

GRAMMATICAL REPRESENTATION OF IDIOM CHUNKS

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This paper discusses idiom chunks, specifically the VO collocation type, e.g., *pai1 ma3pi4* (pat horse-ass) 'to flatter' and *chi1 dou4fu3* (eat tofu) 'to flirt', in Chinese, including the so-called 'possessive object' construction, such as *pai1 ta1-de ma3pi4* (pat he-POSS horse-ass) 'to kiss his ass'. I will demonstrate with relevant facts and argue within the lexical functional theory, especially within its lexical mapping theory, that the ambiguous (literal and idiomatic) readings of idiom chunks cannot be adequately accounted for within the c-structure, the f-structure, or the thematic structure. I propose a solution that integrates Lakoff's (1987) 'motivation' account of idioms and lexical specifications in LFG.

This paper is organized as follows. Section 1 gives a definition of idioms and discusses the variation among the syntactic constraints that idiom phrases impose on the idiomatic interpretations. Section 2 then discusses the c-structure solution implied in the treatment of VO compounds by Chao (1968) and Li and Thompson (1981). Section 3 is a critical review of the f-structure account that Huang (1986, 1990a) argues for. Bresnan's (1982b) 'classical' analysis of idiom chunks, which involves the thematic structure and non-thematic functions, is examined in section 4. In section 5, I will propose a solution that views idioms as lexicalized metaphors within the overall framework of Lakoff (1987) and LFG. Section 6 concludes the paper.

1. IDIOMS AND SYNTACTIC CONSTRAINTS

The expressions covered under the term 'idiom' in the literature are diverse (e.g., Everaert, van der Linden, Schenk, and Schreuder 1995). An idiom is defined in the discussion here as a phrase with an intended meaning different from the literal meaning of the whole phrase, and perhaps more importantly, such an idiomatic interpretation is available only when this phrase appears in a limited range of syntactic environments. Idioms thus have two defining characteristics: non-literal meaning and arbitrary syntactic constraints.

I will now illustrate these two points more extensively and systematically, but not exhaustively, with some of the syntactic and functional restrictions that VO idioms may impose in Chinese. The two examples used here are *chi1 dou4fu3* (eat tofu) 'to flirt (with)' or 'to take (sexual) advantage' and *peng4 ding1zi* (knock-against nail) 'to be rejected' or 'to face a rejection'. Note that = indicates that the literal reading is available, # the idiomatic reading.

A. Syntactic behavior of O in VO idioms:

I. Modification of O

a. numerical quantification (number + measure word, e.g., *kuai4* 'piece' for tofu or classifier *gen1* for nails.)

17. Ta1 chi1 le yi1 kuai4 dou4fu3. (=)

He ate a piece of tofu.

18. Ta1 peng4 le yi1 gen1 ding1zi. (=,#)

He suffered a rejection.

b. mass quantification, e.g., *bu4shao3* 'a lot of'.

19. Ni3 chi1 le ta1 bu4shao3 dou4fu3. (=,#)

You flirted with her quite a bit.

20. Ni3 peng4 le ta1 bu4shao3 ding1zi. (=,#)

You were rejected by her quite a few times.

c. adjective, e.g., *nen4* 'tender' and *ruan3* 'soft', without DE (note however, *dou4fu3* can only be modified by *nen4*, *ding1zi* only be *ruan3*. Neither idiom takes a wide range of adjectives.)

21. Ta1 zhuan1 chi1 nen4 dou4fu3. (=,#)

He flirts with the young ones only.

22. Ta1 peng4 le yi1 ge ruan3 ding1zi. (=,#)

He was subtly rejected.

d. adjective with DE

23. Ta1 zhuan1 chi1 nen4 de dou4fu3. (=)

He only eats tender tofu.

24. Ta1 peng4 le yi1 ge ruan3 de ding1zi. (=)

He knocked against a soft nail.

e. *zhe4/na4 zhong3* 'this/that kind'

25. Ta1 bu4 hui4 chi1 zhe4 zhong3 dou4fu3. (=,#)

He won't flirt like this.

26. Ta1 bu4 hui4 peng4 zhe4 zhong3 ding1zi. (=,#)

He won't face this kind of rejection.

f. determiner

27. Ta1 chi1 le zhe4 dou4fu3. (=)

He ate this tofu.

28. Ta1 peng4 le zhe4 ding1zi. (=,#)

He suffered this rejection.

g. time phrase, e.g., *zuo2tian1* 'yesterday', with DE

29. Zuo2tian1 de dou4fu3 hai2 mei2 chi1 gou4 ma1? (=,#)

Didn't you do enough flirting yesterday?

30. Zuo2tian1 de ding1zi mei2 peng4 gou4 a? (=,#)

Didn't you get enough rejections yesterday?

h. duration phrase, e.g., *ban4tian1* 'quite a while', with or without DE

31. Ta1 chi1 le ban4tian1 de dou4fu3. (=,#)

He flirted for quite a while.

32. Ta1 peng4 le ban4tian1 de ding1zi. (=,#)

He suffered rejections for quite a while.

i. frequency phrase, e.g., *san1 ci4* 'three times', with or without DE

33. Ta1 chi1 le san1 ci4 dou4fu3. (=,#)

He flirted three times.

34. Ta1 peng4 le san1 ci4 ding1zi. (=,#)

He was rejected three times.

j. possessive NP with DE

35. Ta1 chi1 wo3 de dou4fu3. (=,#)

He flirted with me.

36. Ta1 peng4 le wo3 de ding1zi. (=,#)

He was rejected by me.

k. possessive NP without DE

37. Ta1 chi1 wo3 dou4fu3. (=,#)

He flirted with me.

38. *Ta1 peng4 wo3 ding1zi.

II. 'Movement' of O

l. Bare topic

39. Dou4fu3 ta1 chi1 duo1 le. (=)

Tofu, he ate quite a bit.

40. Ding1zi ta1 peng4 duo1 le. (=,#)

He suffered a lot of rejections.

m. Modified topic

41. Zhe4 zhong3 dou4fu3 ni3 ye3 gan3 chi1? (=,#)

How dare you flirt like this?

42. Zhe4 zhong3 ding1zi ta1 chang2 peng4. (=,#)

He often gets this kind of rejections.

n. BA construction

43. Ta1 ba3 dou4fu3 chi1 le. (=)

He ate the tofu.

44. Ta1 ba3 ding1zi peng4 le. (=)

He knocked against the nail.

o. BEI construction

45. Ta1 de dou4fu3 bei4 ni3 chi1jin4 le. (=,#)

She has been fully taken advantage of by you (sexually).

46. Ta1 de ding1zi bei4 ni3 peng4jin4 le. (=)

Her nails were all knocked against by you.

p. cleft

47. Ta1 chi1 de ke3 shi4 ni3 de dou4fu3. (=,#)

It was you after all that he flirted with.

48. Ta1 peng4 de ke3 shi4 ni3 de ding1zi. (=)

It was your nails that he touched.

q. relativized O

49. Ni3 chi1 de dou4fu3 hai2 bu2 gou4 duo1 a? (=,#)

Haven't you done enough flirtations?

50. Ni3 peng4 de ding1zi hai2 bu2 gou4 duo1 a? (=,#)

Haven't you had enough rejections?

III. Anaphora of O

r. verb copying (within a sentence):

51. Ni3 chi1 ta1 de dou4fu3 chi1 le ban4tian1. (=,#)

You have been flirting with her for quite a while.

52. Ni3 peng4 ta1 de ding1zi peng4 le ban4tian1. (=)

You have been touching her nails for quite a while.

s. Purposive clause

53. Ta1 zhuan1 zhao3 nen4 dou4fu3 chi1. (=,#)

He seeks out the young ones to flirt with.

54. Ta1 zhuan1 zhao3 ruan3 ding1zi peng4. (=)

He seeks out the soft nails to touch.

t. Discourse recovery

55. Ta1 hen3 hui4 chi1 dou4fu3, chi1 de hen3 ji4qiao3. Bei4

chi1 de ren2 gen1ben3 bu4 zhi1dao4. (=,#)

He is very good at flirting, and does so skillfully.

Sometimes, the person he's flirting with doesn't even realize it.

56. Wo3 kan4 ta1 lao3shi4 peng4 ding1zi. Wei4she2me ni3

hen3shao3 peng4? (=,#)

I see that he often gets rejected. How come it seldom happens to you?

B. Syntactic Behavior of V in VO Idioms

u. aspect marker

57. Ni3 chi1 guo4 ta1 de dou4fu3. (=,#)

You have flirted with her before.

58. Ni3 peng4 guo4 ta1 de ding1zi. (=,#)

You have been rejected by her before.

v. resultative

59. Ni3 chi1-bu2-dao4 ta1 de dou4fu3. (=,#)

You wouldn't get to flirt with her.

60. Ni3 peng4-bu2-dao4 ta1 de ding1zi. (=,#)

You wouldn't get rejected by her.

w. reduplication

61. Wo3 chi1 le chi1 ta1 de dou4fu3. (=,#)

I flirted with her a bit.

62. Wo3 peng4 le peng4 ta1 de ding1zi. (=)

I touched her nails a bit.

x. prefix *hao3* (tough construction)

63. Ta1 de dou4fu3 ke3 bu4 hao3chi1. (=,#)

It's tough to flirt with her.

64. Ta1 de ding1zi ke3 bu4 hao3peng4. (=)

Her nails are tough to touch.

C. Discourse Functions

y. Request/command

65. Chi1 ta1 de dou4fu3! (=,#)

Flirt with her!

66. Peng4 ta1 de ding1zi! (=)

Knock against her nails.

z. Question

67. Ni3 chi1 le ta1 de dou4fu3 ma? (=,#)

Did you flirt with her?

68. Ni3 peng4 le ta1 de ding1zi ma? (=,#)

Did you get rejected by her?

With this systematic review of even just two idioms, it should be clear enough that the syntactic constraints on the idiomatic interpretations are first of all real, and secondly hard to predict from either the meaning of the idiom as a whole or the semantic relationships among the parts. An adequate treatment of idiom phrases therefore must account for not only the relationship between the idiomatic meaning and the literal parts but also the allowable syntactic environments in which the idiomatic reading may obtain.

2. THE C-STRUCTURE SOLUTION

There are two fundamentally different approaches for the analysis of idioms: one approach considers idioms similar to words as basic lexical units, and the other treats idioms as phrases whose internal syntactic structures participate in the structure of the sentence (e.g., Stock 1987). A c-structure solution, where the ambiguity between a literal reading and an idiomatic reading is accounted for by assigning two distinct tree structures to the two readings, is certainly of the first approach. As far as I know, such a solution has never been seriously or explicitly proposed within LFG. However, studies of VO compounds that treat VO idioms as compounds in essence imply that the idiomatic reading, where the idiom is a compound and thus of the lexical category V, has a tree structure distinct from that of its literal reading, where the same VO string forms a phrasal category, VP, as shown in 69-70.

69. Ta1 xi3huan1 [vchi-dou4fu3v]
he like flirt
He likes to flirt.

70. Ta1 xi3huan1 [vp[vchi1v]][npdo4fu3np]vp]
he like eat tofu
He likes to eat tofu.

First of all, if the lexical integrity hypothesis is assumed, then the status of any given VO sequence is easily distinguished: a string that allows no syntactic rule to affect its sub-parts is, by definition, a word, and thus not a phrase, idiomatic or not. There are indeed many such compounds, e.g., *guan1xin1* (close-heart) 'to be concerned about' and *na2shou3* (take hand) 'to be good at'. However, there are also plenty of genuine idiom phrases, such as *chi1 dou4fu3*. Thus, under the lexical integrity hypothesis, the ambiguity in idiom phrases cannot be accounted for by c-structure variations, for the two readings are assigned the identical phrasal category VP.

71. Ta1 xi3huan1 [vp[vchi1v]][npnen4 dou4fu3np]vp]
he like eat tender tofu
He likes to eat tender tofu. OR
He likes to flirt with the young ones.

On the other hand, if we follow Chao's (1968) proposal that idiomaticity of a VO sequence is sufficient for its compound status and thus abandon lexical integrity, then indeed *chi1 dou4fu3* would pose the two distinct c-structures 69 and 70. In Chao (1968) and Li and Thompson (1981) many idiomatic VO phrases are indeed taken to be VO compounds instead of phrases. This account is immediately in trouble in the presence of the following examples.

72. Ta1 xi3huan1 chi1 ni3/ta1/Ma3li4/na4 ge ren2-de dou4fu3.
He likes to flirt with you/her/Mary/that person.

The possessive NPs that may intervene the subparts of the idiom are productive. Furthermore, as I have demonstrated in the previous section, the possible intervening elements are certainly not limited to possessive NPs. Since the lexicon of a grammar must always be limited and constrained, this account, which renders an infinitely large lexicon, is impossible.

3. THE F-STRUCTURE SOLUTION

Huang's (1986) dissertation contains an f-structure solution for the ambiguity of idiom chunks. Within the formal model of LFG, given that grammatical functions play a central role in grammatical description and that the idiom shares an identical c-structure with the literal reading (see section 1 and the discussion in section 2.A of Huang 1990a:265-267), the next logical step is certainly to look for a solution in the f-structure. This section is a critical review of the f-structure account further revised and formalized in Huang (1990a), where the two readings of an idiom chunk, for example 73a-b, are assigned two distinct f-structures.

73. San1bai2 chi1 cu4.
 Sanbai eat vinegar
 a. Sanbai eats vinegar.
 b. Sanbai gets jealous.

First of all, I should point out the inconsistency between the conclusion Huang makes from his observation and the actual formulation of his analysis. He observes that the idiomatic reading and the literal reading are radically different in their semantics, but concludes that 'there is *no evidence of any syntactic distinction* between them from which the semantic differences can be derived (Huang 1990a:263, emphasis added). What he proposes, nevertheless, is a syntax-based solution, or in his words 'a lexically-based LFG analysis in which the differences between the two constructions are accounted for in terms of *differences in f-structure*' (Huang 1990a:263, emphasis added). The f-structure, however, is part of the syntax proper. One of the most important aspects of f-structure autonomy is that grammatical functions cannot be semantically derived. The relation between thematic structure (or the lexical semantic structure) and the functional structure is that of mapping or correspondence, not derivation. The following is LFG's model of semantics-syntax interface, in contrast with that of the transformational model, from Bresnan (1995).

74a. The LFG Model of Syntactic Projection

lexical semantics
 Lexico-semantic projection
 a-structure
 Lexico-syntactic projection
 syntactic structure

b. The Transformational Model of Syntactic Projection

lexical semantics
 Lexicon
 a-structure
 Syntactic projection
 initial syntactic structure
 Syntactic transformations

final syntactic structure

In LFG the interface a-structure maps to the syntactic structure, i.e., f-structure, as shown in 74. The c-structure and f-structure are the two parallel planes of syntax, and the f-structure is in fact the core of syntax. Huang's solution is thus well within the domain of syntax. Consequently, if his conclusion that no syntactic distinction exists between the idiom and the literal reading is correct, then his analysis, which assigns different f-structures to the two readings, can be expected to have difficulties. Let's take a closer look at this f-structure account: 75a-b are assigned the following two distinct f-structures.

75. San1bai2 chi1 cu4.

a. Sanbai eats vinegar.

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a-f
[ SUBJ [ PRED 'SANBAI' ]
  PRED 'EAT <SUBJ OBJ>'
  OBJ [ PRED 'VINEGAR' ]
]
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b. Sanbai is jealous.

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b-f
[ SUBJ [ PRED 'SANBAI' ]
  VMORF CHI
  PRED 'BE-JEALOUS <SUBJ>'
]
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Note that the idiom *chi1 cu4* (eat vinegar) 'to be jealous' in 75b-f does not have the function OBJ, which the literal *cu4* 'vinegar' necessarily encodes, as in 75a-f. Idiomatic *cu4* is not recognized as an argument in 75b-f at all. This position is based on three syntactic tests: coordination, wh-question formation, and topicalization (Huang 1990a:269-270). Let's go over them one by one.

76. Li3si4 chi1 pang2xie4 gen1 cu4.

Lee eat crab and vinegar

a. Lee eats crabs and vinegar.

b.*Lee eats crabs and is jealous.

Coordination involves parallel constructions sharing an identical grammatical function, for example, OBJ *pang2xie4* and OBJ *cu4* in 76a. Since *pang2xie4*, an argument, cannot be conjoined with the idiomatic *cu4* in 76b, Huang concludes that *cu4* must not be argument in the idiom *chi1 cu4*. However, coordination requires more than parallel grammatical functions; 76b thus may be ruled out due to another violation.

77. Ta1 kai1 le men2 gen1 tai2deng1.

he open/turn-on PERF door and lamp

a. He opened the door and the lamp.

b.*He opened the door and turned on the lamp.

78.*I admire Mary and honesty.

Clearly, *tai2deng1* is an OBJ argument; 77b is ruled out because *kai1* is allowed the reading of 'to open' due to the adjacent 'door'. Similarly, 78 is ill-formed because 'Mary' and 'honesty' are not semantically compatible as conjoined elements. Therefore, it is entirely plausible for the idiomatic *cu4* to be a referential argument OBJ and that 77b is ruled out due to the semantic incompatibility between *pang2xie4* 'crab' and the idiomatic *cu4* and/or the

ambiguous readings of *chi1*. An equally plausible, and compatible, explanation is due to the defining characteristic of idioms that the idiomatic reading is obtainable only in restricted syntactic environments. Thus, 77b is ill-formed simply because idiomatic *cu4* allows no conjunction, period. Only this last explanation of syntactic constraint accounts for the following sentence's non-idiomatic reading. Given the equal idiomatic, non-argument status of *dou4fu3* and *cu4* in Huang's account, the idiomatic reading of 79b should be allowed as well, but is not.

79. Li3si4 chi1 dou4fu3 gen1 cu4.
 Lee eat tofu and vinegar
 a. Lee eats tofu and vinegar.
 b.*Lee flirts and gets jealous.

The next test Huang employs is wh-questions. It is a fact, as Huang (1990a:270) points out, that syntactic arguments can form wh-questions. He thus concludes, from the unavailability of 80b below, that *qi4* in the idiom *sheng1 qi4* (generate air) 'to be angry' must not be a syntactic argument.

80. Ta1 sheng1 she2me?
 she generate what
 a. What does she generate?
 b.*What is she angry with?
 c.*What does she give birth to a baby?

81. Ta1 sheng1 xiao3hai2.
 she generate baby
 She gives birth to a baby.

The problem with this particular argument is with its logic. Given the necessary condition that *sheng1* and *qi4* must co-occur in certain restricted syntactic environments for the idiomatic reading to obtain, 80 of course cannot possibly maintain the idiomatic reading with the position of *qi4* replaced by a wh-word. By the same token, non-idiomatic *xiao3hai2* in 81 can be replaced by a wh-word, as in 80; nonetheless, 80 certainly cannot have the same meaning as 81, shown in 80c. The last test is topicalization. It seems that the NP of an idiom cannot be topicalized and thus does not behave like an argument.

82. Cu4, ta1 chi1.
 vinegar he eat
 a. Vinegar, he eats.
 b.*He is jealous.

What Huang has overlooked is that although the bare N, like *cu4*, in VO idioms indeed usually does not topicalize, often when it is modified in some way, topicalization may indeed take place, indicating the referentiality and argumenthood of the head noun.

83. Zhei4 zhong3 cu4 ni3 ye3 chi1, tai4 hai3zhiqi4 le.
 this kind vinegar you also eat too childish PTCL
 You are jealous because of this, that's childish.

84. Zhei4 zhong3 qi4 bu4 zhi2de2 sheng1.
 this kind air not worth generate
 It's not worth it to be angry about this.

85. Ta1 de dou4fu3 ni3 ye3 gan3 chi1?

she POSS tofu you also dare eat
You dare take sexual advantage of her?

Treating the idiomatic NP as a non-argument, Huang's analysis also fails to account for passivizable idioms, for example the idiom *chu1 yang2xiang4* that Huang (1990a:282) specifically mentions in his analysis and similarly the idiom *diu1 lian3* 'to lose face'.

86a. Ta1 chu1jin4 le yang2xiang4.
he produce-all PERF foreign-picture
He totally made an ass out of himself.

b. Yang2xiang4 bei4 ta1 chu1jin4 le.
foreign-picture by he produce-finish PTCL
What an ass he totally made out of himself.

87a. Ta1 shu1 le qian2 hai2 diu1 le lian3.
he lose PERF money and lose PERF face
He lost money and lost face.

b. Lian3 bei4 ta1 diu1-guang1 le.
face by he lose-empty PTCL
All honor is lost by him.

Within the pre-LMT model of LFG, which Huang seems to assume (see Huang's (1990a:272) discussion on passive), the passive lexical rule (88) converts OBJ to SUBJ. Therefore, Huang's analysis predicts, incorrectly, that VO idioms are non-passivizable. Since *yang2xiang4* and *lian3* bear no grammatical function OBJ, they cannot possibly be converted to passive SUBJ; see 88.

88. Passive (Bresnan 1982b): SUBJ /OBL
OBJ SUBJ
89. Passive (Bresnan 1989): < ..>

Within the current theory of lexical mapping, *yang2xiang4* and *lian3*, treated as non-arguments in Huang's analysis, likewise cannot be mapped to SUBJ as the passive morphological rule (89) suppresses the highest role. Passive 86b and 87b are thus still predicted to be non-existent. Following this line of argument, all lexical processes that involve either the function OBJ in the pre-LMT model or a thematic role linked to this OBJ in LMT are ruled out in Huang's analysis.

Another distinctive feature of Huang's analysis is that the noun, rather than the verb, of the idiom is considered the lexical head. This is accomplished by stipulations of additional c-structure rules and lexical entries for both the noun and the verb.

90a. chi1₂: V, VMORF = CHI
b. cu4₂: V, PRED = 'BE-JEALOUS <SUBJ>'
VMORF =_c CHI

91. VP V NP
=

It is rather common to pose homophone entries for idiomatic elements, although it does lead to a proliferation of lexical entries.³ Another problem is with the c-structure rule (91), which is needed for the sole purpose of generating the stipulated f-structure of VO idioms like *chi1 cu4*. Note that this rule duplicates the c-structure constructed by the regular VP rule (92), the only difference being the schemata specifying the NP head.

92. VP V NP
= OBJ=

Consider this question: which of the two rules should actually apply to a given applicable string? In the case of idiom phrases, both rules need to apply to produce the ambiguous readings, but for phrases with a literal reading only, the idiom VP rule must then be barred. Consequently, rule marking must be introduced into the LFG formalism, an undesirable feature for any grammatical framework with an X-bar scheme.

Another undesirable consequence of this analysis is that any adjunctive element of the noun necessarily has the entire idiom as its scope, not just the noun. Take *chi1 dou4fu3* for example. The modifier *nen4* 'tender' of tofu in 93 below would have the entire idiom as its scope, as shown in 93-f. This is incorrect for the sentence does not mean 'Lee only flirts tenderly' or 'Lee only flirts youthfully' as the scope of *nen4* is clearly limited to the noun, tofu, that it modifies.

93. Li3si4 zhuan1 chi1 nen4 dou4fu3.
Lee only eat tender tofu
Lee only flirts with the young ones.
-f
SUBJ [PRED 'LEE']
ADJ { [PRED 'ONLY']
[PRED 'TENDER'] }
VMORF CHI
PRED 'FLIRT <SUBJ>'

The fact that the noun in the idiom may be independently modified also argues for its referentiality, and thus against Huang's treatment of it as a non-argument. This is confirmed by the fact that the noun in the idiom may be referred to by an empty anaphora.

94. Ta1 ai4 chi1 dou4fu3, hai2 zhuan1 chi1 nen4 de e.
he like eat tofu and only eat tender COMP
He likes to flirt and only with the young ones.

95. Ta1 ai4 pai1 ma3pi4, dan4 pai1 e de bu4 hao3.
he like pat horse-ass but pat COMP not good
He likes to kiss ass, but he's not good at it.

Huang's analysis is further complicated by his treatment of the so-called 'possessive objects' (POBJ). The possessive Mary in 96a has the function POSS within the function OBJ; however, in the idiom (96b), it is treated as an OBJ_{goal} independently. Additional NP rule (97a) is thus needed, other than the regular NP rule (97b) that assigns POSS to NP-de, to build an OBL function out of the NP-de phrase.

96. Li3si4 chi1 Ma3li4-de dou4fu3.
Lee eat Mary-POSS tofu
a. Lee eats Mary's tofu.
a-f
SUBJ [PRED 'LEE']
PRED 'EAT <SUBJ OBJ>'

OBJ POSS ['MARY']
PRED 'TOFU'

b. Lee flirts with Mary.
 b-f
 SUBJ [PRED 'LEE']
 VMORF CHI
 PRED 'FLIRT <SUBJ OBL>'
 OBL [PRED 'MARY']

97a. NP (NP) (XP*) (CL) N
 POSS= ADJ =

b. NP (NP) (XP*) (CL) N
 OBL= ADJ =

The use of the term 'possessive object' to refer to NP1 of [NP1 de NP2] within a VO idiom finds its origin in Chao's (1968:321) discussions on VO compounds, where the term refers to 'an apparent possessive modifier, instead of the object, (that) represents the goal'. It is rather curious for Huang to retain this term, since he sees [NP1 de] as neither possessive nor objective. Rather he identifies it as an oblique grammatical function, or OBL, which bears the goal role. The only piece of evidence offered for this function assignment is from such 'synonymous' pairs (Huang 1990a:274):

98a. Wo3 jian4 le ta1 de mian4.
 I see PERF she POSS face
 I met her.

b. Wo3 gen1 ta1 jian4 le mian4.
 I with she see PERF face
 I met her.

99a. Yung2niang3 sheng1 San1bai3 de qi4.
 Yunnianng generate Sanbai POSS air
 Yunnianng is angry with Sanbai.

b. Yung2niang3 gen1 San1bai3 sheng1 qi4.
 Yunnianng with Sanbai generate air
 Yunnianng is angry with Sanbai.

Such pairs are reminiscent of the similar observation made in Chao (1968:321-322, 430-431). However, Chao (1968:321-2) has also noted that many of these idioms do not paraphrase into a corresponding sentence where NP1 occurs in a PP, goal-like or not. For example, *cai1 tai2* (dismantle platform) 'to spoil someone's plan', *ge2 ming4* (revolt life) 'to revolt (against someone)', as well as some of the a dozen or so idioms listed in Huang's account like *chi1 dou4fu3* (eat tofu) 'to take (sexual) advantage of' and *chi1 bing1qi2lin2* (eat ice cream) 'to take (visual) advantage of'. Worse still, again as noted by Chao (1968:322), often the corresponding sentences with NP1 in a PP would have entirely different meaning, as shown in 100-101 below.

100. Ta1 gao4 Ma3li4 de zhuang4.
 he tell Mary POSS suit
 He made a complaint against Mary.

101. Ta1 gen1/xiang4/dui4 Ma3li4 gao4 zhuang4.
 He with/towards/to Mary tell suit
 He made a complaint to Mary (again someone else).

The fundamental problem is that it is altogether unreliable to determine the grammatical function of an element in a particular construction by its paraphrase in another construction. The active-passive paraphrase, dative shift, locative inversion, and cleft, to name just a few, are obvious examples of paraphrase constructions that assign different grammatical functions to the same semantic role. Some example sentences are shown in 102-104 below.

- 102a. John loaded grapes in the truck.
OBJ OBL
b. Grapes were loaded in the truck.
SUBJ OBL

- c. John loaded the truck with grapes.
OBJ OBL
- d. The truck was loaded with grapes.
SUBJ OBL

- 103a. My wife Koto is sitting among the CEO's.
SUBJ OBL
- b. Among the CEO's is sitting my wife Koto.
SUBJ OBJ

- 104a. I handed the award to her.
OBJ OBL
- b. I handed her the award.
OBJ OBJ

An even more basic question is whether the possessive NP in a VO idiom behaves like an argument or like other regular possessor NPs. Let's look at the various tests Huang employs for its argument status. The first two are wh-question formation and reflexive pronoun (Huang 1990a:270-271).

- 105. Ta1 sheng1 shei2-de qi4?
he generate who POSS air
Who is he angry with?

- 106. San3bai2 sheng1 zi4ji3-de qi4.
Sanbai generate self POSS air
Sanbai is angry with himself.

Huang (1990a:271) argues that the possessive NP in idioms can be questioned and replaced by a reflexive pronoun suggests that NP1 is a referential argument. Referential, yes; argument, not necessarily. Look at the following two sentences.

- 107. Ta1 xiang3 shei2-de shi4?
he think who POSS affair
Whose affairs does he think about?

- 108. Ta1 xiang3 zi4ji3-de shi4.
he think self POSS affair
He thinks about his own affairs.

The possessive NP here passes the same tests, but certainly it cannot be considered an argument of *xiang3* 'to think'. Huang further employs evidence from selectional restrictions to argue for NP1's argumenthood. His argument goes like this: '...the predicate *jian-mian* 'to meet' selects a human object...The fact that the idiom chunk *jian-mian* 'to meet' imposes selectional restrictions on NP1 indicates that NP1 is an argument of the idiom chunk, regardless of its position in a syntactic tree' (Huang 1990a:272).

- 109. Ta1 jian4 le zuo1zi de mian4.
he see PERF table POSS face/surface
- a. He saw the surface of the table.
- b.*He met the table.

Huang's argument presupposes that *jian4 mian4* as an idiom is semantically a single non-decomposable predicate that requires a human object. Hence, his conclusion that NP1 is

an argument (and NP2 *mian4* is not) is already in the presupposition. Nonetheless, the anomaly of 109b is not necessarily due to NP1 *zuo1zi*'s violation of selection restriction of the idiom. Note that *mian4* is itself ambiguous between 'surface' and 'face', the latter being that of a human. Thus, the two compounds *mian4zhi3* (face-paper) 'facial tissue-paper' and *zuo1mian4* 'table-top' involve the two different readings of *mian4*. The problem with 109b is therefore the anomalous reading 'table's (human) face'. However, to be fair, this kind of explanation is not available for VO idioms where the object noun like *dou4fu3* 'tofu' is not ambiguous.

110. Ta1 ai4 chi1 na4 jia1 dian4 de dou4fu3.

he like eat that CLS shop POSS tofu

a. He likes to eat the tofu from that store.

b.*He likes to flirt with that store.

We therefore still have to go back to the syntactically and semantically restricted nature of idioms for a general explanation. As mentioned earlier, one defining character of idioms is that the idiomatic reading is obtainable only in restricted syntactic environments. One of the restrictions for VO idioms like *chi1 dou4fu3* 'to flirt (with)' and *jian4 mian4* 'to meet' is that the noun can only take human possessors. (Note that some VO idioms do not allow possessors at all, for example *qiao4 bian4zi* and *kick the bucket*). This restriction is also not unreasonable in itself, given that nouns do often allow only a restricted, and sometimes arbitrary, range of possessors. See the following two sets of examples.

111a. the man's face

b. the dog's face

c. ?the fish's face

d. *the book's face

e. *the mountain's face

f. ?IBM's face

112a. the man's words

b. ?the dog's words

c. ?the fish's words

d. the book's words

e. *the mountain's words

f. IBM's words

Likewise, the fact that *chi1 dou4fu3* as an idiom also selects a very small number of adjectives on *dou4fu3*, for example *nen4* 'tender' but not *ruan3* 'soft', cannot be taken to indicate that these adjectives as thus arguments. Next Huang uses the test of conjunction to argue that NP1 in the idiom [V NP1 de NP2] is not a case of possessor. In the example of 113, where if Wangwu, obviously the possessor of *pang2xie4* 'crab', is also the possessor of the idiomatic *cu4* 'vinegar', the conjoined phrase should still allow the idiomatic reading. The fact that 114b is not available is thus taken to indicate that Wangwu does not have the same possessor function to idiomatic *cu4*.

113. Li3si4 chi1 Wang2wu3 de pang2xie4 gen1 cu4.

Lee eat Wangwu POSS crab and vinegar

a. Lee eats Wangwu's crabs and vinegar.

b.*Lee eats Wangwu's crabs and is jealous of him.

Again, two functions being identical is merely one of the necessary conditions for a well-formed conjunction, not the only one. As mentioned earlier, there are two compatible explanations here: 1) *pang2xie4* 'crab' and idiomatic *cu4* are semantically incompatible for

conjunction, and 2) the idiom does not allow *cu4* to be conjoined, period. This is merely one of the many constraints that this idiom imposes. Thus, that 113b is not available is simply because the idiomatic reading of *chi1 cu4* cannot obtain in a syntactic environment where *cu4* is conjoined. Wangwu remains the possessor of *cu4*, idiomatic or not. This explains why 114b below is not available, while Huang's account, where Wangwu as OBL in both idioms should allow conjunction, would predict that it is well-formed.

114. Li3si4 chi1 Wang2wu3 de do4fu3 gen1 cu4.
 Lee eat Wangwu POSS tofu and vinegar
 a. Lee eats Wangwu's tofu and vinegar.
 b.*Lee flirts with Wangwu and is jealous of him.

The more convincing argument that Huang provides against treating NP1 as a regular possessor comes from anaphora. He points out the difference in the binding relations between regular phrases and the idiom phrase. Pay close attention to the binding relations in the following sentences.

- 115a. San1bai2_i xi3huan1 zi4ji3_i-de shi1.
 Sanbai like self POSS poem
 Sanbai likes his own poem.
 b. San1bai2_i xi3huan1 ta1_{i/j}-de shi1.
 Sanbai like s/he POSS poem
 Sanbai likes his poem.

- 116a. San1bai2_i chi1 zi4ji3_i-de cu4.
 Sanbai eat self POSS vinegar
 Sanbai is jealous with himself.
 b. San1bai2_i chi1 ta1_{*i/j}-de cu4.
 Sanbai eat s/he POSS vinegar
 Sanbai is jealous with him.

Reflexive *zi4ji3* as NP1 always refers back to the matrix subject whether the verb phrase is idiomatic or literal, as shown in 115a and 116a. No drama here. However, while a non-reflexive pronoun as NP1 is free within the regular sentence (115b), it must not be bound with the matrix subject in the sentence of a VO idiom (116b). The two different f-structures in Huang's analysis for the regular possessor and the idiomatic possessor, which is an OBL argument, provides an explanation.

117. San1bai2_i chi1 ta1_{i/j}-de cu4. (literal reading)
 Sanbai eats his vinegar.
 -f
 SUBJ [PRED 'SANBAI']- - - - .
 PRED 'EAT <SUBJ OBJ>' : :
 : :
 OBJ POSS PRED PRO - - - ' :
 REFL - - - - - - - - ' :
 PRED 'VINEGAR'
 CL DE

118. San1bai2_i chi1 ta1_{*i/j}-de cu4. (idiomatic reading)
 Sanbai is jealous of him.

-f
 SUBJ [PRED 'SANBAI']
 PRED 'BE-JEALOUS <SUBJ OBL>':
 :
 OBL PRED PRO :
 REFL -----'

 CL DE
 VFORM CHI

The non-reflexive pronoun *ta1* in Chinese has the binding attribute [-ncl], meaning that it must not find an antecedent within the minimal nucleus. A nucleus is in turn defined as an f-structure containing a PRED attribute. Within 117-f of the regular possessor, the non-reflexive pronoun thus must not find an antecedent within OBJ, the minimal nucleus *ta1* is in, and is therefore free to be bound with Sanbai the matrix subject or some other element outside of the sentence. Within the idiomatic f-structure 118-f, however, the minimal nucleus that contains the non-reflexive pronoun is the entire f-structure; thus, as predicted, *ta1* cannot refer to Sanbai the subject. Huang's account thus seems adequate concerning these data. Unfortunately however, behavior of the non-reflexive pronoun is not so straightforward. Consider first the following regular verb phrase, which shares the POSS f-structure with 119-f above.

119. Li3si4_i ying2de2 le ta1_{*i/j}-de xin4ren4.
 Lee win PERF s/he POSS trust
 Lee won his trust.
 -f
 SUBJ [PRED 'LEE']
 PRED 'WIN <SUBJ OBJ>':
 :
 OBJ POSS PRED PRO :
 REFL -----'

 PRED 'TRUST'

Unlike 117-f, the non-reflexive pronoun here cannot be bound with the matrix subject, while Huang's account predicts that it would since SUBJ is outside the minimal nucleus containing the pronoun. The next sentence presents a problem that is quite the opposite.

120. Li3si4_i hen3 hou4hui3 ta1_{i/*j}-de xing2wei2.
 Lee very regret s/he POSS behavior
 Lee regrets his behavior.
 -f
 SUBJ [PRED 'LEE']-----
 ADJ { [PRED 'VERY'] } :
 PRED 'REGRET <SUBJ OBJ>':
 :
 OBJ POSS PRED PRO ---'
 REFL -

 PRED 'BEHAVIOR'

121. Li3si4_i hen3 hou4hui3 zi4ji3_{i/*j}-de xing2wei2.
 Lee very regret self POSS behavior

Lee regrets his own behavior.

Again, while f-structure 120-f here is identical to 117-f of regular POSS and to 119-f, it does not allow the non-reflexive pronoun to be free outside of the scope of the sentence. Instead, the pronoun must be bound with the matrix subject and nothing else, again contrary to the prediction of Huang's account. In other words, the verb *hou4hui3* 'regret' forces the non-reflexive pronoun (*ta1* in 120) in its OBJ to behave like a reflexive pronoun (*zi4ji3* in 121).

Since the general pattern of non-reflexive binding in Chinese is indeed as described in Huang's account and represents the unmarked case (Huang 1990a:286), the deviations, or the marked cases, in 119 and 120 would have to be lexically sanctioned and override the general binding principles. Within such an analysis, it is entirely unnecessary to pose a different f-structure with OBL for the possessive NP1 in idiom chunks.

In 119, the binding pattern of the possessive NP is sanctioned by the head noun *xin4ren4* 'to trust', a nominalized transitive verb, which specifies that its subjective [REFL -] POSS be free within the minimal nucleus containing the POSS and a SUBJective function; the head verb *hou4hui3* 'to regret', on the other hand, requires that the subjective POSS in its OBJ be [+ncl +sb], i.e., bound with the SUBJ of the minimal nucleus that contains the POSS and the SUBJ.

This analysis of lexically sanctioned binding relations (which can override the general binding principles) thus accounts for all the grammatical sentences in 122-123, and also provides a sound explanation for the ill-formed 124, where the joint binding requirements from the object *xin4ren4* 'to trust' and the verb *hou4hui3* 'to regret' force *ta1* to be bound *simultaneously* with both the matrix SUBJ and some other element outside the sentence; consequently, the sentence has an impossible binding relation.

122a. Li3si4_i zheng1qu3 ta1_{*i/j}-de xin4ren4.

Lee strives for his trust.

b. Li3si4_i xu1yao4 ta1_{*i/j}-de xin4ren4.

Lee needs his trust.

c. Li3si4_i zai4hu1 ta1_{*i/j}-de xin4ren4.

Lee cares about his trust.

d. Li3si4_i gu1fu4 le ta1_{*i/j}-de xin4ren4.

Lee betrayed his trust.

123a. Li3si4_i hen3 hou4hui3 ta1_{i/*j}-de lu3mang3.

Lee regrets his imprudence.

b. Li3si4_i hen3 hou4hui3 ta1_{i/*j}-de tan2hua4.

Lee regrets his talk.

c. Li3si4_i hen3 hou4hui3 ta1_{i/*j}-de zuo4fa3.

Lee regrets his method.

d. Li3si4_i hen3 hou4hui3 ta1_{i/*j}-de cu1xin1.

Lee regrets his carelessness.

124a. *Li3si4_i hen3 hou4hui3 ta1_{ij}-de xin4ren4.

In light of the independently needed lexically sanctioned binding relations, I thus contend that the possessive NP in VO idioms has exactly the same f-structure as the regular

literal possessive NP and that the 'exceptional', marked, binding relation that the possessive NP1 exhibits in idioms is lexically sanctioned by the individual idioms. Another way to look at this is that the idiomatic reading is obtainable only if the [REFL -] POSS, if any, is not bound with the SUBJ in the minimal nucleus containing a SUBJ.

125. San1bai2_i chi1 ta1_i-de cu4. (literal only)

-f
 SUBJ [PRED 'SANBAI']- - - -
 PRED 'CHI <SUBJ OBJ>':
 :
 OBJ POSS PRED PRO - - -'
 REFL -

 PRED 'CU4'
 CL DE

126. San1bai2_i chi1 ta1_j-de cu4. (literal and idiomatic)

-f
 SUBJ [PRED 'SANBAI']
 PRED 'CHI <SUBJ OBJ>':
 :
 OBJ POSS PRED PRO :
 REFL - - - - - - - -'

 PRED 'CU4'
 CL DE

This analysis is further confirmed by the fact that a non-reflexive possessive pronoun in some VO idioms actually behaves exactly opposite and requires a binding relation with the SUBJ of the minimal nucleus, again similarly to the reflexive pronoun *zi4ji3*.

127. Ta1_i zuo3 ta1_{i/*j}-de Yang2guan1 dao4.

s/he go s/he POSS Yangguan road
 He goes his own way.

128. Li3si4_i ying4 zhe ta1_{i/*j}-de tou2pi2 cheng2ren4 le.

Lee harden PROG s/he POSS scalp confess PTCL
 Lee forced himself and confessed.

129. The President_i again ate his_{i/*j} words.

130. The President_i is talking through his_{i/*j} hat again.

131. The President_i put his_{i/*j} foot in his_{i/*j} mouth again.

Huang's account of the so-called POBJ with an OBL function cannot cope with the data cited above, where the non-reflexive possessive pronoun, again behaving rather like a reflexive pronoun, must be bound with the SUBJ within the minimal nucleus that contains itself and a SUBJ. Nor can his account explain why a idiom may require a reflexive possessive pronoun and forbids a non-reflexive one.

132. Li3si4_i da3 zi4ji3_i-de zui3ba1. (=,#)

Lee slap self POSS mouth
 a. Lee slapped his own mouth.
 b. Lee contradicted himself.

OBJ SUBJ

Within this formulation, the passive counterpart of the idiom, shown in 137, is accounted for, where *tabs*, the OBJ, is now the passivized SUBJ. Moreover, the ungrammatical 138 is ruled out, for the theme role, *John*, as an OBL, cannot be passivized.

137. Tabs were kept on John (by the FBI).

138.*John was kept tabs on (by the FBI).

Nonetheless, the mapping from the thematic semantical structure to the so-called lexical form is no longer stipulated in the current LFG framework, rather it is principled and constrained by the various well-attested lexical mapping principles. As convincingly argued in Levin (1987) and Bresnan and Kanerva (1989), among others, the lexical mapping theory, one of the most important theoretical advances in LFG in recent years, constitutes a tremendous improvement over the arbitrary stipulations in the 'classical' mapping between thematic roles and grammatical functions. Within LMT and its formulation of passive, however, Bresnan's treatment of idiom chunks quickly runs into difficulty. As shown below, while LMT correctly predicts the lexical form of *keep* in its literal reading (139), it incorrectly links theme, i.e., John in 140, of the idiom *keep tabs on* to OBJ, rather than the *on*-marked OBL required. To be fair, I will assume the version of LMT in Bresnan (1989) and Bresnan and Kanerva (1989) .

139. Mary money on the counter

keep <ag th loc>

IC -o -r -o

DC -r +r

WF <S O OBL>

140. FBI John tabs

keep-tabs-on <ag th>

IC -o -r

DC -r

S S/O

WF S *O

This account predicts that <ag th> maps to the incorrect <SUBJ OBJ>, rather than the well-formed <SUBJ OBL>. The outcome is no more encouraging when we take into consideration the non-thematic OBJ stipulated in the lexical form of *keep-tabs-on*, whose FORM is designated to be TABS. Given the Function-Argument Biuniqueness Condition, the theme role cannot map to any grammatical function, as shown below, since the OBJ function is no longer available. There is simply no way to derive the required lexical form, <SUBJ OBL> OBJ FORM TABS, without resorting to the earlier arbitrary stipulations of grammatical functions.

141. FBI John

keep-tabs-on <ag th> OBJ FORM TABS

IC -o -r

DC -r

S S/O OBJ FORM TABS

WF <S ?> OBJ FORM TABS

Worse still, given the passive rule within LMT (repeated in 142), the well-formed passivized counterpart of the idiom (137) cannot be accounted for, while the ill-formed passivized theme (138) is incorrectly predicted to be grammatical.

142. Passive (BK 1989): <..>

143. FBI John
keep <ag th> OBJ FORM TABS
IC -o -r
PASSIVE
DC

WF <S> OBJ FORM TABS

144. *John was kept tabs on (by the FBI).

One might suggest that *keep-tabs-on* be treated as a lexical unit to get around the above-mentioned problems. Modification and extraction, among others, provided two kinds of evidence against this proposal, see 145-146.

145. The FBI is keeping close tabs on John.

146. Close tabs are being kept on John.

In 145, *tabs* can be modified by an adjective and it can be passivized as well (146). Both sentences demonstrate that *keep tabs on* violates lexical integrity and is thus a phrase. It is quite clear then, that the lexical mapping theory dictates that an element accessible to any morpholexical rule, such as passive or dative, must be thematic. In this idiom, *tabs* can be modified as well as passivized; thus, it must bear a thematic role. Rendering a thematic element non-thematic, Bresnan's (1982b) classical treatment of idioms like *keep tabs on* is bound to fail within LMT. Therefore, for extractable idioms, idiomatic and literal readings must share the same thematic structure.

Bresnan's account fares much better for non-extractable idioms, such as *kick the bucket*. While *kick* has thematic structure <ag th> for its literal reading, the idiom has <th> for its meaning of 'to die'. Lexical mapping also predicts the two lexical forms correctly.

147. John kicked the barrel.
kick <ag th>
IC -o -r
DC -r

S S/O
WF <S O>

148. John kicked the bucket. (meaning 'John died')
kick-the-bucket <th> OBJ FORM BUCKET
IC -r
DC

S/O
WF <S> OBJ FORM BUCKET

The primary reason for the thematic structure <th> is of course because *kick the bucket* has the idiomatic reading of 'to die', a one-place predicate. Therefore, *the bucket*, or more precisely the grammatical function OBJ subcategorized for by *kick*, must be stipulated to be non-thematic. However, consider the idiom *rock the boat*, which, though non-extractable just like *kick the bucket*, cannot be paraphrased in a one-place predicate; rather, it has to be understood as something like 'to disturb the situation', a paraphrase syntactically parallel to the idiom itself. Therefore, *rock* can have a single thematic structure <ag th> for its literal reading as well as the idiomatic reading, as long as OBJ FORM ROCK is specified in the lexical form. Likewise, the idiom *kick the bucket* can just be easily understood as 'to lose

(one's) life', which, compared with 'to die', is syntactically much more comparable to *kick the bucket*. If so understood, *kick* would be the same two-place predicate in both the idiomatic reading and the literal reading.

For verbal idioms with a subcategorized PP, e.g., *fall on deaf ears*, *disappear into thin air*, and *throw one's hat in the air*, Bresnan's account would again have problems. It would not have a thematic role for idiomatic *thin air* for example, as shown in 149 below, which must be stipulated in the lexical form, much the same way [OBJ FORM BUCKET] is stipulated for *kick the bucket*.

149. The public support has disappeared into thin air. (#)

disappear-into-thin-air <th> OBL_{loc} FORM AIR

IC -r

DC

S/O

WF <S> OBL_{loc} FORM AIR

150. The UFO has disappeared into the dark sky. (=)

kick <th loc>

IC -o -o

DC -r +r

S OBL_{loc}

WF <S OBL_{loc}>

In its non-idiomatic use, as in 150, *disappear* has the thematic structure <th loc>, which, via lexical mapping, links to lexical form <SUBJ OBL_{loc}>. However, not allowing the idiomatic *into thin air* to be linked to a thematic role, this account violates a universal condition on grammatical functions as specified in the lexical mapping theory (Bresnan and Kanerva 1989). Recall that SUBJ and OBJ are the only two functions that are classified as [-r], i.e., non-restricted to any particular thematic role; thus, only SUBJ and OBJ are allowed to be non-thematic, i.e., bearing no thematic role. An OBL function, however, is classified [+r], or thematically restricted, and must be linked to a particular thematic role. Therefore *into thin air* as OBL_{loc} must be linked to a locative role in the a-structure. The analysis in 149 is therefore impossible given the current theory of lexical mapping. Furthermore, this analysis also fails to account for the possible locative inversion constructions, as in 151-152. In general this account cannot handle idioms that allow function-changing constructions that in LMT terms must involve thematic roles, such as passive, locative inversion, and dative shift.

151. However, soon after the election the scandal exploded
and into thin air disappeared the public support.

152. In spite of all the signs of Iraqi aggression, on
Washington's deaf ears fell his repeated warnings.

In short, Bresnan's account, though an alternative for non-extractable idioms, is unworkable for idioms that undergo relation-changing morpholexical operations or subcategorize for an oblique function, which, by definition, is thematically restricted and thus must be linked to a specific thematic role. This account therefore does not provide a consistent explanation to all types of idioms.

5. THE LEXICALIZED METAPHOR SOLUTION

The conclusion to be derived from the discussions above is this: an idiom is either fixed or syntactically analyzable, and in the former case, it should be considered a single

lexical item with lexical integrity, while in the latter case, the thematic structure of the head predicator and the f- and c-structures of the idiom are no different from those of the regular, literal expression. To account for the idiomatic readings, I propose a solution based on Her, Higginbotham, and Pentheroudakis (1994), Wasow et al (1983), and Lakoff (1987); a solution that considers the subparts of an idiom as analyzable and compositional elements with metaphorical references.

Her et al (1994) present a treatment of idioms within an LFG-based machine translation system and recognize two types of idioms: 1) lexical idioms, continuous phrases stored as lexical units in the lexicon; 2) transfer idioms, idiom phrases that parse compositionally to produce a non-ambiguous f-structure but translate literally and idiomatically to two distinct phrases in the target language. In this approach, a lexical idiom is a fixed expression, or more precisely a lexical item, for example *you-know-who*, *who-done-it*, *tongue-in-cheek*, or the many VO compounds. A genuine idiom phrase must be syntactically analyzable and its syntactic structure is never ambiguous. Since I have demonstrated in earlier sections that previous accounts that pose distinct thematic structures, f-structures, or c-structures for idiom phrases are all unsatisfactory or unworkable, the solution I propose will adopt Her et al's position that idioms do not have different syntactic or thematic structures.

Wasow et al (1983) examine several different types of idioms in English, most of which are of the VO construction and their conclusion can be seen as three closely related but logically separate claims. First, they argue that syntactically phrasal idioms have normal structures. This is the same position upheld in Her et al (1994), Stock (1987), Wasow et al (1983), Gazdar et al (1985), among others, and it is also the position I will take here. Their second claim is that, semantically, idioms differ in terms of whether the assignment of the idiomatic meaning is to the idiom chunk as a whole or to its parts. In other words, some idioms are semantically analyzable and compositional, while others are not. They distinguish three classes: 1) noncompositional idioms (*kick the bucket*, *saw log*); 2) conventionalized metaphors (*take advantage of*, *spill the beans*); and 3) compositional idioms (*pull strings*). This position is also rather reasonable as that the associations between forms and meanings in idioms are not equally motivated or arbitrary. However, I do not agree with their conclusion that a uniform analysis of idioms is therefore not available.

The third claim that Wasow et al make is that the syntactic constraints of idioms are to a large extent predictable by the semantic relationships among their parts. While Wasow et al have made a strong case for their first two claims with ample examples and discussions, this last claim is much less substantiated and in fact may be logically circular. Take *kick the bucket* for example. They first claim that the idiomatic meaning is assigned to the whole phrase and not composed of idiomatic interpretations of the parts, and then claim that the fact that internal modifiers on *the bucket* are ruled out is thus predictable because *the bucket* has no idiomatic meaning of its own. However, I contend that the reversal of this argument is just sensible: that *the bucket* in the idiom does not allow modification or extraction indicates that it does not have an independent meaning. One can also argue that the idiomatic meaning of *kick the bucket* is composed of idiomatic interpretations of its parts and that this idiom imposes a set of syntactic constraints, including one that bars internal modifiers. After all, as shown in section 1 with the two verbs *eat* and *devour* and the several pairs of idioms *kick someone's ass* and *kiss someone's ass*, *hold your horses* and *hold your breath*, and Chinese *chi1 dou4fu3* (eat tofu) 'to flirt' and *peng4 ding1zi* (knock-against nail) 'to be rejected', idioms with very similar semantic structures may behave in different ways syntactically. This line of argument also fares much better with the creative uses such as *kick the political/financial bucket*; indeed, nothing in principle would rule out the possibility that these creative uses become part of the conventionalized idiom.

Lakoff (1987) provides an account of idioms within the overall scheme of metaphor, metonymy, and conventional image, which is much more general. Here is a quote from him regarding the analysis on Japanese classifiers, which, I think, applies quite well to his analysis of idioms as well.

Ideally, each instance of a classifier outside the central sense should have a motivation. The motivation cannot be ad hoc--one cannot just make up a metonymy or image schema just to handle that case. This imposes a criteria of adequacy on the analysis of classifier languages. (Lakoff (1987:107))

Thus, each idiom should ideally have a motivation, be it metaphorical like *blow one's top* or *ji1dan4 li3 tiao1 gu3tou2* (egg inside pick bone) 'to be unreasonably critical', metonymical like *put in a good word for someone* or *bi4 yan3* (close eyes) 'to die', mental imagery like *saw logs* or *qiao4 bian4zi* (stick-up braid) 'to die', or some types of combination of two or more motivations, for example *zheng1 yi1 zhi1 yan3*, *bi4 yi1 zhi1 yan3* (open one eye, close one eye) 'to turn a blind eye' can be seen as both metaphorical and metonymical and *hell freezes over* can be both metaphorical and imageable. I also agree that the motivation of any idiom should not be ad hoc; however, that does not mean motivations of idioms are all equally transparent. To use an example from Wasow et al (1983:111): *saw logs* and *kick the bucket*.

What is different about these two idioms, however, is that the relationship between the literal and idiomatic interpretations in *saw logs* is relatively transparent, viz., the sound of sawing logs is similar to that of snoring. Hence this idiom is probably interpretable to those unfamiliar with it, by means of the normal mechanisms for interpreting metaphors (whatever they might be); in contrast, we presume that *kick the bucket* would be uninterpretable (on its idiomatic sense) to a first-time hearer.

Recognizing Lakoff's position and Wasow et al's observation, the point I want to make is this: the degree of motivation and the degree of transparency of the motivation may vary from idiom to idiom, and more importantly, from time to time and from speaker to speaker. For example, the seemingly unmotivated and opaque idiom *kick the bucket*, assuming its motivation was from the mental image that someone completes the act of hanging oneself by kicking the bucket one stands on, could be quite transparent at one time to speakers in certain regions and maybe even today. On the other hand, the idiom *saw logs* may still be part of a person's 'vocabulary' even if that person has never actually heard the sound of sawing logs. Much like the difference between etymology and folk etymologies (such as instances of back formation), it is a linguist's job to find out the overall network of systematic metaphors in a language (and perhaps culture) that idioms fit in and the history of each idiom. However, for the naive native speaker, many of the idioms may simply be conventionalized expressions and/or have motivations different from the genuine original motivations. Between opaqueness and transparency is thus a continuum.

As Lakoff has recognized (1987:451), idioms that have ambiguous, or even conflicting, idiomatic interpretations serve as the most illuminating examples for the varying degree of transparency in idioms. Consider the idiom *a rolling stone gathers no moss*. Although the motivation is clearly metaphorical, there are two primary interpretations of this metaphor that are nearly opposite: 1) one cannot accumulate good things, e.g., wealth and status, if one does not stay in one place, and 2) one loses his freedom or vitality if one stays at a place too long. In the first reading, the moss is viewed as a good thing, while seen as something negative in the second reading. An example from Chinese is *bi4 yan3* (close eyes) 'to die' and *bi4bi yan3jing1* (close eyes) 'to take a nap'. With the delimitive aspect of the verb *bi4* 'to close' by way of reduplication, the second idiom does not follow the first idiom to mean 'to die a little'. With a similar motivation based on an image and perhaps metonymy, the two idioms however do not share a similar semantic content.

Perhaps more drastically than regular lexical items, idioms may also widen or narrow its semantic range or become obsolete as time goes. Take idiom *chi1 dou4fu3* (eat tofu) 'to flirt' for example. The image of tofu takes after the fair supple flesh of a woman and thus the idiom was first used to refer to a man's taking advantage of a woman in a physical

manner with sexual implications. However, the idiomatic interpretation is now much wider: both sexes may be at the giving end or the receiving end and the action may be physical or verbal. For some speakers, this idiom has been even further bleached of this sexual connotation and simply means to tease someone.

To be brief, in the solution I propose, phrasal idioms have regular syntactic structures, or a-structure, f-structure, and c-structure in LFG terms, and have motivations based on metaphors, metonymies, or mental images, with a varying degree of transparency between the literal reading and the idiomatic interpretation. Therefore, the solution consists of two essential parts: (1) syntactic constraints on the idiom interpretation of an idiom, and (2) motivation of the idiom interpretation. I will propose a formulation of (1) within LFG and adopt Lakoff's treatment of (2). I will explain (2) first. Lakoff (1987:448) clearly defines the concept of *motivation* as follows:

The relationship between A and B is *motivated* just in case there is an independently existing link, L, such that A-L-B "fit together." L *makes sense* of the relationship between A and B.

Mateu, J. & Espinal (2007: 56, fn. 15)

In the particular case of our study the basic activated metaphor is the well-settled conceptual metaphor the BODY IS A CONTAINER, for extracting a part-of-the-body from this container is conceived as an excessive, physically impossible action. As far as the idioms in (1), (2), and (9) are concerned, we would like to suggest that the detachment of a part of the human body is conceptualized as "directly proportional" to the excess meaning that turns to be associated with the class of idioms here described. For our present purposes, we leave this preliminary discussion here.

The link between the literal meaning and the idiomatic interpretation may be of the form *image + knowledge + metaphor(s)*. For an idiom, although the image described by its literal reading may be quite vague in many ways, the actual image associated with the idiom may be far more specific and thus can be considered as conventional. Lakoff (1987:448-449) uses the idiom *keep someone at arm's length* as an example. The literal reading of the phrase says nothing about the height or the orientation of the arm, the position of the hand, among other things. However, the conventional image associated with the idiom is largely stable in many respects, such as the arm is tense, not lax, and chest high, extending forward with open palm facing the other person's front. In addition, there is specific knowledge associated with such images, such as the purpose of the extending arm is to prevent the possible harm that this someone could inflict. The image, the knowledge, and two metaphors that exist independently in the conceptual system of English speakers complete the link. Finally, two metaphors that exist independently in the conceptual system of English speakers are also part of the link:

153. Intimacy is Physical Closeness.

154. Social (or Psychological) Harm is Physical Harm.

The conventional image, the associated knowledge, and the two metaphors complete the link. Keeping someone away physically at arm's length is keeping him from getting physically close, and thereby keeping him from inflicting physical harm on oneself. The metaphors map this knowledge into the idiomatic meaning, *to keep someone from inflicting social or psychological harm on oneself by keeping him from becoming intimate*. The explanation goes like this in detail (Lakoff 1987:449):

- The literal meaning of the idiom fits the conventional image (although undermines it).
- The image has accompanying knowledge.
- The two metaphors map the literal meaning, the image, and its associated knowledge into the meaning of the idiom.

-Letting A be the idiom and B be its meaning, L is the conventional image plus its associated knowledge plus the two metaphors. L thus links A to B.

A consequence of this account is that the more motivated an idiomatic reading is, the more elaborate the link is. In other words, the more intricate the link between the idiom and its meaning is, the more transparent the link, L, is, the easier to make sense out of the idiom. The simpler, the more opaque, the more arbitrary. Take the idiom *kick the bucket* as another example, whose idiomatic reading is in general considered less motivated, thus opaque. The link is simply an image of someone kicking a (perhaps upside-down) bucket (perhaps while standing on it) and the knowledge that the image is associated with death. There are no independently motivated general metaphors involved.

Lakoff's account is adopted as the second part of the solution I propose, that is motivations of the idiomatic interpretations. I will now complete the solution by demonstrating how the syntactic restrictions that idioms impose on their idiomatic readings can be specified. Again, take *keep someone at arm's length* for example.

- 155a. She kept John at an arm's distance. (=)
- b. She kept John at full arm's length. (=)
- c. John was kept at arm's length (by her). (=,#)

Unlike the idioms *kiss/kick someone's ass*, which allow the synonymous *behind* or *butt* for *ass*, this idiom does not allow *distance* to replace *length*. While it allows passive, it does not allow any modifiers or determiners on either *arm* or *length*. All these have to be accounted for. I propose that such conditions be specified in the lexical entry of the idiom's lexical head, the verb. Thus, in the lexical entry of *keep*, there is a set of conditions to be checked. Another example shown below is for *chi1* 'eat' as in *chi1 dou4fu3* (eat tofu) 'to flirt (with)'.

```

156. keep V
PRED 'KEEP <ag-SUBJ th-OBJ loc-OBL>'
IF [ SUBJ HUMAN =c +
  [ OBJ HUMAN =c +      'active
OR
OBJ = NONE      'passive
VOICE =c PASSIVE
]
OBLloc PRED =c LENGTH
OBLloc PFORM =c AT
OBLloc ADJS = NONE
OBLloc POSS PRED =c ARM
OBLloc POSS DEFINITE = NONE
~ OBLloc POSS ADJS
]
THEN [ IDIOM-LINK = keep-at-arm's-length ]

```

```

157. chi1 V
PRED 'CHI1 <ag-SUBJ th-OBJ>'
IF [ SUBJ HUMAN =c +
  OBJ PRED =c 'TOFU'
  [ IF OBJ ADJS
  THEN OBJ ADJS =c {[PRED 'RUAN3' ]
                    (tender)
  ]
  [ IF OBJ POSS
  THEN OBJ POSS HUMAN =c +
  ]
  ]
THEN [ IDIOM-LINK = chi1-dou4fu3 ]

```

If the syntactic constraints are all fulfilled, the f-structure of *keep..at arm's length* and *chi1 dou4fu3* is assigned an attribute LINK with respective value of the appropriate idiom link, which triggers the idiom interpretation mechanism just described above and thus links the 'qualified' f-structure with their idiomatic interpretation.⁴

158. An LFG model of idiomatic linking

'literal' f-structure
<----- syntactic conditions (1)
'qualified' f-structure
<----- idiom link (2)
idiomatic interpretation

In summary, the solution I propose integrates (1) LFG's lexical specifications in functional terms, and (2) Lakoff's account of idioms based on *motivation*. The lexical head of an idiom instantiates the checking of a set of f-structure conditions; if fulfilled, the f-structure, now assigned the feature IDIOM-LINK, triggers the idiomatic interpretation linked to the f-structure.

6. AN INTERACTIONIST INTERPRETATION

According to the modularity of syntax and lexicon I have assumed, an idiom with phrasal characteristics must be recognized as a phrase. Nonetheless, not all phrases are equal in their 'syntacticity', or syntactic freedom. Nicolas (1995), for example, distinguishes a typology of 1) free combinations, 2) collocations, and 3) idioms among V-NP phrases. An idiom is in fact like a metaphor or an instance of it in that it is understood in terms of another kind of meaning or experience, one that is denoted by the literal reading of the idiom. However, the difference is that the metaphors enjoy much more syntactic freedom than idioms. Thus, I observe the following hierarchy of syntacticity among different types of phrases in descending order.

159. Degree of syntacticity:
free combinations > collocations > metaphors > idioms

By the same token, not all lexical items are equal in their degree of lexicality. A monosyllabic word in Chinese is the most lexical in that it is nearly impossible to be 'ionized' into a phrase (in the sense of Chao (1968)) even temporally as in a language play.⁵ Among bisyllabic or polysyllabic words, a distinction can still be made between non-derived words, such as *er4luo2si1* 'Russia', *mei2gui4* 'rose', and *buo1li2* 'glass', and derived words, which can be further classified into several categories with varying degrees of lexicality. They include people's full names, e.g., *deng4 xiao3ping2* 'Deng Xioaping' and *deng4 li4jun1* 'Terresa Teng', compounds, e.g., *guan1xin1* (close heart) 'be concerned about' and *ai4ren2* (love person) 'lover' or 'spouse', prefixed words, e.g., *lao3shu3* 'mouse' and *di4yi1* 'first', suffixed words, e.g., *yi3zi* 'chair' and *wo3men* 'we', and reduplication, e.g., *chang2chang2* 'often' and *huan1huan1xi3xi3* 'happily'. Thus, a hierarchy of lexicality may roughly look like this in ascending order:

160. Degree of lexicality:
fixed idioms < personal full names < compounds
< polysyllabic words < monosyllabic words

This observation confirms Lakoff's (1987:852) position that it is a continuum between syntax and lexicon. Furthermore, it validates Hsieh's extension of the concept of competition

in Wang's lexical diffusion hypothesis to the entire grammar. Therefore, the hierarchy of syntacticity and the hierarchy of lexicality can be viewed as the perpetual competition between the syntactic force and the lexical force. In syntax, while the syntactic force prevails, phrases, such as idioms, may still exhibit varying degrees of lexical influence. Likewise, in the lexicon, lexical items are subject to the dominant lexical force but certain types of lexical items are far more likely, practically and psychologically, to be broken up into phrases.

Idioms, as demonstrated in previous sections, seem to be 'split' between syntax and lexicon. On the one hand, they must be recognized as phrases due to their syntactic behavior; on the other hand, they allow at best a drastically restricted range of syntactic environments in comparison to regular phrases. These syntactic restrictions, as I have argued in the previous section, need to be lexically specified (see also van Gestel (1995) and Jackendoff (1995) for lexically constraining idiom phrases). Likewise, semantically, most idioms, as argued in Wasow et al (1983), Lakoff (1987), and Her et al (1994), among others, can indeed be viewed as compositional; however, it is also clear that in most cases the parts of a compositional idiom, unlike regular lexical items, do not individually, in isolation, correspond to an identifiable meaning in the idiomatic interpretations. Again, while an idiom may be compositional like a regular phrase, the restricted individual idiomatic reading must be lexically linked.

Thus, from the perspective of the competition between syntax and lexicon, while the syntactic force prevails in idiom phrases, the lexical force has its claim as well as the constraints need to be lexically specified. The see-saw battle can also be seen in the changes that idioms undergo. An idiom, for example, may relax its semantic and/or syntactic constraints through time.⁶ As mentioned earlier, the idiom *chi4 dou4fu3* (eat tofu) 'to flirt' has extended the agent's male gender to both genders and has also increased the syntactic environments allowed for its idiomatic meaning.⁷ Conversely, an idiom may in time become completely restricted and ultimately lexicalized into a fixed idiom, thus a lexical item. Many compounds, for example *cut-throat*, *break-neck*, *know-it-all*, *pick-me-up*, *who-dunit*, and *stick-to-itiveness* in English and *wang4wo3* (forget self) 'to be totally absorbed' and *dan1xin1* (carry heart) 'worry' in Chinese, can all find their origin in a phrase. The idiom *qiao4 bian4zi* 'to die', for example, seems to have become more constrained than before and is on its way to lexicalization and perhaps distinction. Most of the younger speakers, below 25, I have checked with do not allow any internal modification on *bian4zi*, while most of the older speakers, above 40, accept the following sentence as idiomatic.

162. Zhe4 xiao3gui3 bu4 ting1 lao3zi de hua4, jie2guo3
 this kid not listen I POSS word consequently
 ba3 ge xiao3 bian4zi gei3 qiao4diao4 ba1?
 BA CLS small braid GEI stick-off PTCL
 See, this dude wouldn't listen to me, so he kissed his
 young life good-bye, didn't he?

What we have is thus a sort of 'lexical diffusion' in grammar--a phrase may lose its syntacticity not abruptly, but gradually, construction by construction, speaker by speaker. In other words, the lexical force diffuses through the syntactic constructions that its target phrase allows. The syntactic force, likewise, may 'invade' the lexicon and break up a lexical item and increase its syntacticity by gradually admitting more syntactic constructions. In the case of *chi1 dou4fu3*, then, the syntactic force has been gaining more and more ground as the idiom allows a broader range of semantic and syntactic environments for its idiomatic interpretation.

7. CONCLUSION

Idioms have two defining characteristics: non-literal interpretations and (somewhat arbitrary) syntactic constraints. They should be recognized as phrases if they are not fixed, in

other words if they violate lexical integrity. An adequate treatment of idiom phrases therefore must account for not only the relationship between the idiomatic meaning and the literal syntactic parts but also the allowable syntactic environments in which the idiomatic reading obtains. I have discussed the three possible planes in LFG where the ambiguous readings and the relationship between them can be accounted for and demonstrated that the c-structure account implicit in Chao (1968) and Li and Thompson (1981), the f-structure solution given by Huang (1990a), and Bresnan's (1982b) account at the thematic structure are all inadequate.

Contrary to the conventional view that idiomatic interpretations are non-compositional (e.g., Huang 1990a, Bresnan 1982b, among others), I contended that the subparts of an idiom are syntactically analyzable and to a large extent semantically compositional with metaphorical references, a position in line with Her et al (1994), Wasow et al (1983), Lakoff (1987), among others. The solution I proposed integrates two essential theoretical constructs: one, LFG's lexical specifications in functional terms, and two, Lakoff's account of idioms based on the concept of *motivation*. The lexical head of an idiom instantiates a set of f-structure conditions; if satisfied, the f-structure is linked to the idiomatic interpretation. The link provides the motivation for the idiomatic interpretation of the qualified f-structure. This solution offers a unified treatment of extractable as well as non-extractable idioms and does not increase the formal power of LFG. Finally, within this analysis, I provided an interactionist interpretation of the semantic and syntactic behavior of idioms in particular and the continuum of 'syntacticity' and 'lexicality' among various types of phrases and lexical items in general.

NOTES

1. I have run into several interesting examples of this kind of creative use of idioms. 'We will stay in this race *until hell freezes over, and then we will fight on the ice*' (1996 U.S. presidential candidate Pat Buchanan on staying in the race for the Republican nomination, emphasis added). 'Bob Dole just *put in a few more nails in the campaign coffin*' (CNN Headline News, March 12, 1996, on Super Tuesday; emphasis added). '...the sixty-four thousand yen question' (Hong Kong Governor Chris Patten, Feb. 18, 1995, to the National Press Club, Australia). In the Chin novel *Ru2lin2 Wai4shi3* there is a famous quote that also involves this kind of language play: *lai4ha2ma xiang3 chi1 tien1er2 pi4* (toad want eat swan fart) 'having undeserving desires', where the usual *tien1er2 rou4* 'swan meat' has been 'demoted' to *tien1er2 pi4* 'swan fart'.

2. A much more dramatic illustration is given in Sag and Pollard with a set of English verbs closely related in meaning to *become* (1989:171):

- 161a. Kim grew poetical.
- b.*Kim grew a success.
- c.*Kim grew sent more and more leaflets.
- d.*Kim grew doing all the work.
- e. Kim grew to like anchovies.

- 162a. Kim got poetical.
- b.*Kim got a success.
- c. Kim got sent more and more leaflets.
- d.*Kim got doing all the work.
- e. Kim got to like anchovies.

- 163a. Kim turned out poetical.
- b. Kim turned out a success.

- c.*Kim turned out sent more and more leaflets.
- d.*Kim turned out doing all the work.
- e. Kim turned out to like anchovies.

- 164a. Kim ended up poetical.
- b. Kim ended up a success.
 - c.*Kim ended up sent more and more leaflets.
 - d. Kim ended up doing all the work.
 - e.*Kim ended up to like anchovies.

- 165a. Kim waxed poetical.
- b.*Kim waxed a success.
 - c.*Kim waxed sent more and more leaflets.
 - d.*Kim waxed doing all the work.
 - e.*Kim waxed to like anchovies.

3. Another complication of setting up a homophone entry for an idiomatic verb like *chil* is that all the morphological processes, e.g., resultative, reduplication, *hao*-compounding, and *gei*-compounding, that the verb undergoes have to be duplicated, once for the regular verb, once for the idiomatic verb.

4. Idioms may certainly be organized into subclasses with shared syntactic and functional specifications abstracted in separate inheritance entries. Refer to Her (1990) for such an implementation of inheritance structure. Also refer to Her et al (1994) for a computational implementation of idiomatic specification.

5. In the following English example, the syntactic force has given the compound *blue chips* a 'crack'--'From *the bluest of blue chips* to the most wildly speculative over-the-counter stocks...' (Wall Street Journal; emphasis added). All following examples show a similar 'crack': 'Smoking or *non*?', 'Are you *pro* or anti-capital punishment?', and 'SKIN OR SCUBA DIVING IS PROHIBITED' (sign posted at Santa Cruz Fishermen's Wharf).

6. In a study using a 50-million-word English newspaper corpus, Nicolas (1995:1) discovered that:

... contrary to received views, at least 90% of V-NP idioms, including many usually regarded as completely frozen, appear to allow some form of (syntactically) internal modification.

7. See note 6 and the examples in note 1, which all show the potential for the idioms to be syntactically more loose. Here I give a Chinese example from a dialogue I overheard at the teacher's lounge of my university.

166.A: Zhe4 zhen1shi4 jiao4 zhuan1jia1 die2po4 yan3jing4.
this really make experts shatter glasses
This really was out of the expectations of even the experts.

B: Hai2hao3 wo3 dai4 yin3xin2-yan3jing4...
lucky I wear contact-lenses
Lucky I wear contact lenses.

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