilai*. We next observe that these verbs all have a locatum argument (subject of *duo* 'to hide' and object of *baowei* 'to surround' as in (3)) and can denote both the activity affecting the locatum and the state/location of that locatum. Further, the implication is that the initiation of the state coincides with the completion of the activity (e.g., the locatum is surrounded only when the activity of encircling is completed, and the locatum is hidden only when the activity of hiding is completed.) In other words, the lexical semantics of these verbs are inherently complex with an event structure that include both activity and state tiers. Verbs with such event structures belong to the traditional classification of accomplishment predicates (cf. Vendler 1967).

We adopt the above two-tier representation of the conflated event structure of the accomplishment predicates selected by completive *-qilai* such that their interaction with the viewpoint focus of the aspects (Smith 1991) can be easily illustrated.⁷ When the aspect of *-qilai* (15) is mapped to an event structure, the only possible convergence is (16a). The highlighted double arrow in (16) indicates that the viewpoint focus is on state. (16b) explicates the application of this imperfective viewpoint focus with the verb *baolwei*.

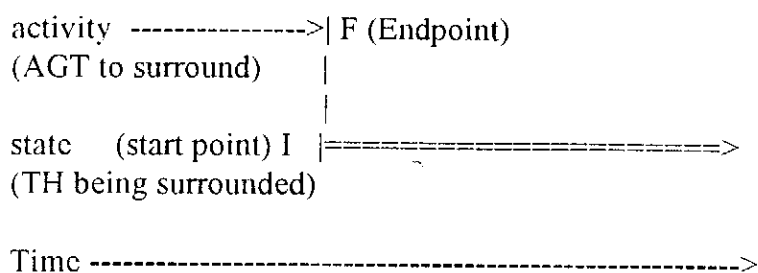
(15) Inchoative/completive *-qilai*

⁷ Smith uses 'F' to stand for 'Final' and 'I' to stand for 'Initial'. 'Endpoint' refers to either end of a continuum (i.e., an 'Initial endpoint' (also a start point) and a 'Final endpoint').

(16)a. Event Structure of Verbs selected by Completive *-qilai*



b. Event Structure of *baolwei2* 'to surround'



With (17a), we show that the progressive aspect marking can focus on the activity tier of the event, while in an unmarked sentence (17b) the aspect tends to be focused on the state tier.

(17)a. Meijun zhengzai baowei haidi
America-army PROG surround Haiti
"The U.S. armed forces are encircling Haiti"

b. Meijun baowei haidi
America-army surround Haiti
"The U.S. armed forces has surrounded Haiti"

The interaction of the two tiers can be more vividly highlighted with an unaccusative predicate as in (18).

(18)a. xiaotou zhengzai duo (jingcha)
thief PROG hide police
"The thief is evading (the police)"

b. xiaotou duo-qilai-le
thief hide-qilai-LE
"The thief is hiding"



While the +Stage imperfective aspect (*zheng4*)*zai4* focuses on the on-going activity without referring to either endpoint, the imperfective *-qilai* focus on the continuation of an event with an (linguistically unmarked) initial endpoint. With the event structure thus stipulated, the aspect *-qilai* can only bring focus on the state tier of these complex predicates. However, since the final endpoint of the activity and the initial endpoint of the state necessarily coincide for an accomplishment verb, the semantic implicature of completion of the activity is inferred and the completive reading derived.

Thus, the completive *-qilai* is not a different construction but only a special case of inchoative *-qilai*. This analysis not only explains the completive meaning, and the fact that completive and inchoative *-qilai* co-occur with complimentary sets of predicates, it also correctly predicts the identical distribution of the two alleged constructions with regard to three types of adjuncts, as demonstrated by (19), in comparison with the inchoative constructions exemplified by (12).

(19)a. **Ta duo-qilai-le santian*
S/He hide-*qilai*-PERF three-day

b. **Ta yizhi duo-qilai-le*
S/He always hide-*qilai*-LE

c. *Ta turan duo-qilai-le*
S/He suddenly hide-*qilai*-PERF
"S/He suddenly hid him/herself"

II. Grammaticalization and Metaphoric Extension

In this section, we study the interaction of metaphor and grammaticalized metaphorical extension by examining the assumption that grammaticalized elements are semantically bleached. We will show that, in spite of the grammaticalization process, these predicates cannot contradict the metaphor that they are based on. This result has very important implications for the structure of the grammar and gives us interesting insights regarding how metaphorical extensions work in language.

We first observe that the inchoative *-qilai* is seemingly free from the semantic restrictions of other Orientational Metaphors (Lakoff and Johnson 1980). For instance, to cry is sad, and SAD IS DOWN. Nevertheless, *ku-qilai* occurs with the inchoative meaning (1a). The following examples from the CKIP corpus also suggest that grammaticalization motivated by metaphoric

extension is not contradicted by semantically contrary non-orientational metaphors.

- (20) *youdian zi-bei-qilai*
 somewhat self+inferior-*qilai*
 "[S/he] started to feel somewhat inferior"

- (21) *ta zhengge ren dou weishuo-qilai,*
 s/he whole person ALL withdraw-*qilai*
zhi xiang suojin ying-ke-li
 only want shrink-into hard+shell-IN
 "S/he became withdrawn in every respect, and only wanted to shrink into a hardshell"

- (22) *yi xiayu, wuzi sizhou de jinguan dunshi yin-yu-qilai*
 once rain house environs DE scene suddenly dark+gloomy-*qilai*
 "Once it rains, the surroundings of the house all of a sudden become dark and gloomy"

From (20)-(22), we can see that all three predicates that *-qilai* attaches to seem to involve the orientational metaphor of DOWN or LOW. Hence *zi-bei* involves low self-esteem in (20); *suo-jin* involves shrinking and down-sizing in (21), and *yin-yu* involves becoming gloomy as in (22).

However, it can also be observed that the above three predicates refer to the event that leads to these states, but not the states that the metaphors refer to directly. Thus we have 'to have low self-esteem,' 'to shrink into,' and 'to become dark and gloomy' respectively. Similarly, the inchoative focus for *ku-qilai* is on the activity of crying without direct reference to the state of sadness. Thus these examples only *appear* to contradict the orientational metaphor. Indeed, among the 736 instances of predicates occurring before *-qilai* in the 10 million word CKIP corpus, there is no instance directly involving the contradictory DOWN metaphor.

- | | |
|---|----------------|
| (23)a. <i>*jian-qilai</i> (subtract- <i>qilai</i>) | [MORE IS UP] |
| b. <i>*chu-qilai</i> (divide- <i>qilai</i>) | [MORE IS UP] |
| c. <i>*huai-qilai</i> (bad- <i>qilai</i>) | [HEALTH IS UP] |
| d. <i>*bing-qilai</i> (ill- <i>qilai</i>) | [HEALTH IS UP] |

- | | |
|---|----------------|
| c. <i>*beishang-qilai</i> (sad- <i>qilai</i>) | [HAPPY IS UP] |
| f. <i>*duoluo-qilai</i> (debase- <i>qilai</i>) | [VIRTUE IS UP] |

On the other hand, many instances were found in which *-qilai* appeared with compatible metaphors. For example:

- | | |
|--|----------------|
| (24)a. <i>jia-qilai</i> 'to add up' | [MORE IS UP] |
| b. <i>cheng-qilai</i> 'to multiply' | [MORE IS UP] |
| c. <i>hao-qilai</i> 'to become well, to recover' | [HEALTH IS UP] |
| d. <i>jiankang-qilai</i> , 'to become healthy' | [HEALTH IS UP] |
| e. <i>gaoxing-qilai</i> 'to become happy,' | [HAPPY IS UP] |
| f. <i>shoufa-qilai</i> 'to become law-abiding' | [VIRTUE IS UP] |

Even though their semantic counterparts are attested in (24), the constructed unacceptable predicate *-qilai* sequences in (23) never showed up in our large corpus, and are considered impossible (with regard to the inchoative reading) by the native speakers we consulted as well. Since their semantic counterparts take *-qilai*, this restriction cannot involve the grammatical selection of the inchoative aspect but the conceptual selection of the metaphors.

The logical explanation is that these verb-aspect constellations, if allowed, would simultaneously contain two contradictory metaphors (UP from *-qilai*, and DOWN from the predicate), and are therefore semantically anomalous. The above observation can also be extended to the verbs selected by the completive *-qilai*: **tao-qilai* (to escape, DISAPPEARANCE IS DOWN).

A further complication that actually supports the above position is that there is no such restrictions on the metonymic extension of conditional *-qilai*, as in (25) (Chang 1994, Liu 1994).

- (25) ta bing-*qilai* dou yao hao ji ge yue cai hao
 s/he sick-*qilai* ALL need good several CL month ONLY well
 "When s/he gets sick, it will always take him/her several months to
 recover"

Chang (1993) observes that conditional *-qilai* occurs only in the subordinate clause of a bi-clausal constructions. It is claimed in Liu (1994) that this use can be considered a metonymic extension of the inchoative *-qilai*. The

metonymic extension can be explicated on the basis of our event-structure account of inchoative *-qilai*. In our account, inchoative *-qilai* invokes the metaphor of TO START IS TO MOVE UP. However, in terms of viewpoint aspect, its focus is on the continuity of the event after the startpoint. Thus it could be extended to refer to the duration of that event. Next, the conditional meaning is metonymic with the (concurrent) duration. Adopting this account, the conditional *-qilai* makes no direct reference to an UP metaphor and will not be contradictory with predicates involving a DOWN metaphor.

Lastly, this account underlines the crucial position the lexicon plays in the grammar and will interact with a theory of lexical diffusion (Wang 1969) to accommodate speaker variations with regard to grammatical judgments. When a linguistic item is sufficiently lexicalized, such as when *duo4luo4* (fall-fall) 'to debase' loses its 'falling downwards' meaning for a speaker, then the *duo4luo4-qilai* 'to start to become debased' verbal constellation will no longer be a contradiction for that speaker. Hence it should and does occur for some speakers, as attested by the fact that several speakers we questioned found this construction acceptable though somewhat marked.

III. Concluding Remarks: Conceptual Structure and the Grammar

To sum up, we offer a unified account of the various V-*qilai* constructions based on metaphoric extensions. We show that the inchoative *-qilai* is actually a metaphoric extension of the straightforward directional *-qilai* based on the metaphor TO START IS TO MOVE UP. In addition, the completive *-qilai* is actually a special case of inchoative *-qilai* when the predicate involves a conflated complex event structure. Since the TO START IS TO MOVE UP metaphor can only be applied to the open-ended part of the event structure, it is applied to the STATE portion of the complex event and the completive meaning is derived since the start of STATE denoted by these accomplishment predicates coincides with the completion of an ACTIVITY. In addition, we also suggested that the conditional *-qilai* can be accounted for as a metonymic extension of the inchoative *-qilai*. The extension will be from the viewpoint focus on the continuity of the inchoative to the duration of the conditional. This account offers support of Liu's (1994 & 1995) claim of V-V compounds forming a radial category in Mandarin.

A small but crucial fact observed in this paper is that even though the metaphoric extension of TO START IS TO MOVE UP motivates the grammaticalization of the inchoative aspect *-qilai*, it still interacts with other metaphors. We observe that the grammatical marking of the inchoative

aspect with *-qilai* is impossible when the predicate itself represents the contradictory metaphor of DOWN. This is somewhat surprising given the standard formal assumption that grammaticalization is characterized by the loss of extra-grammatical influences. To account for the data involving *-qilai*, we must abandon this assumption and assume instead that conceptual structures interact at all grammatical levels. Thus, this study not only offers support for the position that language and concepts can be physically-grounded through the mapping of metaphorical extension (Lakoff 1987), it also suggests that such metaphorical extensions must be mapped to the same physical background if they are referring to the same event. It is this identical base of the oriental space that allows us to predict that a verb involving a DOWN metaphor cannot co-occur with the *-qilai* aspect containing a UP metaphor.

The above metaphor-based account has important implications for the modular representation of linguistic competence in general and on the position of conceptual structure in particular. The standard assumption of generative theories seems to be that there is a single monotonic mapping from conceptual structure to the lexicon to syntax (e.g., Bresnan and Kanerva (1989) and Jackendoff (1972)). This view predicts that there will be no interaction between conceptual structure and grammaticalized elements. The interaction between metaphors and the selection of the inchoative aspect of *-qilai* suggests otherwise.

Thus, our study suggests that conceptual structure is not autonomous but can be accessible to all lexical and grammatical operations through the lexicon via the mechanisms of metaphorical and metonymic extensions. In addition, we also found that orientational metaphors involved in the same verb constellation are mapped to the same orientational space. This fact provides the conceptual basis of semantic restrictions on the collocation of *-qilai* and verbs as well as additional strong support for metaphor-based conceptual operations across grammatical modules.

References

- Bresnan, Joan and Jonni M. Kanerva. 1989. Locative Inversion in Chichewa: A Case Study of Factorization in Grammar. *Linguistic Inquiry*, 20.1.1-50.
- Chang, Shen-Min. 1993. V-*qilai* Compounds in Mandarin Chinese. *Proceedings of the First Pacific Asia Conference on Formal and Computational Linguistics*, 62-81.

- _____, 1994. *V-qi-lai Constructions in Mandarin Chinese: A Study of Their Semantics and Syntax*. Unpublished M.A. Thesis. National Tsing Hua University.
- _____, and Chu-Ren Huang. 1994. The Semantics of *Qilai* in Mandarin: Directionality and Inchoativity. [In Chinese] *Proceedings of the Fourth International Conference on Teaching Chinese as a Foreign Language*. Volume on Linguistic Analysis. Pp. 147-157. Taipei: World Chinese Association.
- Chao, Yuan Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley: University of California Press.
- Chu, Chauncey Cheng-hsi. 1983. *A Reference Grammar of Mandarin Chinese for English Speakers*. New York: Peter Lang.
- Goldberg, Adele E. 1992. In Support of a Semantic Account of Resultatives. *CSLI Technical Report* 92-163.
- _____, 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- Huang, Chu-Ren. 1994. Corpus-based Studies of Mandarin Chinese: Foundational Issues and Preliminary Results. In M. Y. Chen and O. J.-L. Tzeng. Eds. *In Honor of William S-Y. Wang: Interdisciplinary Studies on Language and Language Change*. Pp. 165-186. Taipei: Pyramid.
- _____, and Keh-jian Chen. 1992. A Chinese Corpus for Linguistic Research. In the *Proceedings of the 1992 International Conference on Computational Linguistics (COLING-92)*. pp. 1214- 1217. Nantes, France.
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge: MIT Press.
- Lakoff, George. 1987. *Women, Fire, and Dangerous Things*. Chicago: University of Chicago Press.
- _____, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.

- Liu, Meichun. 1994. Semantic Schema and Metaphorical Extension: A Study of the Mandarin V-R Compounds as a Radial Category. In the *Proceedings of the Fourth International Symposium on Chinese Languages and Linguistics*. 462-473. Taipei: Academia Sinica.
- _____. 1995. Conceptual Manipulation and Semantic Distribution: The Case of Mandarin Post-verbal *de*-Complaints. In this Volume.
- Lu, Shu Xiang et al. 1984. *Xiandai Hanyu Ba Bai Ci* [Eight Hundred Words in Modern Chinese]. Hong Kong: Shangwu.
- Lyons, John. 1977. *Semantics*. Cambridge: Cambridge University Press.
- Smith, Carlota. 1991. *The Parameter of Aspect*. Dordrecht: Kluwer.
- Vendler, Zeno. 1967. *Linguistics in Philosophy*. Ithaca: Cornell University Press.
- Yeh, Mei-li, Zhao-ming Gao, and Chu-Ren Huang. 1993. On the Interpretation of V-*qilai*: A Corpus-based Study. Presented at the Second International Conference on Chinese Linguistics (ICCL-II). Paris. June 23-25.
- Wang, William S.-Y. 1969. Competing Changes as a Cause of Residue. *Language*. Vol. 45. pp.9-25.